

**INFORMATION TECHNOLOGY AND STRATEGIC
MANAGEMENT PRACTICES OF FIRMS LISTED IN NAIROBI
STOCK EXCHANGE**

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DECLARATION

This research project is my original work and has not been presented for any academic award in any other University.

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D61/79284/2015

The research has been submitted for examination with my approval as The University supervisor.

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DEDICATION

To my lovely Children Charles Skaloh Jnr and Christina Julia Saiya, may this degree instill the importance of education as you grow into your own academic lives. I love you kiddos.

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ABBREVIATIONS AND APPENDICES

NSE	Nairobi Securities Exchange
IT	Information Technology
ICT	Information Communication Technology

ABSTRACT

The external environment surrounding organizations is always changing and therefore firms are being forced to keep up with these changes by being flexible and adapting to the different circumstances that arise. By being dynamic, organizations are able to gain a competitive advantage against the competitors in the market place. An important factor that assists organizations in implementing strategies is Information Technology. Scholars argue that modern organizations cannot achieve much without the use of technology in their firms. This research focused on establishing how information technology was applied in strategic management practices within NSE listed firms. The research methodology employed by the study was cross sectional survey design whereby all the 66 NSE listed firms took part as respondents therefore making this a census study. Gathering of primary data was done using questionnaires. Data analysis was done through descriptive analysis. The findings showed that most firms had to a great extent adopted IT in their organizations in carrying out various strategic functions and that they had adopted IT in formal strategic planning process and extensively adopted in various strategic areas of the organization. This was illustrated by a mean of 4.6944. It was also clear that IT plays a key role in the current organizational business environment and that organizations had embraced it as a key strategic tool in the carrying out functions and conducting situational analysis. The study can conclude that the NSE listed firms had embraced IT in their strategic management efforts whereby they have taken advantage of this resource to identify and explore opportunities availed to them. The study recommended a structured approach for assessing opportunities presented by IT so that companies can benefit a lot by taking advantage of these opportunities to formulate their Internal, Competitive and Business portfolio strategies. The researcher experienced some limitations during the study including time and cost constraints and restrictions and unavailability of respondents during data collection. Further research is proposed on similar concepts of study to specific industries such as manufacturing, banking or by carrying out case studies in specific firms to ascertain whether industry or firm specific dynamics can alter the results of the study as compared to the findings in this study

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

As the industrial age that marked the 20th century come to an end and rapidly gives way to the information society, organizations are faced with the challenge of coming up with strategies that are responsive to the changing environment. Managers are constantly looking at solutions that will outwit their rivals albeit in IT. Achieving and maintaining competitive advantage is deemed critical for organizations in various industries. Baltzan and Phillips (2010) define competitive advantage as ‘the one product and or service that an organization offers to customers; and that the customers value highly than similar products and/or service from other firms. Of note is the fact that ‘competitive advantages are typically temporary as competitors often seek ways to duplicate the competitive advantage (Baltzan & Phillips, 2010). Strategic management has become the core aspect in all major organizations in the world. The practice has become acceptable even to sceptics that for a long time have had reservation. This uptake of strategy has been long time coming and top management are forced to formulate both long and short term strategies in order to be competitive.

The study was founded on the stakeholder theory and open systems theory. Freeman (1984), stakeholder theory supports the belief that the relationship between the organization and its stakeholders is fundamental to the success of the organization. Ansoff and Sullivan (1993), are of the opinion that organizations are open systems, therefore dependent on the environment. Organizations environment can be looked at both as internal and external. Activities in a firm’s environment can greatly influence how an organization operates. Information technology can be used to keep stakeholders updated on the on goings in an organization. To this end, IT can be used to define and integrate strategic management practices of planning and implementation. Through IT, the organization is able to access both internal and external aspect of an organization ensuring that strategic management practices are put in place to support the strategic direction of an organization.

Information technology (IT) is a word used to mean data processing” (Newton, 2002). It means all equipment, practices, processes and systems used to provide and support information systems. Information Communication Technology (ICT) on the other hand was created to reflect the convergence of digital processing and telecommunication. IT is used everywhere in organizations, from Communication to data management, records management, management information systems, customer relationship management, computer aided design and computer Aided manufacturing. The firms listed at the NSE through preliminary research, offer compelling evidence on the application of IT in organization’s strategic management.

The use of information technology if any, in strategic management practices in firms listed in the NSE became an intriguing factor to the research. These firms form the blue chip group of companies that share the economy of the nation. IT usage in strategic management practices to shape the strategic direction of these firms therefore required to be interrogated and determined. Porter (1985) argues that IT has become and still will be critical in the future of firms. Ignoring IT altogether may lead to firms not achieving their strategic plans in the fast changing internal and external environments.

1.1.1 Concept of Strategic Management Practices

In a broad sense, strategy is the means by which individuals or establishments achieve their objectives. It entails how an organization determines its goals and objectives in the long haul as well as putting in place processes and procedures together with resource allocation that will enable the firm achieve the set goals (Alfred Chandler, 1962). Kenneth Andrews (1971) looks at strategy differently when but still agrees with Alfred Chandler when he says strategy is a configuration of goals, resolutions, or objectives as well as the critical policies and plans that will enable the firm achieve their ambitions.

Top management ask themselves a number of questions in the processes of determining the strategy of their organizations. What business are we in? Who are our key customers? What do we do well in? What resources do we have at our disposal? Who are our competitors? What are our Strengths and weaknesses? What opportunities are present in both the internal environment and also in the external environment and what are the threats we are likely to encounter as an organization?

With these quests in mind, top management are able to formulate an organizations' strategy with the past, present and future of the organizations clearly mapped out.

Strategy formulation is understood to be the determination plans in the long haul for the operative management of the inherent threats as well as opportunities that are present in the environment while considering the firms' weaknesses and strengths. This involves outlining the organization's mission as well as looking into the SWOT analysis

1.1.2 Information Technology

Computers in organizations have moved from its historical position of support to the main tool for competitiveness. Companies that fail to embrace IT are faced with an uphill task of being able to be competitive. Vivid reduction in collecting, transforming, and sharing information are changing the way business is done (Porter and Millar (2014). Information Technology can thus be defined loosely as the use of computers to capture, store and process information in organizations. IT is more than just computers, hardware and software but the way the computers, software and hardware interact to produce information that can give an organization a fighting chance. This is a concept that strategic leadership in organization must be alive to. For example:

Local banks in Kenya are currently allowing customers to directly deposit into and withdraw money from their accounts using the popular Safaricom Mpesa platform. Customers therefore, do not have to be physically present at their bank branches to access these services. This has led to a more efficient and reliable banking behaviors. Local mobile telecommunication company in Kenya has ensured that all its subscribers are also using its money transfer platform. With the two aspects of telecommunication and money transfer, the company is able to limit customer shifts due to the cost involved and also inconvenience that will arise with having to switch. New entrants are also deterred. Local retail chains in Kenya have partnered with regional telecommunication giants in the form of Safaricom, Equitel and VISA to enable its users make payments without having to carry cash on them.

1.1.3 Overview of the Nairobi Stock Exchange

In this section, the researcher looks at the role of the Nairobi Stock exchange in the Kenyan economy and the historical developments that have led to its rise in the Kenyan economy including their use of IT in strategic management. Stock broking and trading in shares did not start at the NSE until the early 1920's, when Kenya was still under the British rule. In its early days, the NSE was not formal as we know it today. Dealing in Stocks was not formal and was dominated by bookkeepers, lawyers, auction agents and agents of various estates. Business was transacted through the telephone in the 60's which was a big technology during those days and prices were determined through negotiations.

The first privatization took place in 1988 and in 1990, the NSE was put under the Capital Markets Authority through an act to ensure its development and promote actualization of a capital market in Kenya. The NSE has seen its shareholders and investors portfolio grow from 15 billion to 55 billion investors after Safaricom listed in 2008 (www.nse.co.ke/nse/history-of-nse.html). The firms in the NSE form the bulk of the blue chip companies in Kenya making it the one large investor congregation in the country. What is known is that these firms are key economic and growth drivers in the country. Basing the study on the firms in the NSE will give a representative picture of the actual role of IT in strategic management in Kenya. The firms are cross sectorial and therefore representative (www.nse.co.ke/listed-companies/list.html).

1.2 Research Problem

Strategic Management is the process by which an organization develops and implements plans that define the goals and objectives of that organization. This is a continuous process that evolves as the organization's goals and objectives change with changes in the environment Dess, Lumpkin and Taylor, (2005). These continuous processes can be seen as the analysis, decision and action phases of strategic management. These three phases can also be looked at as strategic planning

and strategy implementation. According to Root (2014), strategic planning provides a blueprint for achieving organization's goal. Therefore, understanding an organization's objectives of a strategic plan will help to create efficient plans to guide the organization's growth. In the plan the organization's management develops the analysis of the current internal and external environment, formulates strategies, executes and evaluate the strategies therein.

Aosa (1997), argues that for a successful strategy implementation, every organization should first understand the changes taking place in the external environment. This changes will inform the direction of strategy that an organization should employ. Johnson and Scholes (2002) argue that when an organization makes a strategic decision, it is making a fundamental choice in relation to what it is going to do. Wheelen and Hunger (2008), sustainable competitive advantage and better performance in an organization can only be achieved after successful implementation of strategy.

They further argue that, successful implementation of strategy in an organization is only possible when factors that influence strategy implementation are present, Wheelan and Hunger (2012). What is clear is that, there is no one universally acceptable way to strategic planning and implementation. Different organization use different approaches to planning and implementing their strategies. Therefore management are tasked with the sole role of determining the most suitable way of planning their strategic direction and implementing the said strategies in their organization.

Information technology entails the utilization of applications that are computer based, hardware as well as software to achieve competitive advantage. Porter (1985) articulates that modern organizations cannot achieve much without the use of technology in their firms. New organization are coming up rapidly due to the rapid growth and development in technology. Consumers are becoming continuously attracted to online business and communication and therefore, organization cannot but ensure an online presence. Strategic plans are therefore dependent on IT to reach the vast majority through a click of a button.

NSE listed Firms listed have a critical role to play in the economic growth of the country. Based on the last 3 issues Kenya Economic Report 2016, 2017, 2018, firms listed in the NSE are the biggest movers and shakers of economic growth. They account for 30 – 40 percent in tax remittance to the exchequer. The uptake of strategic management and its subsequent implementation has been one of the leading factors that explain the improved performance of NSE listed firms according to the Kenya Economic Report 2017. The output from these firms have increased creating employment opportunity for many Kenyans and enhancing service delivery. The actual role of information technology has been heavily felt in the payment and e-commerce aspects of the NSE listed firms. Most companies have made technology core in their service delivery.

There are numerous studies that have been undertaken outside Kenya on the role of IT in the strategic planning and implementation of firms. The roles are interlinked with various strategies and hand in hand they lead to high performing organization. Information Technology, according to the various studies done abroad believes that IT enables organizations and management to make better decisions, allows faster action taking, better tracking of processes, improved insight into costs, shorted delivery time and a higher customer satisfaction Keen, P. (1993). These benefits are not realized immediately, but over a period of time which can be up to 3 years. Entrenching Information Technology in the heart of an organization's strategic direction is not a straight forward affair. The cost involved in acquiring various technologies and implementing them remains inhibitive. Information technology also tend to change rapidly making organizations to keep reinvesting in new hardware and software and personnel to operationalize technology.

Available literature on local experience is mainly limited to media reports of the IT practices and its contribution to present successes in organizations. The government has taken interest in the role of Information Technology in service delivery and is currently pushing most of its services online. Other local studies like Muganda (2001) and Muganda and Van Belle (2007) undertook studies in the role of e-commerce in selected organizations in Kenya. While acknowledging the role of these studies in advancing the role of IT in the strategic direction of the selected organizations, the studies are however limited to e-commerce applications. When various reviewed

studies are compared with this study, the studies have knowledge gaps in terms of concept and context. This study therefore claims that IT has some influence on the strategic management process in organizations and that it can be applied to drive organization's strategic process. What role does Information Technology play in the Strategic management practices in NSE listed firms?

1.3 Objective of the Study

The objective of the study will be to establish how Information Technology is applied in strategic management practices within NSE listed firms.

1.4 Value of the Study

Organizations were able to see and appreciate the actual place of technology in coming up with organization's strategy. Secondly, organizations will be able to appreciate the actual technical applications that are in use both in coming up with strategy and those that are in use to improve and help and organization achieve its strategies.

Business researchers and academics will be able to use the research finding in supporting their own studies. This study will form part of future objectives and further study in related field. Business stakeholders will be able to take pointers on specific technologies that will favor their strategic direction. Investment in IT products will benefit from the study following the exposure from this study. Business managers and strategists will be able to understand the ideal technologies that will support their strategic directions.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Understanding the concept of strategy forms the core of this chapter. Therefore the researcher will review in opening the theoretical foundation of the study, discuss the idea behind strategy formulation and implementation.

2.2 Theoretical Foundation

This research was founded on the stakeholder theory and open systems theory. Freeman (1984), stakeholder theory supports the belief that the relationship between the organization and its stakeholders is fundamental to the success of the organization. It is key to note that stakeholders can either be internal or external to the firm yet their input is integral to the decision making processes. Ansoff and Sullivan (1993), are of the opinion that organizations are open systems, therefore dependent on the environment. Organizations environment can be look at both as internal as well as external. Activities that take place in a firm's environment can greatly influence how an organization operates.

2.2.1 Stakeholder Theory

Freeman (1984), presents a stakeholder to be any individual or group who have the ability to impact or who can be affected by the firms events. The theory therefore holds that performance is determined by how an organization is able to satisfy its stakeholders and build a good relationship with them. For an organization to realize great performance, it must involve the stakeholders in decision making. Friedman (2006), states that the organization itself should be looked at as a grouping of stakeholders and it is the role of management to manage the interests, needs and viewpoint of stakeholders. The managers should on one hand manage the organization for the benefit of the stakeholders while at the same time act as the stakeholders' agent to ensure the survival of the firm to ensure the long term stake of each group is safeguarded.

Freeman (1984) lists the following as the main stakeholders in an organization: customers, employees, local communities, suppliers and distributors and shareholders. According to Friedman (2006), the list of stakeholders was further expanded to include the media, government, competitors, publics, financiers among others. Each stakeholder group has a fundamental role to play in an organization. Customers are considered King by all organizations. They are the heart and soul of any organization because they use their resources to consume the goods and services offered by the organization. Their treatment should be well done in order to encourage repeat buying. Suppliers' role in an organization cannot be overstated. The quality of raw materials, the timely delivery and the payment mode the supplier accepts plays a key in the quality of the final product and the liquidity of an organization hence the returns to shareholders.

The local community's role in the provision of land, labor and security is key to the operation of the organization. They in return benefit from the social contribution of the firm. Aoki (1984) considers managers to be referees between investors and employees. They safeguard the interests of stakeholders and shareholders. They also ensure the activities of the organization does not harm the environment that they operate in.

2.2.2 Open Systems Theory

Organizations are environment dependent according to Ansoff and Sullivan (1993). In an open system, the organization and the environment are interlinked and interdependent. Therefore, the organization must provide a promise to the environment that is sustainable in competitive. The environment therefore provides the opportunities that the organization will exploit in order to be successful. In addition, the environment contains threats that must be well managed in order for an organization to remain competitive in the long. Montouri (2000), argues that the external environment is constantly dynamic and organizations are therefore required to constantly adjust and adapt to the changing environment for success to be realized. Managers are therefore expected to be alive to the changes around them in order to effect the right strategies that will benefit the stakeholders.

Montouri (2000), argues that for an organization to successfully achieve its objectives, there must be a clear integration and coordination between the people, the technology and the organization structure. Various sub systems exists in an organization that require coordination for the whole system to operate. Transforming the input from the environment to provide output will definitely involve different subsystems, units, sections and in some cases departments. Their interaction with external environment and within themselves helps in the maximization of the value therein in an organization.

2.3 Strategic Management Practices in organizations

Strategy formulation is considered the first step in strategic management. Formulation of the correct strategy ensures the eventual success of an organization in its selected niche. An organization therefore comes up with its long term plan of action including settling on alternatives that exist in its environment Ryszard Barnat (2016). Therefore in this study we have considered the Thompson et al., framework of strategy formulation. This framework considers strategy formulation to consist of phases. These phases are: crafting the organizations' vision and mission, internal and external environment analysis, developing objectives, and lastly generation, evaluation and choosing of strategies.

Strategy Implementation is putting the chosen strategies and policies into action by developing various programs. This may be done through an overall change in culture, structure and or management system of an organization. Evaluation on the other hand enables management to compare the performance with the set benchmarks. A strategy is deemed successful if it can be measured. Management are therefor at pains to come up with measures that are relevant and easily accessible to the organization.

2.4 Information Technology in Organization

From a business and organizational context IT has been defined as the process of managing and using information by use of computer-based tools (Mirani & Lederer, 1998). It entails data acquisition, storage, data processing, as well as information distribution.

Porter (1985) acknowledges that IT in the current organization set up cannot be wished away. IT has that enviable characteristic of cutting across all the level in an organization. Its influence on the structure and strategy cannot be overlooked. New industries and business come up every other day due to IT. To embrace social media, cloud computing and artificial intelligence are coming under increased pressure to do so in order to cut costs on advertising, data processing and storage and predictive intelligence offered by artificial intelligence.

Current competition is handheld via mobile telephony and the current company managers cannot assume the impact of advertising on social platform or having a presence on the same. So it is wise to note that IT is one of the major drivers of competition with the ability to alter existing industries and also creating new ones. Lastly, every level of an organization depends on information that is accurately and clearly gathered. Without the right information, organizations will be making gross mistakes in its strategic decisions a situation that may be fatal in the long run.

2.5 Strategic Management and Information Technology in Organizations

Organizations bring strategy to life through the programs and policies that they develop over time. This involves the overall change in the organizational culture, the company structure as well as a firm's management system. Implementation of strategies can be through budgets, programs, systems and procedures put in place. Kettinger et al., (1994) suggest that effects of IT in firms cannot be downplayed considering the potential that lies within IT. Firms that do not adopt IT tends to suffer through inefficiencies albeit coordination, communication amongst others. It is prudent to note that IT is absolutely necessary at all level in modern firms if any meaningful strategic decision is to be made. Mirani and Lederer, (1998) observe IT effects on the firm from three dimensions: competitive, informational and transactional or automation dimensions. IT can therefore be used to formulate strategies around competitive, informational and automation objectives of the firm.

The business processes gain whenever relevant information systems are introduced. This leads to business process transformation through efficiencies created which in turn leads to organizational transformation. Realization of business benefits as a

result of transformation of processes and the business in general results in attainment of organizational strategy (Bytheway, 2004)

IT use in organizations should introduce some efficiencies in operations via automation. Manual processes are reduced which in turn leads to a more consistent, cost effective, and timely operations (Ward & Griffiths, 1996). IT holds a critical position in ensuring that management is able to make key strategic decisions via the information gathered and processed. The overall aim of these objectives is to accomplish effective management through improved decision making made possible by developing (MIS) and Executive Information Systems to enhance information processing both internally and externally. Organizations are therefore in a position to respond proactively to the variations in the environment as well as enhance operations.

Organizations base their competitive objectives on IT functions with the intention of providing competitive advantage in the course of change (Applegate, McFarlan & McKenney, 1999). This is done by exploiting the IT capabilities which include automation and information so as enable firm transformation as well as create competitive advantage for the business. IT has proved to promote a firm's competitive advantage more so in the event where IT capabilities are matched with existing business as well as human resources (Yanis & Bacos, 1986). Mirani & Lederer (1998) categorizes competitive objectives into competitive advantage, customer relations and alignment. By introducing changes to its business processes through IT, a firm can attain a competitive position or lower competitive advantage. These advantages are in turn shared with the stakeholders to achieve the best strategic decision.

Information systems have the distinctive ability of creating efficient markets by availing valuable information which can lower cost of entry into new markets and in the process raise entry cost. As an example, it can be argued that the entry into the money transfer business of mobile telephone providers which traditionally has been a bank's domain is a case of IT lowering entry barriers. Thus, IT creates a structural shift affording opportunities for portfolio redesign. The redesign has led to organizations having to accept that they stand to gain more by embracing IT in this case banks.

2.6 Empirical studies and Research gaps

Porter (1985) acknowledges the role of information technology as one of the key drivers of competition and growth. He goes ahead to claim that IT has a major role to play in both the structural changes in the existing industries as well as in the creation of new industries. Therefore, IT creates new opportunities for competition and influences the existing competitive strategy through its very presence in the value chain. Keen (1981) MacFarln and MCKennedy (1981) contend that information Technology will become the backbone of organizations in the 20th century and that organizations will develop around their acceptance and implementation of IT.

Boko and Treacey (1986) suggest that IT opportunities can be viewed in 3 stages. One, where of an organizational engineer is trying to improve efficiency and effectiveness of the existing systems, secondly that of an industry insider ensuring that they remain competitive in the process outwitting their competition. Lastly that of potential entrants looking for information that will enable them make the entry decision to an industry. These three perspectives create opportunities for firms in formulating and implementing their strategies. Kettinger et al., (1994) advocate that Information Technology improves the firms capability of increasing the coordination efficiencies both internally and externally. IT reduces costs structures hence competitive advantage. Mirani and Lederer, (1998) observe that IT affects organizations from three dimensions: competitive, informational and automation aspects.

There is limited literature on the local experiences of IT in formulating and implementation strategy. In 2001, Muganda (2001) undertook a study on e-commerce in selected organizations in Kenya. This study brought to light an aspect of technology in organizational strategy, however it was not broad enough to encompass the entire body of Information Technology. These studies and the literature that follow are quit scanty and lean mostly to developed nations. In Kenya such studies are a minority and therefore not available for citation. This study therefore seeks to provide answers to the question, what role does Information Technology play in strategic management practices in firms listed at the NSE? From the discussion above, it is very clear that Information Technology has a major role to play in organizations. However, there are limited research on Information Technology's actual role in

organizations that are NSE listed. The empirical research available mainly focuses on firms in developed nations.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This section looked at the research design that was employed during the study while also defining research population of the study that is deemed representative for this type of study. The researcher will also discuss the data collection and analysis methods to be employed.

3.2 Research Design

This research employed a cross-sectional survey design in a bid to describe the feeling and prevalence of IT in strategic management. This design goes beyond just gathering descriptive data and information but allows the researcher to test and find out the feelings, attitude and preference amongst various respondents and stakeholders Kotler & Armstrong (2001). Cross-sectional survey therefore gives the researcher a broad base of knowledge about the subject who have /do not have the outcome of interest.

The exploratory survey design is preferred given that there are few comprehensive researches that have been undertaken to explore the usage of IT capabilities to formulate and implement strategy in firms listed at the NSE. This research may therefore be classified as the ‘descriptive – information’ type of research that attempts to ‘unearth’ how IT is pushing competitiveness in firms listed in the NSE. (www.nse.co.ke/listed-companies/list.html).

3.3 Population of Study

At the time of the study, the NSE was made up of 66 companies. These companies are made up of organizations from various sectors such as agriculture, automobile and accessories, commercial services, banking, construction and allied, energy and petroleum amongst others. The companies are considered the blue chip in the economy. The researcher will perform a census of all the NSE listed firms. Collecting data from all 66 respondents gives the researcher the leeway to measure the various tendencies Mugenda & Mugenda (1999).

3.4 Data Collection

The researcher in this study opted for questionnaires as the primary method of data collection. This being a cross-sectional study, the research will be administered by questionnaires containing questions that were open as well as closed ended. The questionnaires will be administered via printed copies of the same and where accessibility to the respondent is not possible, an emailed version will be used (see Appendix B).

The target respondents were senior managers in planning, strategic planning, business and IT functions designated as being responsible for strategy. The role could be identified as Directors, Business managers and or Directors, strategic planners and Chief Information Officer (CIO). Secondary data will be collected from existing literature that were availed to the researcher or from published and unpublished statements.

3.5 Data Analysis

The researcher will incorporate both qualitative and quantitative data analysis methods. This is to ensure a more inclusive data ranges that will ensure detailed information and relevant information collection for the research. The researcher intends to employ descriptive statistics and regression analysis as the form of data analysis. The research will employ the popular Statistical Package for Social studies (SSPS) as the tool for analyzing data. In addition, part B of the questionnaire shall employ the use of both descriptive statistics and also inferential statistics. Inferential statistics shall be employed using factor analysis to help achieve data reduction of the many variables of strategic objectives requiring IT.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The study looked into information technology and implementation of strategic management practices in firms listed by the Nairobi Stock Exchange. The main aim of the study was to find out whether adopting information Technology had an impact on implementation of strategic management practices by organizations listed by the NSE. This chapter therefore presented data analysis as well as presentation of findings as per the stated objective.

4.2 Demographic Profile

The research study sought to find out various demographic profile of the respondents and also the basic background information regarding their organizations. This information was necessary to enable the researcher determine the appropriateness of the expected responses regarding the variables under research.

4.2.1 Response Rate

The populataion that the researcher targeted for data collection was 66 organizations listed in the Nairobi Securities exchange. Although questionnaires were issued to all these 66 organizations be filled out by the respondents, the total number that was filled and submitted back on time was 36 questionnaires. This accounts for 54.5% rate of response which basing on the assertions of Mugenda and Mugenda (1999), that a 50% rate of response is adequate for purposes of proceeding with data analysis as well as reporting, this response rate was sufficient to be analysed and conclusions drawn.

4.2.2 Gender of Respondents

The researcher asked the respondents to indicate their gender. This was necessary so as find out the gender distribution among management in the population. The findings were as indicated in Table 4.1

Table 4. 1: Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	2	5.6	5.6	5.6
	Male	34	94.4	94.4	100.0
	Total	36	100.0	100.0	

Source: Research Data 2019

The findings indicated that majority,(94.40%) of the respondents were male while the female respondents were 5.60%. The results clearly indicate there being a higher number of male employees than female.

4.2.3 Highest Level of Education

The researcher also asked the respondents to indicate the maximum education level they had acquired. It was important to establish the level of education since the level of education greatly determines the understanding of employees to their work duties. The study findings were as shown in Table 4.2

Table 4. 2: Level of Education

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma	7	19.4	19.4	19.4
	Degree	22	61.1	61.1	80.6
	Masters	7	19.4	19.4	100.0
	Total	36	100.0	100.0	

Source: Research Data, 2019

Study findings in Table 4.2 indicated that the majority, 61.1 % had attained bachelors' degrees, followed by 19.4 % with masters and also a similar number 19.4%

had obtained diploma education. Conclusions can therefore be drawn from the findings that a higher number respondents are educated and comprehended how IT affects implementation of strategy

4.2.4 Roles Played by the respondents

The researcher asked the respondents to indicate what roles they played in the various organizations that they work in. This information was necessary to indicate whether they had relevant information from practical experience to be able to provide relevant information for the study. The results are as shown in the Table 4.3

Table 4. 3: Roles played by the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Operations	17	47.2	47.2	47.2
Business Development	11	30.6	30.6	77.8
IT	8	22.2	22.2	100.0
Total	36	100.0	100.0	

Source: Research Data, 2019

From the output given, it can be construed that majority of the respondents (47.2%), worked at operations department. About (30.6%) worked at business development while an estimate of (22.2%) worked at the IT department. These results could indicate that the respondents who participated in this study were well equipped with firsthand information regarding the research variables.

4.2.5 Length of Service

The respondents were asked to indicate the length of time that they had served in their various positions. The findings are as indicated in the Table 4.4

Table 4. 4: Number of years worked

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-5 years	5	13.9	13.9	13.9
6-10 years	24	66.7	66.7	80.6
10-15 years	7	19.4	19.4	100.0
Total	36	100.0	100.0	

Source: Research Data, 2019

From the findings in Table 4.4, majority, 66.7% had an experience working for the firm for a period ranging between 6-10 years followed by 13.9% working for between 0-5 years and finally 19.40% had worked for between 10-15 years. This implies that majority of the respondents had worked for a considerable period of time to study trends and outcomes in their various organizations and thus were in a position to give reliable information regarding the concept under study.

4.2.6 Sectors Represented by Respondents

The researcher asked the respondents to indicate which industries their organizations belonged. This information would enable the researcher to ascertain the distribution levels of the respondents across the different sectors or industries. The findings are as represented in the Table 4.5

Table 4. 5: Sectors Represented

	Frequency	Percent	Valid Percent
Valid Commercial and services	8	22.2	22.2
Finance and Investment	7	33.9	33.9
Agriculture	5	13.9	13.9
Industrial	12	19.4	19.4
Alternative	4	11.1	11.1
Total	36	100.0	100.0

Source: Research Data, 2019

From the findings in Table 4.5, 19.4 % of the respondents were from the Industrial and allied sector, 33.9 % were drawn from Finance and investment sector, 22.2% were from Commercial and services, 11.1% were from the alternative while 5% were from the agricultural sector. This indicates that most of the respondents were from the Industrial and Financial services sectors. The study therefore has representation from all the sectors which means the findings were highly representative and could be generalized.

4.3 Descriptive Analysis of Responses

4.3.1 Findings on the IT Implementation

The researcher sought to find out the extent to which IT had been adopted in the various organizations under study. The respondents were therefore presented with various statements regarding the extent of adoption of IT in carrying out various strategic practices. The findings are as indicated in Table 4.6

Table 4. 6: Descriptive Statistics on IT Implementation

	N	Mean	Std. Deviation
The organization has adopted IT in formal strategic planning process	36	4.5833	.50000
Use of IT is extensively adopted in the organization	36	4.6944	.57666
IT plays a key role in the current organizational business environment	36	4.8889	.31873
Use of IT has been embraced as a key strategic tool in the organization's functions.	36	4.1389	.83333
Use of IT has been adopted by the organization in situational analys	36	4.0556	.75383
Valid N (listwise)	36		

The results shown in Table 4.6 illustrate that most of the organizations had to a large extent adopted IT in their organizations in carrying out various strategic functions. With regards to whether the organization had adopted IT in formal strategic planning process and the whether IT was extensively adopted in the organization, the respondents indicated a positive response with a mean of 4.5833 and 4.6944 with standard deviations of 0.5000 and 0.57666 respectively. With regards to whether IT plays a critical role in the current organizational business environment if IT had been embraced as a key strategic tool in the organization's functions the findings indicated a positive response with means of 4.8889 and 4.1389 with standard deviations of 0.31873 and 0.83333 respectively. With regard to whether IT had been adopted by the organization in situational analysis the findings indicated a positive response as well posting a mean of 4.0556 with a standard deviation of 0.75383.

4.3.2 Competitive Strategic Objectives

The researcher asked the respondents to point out to what extent IT had been applied with regards to implementation of the listed competitive strategic objectives. The scale was rated from 1-5 where by 1 represented the least extent and 5 represented the greatest extent. The results are as illustrated in the Table 4.7

Table 4. 7: Competitive Strategic Objectives

	N	Mean	Std. Deviation
Develop organizations Vision, Mission, Objectives and Goals	36	3.5278	.90982
Communicate organizations Vision, Mission, Objectives and Goals	36	4.8333	.37796
Develop, Communicate and Execute performance measures and benchmarks	36	4.8056	.40139
Change the way organizations access, process and deliver information to stakeholders	36	4.3889	.80277
Bridge the gap between the firms and stakeholders	36	3.6389	1.17480
Analyze large pools of data and trends faster	36	3.7778	1.14919
Bridging the gap between the firms and competition	36	4.3611	.72320
Valid N (listwise)	36		

Source: Research Data, 2019

From the findings, developing organizations Vision, Mission, Objectives and Goals and communicating organizations Vision, Mission, Objectives and Goals Develop had a mean of 3.5278 and 4.8333 with standard deviations of 0.90982 and 0.37796 respectively. With regards to Communicating and executing performance measures and benchmarks as well as changing the way organizations access, process and deliver information to stakeholders, the mean was at 4.8056 and 4.3889 with standard deviations of 0.40139 and 0.80277 respectively. Bridge the gap between the firms and stakeholders as well as bridging the gap between the firms and competition the results indicated a mean of 3.6389 and 3.7778 with standard deviation of 1.17480 and 1.14919 respectively. With regards to analysis of large pools of data and trends faster, the results indicated a mean of 4.3611 and a standard deviation of 0.72320.

4.3.3 Operational Strategic Objectives

The researcher asked the respondents to point out to what extent IT had been applied with regards to implementation of the listed Operational Strategic Objectives. The scale was rated from 1-5 where by 1 represented the least extent and 5 represented the greatest extent. The findings are as indicated in Table 4.8

Table 4. 8: Operational Strategic Objectives

	N	Mean	Std. Deviation
Provide new and improved offerings (products and services) to customers.	36	4.3611	.72320
Improve the quality of managerial information for strategic planning.	36	3.7778	1.14919
Enable faster retrieval, delivery and presentation of information and reports for strategic decision making.	36	4.3889	.80277
Enable swift access to information.	36	3.6389	1.17480
Improve and increase the accuracy, flexibility and reliability of information requested and sought.	36	3.7778	1.14919
Increase the volume of information output to stakeholders	36	4.3611	.72320
Improve information for management and operational control.	36	4.3611	.72320
Save money by reducing redundant workforce	36	4.3889	.80277
Cost saving in travel and communication	36	3.6389	1.17480
Cost savings during system modification and improvement.	36	3.7778	1.14919
Offers avenues for prototyping and modelling new products and services	36	4.3611	.72320
Improve performance tracking	36	4.3611	.72320
Speed up transaction and shorten product cycles.	36	3.7778	1.14919
Speed up automation and product engineering and re-engineering	36	4.3889	.80277
Move into new business	36	3.6389	1.17480
Creates new mass market through online marketing	36	3.7778	1.14919
Lower entry barriers to new markets	36	4.3611	.72320
Raise entry barriers in current industries	36	4.3611	.72320
Valid N (listwise)	36		

Source: Research Data, 2019

The findings from Table 4.7 indicate that IT was applied in the provision of new and improved offerings (products and services) to customers as well as improvement of the quality of managerial information for strategic planning as indicated by the mean of 4.3611 and 3.7778 with standard deviation of 0.72320 and 1.14919 respectively. With regards to enabling faster retrieval, delivery and presentation of information and reports for strategic decision making as well as swift access to information the results indicated means of 4.3889 and 3.6389 and standard deviations of 0.80277 and 1.17480 respectively. With regards to improved and increased accuracy, flexibility and reliability of information requested and sought as well as increased volume of information output to stakeholders, the means recorded were 3.7778 and 4.3611 with standard deviations of 1.1491 and 0.72320. With regards to improved information for management and operational control the mean was 4.3611 with a standard deviation of 0.72320. With regards to saving money by reducing redundant workforce as well as cost saving in travel and communication and also during system modification and improvement, the means recorded were 4.3889, 3.6389 and 3.7778 with standard deviations of 0.80277, 1.1748 and 1.14919. with regards to offering avenues for prototyping and modelling new products and services and improving performance tracking, the recorded means of 4.3611 and 4.3611 with a standard deviation of 0.72320 and 0.72320 respectively. The speeding up of transactions and shortening of product cycles and also speed up of automation and product engineering and re-engineering both had means of 3.7778 and 4.3889 with standard deviations of 1.14919 and 0.80277 respectively. Moving into new business as well as creation of new mass market through online marketing both had a mean of 3.6389 and 3.7778 with standard deviations of 1.17480 and 1.14919. With regards to lowered entry barriers to new markets as well as raised entry barriers in current industries, they both recorded means of 4.3611 and 4.3611 with standard deviations of 0.72320 and 0.72320 respectively.

4.4 Application of IT in Strategic Management Practices in Firms Listed in the NSE

The research concentrated on information technology and strategic management practices in NSE listed firms. The findings from the study show that the listed firms use IT in strategic management practices during environmental analysis which enables them match their strengths and capabilities to the opportunities in the external environment. The respondents indicate that the organizations use a structured approach of assessing IT opportunities during environmental analysis.

Under the competitive dimension, findings indicate that the organizations have adopted IT in enabling the firms keep up with competitors, aligning the organization with the vision and mission and creating strategic advantage for the organizations. Leveraging on IT, the organizations are also able to raise entry barriers in current industries and moving into new business lines thus limiting the competition levels.

Under the operational strategies dimension, opportunities considered to be critical that were presented by IT included increased volume as well as Information quality necessary in planning and operational control, reducing costs with regards to communication, as well as cutting costs associated with labor costs by avoiding the need to grow the number of employees. Organizations resources are managed more efficiently, better strategies are formulated, and efficiency and effectiveness is facilitated by the use of information technology. At the same time customer satisfaction is improved and in most instances met. Using IT has also facilitated the information sharing among various existing information systems and eased transmission, integration and processing of data from various departments within the organization

4.5 Discussion of Findings

Majority of researchers agree that IT is an important element when it comes to strategic management in organizations. Indeed, the use of Information Technology as

a competitive weapon has been researched and agreed upon by many authors (Porter and Miller, 1985). The strategic impacts of IT are also very evident in business today. Strategic management is also a widely accepted concept in management with findings indicating majority of organizations interviewed having implemented formal strategic management practices.

From the findings on the ranking of different statements on adoption of IT, it can be deduced that majority of organizations listed in the NSE have embraced IT in their implementation efforts of strategic management practices. This is evidenced by high average means on all the statements presented on the extent of IT adoption. The findings indicate that majority of organizations have adopted IT in their formal strategic planning process and that it has been adopted extensively within the organization's departments. This implies that these organizations recognize the vital role that IT plays in the current business environment. The findings also imply that the organization strive to attain an advantage of utilizing IT in their strategic functions. These findings were found to be in line with assertions of Porter and Millar (1985), who relate IT to the firm's value chain and argue that the main strategic purpose of IT is to coordinate activities in the chain as well as Keen (1993) who concludes that IT should support competitive thrusts such as cost leadership, differentiation, innovation, growth, and external alliances.

The findings on the implementation of strategic objectives clearly indicate that IT has aided the achievement of both competitive strategic objectives as well as operational competitive objectives. This has also been evident as indicated by the higher means in the different statements presented. Important in the process of strategic management is the situational analysis whereby majority of the organizations indicated that they had adopted IT in analyzing their internal and external environment which still enables them to position themselves strategically in relation to their strengths and capabilities. Bakos and Treacy (2006) categorizes IT opportunities into three distinct dimensions; opportunities for competitive strategy, opportunities for internal strategies and opportunities for business portfolio strategies which if organizations are able to identify in a structured way, they can reap benefits by improving their performance

The study has also indicated that the organizations have to keep up with the changing business environment and IT is playing a major role in enabling them compete favourably with the existing competition. This finding are in line with assertions from Ansoff and Sullivan (1993), regarding the organization being an open system that is dependent on the environment. This is in line with assertions of Mirani & Lederer (1998) who break down competitive objectives into competitive advantage, alignment and customer relations and argue that IT is a transformation enabler of business advantages through creation of new products, processes, product delivery methods, market opportunities, and even new organizational forms

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings, the conclusion that have been drawn as well as the recommendations that are anchored on the research findings. The chapter will also address the areas that might be ideal to conduct further research

5.2 Summary

The research objective was to determine the effect of Information technology and implementation of strategic management practices of firms listed in Nairobi Securities Exchange. From the findings, most of the respondents were in agreement to a high extent that IT had been adopted in their respective organizations and that it played a significant role in implementation of strategic objectives. These results indicate that the majority of the organizations had to a large extent adopted IT in their organizations in carrying out various strategic functions and that they had adopted IT in formal strategic planning process and extensively adopted in various strategic areas of the organization This was illustrated by a mean of 4.6944. It was also clear that IT plays a key role in the current organizational business environment and that organizations had embraced it as a key strategic tool in the carrying out functions and conducting situational analysis

The findings also indicated that the organizations had to large extent adopted IT to aide implementation of strategic objectives in their organizations. These includes that developing and communicating organizations Vision, Mission, Objectives and Goals and communicating organizations Vision, Mission, Objectives and Goals as well as communicating and executing performance measures and benchmarks and changing the way organizations access, process and deliver information to stakeholders. This was evident from the average mean of 4.8056. It was also clear that IT was used to bridge the gap between the firms and stakeholders as well as the gap between competition, and also in the analysis of large pools of data and trends.

5.3 Conclusions

From the findings, the study can conclude that NSE listed firms listed in the Nairobi stock exchange had embraced IT in their strategic management efforts whereby they have taken advantage of this resource to identify and explore opportunities availed to them. By deploying their IT capabilities, these corporations can better manage these strategies by creating significant process savings and lowering the absolute cost of the implementing the outlined strategies

In order to implement and firmly establish this resource successfully in the organizations, it is essential that the IT system offers an easy interface, allowing all participants in the organizations including suppliers, manufacturers and buyers to participate in the system. This is because it was established that for an organization to be more effective, efficient and at the same time reduce its operating cost; technology is one of the factors that they should consider adopting.

Several benefits arise from adopting IT systems in strategic management: increased compliance with strategic procurement contracts ,reduced spending ,efficient search of products and alternative choices ,control over requisition approval ,shorter order and delivery time, monitoring of the suppliers and their product portfolio ,electronic purchase order completion in back-end system ,improved procurement process automation and control ,lowered cost of supplier participation ,rapid return on investment ,efficiency is improved, operating costs is reduced in the long run, customers feel better served as the speed of operating improves, and information is easily shared among users among others.

5.4 Recommendations

Information Technology presents many opportunities for NSE listed organizations. However, the concept of IT is still developing and the awareness levels of integrating IT and strategy is still limited and this has undermined the development of this area. A structured approach for assessing opportunities presented by IT has been proposed in this study and companies will benefit a lot by taking advantage of these opportunities to formulate their Internal, Competitive and Business portfolio strategies.

5.5 Limitations of the study

Due to time and cost constraints the study limited itself to a descriptive design whereby the researcher looked at IT adoption in strategic management practices. This implies that the findings obtained in this study are not conclusive. The researcher used questionnaires open-ended questions and was not able to follow up due to the restrictions and unavailability of respondents during data collection. This hindered the researcher from probing further to get more clarifications on the specific issues

5.6 Suggestions for Further Research

This study proposes further research to be undertaken by applying the same concepts of study to specific industries such as manufacturing, banking or by carrying out case studies in specific firms to ascertain whether industry or firm specific dynamics can alter the results of the study as compared to the findings in this study. Further research can also be undertaken on firms not listed at the NSE and compare with findings from other studies to find out if the results have similarities. Finally, further research can be carried out to investigate the role of Information Technology as a strategic resource.

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APPENDICES

Appendix A: Companies Listed in the NSE

AGRICULTURAL SECTOR:

Eaagards Ltd

Kapchorua Tea Co. Ltd.

Kakuzi

Limuru Tea Co. Ltd.

Rea Vipingo Plantation Ltd.na

Sasini Ltd.

Williamson Tea Kenya Ltd.

AUTOMOBILES AND ACCESSORIES:

Car and General (K) Ltd.

Sameer Africa Ltd.

BANKING:

Barclays Bank.

CFC Stanbic Holdings Ltd.

I&M Holdings Ltd.

Diamond Trust Bank Kenya Ltd.

HF Group Ltd

KCB Group Ltd

National Bank of Kenya Ltd.

NIC Bank Ltd.

Standard Chartered Bank Ltd.

Equity Group Holding.

The Co-operative Bank of Kenya Ltd.

COMMERCIAL SERVICES:

Express Ltd.

Kenya Airways Ltd.

Nation Media Ltd

Standard Group Ltd.

TPS Eastern Africa (SERENA) Ltd

Scanroup Ltd

Uchumi Supermarkets

Longhorn Publishers Ltd.

Atlas Development and Support Services.

Deacons EA Ltd

Nairobi Business Venture Ltd.

CONSTRUCTION AND ALLIED:

Athi River Mining

Bamburi Cement Ltd

Crown Berger Ltd

E.A Cables Ltd

E.A Portland cement Ltd.

ENERGY AND PETROLIUM :

KenolKobil Ltd.

Total Kenya Ltd

KenGen Ltd

Kenya Power and Lighting Co. Ltd

Umeme Ltd

INSURANCE:

Jubilee Holding Ltd.

Sanlam Kenya Ltd.

Kenya RE-Insurance Corporation Ltd.

Liberty Kenya Holdings Ltd.

Britam Holdings Ltd.

CIC Insurance Group Ltd.

INVESTMENT:

Olympia Capital Holdings Ltd.

Centum Investment Co. Ltd

Home Afrika Ltd

Kurwitu Ltd

INVESTMENT SERVICES:

Nairobi Securities Exchange.

MANUFACTURING AND ALLIED:

B.O.C Kenya Ltd.

BAT Kenya Ltd.

Carbacid Investment Ltd.

EABL Ltd.

Mumias Sugar Ltd.

Unga Group Ltd.

Eveready E.A Ltd.

Kenya Orchads Ltd.

Flame Tree Group Holdings.

TELECOMMUNICATION AND TECHNOLOGY:

Safaricom Ltd.

REAL ESTATE INVESTMENT TRUST:

Stanbic Fahari I-REIT

EXCHANGE TRADED FUND:

New gold Issuer (RP) Ltd.

Appendix B: Questionnaire

SURVEY ON THE APPLICATION OF TECHNOLOGY IN STRATEGY FORMULATION AND IMPLEMENTATION.

SECTION A: Interviewee Demographics

1. Please provide the information below.
 - a. Position: _____
 - b. Sector: _____
 - c. Reporting to: _____
2. Education and training: _____
3. Gender: _____
4. Career:
 - a. Number of year with the Organization/Division/Department _____
 - b. Business/IT/Operation: _____

10. Please indicate to what extent you have applied IT in your organization in order to meet various strategic objectives.

Strategic Objectives for your Organization.	Extremely applied	Applied	Indifferent	Rarely Applied	Never Applied
Competitive Objectives					
Develop organizations Vision, Mission, Objectives and Goals					
Communicate organizations Vision, Mission, Objectives and Goals					
Develop, Communicate and Execute performance measures and benchmarks					
Change the way organizations access, process and deliver information to stakeholders					
Bridge the gap between the firms and stakeholders					
Analyze large pools of data and trends faster					
Bridging the gap between the firms and competition.					

Information Technology and Strategy Implementation					
Strategic Objectives for your Organization.	Extremely applied	Applied	Indifferent	Rarely Applied	Never Applied
Provide new and improved offerings (products and services) to customers.					
Improve the quality of managerial information for strategic planning.					
Enable faster retrieval, delivery and presentation of information and reports for strategic decision making.					
Enable swift access to information.					
Improve and increase the accuracy, flexibility and reliability of information requested and sought.					
Increase the volume of information output to stakeholders					
Improve information for management and operational control.					
Save money by reducing redundant workforce					

Cost saving in travel and communication					
Cost savings during system modification and improvement.					
Offers avenues for prototyping and modelling new products and services					
Improve performance tracking					
Speed up transaction and shorten product cycles.					
Speed up automation and product engineering and re-engineering					
Move into new business					
Creates new mass market through online marketing					
Lower entry barriers to new markets					
Raise entry barriers in current industries					