

**THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY  
IN STRATEGY FORMULATION IN KENGEN**

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## DECLARATION

This research project is my original work and has not been presented for a degree at any other university.

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## **DEDICATION**

This project is dedicated to my family and many friends. A special feeling of gratitude to my lovely mother, your love, strong will, support, commitment and endless sacrifices have always been a pillar and strength of my determination towards achieving greater heights in life. Without you none of this would have been possible. Thank you mama for all you have done for me and to my late dad, your word of wisdom I fully cherish and I have done it.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>ICT:</b>	Information and Communication and Technology
<b>IT:</b>	Information Technology
<b>KPC:</b>	Kenya Power Company
<b>KPLC:</b>	Kenya Power and Lighting Company
<b>MW:</b>	Mega Watts
<b>KENGEN:</b>	Kenya Electricity Generating Company
<b>C.E.O:</b>	Chief Executive Officer
<b>IS:</b>	Information Systems
<b>IT estate:</b>	IT Resources
<b>TPS:</b>	Transaction Processing Systems
<b>MIS:</b>	Management Information Systems
<b>DSS:</b>	Decision Support Systems
<b>ESS:</b>	Executive Support Systems
<b>SMIS:</b>	Strategic Management Information System
<b>RBV:</b>	Resource based view
<b>SWOT:</b>	Strength, Weakness, Opportunities, Threats

## **ABSTRACT**

Information and Communication Technology (ICT) refers to the collection of telecommunications and computer technology. Hence, it is a result of merging computer science and telecommunications. The concept of strategy is defined as definition of goals and objectives. The benefits of aligning IT with business strategy are manifold and essential to the long-term success of every organisation that employs technology. The objective of the study is to understand why companies were not using ICT strategically as would be expected using the case study of KenGen. The study adopted a case study design. The respondents included 10 members of top management at KenGen. Primary data was collected by use of an interview guide method. The study found out that majority of the respondents agreed to a high extent that mission was incorporated in strategy formulation process at KenGen. The study also found out that majority of the respondents strongly agreed that ICT was beneficial to KenGen Service delivery. The study found out that majority of the respondents strongly agreed that ICT lowers cost of operations. The study found out that majority of the respondents neither agreed nor disagreed that ICT improves customer relations with a mean. The study concluded that mission was incorporated in strategy formulation process at KenGen. The study concluded that objectives were incorporated in strategy formulation process at KenGen. The study recommended that mission should be incorporated into company's statement to enhance strategy formulation. The study also recommended that there should be well stated objectives with clear guidelines on operations. The study recommended that ICT should be adopted to help in monitoring budgetary expenses.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the Research

Information and Communication Technology (ICT) refers to the collection of telecommunications and computer technology. Hence, it is a result of merging computer science and telecommunications. It deals with the physical devices and software that links various computer hardware components and transfers data from one physical location to another (Laudon & Laudon, 2001). Even though there seems to be consensus that ICT is essential to business operations in the global market today, it is still uncertain as to how ICT influences the overall performance of businesses. The performance of ICT differs from industry to industry and company to company (Brynjolfsson, Hitt, & Yang, 2002). ICT has brought dramatic changes on the way businesses conduct and compete throughout the globe (Schneider, 2011). Every firm competing in an industry has a competitive strategy, whether explicit or implicit, the strategy may have been developed explicitly through a planning process or it may have evolved implicitly through the activities of the various functional departments of the firm (Porter, 1980).

The environment is constantly changing (Ansoff, 1984). Thus for the organization to constantly align itself with the ever changing environment and activities in order to survive and safeguard its books of accounts and market niche in this turbulent environment, a focused alignment of the information technology (IT) function with business strategy, becomes critical. There is no doubt that ICT is at the centre of the global change curve. Laudon and Laudon (1991) contend that managers cannot ignore information systems (IS) because they play a critical role in contemporary organization. They point out that the entire cash flows of most fortune 500 companies are linked to information systems (Laudon & Laudon, 1991).

The IT function in every business is about capturing, processing, storing and distributing information or data. On the other hand, every business consists of various value chains, each of which aggregates a number of inputs, transforms them to add value and then produces an output – which may be either a product, or an input for yet another value chain (Agbolade, 2011). Such value chains are found in every type of organisation, not only in businesses that manufacture tangible products or services but wherever inputs are transformed into outputs. At each stage, input contributions from a number of sources/ providers are aggregated into an output – adding value and, usually, cost. Understanding these value chains is of paramount importance when planning to align the IT function with business strategy, because these generally represent the relationships and the touch-points between the business functions and the IT estate (OECD, 2012; Agbolade, 2011).

ICT has now become the backbone of every business. As much as investments in technology-enabled projects has been increasing not much of it is used for strategic purposes. Organization are now aware of the effects and ability of ICT in creating sustainable and maintainable competitive advantages as well as the benefits and implications of technology in their business operations. According to Porter (1980) the way to sustain advantage is through the internet which creates a distinct value chain that offers a unique value. He goes on to state that the internet should be used to complement your strategy and not to replace it.

### **1.1.1 Strategy and its Formulation**

The concept of strategy carries various notations. It is defined as definition of goals and objectives (Antony, 1965); it can also be viewed in five different ways as a plan, a ploy, a pattern, a position and a perspective (Mintzberg, 1980). Porter (1980) defines strategy as a vehicle for achieving competitive advantage while Chandler (1990) defines strategy as determination of the basic, long term goals of an enterprise and the adoption of courses of

action and the allocation of resources necessary to carry out the goals. Strategy provides the direction for operations by simply juggling between the art and science options of business management. It is a matter of understanding current option, creating new options and choosing among them. The object of strategy is to bring about advantageous conditions within which action will occur. Therefore, it is a mediating force between the organisation and its environment (Mintzberg, 1980).

In view of the above definitions, strategic management can be defined as the set of managerial decisions and actions that determines the long run performance of an organisation that includes environmental scanning (both external and internal), strategy formulation, strategy implementation, evaluation and control. On the other hand, strategy formulation is the development of long range plans for the effective management of environmental opportunities and threats in light of corporate strengths and weaknesses. It includes defining the corporate mission, specifying achievable objectives, developing strategies and setting policy guidelines. Strategy may be formulated at the corporate level, business level and functional level (Kopiç, Kadoiç, & Calopa, 2010).

Business strategy usually occurs at the business unit or product level and it emphasizes improvement of the competitive position of a corporation's products or services in the specific industry or marketing segment served by that business unit. It may fit within two overall categories of competitive or corporate strategies. Competitive strategy is the strategy battle against all competitors for advantage. Porter developed three competitive strategies termed “generic strategies” of cost leadership, differentiation and focus (Porter, 1980).

Competitive strategy analysis is a critical step in strategy formulation and it requires an organization to determine where it fits into the marketplace. This applies not only to the

organization as a whole, but to each individual unit and department throughout the enterprise. Each area must be aware of its role within the company and how those roles enable the organization to maintain its competitive position. The organisation then develops proactive responses to changes in the marketplace with ready corrective action procedures in place. Finally to cap competitive strategy, the organisation identifies and allocates resources according to departmental needs to sustain competitive advantage.

### **1.1.2 ICT in the Strategy Making Process**

Organizations develop strategies to enable them seize strategic initiatives and maintain a competitive edge in the market (Porter, 1980). ICT is of relevance to overall productivity growth because it is unique in the sense that it can impact all aspects of every organization. To achieve comparative growth an organization must have a greater investment in capital assets such as computers, communications, software or other forms of tangible and intangible assets. As we have seen, ICT has rapidly altered not only ways of doing existing things but transformed what things could be done (Triplett, 1999).

The benefits of aligning IT with business strategy are manifold and essential to the long-term success of every organisation that employs technology. Satisfactory alignment may take some time to achieve but it will not happen at all, unless it's approached in a structured, methodical, manner (Beveridge, 2014). There are four strategic cornerstones for aligning ICT with business strategy: - a thorough understanding of the current business operations, including the organisational culture, having knowledge of your ICT estate (resources), including the value chains, good awareness of your future business context and influential factors and a clear vision of where the business want to go and how to get there.

Beveridge (2014) states that an ICT steering group is essential in this engagement especially for communication with other business functions value chain touch-points. Such groups are also mandated to provide high-quality and cost-effective ICT services and training that meets the needs of the company's businesses and its members' as well as fostering innovation, best practices, and value for money in the use of ICT in business transactions. Until fairly recently, the traditional role reserved for IT has been fairly subservient in business planning.

IT has been merely an implementation tool, not intrinsically involved in shaping strategy. Now though, as more and more new business opportunities and channels to market are created by technology developments, ICT plays an increasingly pro-active role in developing long-term business strategy. So it is important that ICT and business strategy functions are completely synchronised towards common business-oriented goals and generate the following benefits: - reduced costs, standardised processes, enhanced productivity, improved workflow and communications, sustained repeatable service levels, improved risk control mechanisms, implement new business strategies, facilitate organic and acquisition-driven growth and gain competitive advantage by exploiting new technology.

### **1.1.3 ICT –Business Gap Perceptions**

The role of information and communication technology (ICT) in achieving organization's strategic development goals has been an area of constant debate, and as well perceived in different management dimensions (Ujunju, Wanyembi, & Wabwoba, 2012). McDavid (2003) affirms that the world of business today is increasingly competitive and uncertain. Managers today are faced with decisions about outsourcing and cost cutting, business process integration and productivity, partnerships and investments for growth. These are issues at every level from departments to business units, from enterprises to industries, and from



regional to global economic planners. In a few short years the ability of small local enterprises to reach out to achieve global presence has exploded, clearly enabled by ICT.

On the other hand, there has been the perception over a number of years of a widespread failure for information technology to realize its expected potential in terms of value to businesses. This misconception is perpetrated by specialists and policy makers who are not aware of the importance of this technological revolution, but whose awareness and ownership are critical to marshal complementary policy and institutional measures for ICT to enable development. This gap remains remarkably difficult to bridge despite a decade or two of profound changes brought about by ICT, in the global marketplace and particularly among developed countries (Nagk, 2003).

The main shortcoming in terms of the implementation and utilization of ICT lies in support for business processes and information flows. Business developers are creating more and more complicated ways of doing business, without paying due attention to the ICT point of view. Majority of managers in companies forget to think about ICT in general and often act reactively. In such situations, a swift search for alternative solutions is done, but such solutions are often not entirely suitable for organizations' business technology. This evidently creates a large gap between business and ICT development and knowledge about those activities (Jukka, 2004).

While executive managers seek to reduce costs (and to achieve that goal they save money on ICT), IT managers observe IT at a higher level and defend the position that IT will bring long-term business benefits for the company. It is difficult to reconcile these two positions, one where the information system is seen as a necessary burden, and another, where computer is perceived almost as a "Holy Grail". Except in cases where incidents from IT

domain are resolved reactively (exclusively when they appear), activities of strategic planning of ICT have important role in long-term positioning. Such a relationship in large enterprises implies a simple conclusion: chief executive officers (CEOs) do not have to deal with the issues of ICT, it is because IT managers take care of them (Abazian, 2005). At the same time, CEOs give their consent and nominal support to the process of 'informatization'. Therefore, the ability to absorb and benefit from ICT investment depends upon the competence of management in recognizing and implementing appropriate strategies, technologies, and building the required complementary assets. The failure of organization top management to implement ICT-orientated management practices and inability to recognize and exploit it contribute to ICT-Business gap.

#### **1.1.4 Kenya Electricity Generating Company**

Kenya Electricity Generating Company (KenGen) has a history that dates back to 1954. In that year, Kenya Power Company (KPC) was registered as a company and commissioned to construct the transmission line between Nairobi and Tororo in Uganda as well as developing geothermal and any other generating facilities in the country. The Nairobi - Torero line was to transmit power generated at the Owen Falls Dam. Since its inception, the Kenya Power and Lighting Company (KPLC), to which it sold electricity in bulk at cost, managed the company, under a management contract. In January 1997, the management of KPC was formally separated from KPLC as a direct result of the new reforms being undertaken in the energy sector and the entire economy. The terms of restructuring of the power sector effectively resulted in a separation of functions, with KPC responsible for power generation and KPLC for transmission and distribution. On October 2nd 1998, KPC was re-launched under a new name and corporate identity, the Kenya Electricity Generating Company Limited (KenGen), hence took charge of all publicly owned power generating plants. A great deal of changes has occurred in the organization since its initiation; it has been listed in the

Nairobi stock exchange and various transformational strategies have been carried out over the years.

KenGen is a limited liability company registered under the Company's Act and 70% owned by the Government of Kenya and 30% publicly owned. Its core activity is electric power generation (KenGen Annual Report, 2014). KenGen is the leading electric power generation company in Kenya, producing about 72 percent of electricity consumed in the country. KenGen owns fourteen hydro power plants with a combined capacity of 820 megawatts (MW), five thermal power plants with a capacity of 256MW, four geothermal power plants generating 158 MW and one wind farm generating 5.1 MW resulting in a total installed capacity of 1,239MW.

KenGen has a workforce of over 2,063 staff located at different power plants in the country. With its wealth of experience, established corporate base and a clear vision, the company intends to maintain leadership in the liberalized electric energy sub-sector in Kenya and the Eastern Africa Region. KenGens' goal is to maintain its lead as a leading generator of power in the East and Central Africa. KenGen currently dominates the power production market in Kenya with 77% of the sales (KenGen Annual Report, 2014).

## **1.2 Research Problem**

With globalization and internationalization of the power industry as well as the increase in availability of information and communication technologies, all business enterprises have had to embrace and integrate ICT into their overall business strategies. ICT can help create value in organizations by increasing efficiency, productivity, access to information and goods, reduction in cost of production as well as creating a competitive advantage over competitors in the market. Van Donk (2008) asserts that if ICT is employed correctly, then the

organization would be more efficient and effective in their business operations despite criticism of usefulness of ICT investments in businesses.

Research on ICT – strategic management relation has mostly been done in the industrialized countries, strategy practitioners and researchers have displayed a keen interest in the role of information communication technology in strategic management (Porter and Millar, 1985; Rockart and Short, 1989; McFarlan and McKenney, 1981; Bakos and Treacy, 1986).

While Bakos and Treacy (1986) asserts that IT should support competitive thrust such as cost leadership, differentiation, innovation, growth and external alliances, while Rockart and Short (1989) states that IT serves primarily to manage organizational inter-dependence to solve problems among departments and strategic business units, even though McFarlane and McKenney (1981) observes that ICT will become the backbone of organizations and that they will develop around IT.

Locally, Bengi (2010) conducted a study on role of information technology in strategy formulation in companies listed at the Nairobi stock exchange. He found out that most firms do not use a structured approach of assessing IT opportunities during environmental analysis, he also found out that most opportunities presented by IT were increasing the volume and quality of information for planning and operational control, cutting communication costs and cutting labour costs by avoiding the need to increase its workforce.

Asewe (2010) conducted a study on application of ICT strategy in enhancing competitive advantage among commercial banks in Kenya. He states that ICT has been used a strategy for enhancing competitive advantage hence being able to increase efficiency in operations, improvements in products/ services quality, new features beings introduced, lowering of costs. He concludes that ICT has helped in improving communication links within banks.

While Irungu (2012) conducted a study on the influence of ICT on performance of aviation

industry. A case study of Kenya airways and she found out that the airline adopted ICT to a very large extent and thus the services have improved the performance.

In many enterprises there is a constant struggle between CEOs and their colleagues in IT sectors. While executive managers seek to reduce costs (and to achieve that goal they save money on ICT), IT managers observe IT at a higher level and defend the position that IT will bring long-term business benefits for the company (Kopiç, Kadoiç, & Calopa, 2010). It becomes challenging to reconcile these two positions, one where the ICT is seen as a necessary burden, and another, where it is perceived almost as the last hope of success. Except in cases where incidents from IT domain are resolved reactively (exclusively when they appear), activities of strategic planning of ICT have important role in long-term positioning of the business philosophy of the company (Sharma & Sohani, 2012). Based on the aforementioned, this study sought to ascertain the perception of ICT by KenGen management and determine feasibility of ICT in KenGen business strategy formulation. By this, the study hence answered the question; what role does ICT play in the process of strategy formulation at KenGen?

### **1.3 Research Objectives**

The general objective of the research was to understand why companies are not using ICT strategically as would be expected through the study of KenGen. The specific objectives of the study are:

- i) To determine the role of ICT in the process of strategy formulation at KenGen.
- ii) To establish the perception of managers on ICT value at KenGen

## **1.4 Value of the Study**

**Policy Makers:** The Managers would be able to understand the needs of ICT as well as gaining valuable information about the role of ICT in strategic formulation to harness the opportunities availed and hence make well informed decisions on issues relating to strategic management. Furthermore they would learn how critical ICT is as an asset to an organization and how it helps in strategy formulation process.

**Academics:** Academics, business researchers, strategic practioners and IT professionals would be able to borrow leaf from the study of this research as a source of reference to support their citations and for the professionals they can use the findings to come up with an ICT strategy that is aligned to the business strategy as well as being able to utilize the information to strategize the organizations and the benefits it brings to the table.

**Government:** the study will also be invaluable to the government as it might find it useful in getting an insight on ICT role in strategy formulation as well as provide valuable information that can be used as a guide in strategy formulation process in order to ensure that maximum benefits are achieved by use of Information systems

**Company:** The organization would be able to understand the needs of ICT by gaining valuable information about the role of ICT in strategic formulation process, effectiveness and its efficiency to an organization. KenGen being a state corporation, the study would come in handy in the decision making process done by the management in strategy management.

**Consultants:** ICT consultants will find the study to be useful as it will act as a foundation as they seek to improve and develop a better understanding of ICT strategy as well as provide them with an upper hand as they will benefit from the findings as it will give them knowledge. It will provide a valid foundation to establish successful consultancy firms.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

In the 21<sup>st</sup> century ICT has now become a strategic asset for any organisation to deliver business improvement/value and achieve sustainable competitive advantage. Moreover, ICT innovations are increasingly having important implications beyond business to socioeconomic development due to their role in introducing and diffusing the concepts of knowledge sharing, community development and through the promotion of equality (Underwood, Isikdag, Goulding, & Kuruoglu, 2010).

### **2.2 ICT in Organizations**

It is acknowledged universally that ICT has become pervasive in the business world. It has now become a strategic asset for any organisation to deliver business improvement/ value and achieve sustainable competitive advantage. Moreover, ICT innovations are increasingly having important implications beyond business to socioeconomic development due to their role in introducing and diffusing the concepts of knowledge sharing, community development and through the promotion of equality (Underwood, Isikdag, Goulding, & Kuruoglu, 2010)

In some instances, claims have been laid against investments in ICT. However, this argument that ICT does not add value is countered by scholars who argue that the inability of value realisation arises due to the lack of alignment between the business and ICT strategies of the corporates (Silvius, 2007; Henderson & Venkatraman, 1999). Within IS research, it has been explained that a firm's resources and capabilities include the ability "to conceive, implement, and exploit valuable IT applications" and thus, IT may be a source of competitive advantage (Mata, Fuerst, & Barney, 1995).

With time ICT has become more powerful and thus it has spread at a rapid rate through the organizations and it can't be ignored again. Therefore most organizations are now dependant on ICT on its day to day activities and communication purpose through the use of email

distribution list for staff (internal communication) and also by development of intranets and extranets (Suppliers and Business) to share information.

The value of ICT achieved from strategic alignment is that ICT is not only used to achieve improve efficiency but to also improve business effectiveness and to manage the organization strategically through its missions, visions and core values. Hence, based on organisational goals, ICT values are considered essential for any IT project implementation. Given the complexity of government structures, managing public technology is considered to be increasingly important (Grembergen 2004; De Haes 2007; Luftman 2011). Value is not a simple concept; it is complex, dynamic and involves numerous stakeholders (Hales 2005), both internal and external. For public sector organisations, value is more complex than for private sector organisations in that it is often non-financial in nature (ITGI, 2006).

The value that the organizations achieve through the usage of ICT both within (Internal) and it's outside (External) its environs encompasses both financial and non-financial benefits. Such benefits include efficiency gains, interoperability, increased capability, increased effectiveness in operational processes, avoided cost and improved customer services and customer satisfaction. Economic/financial metrics are sometimes used to measure the underlying aspects of public value in financial term such as Return on Investment (ROI), net profit and bankable financial benefits.

### **2.3 Strategy Formulation**

The corporate strategic planning process is a disciplined and well-defined organizational effort aimed at the complete specification of corporate strategy as defined above. Before rolling out the steps, corporate strategic planning is preceded by identification of major tasks to be tackled, determining the sequence of completing the identified tasks and as well as assigning responsibilities for execution of those tasks (Hax & Majluf, 1983).



A number of major companies (Hewlett Packard, Procter and Gamble, General Electric, and Ford Motor Company) use a strategy formulation process called Hoshin or Breakthrough Strategic Planning (Livieratos, 2009; Wallace, 2001). The Breakthrough Strategic formulation process consists of four major phases.

Phase one involves selecting the breakthrough. The objective of this stage is to establish organizational focus and alignment by creating a vision statement and selecting the key vision element as the current driving issue for an organization. Vision is an organization's long-term focus on what it would like to accomplish in a given time frame. The vision will also provide an organization with its purpose, values, and operating principles. The first process in this stage involves conducting an analysis of strengths, weaknesses, opportunities, and threats (SWOT), also called an environmental scan (Wallace, 2001). During this stage an organization must also define who, what and where its customers are and what critical processes the organization conducts.

After an organization has gathered all this important data, the organization will be able to construct a profile scan. The scan will be able to communicate to an organization what business they are truly in, and identify their products and markets. The organization should be able to analyse the different customer segments, competitors' strategies, and their strengths and weaknesses. From this important information the organization can identify its core competencies and strategies. With aid of Affinity Diagram and Radar Chart, the strategy formulation team will plot the gathered data, which allows the team to graphically show one picture of the gaps among a number of current organizational performance areas and corresponding ideal performance areas. How this charting process accomplishes this is by making concentrations of strengths and weaknesses visible and also captures the different perceptions of all team members about organization performance. From all of this collected

data the team is now ready to develop their breakthrough statement or vision, and move into phase two of the overall process (Wallace, 2001; Hax & Majluf, 1983).

Crowley and Domb (1997) states that phase two of the overall process involves aligning and deploying the organizational plan. A plan needs to be developed on how to implement the breakthrough strategy. This process includes two-way communication up and down the organization. The objective of this process is to broaden the organizational participation and ownership in the planning process. The process also allows the plan to be aligned with the organization for implementation of the breakthrough strategy at every level. The outcome of this phase, if implemented correctly, should be an integrated, reconciled, and communicated plan for achieving the breakthrough strategy.

Phase three of the process is plan implementation. This phase is perhaps even more important than the deployment phase because many organizations fail to implement a plan after they create it. This process brings together both the daily management responsibilities and breakthrough strategy responsibilities for integrated implementation (Hax & Majluf, 1983).

Phase four allows an organization to conduct regular self-reviews by those who are implementing the plan and take appropriate action. This action can be either corrective, i.e., to close any gaps in implementation, or changes to the plan by comparing results and measures to process and action measures (Livieratos, 2009). Finally, this part of the process brings a sense of closure to the planning cycle and allows for some preparation for the next cycle.

## **2.4 ICT and Corporate Strategy**

It is true that the role of ICT to corporates has significantly changed over the last decade. ICT is superseding its “back office” role and evolving into a “strategic role” with the potential of

not only supporting business strategies but also shaping new business strategies (Henderson & Venkatraman, 1999). In many circumstances however, this value of ICT is not realised raising concern over validity of ICT investment in organisations. However, scholars argue that the inability of value realisation arises due to the lack of alignment between the business and ICT strategies of the corporates (Silvius, 2007; Henderson & Venkatraman, 1999).

Separation of ICT and business strategies is pivoted on two main assumptions; one is that economic performance of organisations is directly related to the ability of management to create a strategic fit between the position of an organisation in the competitive product market arena and design of an appropriate administrative structure to support its execution; and two that a strategic fit is inherently dynamic. Thus the company has to differentiate itself from the competitors. This requires a fundamental change in managerial thinking about the role of ICT in organisational transformation, as well as understanding of the critical components of ICT strategy and its role in supporting and shaping the business strategy decisions (Henderson & Venkatraman, 1999). ICT is always changing and the rate of technological change, due to the continuous rapid and advanced progress in ICT, demands that organizations keep up to date with technology developments, and as business strategies change, IT strategies and processes must keep pace (Shamekh, 2008).

## **2.5 The Role of ICT in Company Strategy Execution**

Technology plays a key role in today's business environment. Many companies greatly rely on computers and software to provide accurate information to effectively manage their business. It is becoming increasingly necessary for all businesses to incorporate information technology solutions to operate successfully. One way that many corporations have adopted information technology on a large scale is by installing Enterprise Resource Planning (ERP) systems to accomplish their business transaction and data processing needs (Clegg & Wan, 2012; Meyer, 2009).

Abazian (2005) states that nowadays, information systems can have four roles in companies: support, factory, turnaround, and strategic. It means that, information systems can be from data processing, transaction processing systems(TPS) to management, decision support, executive support and strategic management information systems (MIS, DSS, ESS, SMIS). ICT has now become a strategic asset for any organisation and the importance of IT-based innovation is recognised in bringing productivity improvements and sustainable competitive advantage to industry(Underwood, Isikdag, Goulding, & Kuruoglu, 2010).

Applications of information and communication technologies (ICTs) and especially the opportunities provided by the Internet can help sustain electricity supply while limiting environmental impacts. ICTs are seen as promoting a wider integration of renewable energy sources, promoting low-carbon transport options including electric vehicles and inducing structural shifts in electricity consumption(Vilaseca, Torrent, & Díaz, 2002; OECD, 2012).

Innovative applications revolving around the smart meter has the potential to balance traditional information asymmetries between electricity producers and consumers and to stimulate informed energy conservation choices; over10% of an individual household's electricity consumption can be cut by simply providing betterinformation. Reductions in "peak demand" can directly contribute to lowering greenhouse gas emissions. Improved monitoring and networked IT systems can help limit losses of electricity along the way and therefore improve capacity utilisation and avoid pollution; such losses represent on average 8% ofproduction worldwide but over 15% in individual countries (OECD, 2012).

Kopiç, Kadoiç and Calopa (2010) observes that in understanding the evolving use and uptake of ICT, identifying the shift in executives thinking, determining the disparities in IT awareness throughout the supply chain and identifying future patterns in creating business core capabilities based on ICT as well as a generalised perception of power industry in Kenya

of views ICT as a strategic resource is tantamount. Effort must also be made to understand the various barriers to the successful implementation of ICT within the power generating companies like KenGen.

Over time, with profit realisation from organisational resources and organisation strategy harmonisation, researchers are keen on ICT strategy and organisation strategy alignment (Baker, 2008). In alignment research, the RBV has been applied to explain that shared domain knowledge between business and IT managers helps produce strategic alignment, improve the quality of project planning, reduce problems with IT projects, and improve organizational performance (Kearns & Sabherwal, 2007).

According to Chan and Reich (2007), the voluminous research on ICT contribution to organisation strategy has generated a comprehensive list of factors that contribute to strategic alignment. The factors are categorised into two major groups. The first group of background factors include shared knowledge, communication between IT and business employees, organisational size, environmental uncertainty, corporate vision, strategic IT role and satisfaction with use of technology. The second group of foreground factors are strong company leadership, good relationship between CEO and CIO, top management support for IT, documenting the business plan, clearly defined company goals, IT knowledge of business, IT leadership, and IT involvement in strategic development. However, to sustain the role of ICT in organisation's strategy, four key factors were identified. They are shared domain knowledge, strategic business plans, aligned reporting relationship and aligned incentive structures. As the organization's strategic plans change, and as technological capabilities change, this capability of creating alignment can be leveraged to enable alignment to be sustained (Chan & Reich, 2007).

## **2.6 Theoretical Perspectives**

For organizations to stay competitive in a dynamic business environment, they have to determine and understand how to manage ICT strategically. A key success factor for a successful business in such a dynamic business environment is an effective and efficient information technology strategy supporting business strategies and processes (Henderson & Venkatraman, 1999). Explaining competitive advantage has been a centrepiece of theory development in the management discipline since the work of Porter (Porter, 1980) and is a central concern of resource-based theories (Peteraf & Barney, 2003).

The alignment between the business strategy and the strategic choices of ICT deployment are therefore a prominent area of concern that stays on a high priority business IT issues that business and IT management struggle with (Peppard & Wardb, 2004). Thus pervasiveness of information and communication technologies (ICT) has brought about rapid technological, social, political, and economic transformation, which has eventuated in a network society organized around ICT (Yusuf, 2005). The study is based on three theories: - strategic alignment theory, competitive advantage theory and resource based view theory

### **2.6.1 Strategic Alignment Theory**

Even though it is now cognisant that a universally applicable management strategy is not feasible, Chorn (1991) asserts that particular set of circumstances determines the appropriateness of each strategy (Chorn, 1991). Essentially, strategic “fit”, enables an organisation to operate in its particular competitive situation at peak effectiveness. This is achieved by alignment, which is optimised when the appropriate combination of four logics; production, administration, development and integration is replicated in four elements, namely competitive situation, business strategy, organisation culture and leadership style. Research in the USA, Europe and Australia has revealed that superior performance

(measured in a variety of ways) is associated with high degrees of alignment between the four elements mentioned above (Baker, 2008; Chorn, 1991).

This theory informs the study that highlights a continuous change and adaptation of the organization process. The study emphasizes that in order for IT to be effective, technology, business process and organization process need to be adapted to each other. The alignment of both the business strategy and ICT strategy process so as to improve on its performance in the long term. It also helps the organization to know where they are and where they want to go.

### **2.6.2 Competitive Advantage Theory**

The theory of competitive advantage was created by Michael E. Porter, starting from the actual economic reality which could no longer be explained on the basis of the model of comparative advantages. Michael Porter's 1979 framework uses concepts developed in micro-economics to derive 5 forces that determine the attractiveness of a market. They consist of those forces close to a company that affect its ability to serve its customers and make a profit. A change in any of the forces requires a company to re-assess its marketplace (Porter, 1975; Porter, 1980).

Four forces namely, the bargaining power of customers, the bargaining power of suppliers, the threat of new entrants, and the threat of substitute products combine with other variables to influence a fifth force, the level of competition in an industry. This 5 forces analysis is just one part of the complete Porter strategic system. The other elements are strategic groups (also called strategic sets), the value chain, the generic strategies such as cost leadership, differentiation, and focus, and the market positioning strategies of value based, needs based, and access based market positions.

This theory informs the study that emphasizes new ways in which company's uses to outperform their rivals as well as being able to change the industry structure and by doing so it alters the rule of competition.

### **2.6.3 Resource Based View Theory**

Researchers in the field of strategic management have long understood that competitive advantage depends upon the match between distinctive internal (organizational) capabilities and changing external (environmental) circumstances (Hart, 1995). However, it has only been during the past decade that a bona fide theory, known as the resource-based view of the firm, has emerged, articulating the relationships among firm resources, capabilities, and competitive advantage. Arguably, RBV is not a theory (Priem & Butler, 2001) but its popularity on perception of strategic management is based on its rapid diffusion throughout the strategy literature. The contribution of RBV is tied on the efficacy of sequential entry strategies for diversifying firms. On the other hand, RBV is treated as a theory because the concept contains generalised conditionals which have empirical contents and exhibit nomic necessity (Priem & Butler, 2001). Proponents of RBV assert that if a firm attributes is rare and valuable, then that attribute is a resource that can give the firm a competitive advantage (Grant R. M., 1991).

The RBV defines resources quite broadly, including such items as physical capital (property, plant, and equipment; access to resources), human capital (experience, judgment, relationships of individual managers and workers), and organizational capital (organizational structure, planning processes, controlling and coordinating systems) (Barney, 1991). Capabilities are defined as competencies that are built by combining resources (Grant, 1991). Within IS research, it has been explained that a firm's resources and capabilities include the



ability “to conceive, implement, and exploit valuable IT applications” and thus, IT may be a source of competitive advantage (Mata, Fuerst, & Barney, 1995).

This theory informs the study by emphasizing the need to use the resources available within the organizations disposal in order to plan for the future and by so doing being in a better position to achieve the organizations strategic goals and thus being able to improve on its performance

## **2.7 Empirical Literature**

It is a necessity, not an option, for organizations to continuously adopt new information technologies (IT) if they want to sustain competitiveness and improve productivity in current markets (Dewett & Jones, 2001). Attempts at implementing information technologies have resulted in widespread failures because of: behavioural problems involving users, organizational characteristics and, as well as technological features of a particular technology.

Porter and Millar (1985) states that IT is changing the way companies operate and its affecting the entire business process where companies creates products by reshaping its products and services and the information to create value for their customers hence being able to affect the activities in the value chain as well as how information flows in the chain as well as the linkages in the activities therefore changing the nature of competition

Rockart and Short (1989) asserts that the main role of ICT is to primarily manage organizations interdependence and to solve any problems that may occur among departments and the strategic business units (SBU) hence he suggests that IT would enable firms to respond to “ new and pressing competitive forces” by providing for effective management of interdependence.” He goes on to state that interorganizational relations, that are based upon trust and conditions of unstructured authority (Rockart & Short, 1989). IT researchers

believed in tight IT strategy linkages, asserting that IT affects firm strategies that strategies have IT implications, and that firms must somehow integrate strategic thrusts with IT capabilities. For example, related IT to a value chain, concluding that the main strategic purpose of IT is to coordinate activities in the chain. Bakos and Treacy (1986) concluded that IT should support competitive thrust such as cost leadership, differentiation, innovation, growth, and external alliances; and argued that IT serve primarily to “manage organizational interdependence”, that is to solve coordination problems among departments and strategic business units. (Bakos & Treacy, 1986). While McFarlane and McKenney (1981) observes that ICT will become the backbone of organizations and that they will develop around IT. This is mainly because of its powerful feature of enabling people to work effectively in teams and away from its traditional hierarchy and towards an open organization thus being able to have email, voice mail, computer conferencing as well as video conferencing make it more feasible for teams to coordinate asynchronously (across time zones ) and geographically.

According to Bengi (2010) concluded that firms use IT in strategy formulation during environmental analysis and that they don't use IT to assess opportunities as they should. He also notes that aligning the organization well with stated goals and creating competitive advantage and enabling the organization to catch up with competitors were some of the opportunities provided by IT. It also increases the volume and quality of information for planning and operational control as well as cutting the costs of communication and labour by having minimal workforce.

Asewe (2010) asserts that ICT has been used as a strategy for enhancing competitive advantage in that it has been able to improve efficiency in operations as well as improving of the quality of the products/services, lowering operational costs, improving customer's services; it has made complex process to be simple as well as ease the flow of information. He states that ICT has been used to support strategies and thus being able to help in providing

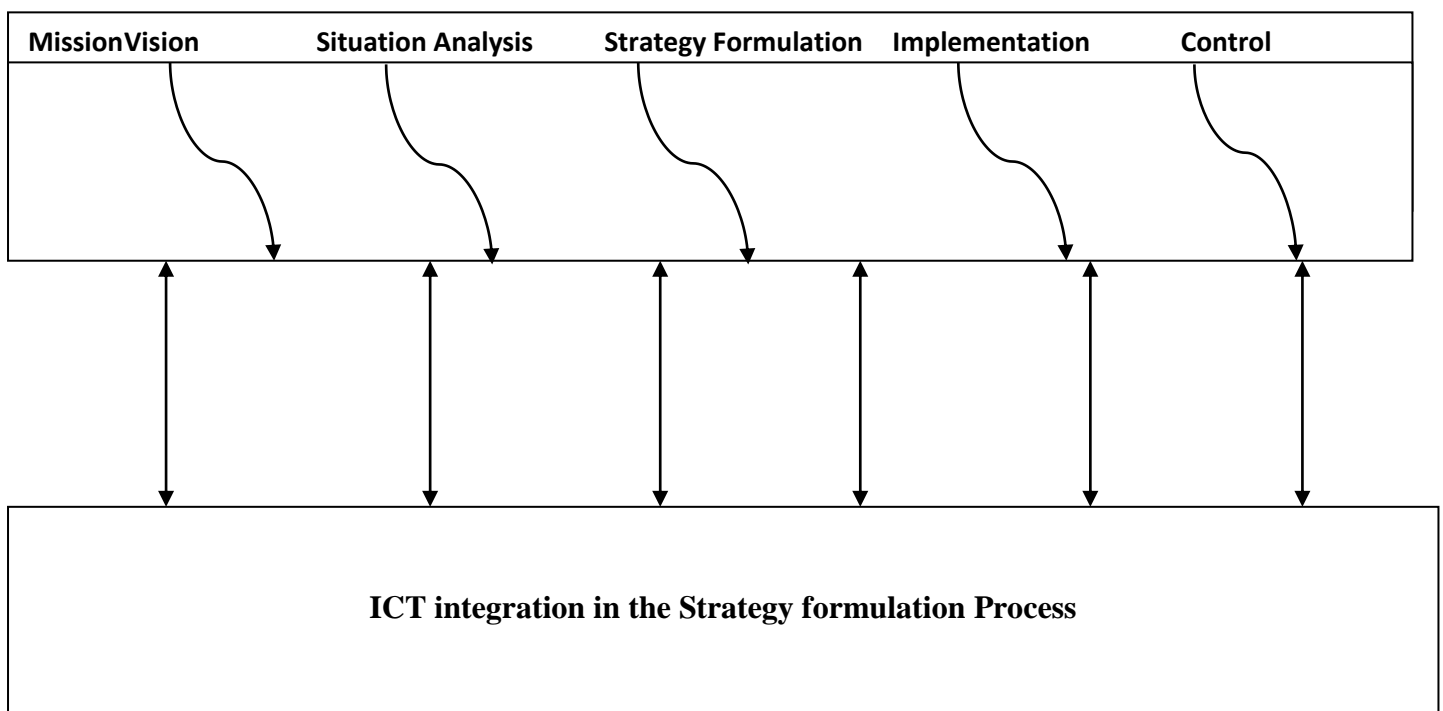
communication links, enhanced competitive advantage and that ICT provides service intelligence by collecting information about customers, competitors and environmental changes. Irungu (2012) states that ICT services adoption have been able to improve on its performances as well as making inroads into the markets. She affirms that due to slow speed of user adoption and systems failure, cost of systems and skills gap and fraud cases are some of the perceived challenges being faced while using ICT services.

However from the previous studies which have focused more on ICT-strategic management relation and in different environments and hence this studies are specific to those firms that are in the same industry. These studies have not touched on the energy sector and specifically on KenGen therefore a gap exists on empirical evidence on the role of ICT in strategy formulation. Hence this study seeks to determine the role of ICT in strategy formulation in KenGen.

## 2.8 Theoretical Framework

The theoretical framework shows a relationship between ICT and strategic planning process and how ICT is factored in each of the following steps.

**Figure 1. Strategy Planning Process**



From the proceeding literature, Organizations often have goals that they want to achieve within a certain time be it short term or long term (deciding what they want to accomplish, and how they are going to get there). This is preceded by steps or plans that are envisaged into achieving the goals. Strategy formulation process has emerged as part of the larger strategic management process that comprises of five phases namely: - vision, mission, objectives situation analysis strategy formulation, implementation and control

The mission normally expresses the reason for the organization being and is normally set in statement form. This conveys the reason for it being and purpose to its employees and the reason for being to its customers. While objectives are the concrete goals that the organization seeks to achieve within a certain milestone be it short term or long term. They are normally challenging and yet achievable. Strategic formulation phase is where specific strategic alternatives are developed. Porter identified three generic strategies cost, differentiation and focus strategies that may be considered at this time if strategic planning (Porter, 1980).

Implementation stage is where the strategy will be fully put into place. This is done by putting policies into place to actualize the strategy. Once the strategies have been put into place they need to be measured and evaluated and eventually systems should be developed and put into place to monitor.

## CHAPTER THREE: RESEARCH METHODOLOGY

### 3.1 Introduction

The quality of any research is as a result of their vigour (efforts) that is put into their activities. This chapter highlights the framework under which the study was conducted starting with the research design, target population, sampling method adopted to realize the most accurate results. This chapter ended by explaining how data was analysed interpreted and presented.

**Table 1. Summary of the research methodology**

Research Design	A case study
Population and Sampling	A convenience and purposive sampling method
Data Collection	Self-administered questionnaires and data collected from records
Data Analysis	Content Analysis and Pattern Matching

Source: (Author, 2014)

### 3.2 Research Design

Research Design provides the glue that holds the research project together. A design is used to structure the research, to show how all of the major parts of the research project, the samples groups, measures or treatment of programs and methods of assignment work together to try and address the central research questions (Walliman, 2011). Sarandakos (1993) states that research design is the most significant element of the research process whereby the whole research is designed, options are considered, decisions made and details of the research are laid down for execution (Sarantakos, 1993).

The research was conducted through a case study since it requires an in-depth investigation into the study. The respondent were asked about the integration, flexibility, efficiency, information sharing and visibility about the extent of business strategy and strategy formulation. This permitted the researcher to make statistical inference on the broader population and generalize the findings of real life situation and thereby increase the validity of the study.

The aim was to furnish the researcher with in-depth information on the strategy formulation process KenGen as an organization is experiencing thus the perception of ICT in general and the role it plays in strategy formulation hence facilitating an intensive study of the same.

Attached is the KenGen Organization chart (Appendix II)

### **3.3 Population and Sampling**

The target population consisted of all the stakeholders of strategy planning process at KenGen. Given the relatively small population a census survey was conducted since the formulation of strategy is seen as a prerogative of top management and more importantly it's seen as a rational exercise involving the objective analysis of the company resources and external environment in which the firm operates. A convenience/ purposive sampling method was utilized. The respondents included members of top management consisting the C.E.O, Directors, Managers and Chief Officers approximately 10 in number

### **3.4 Data Collection**

Primary data was collected by use of an interview guide method. The respondents were selected from the KenGen strategy stake holders. The selection of the strategy stake holders is due to the fact that they are the main players in the strategy formulation process at KenGen. The interview guide was divided into two main sections. Part A had the demographic and respondents profile information. Part B will cover role of ICT in strategy formulation. Part will cover Perceptions and value of ICT.

### **3.5 Data Analysis**

Data Analysis is a practice in which raw data is ordered and organized so that useful information can be extracted from it. (Mwaniki, 2010). The analysis of data always depends on the research questions and objectives (Saunders, Lewis, & Thornhill, 2009). The quantitative data will be analysed using excel mean and standard deviation. The Qualitative data collected will be analysed using content-analysis technique and pattern matching technique to achieve the objectives of the study. Nachmias and Nachmias (1996) defines

content analysis as a technique for making inferences systematically and objectively identifying specified characteristic and using the same approach to related trends while Kothari (2004) defines it as a measure through proportion and is used to measure the pervasiveness of the item being analysed. Pattern matching is defined as arrangements of objects with a view of linking two patterns where one is theoretical and the other one is observed/operational one. Data summarization was in form of pie charts, tables and bar charts.

## CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

### 4.1 Introduction

This chapter discusses data analysis, findings, interpretations and presentation. Data were analyzed to understand why companies are not using ICT strategically as would be expected through the study of KenGen. The research was conducted through a case study since it required an in-depth investigation into the study. A two stage data analysis procedure was followed, with quantitative and qualitative stages.

### 4.2 Response Rate

A total of 10 officers had been targeted for the study but only complete data for 8 of them was collected and thus used for the study. This represents an 80% response rate. According to Mugenda and Mugenda (2003), the statistically significant response rate for an analysis should be at least 50%.

### 4.3 Demographic Information of the Respondents

#### 4.3.1 Gender of the Respondents

The study sought to establish the gender distribution of the respondents. The findings are distributed in table 4.1 below.

**Table 4. 1: Gender of the Respondents**

	<b>Frequency</b>	<b>Percent</b>
Male	5	62.5%
Female	3	37.5%
<b>Total</b>	<b>8</b>	<b>100%</b>

From the findings in table 4.1 above, 62.5% of the respondents were male while 37.5% of the respondents were female. This indicates that majority of the respondents were males

#### 4.3.2 Age of the Respondents

The study sought to establish the age distribution of the respondents. The findings are distributed in table 4.2 below.



**Table 4. 2: Age of the Respondents**

Age	Frequency	Percent
18 – 25 years	0	0%
26 – 35 years	2	25.0%
36 – 50 years	1	12.5%
39-45 years	2	25.0%
Over 50 years	3	37.5%
<b>Total</b>	<b>8</b>	<b>100%</b>

As indicated in the above table, none of the respondent was aged between 18 – 25 years, 25.0% (2) of the respondents were aged between 26 – 35 years, and 12.5% (1) of the respondents were aged between 36 – 50 years and 39-45 years. 37.5% (3) of the respondent were aged over 50 years.

#### 4.3.3 Area of Specialization

The study sought to establish the respondents’ area of specialization. The findings are distributed in table 4.3 below.

**Table 4. 3: Area of Specialization**

	Frequency	Percentage
Human Resources	1	12.5%
Finance	3	37.5%
ICT	1	12.5%
Engineering	3	37.5%
<b>Total</b>	<b>8</b>	<b>100%</b>

From the findings, the study found out that 12.5% (1) of the respondents were specialized in human resources and ICT, 37.5% (3) of the respondents were specialized in finance, and 37.5% (3) of the respondents were specialized in Engineering. This indicates that majority of the respondents were specialized in finance.

#### 4.3.4 Highest Level of Education

The study sought to establish the respondents’ highest level of education. The findings are distributed in table 4.4 below.

**Table 4. 4: Highest Level of Education**

	<b>Frequency</b>	<b>Percent</b>
High School	0	0%
College	0	0%
Bachelor Degree	3	37.5%
Graduate Degree	5	62.5%
<b>Total</b>	<b>8</b>	<b>100%</b>

From the findings above, none of the respondents had High School or College degree. This is represented by 0% of the respondents. 37.5% (3) of the respondents had Bachelors' degree while 62.5% (5) of the respondents had Graduate Degree. This indicates that majority of the respondents had graduate degree as their highest level of education.

#### **4.3.5 Years of working with KenGen**

The study sought to establish the number of years the respondents had been working with KenGen. The findings are distributed in table 4.5 below.

**Table 4. 5: Years of working with KenGen**

	<b>Frequency</b>	<b>Percent</b>
0-2 years	1	12.5%
3-5 years	2	25.0%
6 -10 years	3	37.5%
10 -15 years	1	12.5%
Above 15 years	1	12.5%
<b>Total</b>	<b>8</b>	<b>100%</b>

From the findings above, 12.5% (1) of the respondent had been working with KenGen for between 0-2 years and 10 -15 years, 25.0% (2) of the respondents had been working with KenGen for between 3-5 years, 37.5% (3) of the respondents had been working with KenGen for between 6 -10 years and (1) of the respondents had been working with KenGen for above 15 years.

#### **4.3.6 Respondents Cadre**

The study sought to establish the respondents' cadre with KenGen. The findings are distributed in table 4.6 below.

**Table 4. 6: Respondents Cadre**

	<b>Frequency</b>	<b>Percent</b>
Lower management (Level 4)	0	0%
Middle management (Level 3)	1	12.5%
Senior management (Level 2)	5	62.5%
Top management (Level 1)	2	25.0%
<b>Total</b>	<b>8</b>	<b>100%</b>

As indicated in table 4.6 above, none of the respondent was in the Lower management (Level 4) as represented by 0%. 12.5% (1) of the respondents were in the middle management (Level 3), 62.5% (5) of the respondents were in the senior management (Level 2) while 25.0% (2) of the respondents were in the top management (Level 1). This implies that majority of the respondents were in the senior management level.

#### **4.4 Quantitative Data Analysis**

##### **4.4.1 Role of ICT in Strategy Formulation**

The respondents were asked to rate the extent to which ICT was incorporated in strategy formulation process at KenGen. The findings are distributed in table 4.7 below.

**Table 4. 7: Role of ICT in Strategy Formulation**

<b>Process</b>	<b>Mean</b>	<b>S.D</b>
Missions	3.6572	0.8945
Visions	3.9113	0.9152
Objectives	4.5179	1.2644
Goals	3.5514	0.7713
Implementation	2.9321	0.4415
Control	2.1845	0.4137

From the study findings, majority of the respondents agreed to a high extent that mission was incorporated in strategy formulation process at KenGen with a mean of 3.6572 and a deviation of 0.8945, majority of the respondents agreed to a high extent that visions was incorporated in strategy formulation process as shown with a mean of 3.9113 and a deviation of 0.9152. On whether objectives were incorporated in strategy formulation process, majority of the respondent agreed to a very high extent with a mean of 4.5179 and a deviation of 1.2644. The study found out that goal was incorporated in strategy formulation process with a mean of 3.5514 and a deviation of 0.7713. Regarding implementation, majority of the

respondents were moderate as shown with the mean of 2.9321 and a deviation of 0.4415. The study further found out that majority of the respondents was agreed to a low extent with a mean of 2.1845 and a deviation of 0.4137.

**Table 4. 8: How ICT is factored in Strategy Formulation Processes**

<b>Process</b>	<b>Mean</b>	<b>S.D</b>
Missions	3.9135	0.9416
Visions	4.4560	1.1453
Objectives	3.3217	0.4316
Goals	2.5618	0.7189
Implementation	4.6124	1.3566
Control	3.7859	0.8743

As indicated in the above table, majority of the respondents agreed to a high extent that mission was factored in strategy formulation process at KenGen with a mean of 3.9135 and a deviation of 0.9416, majority of the respondents agreed to a high extent that visions was factored in strategy formulation process as shown with a mean of 4.4560 and a deviation of 1.1453. Regarding the statement as to whether objectives were factored in strategy formulation process, majority of the respondent agreed to a moderate extent with a mean of 3.3217 and a deviation of 0.4316. The study also found out that majority of the respondents agreed to a moderate extent that goal was factored in strategy formulation process with a mean of 2.5618 and a deviation of 0.7189. On whether implementation was factored in strategy formulation process, majority of the respondents agreed to a very high extent as shown with the mean of 4.6124 and a deviation of 1.3566. The study found out that majority of the respondents agreed to a agreed to a high extent with a mean of 3.7859 and a deviation of 0.8743.

#### **4.4.2 Perceptions and Value of ICT**

The respondents were asked to rate the Perceptions and value of ICT at KenGen. The findings are distributed in table 4.9 below.

**Table 4. 9: Perceptions and Value of ICT**

<b>Statements</b>	<b>Mean</b>	<b>S. Dev</b>
ICT is beneficial to KenGen Service delivery	4.5671	1.2673
ICT lowers cost of operations	4.6129	1.3389
ICT improves quality of service	4.4135	1.1567
ICT improves Production at KenGen	4.0132	0.9743
ICT improves speed of work	3.9251	0.9819
ICT improves communication	3.7634	0.8745
ICT Improves customer relations	3.3178	0.4412
ICT increases the return of Investments	3.4197	0.4410
ICT facilitates faster maintenance on plants and equipment's	4.5179	1.2377
ICT Enables easier access to information	4.6145	1.3556

From the above findings, the study found out that majority of the respondents strongly agreed that ICT was beneficial to KenGen Service delivery as shown with a mean of 4.5671 and a deviation of 1.2673. The study also found out that majority of the respondents strongly agreed that ICT lowers cost of operations with a mean of 4.6129 and a deviation of 1.3389. On whether ICT improves quality of service, majority of the respondents agreed with a mean of 4.4135 and a deviation of 1.1567. The study found out that majority of the respondents agreed that ICT improves Production at KenGen with a mean of 4.0132 and a deviation of 0.9743. Regarding the statement whether ICT improves speed of work, majority of the respondents agreed with a mean of 3.9251 and a deviation of 0.9819. Majority of the respondents agreed that ICT improves communication with a mean of 3.7634 and a deviation of 0.8745. The study found out that majority of the respondents neither agreed nor disagreed that ICT Improves customer relations with a mean of 3.3178 and a deviation of 0.4412. The study further found out that majority of the respondents neither agreed nor disagreed with that ICT increases the return of Investments with a mean of 3.4197 and a deviation of 0.4410. On whether ICT facilitates faster maintenance on plants and equipment's, majority of the respondents strongly agreed with a mean of 4.5179 and a deviation of 1.2377. The study found out that majority of the respondents strongly agreed that ICT enables easier access to information with a mean of 4.6145 and a deviation of 1.3556.

#### 4.4.3 Approach to Incorporate ICT in Strategy Formulation

The respondents were asked to rate the extent of their agreement regarding the Approach to Incorporate ICT in Strategy Formulation.

**Table 4. 10: Approach to Incorporate ICT in Strategy Formulation**

Statements	Mean	S.D
KenGen has a formal documented mission and vision statements	4.6134	1.3275
KenGen carry out a strategic planning with clearly defined goals and objectives	4.5249	1.2538
ICT provides competitive opportunities	3.1873	0.5672
ICT is aligned with organizational goals of KenGen	3.6912	0.7451
The corporate strategies are reviewed often	4.4729	1.2643
ICT promotes the integration of renewable energy sources	3.7617	0.7287

As indicated in the above table, majority of the respondents strongly agreed that KenGen has a formal documented mission and vision statements with a mean of 4.6134 and a deviation of 1.3275. On whether KenGen carries out a strategic planning with clearly defined goals and objectives, the respondents strongly agreed with a mean of 4.5249 and a deviation of 1.2538. The study found out that majority of the respondents was neutral on whether ICT provides competitive opportunities with a mean of 3.1873 and a deviation of 0.5672. Regarding whether ICT is aligned with organizational goals of KenGen, the respondents agreed with a mean of 3.6912 and a deviation of 0.7451. The study further found out that majority of the respondents agreed that the corporate strategies were reviewed often with a mean of 4.4729 and a deviation of 1.2643. On whether ICT promotes the integration of renewable energy sources, majority of the respondents agreed with a mean of 3.7617 and a deviation of 0.7287.

#### 4.5 Qualitative Data Analysis

The respondents were interviewed on the role of ICT in the process of strategy formulation at KenGen and also on the perception of managers on ICT values at KenGen. The strategies at Kenya are developed to be in line with the vision of KenGen which is to be market leader in the provision of reliable, safe, quality and competitively priced electric energy in the Eastern Africa region and the mission is to efficiently generate competitively priced electric energy

using state of the art technology, and skilled and motivated human resource to ensure financial success. The researcher combined notes from the responses collected and drew the finding as shown below

#### **4.5.1 Role of ICT**

From the interview guides, the interviewees indicated that ICT was very relevant to the strategic direction of KenGen.

“ICT is relevant to the strategic direction of KenGen since it increases efficiency and it’s vital for KenGen operations for example the SCADA system which provides real time data on all KenGen operations. Workflowgen has also eliminated paper work on claims and advances. M-pesa payment which has ensured that there is no need to go to pay office to queue which saves time, saves paper work as well as data capture which is very vital in a strategy formulation process” (Manager 1,2014)

They indicated that ICT was used in formulation of goals towards achieving organizational objectives. The interviewees indicated that ICT was used both operationally and tactically. ICT is used strategically in designing systems which help in strategy alignment.

“It’s used both at the strategic and tactical level. At the strategic level ICT is used in data mining for strategy formulation and at the tactical/operation level ICT uses scada, billing system, worklfowgen and budget module systems to implement strategy”,( Manager 2,2014)

The interviewees indicated that ICT is linked to strategy through organizational goals and objectives.

“ICT is linked to strategy in the sense that ICT is used in both at the strategy formulation level and at the strategy implementation level” (Manager 3, 2014).

In the same line, the respondents indicated that ICT is used in strategic resource or support tool through the way information is managed plus the technology used in supporting it.

“It’s used both as a strategic resource and support tool in that its used as a resource because you need it at the strategy formulation stage for example access data used in formulating the strategy and as a support tool in implementing the strategy for example billing systems, scada and the budget tool” (Manager 4, 2014).

The interviewees indicated that ICT supports the organizations’ vision, mission and corporate goals through implementation of systems like ERP which manages the organizations’ data.

“KenGen’s mission specifically makes reference to “state of the art technology” “while efficiently generating competitively priced electricity” efficiency and state of the art technology is the heart of automation both as support process as well as automating machines with the latest technological advancements” (Manager 5,2014)

#### **4.5.2 Perception of ICT and its value**

The researcher noted that the interviewees differed on the way ICT influenced the way business is conducted at KenGen.

“ICT is at the heart of every business at KenGen. With the upgrade of the sap system every process has been automate, and whenever the system is down business comes to a standstill. Therefore ICT influences KenGen business both at the strategic level and operation level” (Manager 6, 2014).

The interviewees indicated that factors that cause alteration of vision and mission statement through include change of organizational goals and understatement and overstatement of vision and mission statement.



The interviewees indicated that balanced scorecard was a strategy planning model adopted by KenGen during strategy formulation process.

“Mostly we have used the balance score card which is a comprehensive tool for planning as well as performance evaluation and management. We also do the SWOT analysis to scan the environment while other technical tools are used for demand forecasting.” (Manager 7, 2014)

To enhance competitiveness in the organization, the interviewees indicated that ICT is applied in cost monitoring and control.

“ICT improves cost efficiency and quality control which are key attributes to remain competitive in the market” (Manager 2, 2014)

All the respondents in the interview gave a YES response that KenGen has a formal documented mission and vision statements, they also indicated that KenGen carries out a strategic planning with clearly defined goals and objectives.

On the issue of competitive opportunities, the interviewees indicated that cost monitoring and control, budgeting, modelling of situations were some of the competitive opportunities provided by ICT.

“By ensuring we have real time data, that our costs are controlled and managed efficiently so as to enhance efficiency” (Manager 7, 2014)

The respondents indicated that KenGen used balanced score card i strategy formulation because of its focus on growth. Some interviewees indicated that IT is aligned with organization’s goals since most of the power plants have automatic systems and staff claims are paid via M-Pesa.

“One of the ICT key performance indicators is the number of process automated, and once the processes are automated, tracking the organisational performances becomes much more efficient. ICT is therefore aligned to the organisational goals tasking ICT department to automate all the organisational process to support the organisational mission and vision” (Manager 2, 2014)

The respondents also indicated that the corporate strategy is reviewed annually. On how KenGen responds to new technologies, the interviewees indicated that the company adopts the best available technologies.

“By adopting it. We make sure we are in sync with the new technological developments.” (Manager 3, 2014)

The respondents indicated that managers play a great role in ICT strategy by providing raw data to be inputted in the system.

“By pointing out the process that need to be automated and further offering the needed technical support in their areas of expertise to the ICT experts for example an ICT experts need s to work with an engineer to implement SCADA system as well as an accountant to automate an accounting systems like billing of power” (Manager 5,2014)

On the influence of ICT in business strategy, the interviewees indicated that ICT closes all the loopholes for laxity and inaccurate. The respondents indicated that ICT strategy was above average in the score of 8 out of 10. The respondents also indicated that ICT strategy is derived through bench marking with the best practices in the industry.

“ICT strategy is derived from the business; first decide which business you are in; in the mission, vision and then derive the ICT strategy to drive the business” (Manager 5,2014)

On how often is ICT strategy was reviewed, the respondents indicated that it was reviewed every year.

“Annually, we do not encounter any major problem since the annual planning cycle which commences with the review of the corporate strategy is an annual event which must happen. Infact we always look forward to it to address some of the challenges encountered in implanting the strategy” (Manager 1, 2014)

#### **4.6 Concluding’s Remarks**

From above findings, the study found out that ICT is relevant to the strategic direction of KenGen since it increases efficiency and it’s also vital for KenGen operations. It’s used both at the strategic and tactical level of its operations as well as being linked to the organizations strategy. Therefore ICT is at the heart of KenGen business operations while KenGen’s mission specifically makes reference to “state of the art technology” “while efficiently generating competitively priced electricity” the study also established that ICT was beneficial to KenGen as well as being able to improve the quality of service delivery.

#### **4.7 Discussion of Findings**

The study aimed at understanding why companies were not using ICT strategically as would be expected through the study of KenGen.

The study established that on the role of ICT in strategy formulation, majority of the respondents agreed to a high extent that mission was incorporated in strategy formulation process at KenGen; majority of the respondents also agreed to a high extent that visions was incorporated in strategy formulation process. This is consistent with the work of Kopic, Kadoic and Calopa (2010) who indicated that strategy formulation process includes defining the corporate mission, specifying achievable objectives, developing strategies and setting

policy guidelines. On whether objectives were incorporated in strategy formulation process, the study found out that majority of the respondent agreed to a very high extent on the said statement. Regarding implementation, majority of the respondents were moderate on that statement. The study further established that majority of the respondents was agreed to a low extent that control incorporated in strategy formulation process.

On perception and value of ICT, the study established that majority of the respondents strongly agreed that ICT was beneficial to KenGen Service delivery. The study also established that majority of the respondents strongly agreed that ICT lowers cost of operations. On whether ICT improves quality of service, the study established that majority of the respondents agreed on the said statement. This is consistent with the work of Beveridge (2014) who stated that an ICT steering group is essential in this engagement especially for communication with other business functions value chain touch-points. Such groups are also mandated to provide high-quality and cost-effective ICT services and training that meets the needs of the company's businesses. The study further established that majority of the respondents neither agreed nor disagreed that ICT Improves customer relations. The study also established that majority of the respondents neither agreed nor disagreed with that ICT increases the return of Investments. On whether ICT facilitates faster maintenance on plants and equipment's, the study established that majority of the respondents strongly agreed with the said statement. On whether ICT enables easier access to information, the study established that majority of the respondents strongly agreed with the said statement.

Regarding the approach to incorporate ICT in strategy formulation, the study established that majority of the respondents strongly agreed that KenGen had a formal documented mission and vision statements. On whether KenGen carries out a strategic planning with clearly defined goals and objectives, the study established that the respondents strongly agreed with the said statement. This is consistent with work done by Henderson & Venkatraman (1999)

who indicated that strategy was a fundamental change in managerial thinking about the role of ICT in organisational transformation, as well as understanding of the critical components of ICT strategy and its role in supporting and shaping the business strategy decisions. The study further established that majority of the respondents were neutral on whether ICT provides competitive opportunities. On whether ICT promotes the integration of renewable energy sources, the study established that majority of the respondents agreed that indeed ICT promotes the integration of renewable energy sources.

Regarding the interview guides, the study found out that ICT was very relevant to the strategic direction of KenGen. The study also established that ICT was used in formulation of goals towards achieving organizational objectives. The study established that ICT was used both operationally and tactically. ICT is used strategically in designing systems which help in strategy alignment. The study established that ICT was linked to strategy through organizational goals and objectives. In the same line, the study established that ICT was used in strategic resource or support tool through the way information was managed plus the technology used in supporting it. The study further established that ICT supports the organizations' vision, mission and corporate goals through implementation of systems like ERP which manages the organizations' data.

On the issue of competitive opportunities, the study established that cost monitoring and control, budgeting, modelling of situations were some of the competitive opportunities provided by ICT. The study also established that KenGen used balanced score card strategy formulation because of its focus on growth. The study further established that some interviewees indicated that IT was aligned with organization's goals since most of the power plants have automatic systems and staff claims are paid via M-Pesa. The study established that most interviewees stated that corporate strategy was reviewed after every three months. On how KenGen responds to new technologies, the study established that the company

adopted the best available technologies. The study established that most interviewees stated that ICT strategy was derived through bench marking with the best practices in the industry.

# **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

## **5.1 Introduction**

This chapter provides the summary of the findings from chapter four, and it also gives the conclusions and recommendations of the study based on the objectives of the study. The objective of this study was to understand why companies are not using ICT strategically as would be expected through the study of KenGen.

## **5.2 Summary of Findings**

The study sought the views of the top management at KenGen to understand why companies are not using ICT strategically as would be expected through the study of KenGen.

The findings revealed that majority of the respondents agreed to a high extent that mission was incorporated in strategy formulation process at KenGen and also agreed to a high extent that visions was incorporated in strategy formulation process . The study also established that objectives were incorporated in strategy formulation process to a very high extent as majority of the respondent agreed. Majority of the respondents agreed to a high extent that mission was factored in strategy formulation process at KenGen and also to a high extent that the visions were factored in strategy formulation process.

The findings further revealed that majority of the respondents strongly agreed that ICT was beneficial to KenGen Service and that ICT lowers cost of operations. The findings further show that ICT improves quality of service as majority of the respondents agreed .Majority of the respondents agreed that ICT improves Production at KenGen and also improves speed of work. Majority of the respondents agreed that ICT improves communication. The respondents however found out that majority of the respondents neither agreed nor disagreed that ICT Improves customer relations. The study further found out that majority of the

respondents neither agreed nor disagreed that ICT increases the return of Investments. On whether ICT facilitates faster maintenance on plants and equipment's, majority of the respondents strongly agreed. Majority of the respondents strongly agreed that KenGen has a formal documented mission and vision statements and that KenGen carries out a strategic planning with clearly defined goals and objectives.

### **5.3 Conclusion**

The study concluded that on the role of ICT in strategy formulation, majority of the respondents agreed to a high extent that mission was incorporated in strategy formulation process at KenGen. The study concludes that mission was incorporated in strategy formulation process at KenGen. On whether objectives were incorporated in strategy formulation process, the study established that majority of the respondent agreed to a very high extent on the said statement. The study concludes that objectives were incorporated in strategy formulation process at KenGen. Majority of the respondents were moderate that implementation was incorporated in strategy formulation process. The study therefore concludes that implementation was incorporated in strategy formulation process.

The study concludes that majority of the respondents strongly agreed that ICT was beneficial to KenGen Service delivery. The study therefore concludes that ICT was beneficial to KenGen Service delivery. The study also established that majority of the respondents strongly agreed that ICT lowers cost of operations. The study concludes that ICT lowers cost of operations. The study concludes that majority of the respondents strongly agreed that ICT facilitates faster maintenance on plants and equipment's, the study therefore concludes that that ICT facilitates faster maintenance on plants and equipments. On whether ICT enables easier access to information, the study concludes that majority of the respondents strongly agreed with the said statement. The study therefore concludes that ICT enables easier access to information at KenGen.



On the issue of competitive opportunities, the study concludes that cost monitoring and control, budgeting, modelling of situations are competitive opportunities provided by ICT. The study also concludes that KenGen employs the use of balanced score card strategy formulation as a growth strategy. The study also concludes that IT was aligned with organization's goals since most of the power plants have automatic systems and staff claims are paid via M-Pesa. The study finally concludes that corporate strategy was reviewed after every three months and that ICT strategy was derived through bench marking with the best practices in the industry.

#### **5.4 Recommendations of the study**

The study concluded that mission was incorporated in strategy formulation process at KenGen. The study therefore recommends mission should be incorporated into company's statement to enhance strategy formulation. The study concluded that objectives were incorporated in strategy formulation process at KenGen. The study therefore recommends that there should be well stated objectives with clear guidelines on operations.

The study concluded that ICT was beneficial to KenGen Service delivery. The study therefore recommends that ICT should be adopted in all departments of KenGen to improve on productivity and efficiency. The study also concluded that ICT lowers cost of operations. The study therefore recommends that operations should be digitized to cut on expenditure in terms of operations. The study concluded that ICT enables easier access to information at KenGen. The study therefore recommends that ICT adoption should be accepted to ease the rate of sharing information.

The study concluded that cost monitoring and control, budgeting, modelling of situations are competitive opportunities provided by ICT. The study therefore recommends that ICT should be adopted to help in monitoring budgetary expenses. The study also concluded that KenGen employs the use of balanced score card strategy formulation as a growth strategy. The study therefore recommends that balanced score card should be put in place in any organization to enhance strategy formulation. The study further concluded that corporate strategy was reviewed after every three months and that ICT strategy was derived through bench marking with the best practices in the

industry. The study therefore recommends that ICT strategy should be reviewed always to check on its effectiveness to the industry.

### **5.5 Limitations of the study**

The researcher encountered challenges in collecting data as some of the respondents were reluctant to provide information for fear that the information requested would be used for other purposes other than academic purposes. To help overcome this challenge, the researcher carried the school an introduction letter and another one from the human resource manager to assure the respondents that the responses would only be used for academic purposes and the information would be handled in confidentiality.

The researcher also encountered a challenge as far as time is concerned. The study targeted the top management who maintain a busy schedule and thus it was a challenge for them to fill out the questionnaires and be interviewed. In order to address this the researcher left the questionnaires to be filled and returned upon completion to conduct the interviews.

### **5.6 Suggestions for Further Studies**

This study concentrated on KenGen as a case study to understand why companies are not using ICT strategically as would be expected. The findings cannot therefore be generalized. The study therefore recommends that in the future a similar study be conducted across all companies so as to generalize the findings.

The study also recommends that in the future a study be carried out on the impact of ICT adoption in strategy formulation on the performance of the organization. This will be effective in determining how the adoption of ICT in strategy implementation impacts the performance of the organization and thus the management can assess whether there is need for change in the strategy formulation.

## REFERENCES

- Abazian, N. (2005). *The Role of ICT in Bridging the Gap Between Strategy to Execution*. Yerevan: Unpublished: ArmenTel.
- Agbolade, O. K. (2011). Information and Communication Technology and Banks profitability in Nigeria. *Australian Journal of Business and Management Research*, 1(4), [102-107.
- Ahuja, V., Yang, J., & Shankar, R. (2009). Benefits of Collaborative ICT Adoption for Building Project Management. *Construction Innovation: Information, Process, Management*, 9(3), 323 - 340.
- Ansoff, H. (1984). *Implanting Strategic Management*. London: Prentice Hall.
- Antony, R. (1965). *Planning and Control Systems, A Framework for Analysis*. Boston, M.A: Havard University Press.
- Asewe, V. O. (2010). *Application of ICT strategy in enhancing competitive advantage among commercial banks in kenya*. Nairobi: Unpublished University of Nairobi MBA Project.
- Baker, J. (2008). *A Theoretical Framework for Sustained Strategic Alignment and an Agenda for Research*. Amsterdam: Sprouts.
- Bakos, Y. J., & Treacy, M. E. (1986). Information Technology and Corporate Strategy:. *Mis Quaterly*, 107-119.
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*, 17(1), 99-120.
- Bengi, E. K. (2010). *Role of IT in strategy formulation in companines listed at the nairobi stock exchange*. Nairobi: Unpublished University of Nairobi MBA Project.
- Beveridge, C. (2014). *Guidelines for IT Management: Aligning IT with Business Strategy*. Manchester: National Computing Centre.
- Brynjolfsson, E., Hitt, L., & Yang, S. (2002). Intangible Assets: Computers and Organizational Capital. *Brookings Papers on Economic Activity*, 1, 137-198.

- Chan, Y. E., & Reich, B. H. (2007). IT Alignment: What Have We Learned? *Journal of Information Technology*, 22(6), 297-315.
- Chandler, A. D. (1990). *Strategy and Structure: Chapters in the History of the Industrial Enterprise*. Massachusetts: MIT Press.
- Chorn, N. H. (1991). The Alignment" Theory: Creating Strategic Fit. *Management Decision*, 29(1), 20-24.
- Clegg, B., & Wan, Y. (2012). *Managing ERP Systems and Enterprise Strategy: A Dynamic Enterprise Reference Grid*. POMS 23rd Annual Conference (pp. 1-23). Chicago: Production & Operations Management Science.
- Crowley, M., & Domb, E. (1997). *Beyond Strategic Vision: Effective Corporate Action with Hoshin Planning*. Butterworth: Heinemann.
- Dewett, T., & Jones, G. (2001). The Role of Information Technology in the Organization: A Review, Model, and Assessment. *Journal of Management*, 27, 313-346.
- Grant, R. M. (1991). The Resource Based Theory of Competitive Advantage: Implications for Strategy Formulation. *California Management Review*, 114-135.
- Grant, R. M. (1991). The Resource-Based Theory of Competitive Advantage. *California Management Review*, 33(3), 114-135.
- Hart, S. L. (1995). A natural Resource Based View of the Firm. *Academy of Management Review*, 20(4), 986-1014.
- Hax, A. C., & Majluf, N. S. (1983). *The Corporate Strategic Planning Process*. Santiago: Sloan School of Management.
- He, X. (2004). The ERP Challenge in China: A Resource-Based Perspective. *Information Systems Journals*, 14, 153-167.
- Henderson, J. C., & Venkatraman, N. (1999). *Strategic Alignment: Leveraging Information Technology for Transforming Organisations*. *IBM Systems Journal*, 38(1), 472-484.
- Irungu, I. W. (2012). *INFLUENCE OF INFORMATION AND COMMUNICATION TECHNOLOGY ON AVIATION INDUSTRY*. Nairobi: Unpublished University of Nairobi Masters Project.

- Jukka, H. (2004). Business Strategy Development Meets ICT Strategy. Second World Conference on POM and 15th Annual POM Conference (pp. 1-24). Cancun: VTT Industrial Systems.
- Kearns, G. S., & Sabherwal, R. (2007). Strategic Alignment Between Business and Information Technology: A Knowledge-Based View of Behaviors, Outcome, and Consequences. *Journal of Management Information Systems*, 23(3), 129-162.
- KenGen. (2008). Information Communication Technology (ICT) Policy. Nairobi: KenGen.
- KenGen Annual Report. (2014). 2013 Annual Report and Financial Statements. Nairobi: KenGen.
- Kopić, M., Kadoić, N., & Calopa, M. K. (2010). Management's Role in Strategic Planning and Application of ICT in Modern Organization. Proceedings of the 21st Central European Conference on Information and Intelligent Systems (pp. 335-343). Varazdin: University of Zagreb.
- Kothari, C. R. (2004). *Research Methodology: Methods and Techniques*. New Delhi: New Age International Limited.
- Laudon, D., & Laudon, J. (2001). *Management Information Systems: Organization and Technology in the Network Enterprises*. Dutton: Prentice Hall International.
- Laudon, J., & Laudon, D. (1991). *Business Information System: A Problem Solving Approach*. New York: HBJ, College Publishers.
- Livieratos, A. (2009). Designing a Strategy Formulation Process for New Technology-Based Firms: A Knowledge-based Approach. *Electronic Journal of Knowledge Management*, 7(2), 245 - 254.
- Mata, F. J., Fuerst, W. L., & Barney, J. B. (1995). Information Technology and Sustained Competitive Advantage: A resource-Based Analysis. *MIS Quarterly*, 19(4), 487-510.
- McDavid, D. (2003). The Business-IT Gap: A Key Challenge. Retrieved July 7, 2014, from IBM Almaden Service Research:  
[http://scholar.googleusercontent.com/scholar?q=cache:iz3RKX8EkDEJ:scholar.google.com/&hl=en&as\\_sdt=0,5](http://scholar.googleusercontent.com/scholar?q=cache:iz3RKX8EkDEJ:scholar.google.com/&hl=en&as_sdt=0,5)

- Mensah, J. K., Ahegbebu, M. K., & Asabere, N. Y. (2012). Development of an Information and Communication Technology (ICT)-Driven Business Model for the Utility Sector. *International Journal of Information and Communication Technology Research*, 2(5), 402-428.
- Meyer, K. E. (2009). *Corporate Strategies under Pressures of Globalization: Global Focusing*. Bath: Unpublished Working Paper: University of Bath.
- Ministry of Energy and Petroleum. (2013). *5000+Mw by 2016: Power to Transform Kenya*. Nairobi: Ministry of Energy and Petroleum.
- Mintzberg. (1980). Opening up the definition of Strategy. In *the Concept of Corporate Strategy*. Boston, M.A: ed.R.Andrews RD Irwin.
- Mintzberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy Safari A Guided Tour Through the Wilds of Strategic Management*. London: Prentice Hall.
- Moore, G. C., & Benbasat, I. (1991). Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation. *Information Systems Research*, 2, 192-222.
- Mugenda, O. M., & Mugenda, A. G. (2003). *Research Methods Quantitative and Qualitative approaches*. Nairobi: Acts Press.
- Mwaniki, I. W. (2010). *Responses by kenya Electricity Generating Company to changing macro environmental conditions in Kenya*. Nairobi: Unpublished UoN MBA project.
- Nachmias, C. F., & Nachmias, D. (1996). *Research Methods in the Social Sciences*. London: St. Martin's Press.
- Nagk, H. K. (2003). *Why National Strategies are needed for ICT-enabled Development*. Bellevue: Information Solutions Group.
- OECD. (2012). *ICT Applications for the Smart Grid: Opportunities and Policy Implications*. Paris: Organisation for Economic Co-operation and Development Publishing.
- Peppard, J., & Wardb, J. (2004). Beyond Strategic Information Systems: Towards an IS Capability. *Journal of Strategic Information Systems*, 13, 167–194.
- Peteraf, M., & Barney, J. (2003). Unraveling the Resource-Based Tangle. *Managerial and Decision Economics*, 24, 309-323.

- Porter. (1980). *Competitive Strategy: Strategies for Analysing Industries and Competitors*. New York, USA: Free Press.
- Porter, M. E. (1975). How competitive forces shape strategy. *Harvard business review*, 52(2), 137-145.
- Porter, M. E., & Millar, V. E. (1985). *How Information Gives You Competitive Advantage*. Boston, MA: Harvard Business School Publishing.
- Priem, R. L., & Butler, J. E. (2001). Is the Resource Based View a Useful Perspective for Strategic Management Research? *The Academy of Management Review*, 26(1), 22-40.
- Riley, J. (2012, September 23). *ICT, Business and Technology*. Retrieved July 13, 2014, from Tutor2u: [http://www.tutor2u.net/business/ict/intro\\_what\\_is\\_ict.htm](http://www.tutor2u.net/business/ict/intro_what_is_ict.htm)
- Sarantakos, S. (1993). *SOCIAL RESEARCH METHODS RESOURCE BOOK*. Australia: Macmillan.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for business students*. Essex, England: Pitman .
- Schneider, G. (2011). *Electronic Commerce*. Boston: Course Technology: CENGAGE Learning.
- Shamekh, F. R. (2008). *Business-IT Strategic Alignment Concept in Theory and Practice*. Goteborg: Unpublished Thesis: IT University of Goteborg.
- Sharma, A., & Sohani, N. (2012). Process Analysis with help of Business Process Reengineering and SAP. *International Journal of Engineering Research and Applications*, 2(3), 2628-2631.
- Silvius, A. G. (2007). *Business & IT Alignment in Theory and Practice*. Proceedings of the 40th Hawaii International Conference on System Sciences (pp. 1-10). Hawaii: Computer Society.
- Triplett, J. E. (1999, April). The Solow Productivity Paradox: What Do Computers Do to Productivity? *Canadian Journal of Economics*, 32(2), 309-334.
- Ujunju, M. O., Wanyembi, G., & Wabwoba, F. (2012). Evaluating the Role of Information and Communication Technology (ICT) Support towards Processes of Management in

Institutions of Higher Learning. *International Journal of Advanced Computer Science and Applications*, 3(7), 55-58.

Underwood, J., Isikdag, U., Goulding, J., & Kuruoglu, M. (2010). A Comparative Analysis of the Strategic Role of ICT in the UK and Turkish Construction Industries. *CIB World Congress 2010* (pp. 97-109). Salford: University of Central Lancashire.

Van Donk, D. P. (2008). Challenges in Relating Supply Chain Management and Information and Communication Technology: An introduction. *International Journal of Operations & Production Management*, 28(4), 308-312.

Vilaseca, J., Torrent, J., & Díaz, Á. (2002). ICTs and Strategic and Organizational Changes in Catalan Business. Catalonia: Internet Interdisciplinary Institute.

Wallace, M. P. (2001). A Strategic Formulation Process for Strategic Planning - The Salem New Hampshire Fire Department. Hampshire: Unpublished: Executive Fire Programme.

Yusuf, M. O. (2005). Information and Communication Technology and Education: Analysing the Nigerian National Policy for Information Technology. *International Education Journal*, 6(3), 316–321.



## Appendices

### Appendix I: Questionnaire and Interview guide

#### INSTRUCTIONS

I am currently a student at University of Nairobi pursuing a post graduate degree in masters of business administration. This questionnaire seeks to collect data to find out the role of **ICT IN STRATEGY FORMULATION IN THE POWER INDUSTRY OF KENYA**. Your responses will be kept as confidential as required. Your opinion is highly valued. Please fill the questions by putting a tick in the appropriate box or by writing in the space provided.

#### SECTION A: DEMOGRAPHIC INFORMATION

1. Gender:  
Male [     ]                      Female [     ]
  
2. What is your age group?  
18 – 25 years [     ]                      26 – 35 years [     ]                      ]  
36 – 50 years [     ]                      Over 50 years [     ]                      ]
  
3. What is your area of specialization?  
a) Human [     ]     Finance [     ]     ICT [     ]     Engineering [     ] ]  
b) Others (Please specify) \_\_\_\_\_
  
4. What is your highest level of education?  
High School [     ]     College [     ]                      ]  
Bachelor Degree [     ]     Graduate Degree [     ]                      ]
  
5. How long have you been working with KenGen?  
0-2 years [     ]                      3-5 years [     ]     6 -10 years [     ]                      ]  
10 -15 years [     ]                      15- Above [     ]                      ]
  
6. Which of the cadres below best describe your job level:

- Lower management (Level 4) [     ]
- Middle management (Level 3) [     ]
- Senior management (Level 2) [     ]
- Top management (Level 1) [     ]

**SECTION B: ROLE OF ICT IN STRATEGY FORMULATION**

7. To what extent is ICT incorporated in strategy formulation process? Please tick the appropriate box for each statement using the Likert scale where 1= Very Low, 2=Low, 3= Moderate, 4= High, 5= Very High

Process	Very High	High	Moderate	Low	Very Low
Missions					
Visions					
Objectives					
Goals					
Implementation					
Control					

8. Rate how ICT is factored in each of the following strategy formulation processes where 1= Very Low, 2=Low, 3= Moderate, 4= High, 5= Very High

Process	Very High	High	Moderate	Low	Very Low
Mission					
Vision					
Situation Analysis					
Strategy Formulation					
Implementation					
Control					

**SECTION C: PERCEPTIONS (ATTITUDE) AND VALUE OF ICT**

9. Please indicate to what extent you agree with each of the following statements where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree.

Statements	S. D	D	N	A	S. A
ICT is beneficial to KenGen Service delivery					
ICT lowers cost of operations					
ICT improves quality of service					
ICT improves Production at KenGen					
ICT improves speed of work					
ICT improves communication					
ICT Improves customer relations					
ICT increases the return of Investments					
ICT facilitates faster maintenance on plants and equipment's					
ICT Enables easier access to information					

**SECTION D: APPROACH TO INCORPORATE ICT IN STRATEGY FORMULATION**

Please indicate to what extent you agree with each of the following statements regarding approach to incorporate ICT in strategy formulation where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

Statements	S.D	D	N	A	S. A
KenGen have a formal documented mission and vision statements					
KenGen carry out a strategic planning with clearly defined goals and objectives					
ICT provides competitive opportunities					
ICT is aligned with organizations goals of KenGen					
The corporate strategies are reviewed often					
ICTs promotes integration of renewable energy sources					

1. How relevant is ICT to the strategic direction of KenGen?  
.....
2. How is ICT used in strategy making process?  
.....
3. How is ICT used? Strategically/ operational or tactical?  
.....
4. How can ICT be better used strategically?  
.....
5. How is ICT linked to strategy?  
.....
6. How is ICT considered as a strategic resource or support tool?  
.....
7. How does ICT support the organization vision, mission and corporate goals?  
.....
8. To what extent does ICT influence the way business is conducted at KenGen?  
.....
9. What are some of the factors that course the alteration of the vision and mission statements?  
.....
10. What are some of the strategy planning models adopted by the organization during the strategy formulation process?  
.....
11. How is ICT applied in the organization to enhance competitiveness?  
.....
12. Does KenGen have a formal documented mission and vision statements?  
.....
13. Does KenGen carry out a strategic planning with clearly defined goals and objectives?  
.....

14. In your own words, what are some of the competitive opportunities provided by ICT?  
.....
15. What approach does KenGen use in strategy formulation? .....If reactive or proactive state the reason as to why?  
.....
16. How would you describe competitiveness in the industry? Please explain?  
.....
17. How is ICT applied in the organization to enhance competitiveness?  
.....
18. In your own opinion, how is IT aligned with organizations goals and what are their values to the organization?  
.....
19. How often do you review your corporate strategies? And what are the major problems you encounter?  
.....
20. Briefly explain how KenGen responds to new technology?  
.....
21. What role do other managers play in ICT strategy?  
.....
22. Briefly explain how ICT influences the overall business strategy of KenGen?  
.....
23. How comprehensive is the ICT strategy?  
.....
24. How is ICT strategy derived?  
.....
25. How often is ICT strategy reviewed?  
.....

**Thank you for your co-operation.**

## Appendix II: Organizational structure for KenGen

