COMPETITIVE STRATEGIES AND PERFORMANCE OF FIRMS IN THE SOFTWARE INDUSTRY IN KENYA

BY

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DECLARATION

This management project is my original work and has not been presented tor a degree in any other university.

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Declaration by the Supervisor

This management research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

I would like to dedicate this study to my family, work colleagues and my close friends for the encouragement they have given me during the study.

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ABSTRACT

Competition in the software industry in Kenya has intensified making competitive strategies imperative for firms in this industry if they are to survive. This study determines the extent of use of competitive strategies by software firms in Kenya and provides an indication on which particular competitive strategy has been used to improve the performance of these firms.

CHAPTER ONE: INTRODUCTION

1.1. Background

The Software Industry is by all means one of the most dynamic and exciting industries of the 21st Century (Galliers and Leidner, 2006), resulting in the growth of one of the world's wealthiest companies (e.g. Microsoft Inc, Google Inc and Tata Consultancy Services). In Kenya, several entrepreneurs and investors have joined this dynamic sector with hopes of mimicking these successful global companies. This phenomenon has lead to increased competition amongst software firms and may have affected their level of performance.

1.1.1 Competitive Strategies

Porter (1980) viewed competitive strategies as a two dimensional phenomenon with a supply side - strategic scope; and a demand side - strategic strength. He later simplified the scheme into three generic strategies, namely 'overall cost leadership', 'differentiation" and 'focus'. Johnson, Scholes & Wittington (2006) on the other hand, perceive competitive strategies from a business level perspective and believe that it is the achievement of competitive advantage by a business unit in its particular market. They advocate for a hybrid strategy which provides a market-facing element to Porter's (1980) model in the form of price as a new dimension and its combination with differentiation. Sidorowicz (2007) on the other hand sees competitive strategies as more skill-based and involving strategic thinking, innovation, execution, critical thinking, positioning and the art of warfare.

For Porter (2004), competitive strategies primarily evolve explicitly through a planning process or implicitly through approaches dictated by a firm's professional orientation and the incentives of its directors. Although Porter (1980) pioneered thinking in this field, several scholars have questioned his ideas, thus leading to further research and debate on the topic, with key works coming from Faulkner & Bowman (1995), Hax and Wilde (1999), Treacy and Wiersema (1993). However it is Porter's (1980) pioneering thinking and his "*Five Forces Model*" that has gained popularity and become the predominant framework for analyzing the competitiveness of firms within an industry. Nevertheless, newer competitive strategy-frameworks have built on Porter's (1980) model since then; the Strategy Clock being one of them (Johnson et al, 2006).

1.1.2 The Software Industry in Kenya

The local software industry has remained highly informal until recently with the launch of the Kenya Software Developers Association (KSD) in May 2008 and the founding of the Kenya Software Industry Association (KeSIA) in June 2008. KeSIA was launched by the Kenya Information and Communications Technology Federation (KIF) which is the ICT arm of the Kenya Private Sector Alliance (KEPSA). Other professional bodies exist such as the Computer Society of Kenya (CSK), the Kenya Information Society (KIS), the Business Software Alliance (BSA) and the Free and Open Source Software Foundation for Africa (FOSSFA) just to name a few. In light of its informal history, the local software industry is now guided by policy, regulation and structure with the enactment of the Kenya ICT Board in February 2007 as a state corporation.

The Kenya ICT Board considers the software industry in Kenya as under developed with most firms operating as small (under 10 employees) to medium scale enterprises and focusing on the retailing and distribution of standard software and packages with little focus on the production side. Although no accurate description has yet been provided by the Kenya Software Developers Association (KSD) on which particular firms comprise the local software industry, guidance has been borrowed from Steinmueller (1995) for the purposes of this study. Steinmueller (1995) describes independent software vendors as those companies that produce software as their primary business.

Research by Nduati and Bowman (2004) has shown that over 80% of software application products sold locally comprise of off-the-shelf packages made by leading international software houses such as Oracle, Microsoft, SAP and Accpac. A separate study carried out by Polzin (1998), revealed that although local software companies have the advantage of leapfrogging older obsolete technologies, they still have not kept up with cutting edge technological innovations and hence the proliferation of software products from these international vendors in the local market.

Polzin (1998) believes that this may be attributed to the limited research and development that takes place within local software firms, or the limited scale of their target markets. This fact has forced investors and financiers to take a risk-averse approach to heavy investments in software firms. Financiers are also aware of the prevalence of software piracy in the industry, with the most recent study estimating this at 81% in Kenya (Business Software Alliance,

2007). Software piracy erodes potential revenue from software firms and has a bearing on the level of risk for investors in the local software industry. Nduati and Bowman (2004) also note that there is little or no legislation in intellectual property in Kenya and attempts at enforcement through the Kenya Copyright Board have not been very successful. These factors have lead to the lack of the much needed venture capital to allow the industry to thrive (Polzin, 1998).

Nevertheless, despite these challenges, the local software industry continues to receive new entrants. A" study carried out by Palvia, Palvia & Zigli (1992) reveals that the software industry in Kenya is indeed competitive. The study sites a proliferation of mixed vendor shops, obsolescence of computer programs and a lack of skilled personnel as factors influencing the competitiveness of software firms. Research by Nduati and Bowman (2004) has shown that recent technological trends have created paradigm shifts in the nature of the competitiveness of the local software industry. Nduati and Bowman (2004) site these as the growth of the Internet, the proliferation of mobile devices and telecommunication networks and the growth of the "open-source software" segment of the market. Nduati and Bowman (2004) argue that although these trends have made software products more accessible and affordable, they have also eroded the profits of many mature software players in the market. Nevertheless, Nduati and Bowman (2004) note that competition within the local software industry still remains largely driven by market forces.

1.2. The Research Problem

Given that the intensity of competition in the software industry in Kenya is increasing and the nature of this competition is changing (Nduati and Bowman, 2004; Palvia et al, 1992), it is important for all stakeholders to gain knowledge on how best to employ competitive strategies within it in a bid to improve the performance and survival of their Firms. The question therefore lies as to which competitive strategy to employ and whether the implementation of a particular competitive strategy may result in a marked improvement in the performance of these firms.

Although a lot has been researched on competitive strategies in various industries, research is limited on the software industry in Kenya, its competitiveness, the strategies employed and the relation of the implementation of these strategies to the performance of these firms. Studies by Parker & Lilly (2000), center round the economics and market size of the software

industry in Kenya whereas those by Palvia et al (1992), center round the Management Information System (MIS) related issues. Studies by Kashorda and Wagacha (2007), center on promoting the use of Information and Communications Technology and software for trade in Kenya. In the current study, more research was carried out on existing software organizations, the competitive strategies they are currently employing and which of these strategies resulted in improved performance. No study has been found that has addressed these issues, yet competition in the industry has intensified making competitive strategies imperative for firms in this industry if they are to survive.

1.3. The Research Objectives

The major objectives of this study were as follows:

i) To determine the extent of use of competitive strategies in the software industry in Kenya;

ii) To establish which competitive strategy gives software firms a competitive edge;

iii) To explore the relationship between competitive strategies employed in Kenya's software industry and the firm's performance.

1.4. Importance of the Research

The Information and Communications Technology (ICT) industry and its derivative the Software Industry is considered the most critical sector affecting economic growth and development in Africa (Heeks, 1996). Heeks continues to argue that the development of a local software industry is the best entry point for Africa into the ICT production complex. This study therefore provides more insight into competitive strategies employed by software firms in Kenya and the influence these strategies have on their performance. ICT policy makers, entrepreneurs and investors will benefit from the findings in this study and may use the results of this study to further enhance the competitiveness of firms or gain insight on how various competitive strategies may improve the performance of software firms.

1.5. Scope of the Study

This paper presents an analysis of the competitive strategies within the software industry in Kenya. This paper avoids an elaboration on the precise structure of the software industry but rather concentrates on its competitive dimension. The study addresses the extent of use of competitive strategies within software firms in Kenya and attempts to identify which competitive strategy gives software firms a competitive edge in the market. Finally, this study explores the relationship between the competitive strategies employed by software firms and their relative performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Competition and Its Challenges

Competition occurs naturally between organisms and organizations co-existing in the same environment, the main purpose being survival. Competition is usually for scarce resources but may also be for intangible aspects. From a financial point of view, competition drives down rates of return on investment. If the returns in an industry are high, then the industry will encourage investment and therefore new entrants. Looking at competition from Porter's (1980) perspective, it can be considered to be the rivalry between firms (Porter, 2004). Njoroge (2004) considers competition the best general process for optimizing efficiency and equity.

2.L1 Forms of Competition

Most economic texts classify competition as consisting of four key forms namely; pure or perfect competition, monopolistic or imperfect competition, oligopolistic competition and monopolies (Reynolds, 2005). Pure competition and pure monopoly environments are the more extreme forms of competition but rarely occur in the real world (Reynolds, 2005). A pure monopoly is characterized by a single seller who controls the supply of a good or service and prevents other businesses from entering the field (Reynolds, 2005). According to Case and Fair (2007), pure competition exists wheti a large number of sellers produce a certain type of product or service that is slightly differentiated. These sellers have low barriers of entry into the market and easily enter or leave it as they choose. No attempt is made in this study to further expound on these extreme forms of competition as it is believed that they present a hypothetical market structure (Reynolds, 2005). For this reason, focus is accorded mainly to the imperfect forms of competition, namely; oligopolistic and monopolistic competition.

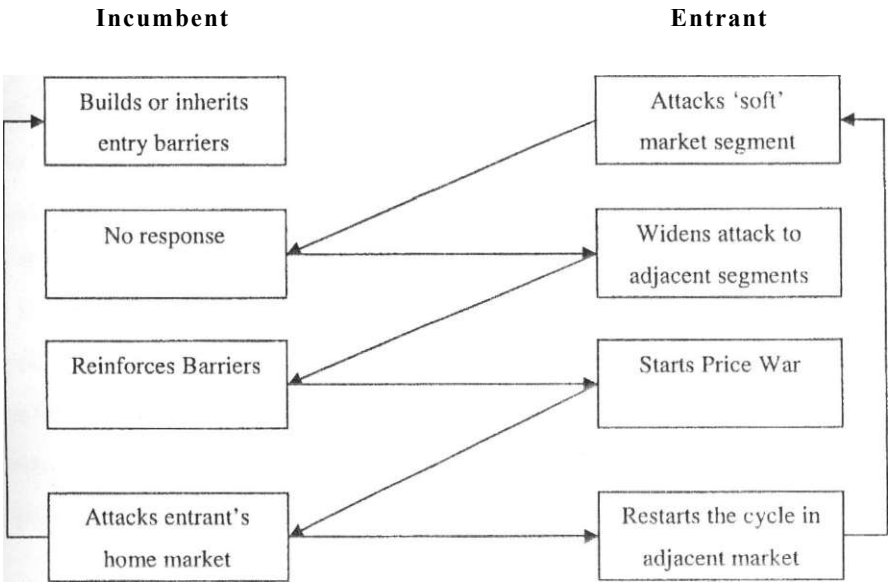
If there are a few sellers in a certain industry, with a high level of interdependence between each other, selling products that are identical or slightly differentiated, then the industry is considered to have oligopolistic competition (Reynolds, 2005). Products can be differentiated based on price, quality, image, or some other feature. An alternative market structure is the monopolistic competitive environment where there are many producers and consumers in a market (Wikipedia, 2008). Consumers in this market perceive there to be no price difference among the competitor's products with few barriers of entry for firms. However, these firms do have some degree of control over price.

The issue of which market structure is good for the software industry has been the topic of debate in recent times. Ericson (2007) sights three companies, International Business Machines (IBM) in the 70s, Microsoft Inc. in the 90s and Oracle Inc. from 2005 as displaying characteristics of monopolies. He continues to argue that the existence of a monopoly in the software industry may be advantageous in that it drives down the total cost of ownership of a piece of software and that new entrants or smaller competitors are forced to provide highly differentiated products thus providing better value for money to consumers.

Due to the dynamism of the technology sector, there may be some prejudice in describing the competitive environment of the software industry in Kenya as hyper-competitive. Horney (1950, in Wikipedia 2008) describes hyper-competition as a form of extreme and unhealthy competition. Johnson et al (2006) consider a hypercompetitive market as one facing turbulent, fast-changing, uncertain business environments and increased levels of competition; they further suggest that infant industries may consist of these characteristics.

D'Aveni and Gunther (1995) expound on the notion of competition believing it to be a cycle over time. They believe that over time, any firm's competitive position may be eroded because competing firms manage to overcome some of the competitive forces as described in Porter's (1980) Five Forces Framework. This process of erosion may be speeded up by changes in the macro-environment such as new technologies, globalization and deregulation. Organizations may then respond to this erosion of their competitive position creating what has been called a cycle of competition as shown below.

Cycles of Competition



Source: Adapted from R.A, D'Aveni with Robert Guntlier, Hyper-Competitive Rivalries: Competing in a Highly Dynamic Environment © 1994, Free Press, 1995, p.l 15 in Johnson, Scholes and Wittington (2006)

Tucci (2005) expounds on this idea with the notion that competition is an evolutionary process and a matter of life and death. He believes that it implies losses for the individual firms in terms of lost capital resources, wasted labor and lost time but continues to state that such an environment will create a desired effect in the form of innovation in new technologies, new products and business processes.

2.1.2 Competition in Kenya

Several studies have looked at Kenya's competitiveness in relation to its neighbors or to other markets (Kipng'etich, 2004). Historically, Kenya upon attaining independence enacted the Trade Licensing Act, the Price Control Act and the Imports, Exports and Essential Suppliers Act aimed.at legalizing the take-over of firms by Kenyan citizens and preventing unwanted competition from non-citizens (Njoroge, 2004). After the collapse of the East African Community in the 70s, Kenyan firms were forced to look elsewhere for markets. To prepare these firms for liberalization and the challenges of international trade and commerce, the local market was transformed in 1989 into a "free market economy" paving the way for competing imports into the country. These actions set the stage for a globally competitive and liberalized market in Kenya for many sectors including the Software Industry.

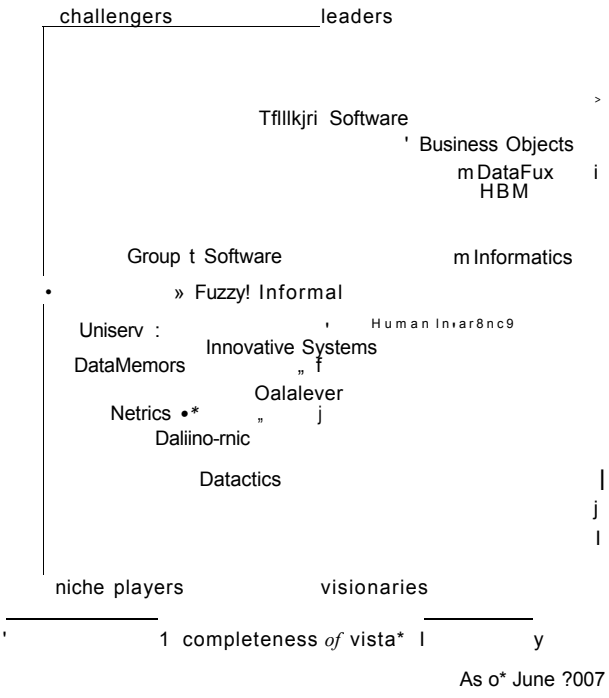
In the software industry in Kenya, the resource base will comprise a target market of approximately 36million people and an annual Information Technology spend of almost $300m as of 2007 (International Data Corporation, 2008). According to the International Data Corporation, over 340 Information Technology companies continuously compete for a skill base of over 10,000 employees locally. Although these Figures may imply that there exists an abundant market with an abundant supply of skill for the few firms in the industry, it must be noted that a significant proportion, approximately 75% - 80% (Heeks, 1996), of the revenue made in the Information Technology industry in Kenya ends up in foreign hands in the form of royalties or license fees payable for intellectual property and innovation created elsewhere. It therefore becomes crucial for the survival of local software firms to employ strategies that will ensure that they are operationally cost sensitive and that they maximize their margins in the supply of software technology within Kenya.

2.1.3 Challenges of Competition

Porter (1985), states that competition is at the core of the success or failure of firms. With such a high level of importance, competition is inevitable within any industry and for every firm. Firms must therefore face up to the challenges of competition. It is through the adoption of a competitive strategy that these challenges are met and overcome. Porter (1985) goes on to explain that the choice of competitive strategy in itself poses several challenges in that a firm must carefully decide which industry it will be in and what position within that industry it will seek to attain. Having made the choice, a firm's next challenge is the sustainability of its competitive position over time amid industry evolution and the erosion of its competitiveness through the behaviour of other competitors.

One of the key challenges of competition, Porter (2004) points out, is that of analyzing competitors. Competitor analysis may be eased by employing *Porter's Five Forces Framework* also known as *Porter's Diamond*, which provides a suitable framework for analyzing the industry that a given firm is in. This framework allows a firm to determine its level of competitiveness within an industry. More recent frameworks such as the Gartner Magic Quadrant as seen below, developed by Gartner Inc., a US based research and advisory firm are designed to provide an unbiased qualitative analysis of a market's direction, maturity and participants. The Gartner Magic Quadrant is usually used by software firms to analyze their level of competitiveness relative to other competitors in the same industry.

Magic Quadrant for Data Quality Tools, 2007



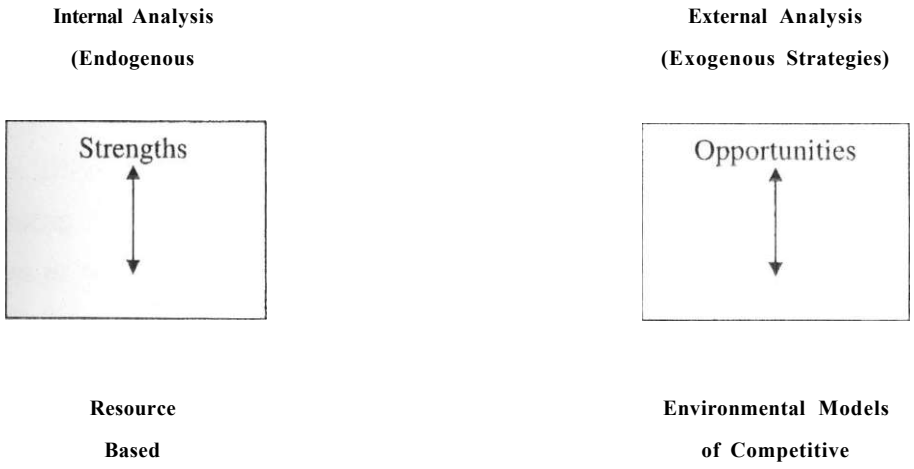
Source: Gartner (June 2007)

Another key challenge of competition is that of anticipating competitor moves. Although strategy execution is important it is also important for firms to build a mechanism where they can detect the strategic moves of competitors and use this to their advantage. To be able to detect competitor moves in the industry, Dulo (2006) proposes that firms monitor competitor actions aimed at achieving sales, growing market share, mergers, acquisitions, strategic alliances or collaborative partnerships. This in itself can be quite a daunting task. Johnson et al (2006) propose the use of Game Theory in this case, thereby enabling the strategist to anticipate the reaction of competitors to strategies that the firm plans to execute.

2.2 Competitive Strategies

Competitive strategy as a topic is diverse with over 20 years of debate and enhancement **(Ansoff, 1965;** Andrews, **1971;** Hofer and Schendel, **1978;** Rumelt, **1984;** Porter and Miller **1985;** Porter, **1985** in Barney, **1991).** Competitive strategy may be viewed from two key **paradigms, i.e.** endogenous (inward-looking) strategies and exogenous (outward-looking) **strategies.** Early works focused on endogenous strategies describing a firm's strengths and **weaknesses** such as the Resource Based View of Strategy as summarized in the figure below.

The relationship between traditional "SWOT" analysis, the RBV model, and models of industry attractiveness.



Source: Barney (1991) Journal of Management 1991, Vol. 17, No. 1, 99-120
Available [online] hup7/www.wang.cwlCTbury.ac.nz/ciHit^inlWStarbuck/Bamgy,html

Porter (2004) takes an exogenous approach explaining that the essence of formulating competitive strategy is relating a company to its environment. He believes that although forces (social, economic, political, technological and legal) outside the firm have a strong influence on it, the key to competitiveness is found in the ability of the firm to deal with these forces better than other firms in the industry. Faulkner & Bowman (1995) concur with Porter (1980) and include the element of price as a competitive strategy dimension.

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2.2.1 Generic Competitive Strategies

According to Robson (1997), strategy gives us sense of direction and generic strategies encapsulate those directions. It was not until 1985 that a model proposed by Porter and Miller (1985) in the Harvard Business Review gave a concise and comprehensive way of defining these directions. In that particular model, Porter (Porter and Miller, 1985) concentrates on how the competitive environment affects the organization and how the competitive strategies are the means by which that organization alters the relative power of the forces, in its favour or in its defense (Robson, 1997). Thus competitive strategy stems from strategic analysis, which as described by Johnson et al (2006) involves the understanding of three factors namely, the environment; the values or objectives of the firm; and its resources. It is the analysis of the competitive environment surrounding a particular firm that allows it to adequately adjust its values or objectives and its resources to better defend itself against competitive threats and gain leadership on the competition.

Porter (2004) identifies competitive strategy actions as positioning, taking an offensive, exploiting change and diversification. Galliers and Leidner (2006), argue that as it becomes harder to sustain operational advantages in a competitive market, firms turn to strategic positioning in order to gain a cost advantage or premium pricing by competing in a distinctive way. In positioning, the company determines areas where it should confront competition and where it should avoid it, whereas in taking an offensive, the company attempts to cope with competitive forces or alter their causes. In exploiting change, the company attempts to take advantage of structural changes in the sources of competition whereas in diversification, the company assesses the future potential of the business. This study proposed to elaborate on whether these strategies are also evident within firms in the software industry in Kenya.

Porter (2004) argues that in order to attain competitive advantage in an industry, it is critical to understand the process of its evolution in order to be able to predict change and strategically react to this change. He suggests that his model developed with help from Miller (Porter and Miller, 1985) of structural analysis of industries be used as a framework for this. By combining this with the product life cycle model (Kotler, (1972) as referenced by Porter, 2004, p. 159) one may be adequately able to analyze and forecast the evolution of any industry.

Porter (2004) identifies evolutionary forces such as changes in buyer's segments served, diffusion of proprietary knowledge, accumulation of experience, product innovation, process innovation, structural change in adjacent industries and government policy change. Johnson et al (2006) site three key methods of sustaining competitive advantage, namely; by collaborating with competitors, through lock-in strategies; by repositioning a firm's competitive strategy over time and by attempting to anticipate competitor moves using game theory as suggested by Dixit & Nalebuff (1993) and McMillan (1992).

Depending on the nature of the market, the competitive advantage of any firm may be long term in the case of stagnant markets or short term in the case of hypercompetitive markets. According to Johnson et al (2006), firms must therefore adopt strategies that comply with the nature of their competitive environment. Repositioning and overcoming competitor's market-based moves using Game Theory are suitable strategies for hypercompetitive markets, whereas collaboration between potential competitors or between organizations may be more suitable in pure markets. Porter (1990) identifies four key prerequisites to gaining competitive advantage in a global context amid intense competition, namely, the maximum use of endowed resources; the forming of domestic networks; the exploitation of domestic demand and a suitable industry and environment structure.

2.2.2 Strategy and Competitiveness

Strategy according to Thompson and Strickland (1998) may be perceived a? a combination of competitive moves and business approaches that managers employ to satisfy organizational vision and objectives. Whereas goals represent the ends which the firm is seeking to attain, strategy is the means to the end. A unique strategy contributes effectively to the competitiveness of business firms (Ansoff & McDonell, 1990). Strategy has emerged since the 50s as a tool for reorienting the organizational thrust. Good strategy can contribute to growth, profitability, market penetration, cost-reduction, cutting-edge differentiation of products and sustainable competitive advantage of business firms (Prahalad and Hamel, 1990).

Porter **(1985)** argues that business strategy is all about competition and gaining competitive advantage over rivals in the market. Porter (1985) continues to argue that competitive strategy is the ability of a firm to meet and beat the performance of its competitor. The purpose of competitive strategy therefore is to establish a profitable and sustainable position against the forces that determine industry competition.

2.2.3 Structural Determinants of the Intensity of Competition

Competition in most global products and services markets is intense; the Software Industry in Kenya is no exception. According to Porter (2004), any industry demonstrating a rate of return much higher than the "free market return" will attract capital inflow or additional investment by existing competitors. Capital inflow will mean new entrants whereas additional investment will mean increased differentiation or repositioning. The strength of the competitive forces is therefore determined by the degree to which this inflow of investment occurs and drives the return to the "free market return" level, and thus the ability for firms to sustain above average returns. From Porter's (1980) argument above, it can be seen that the goal of the firm is to find a position in the industry where the company can best defend itself against competitive forces or can influence them in its favor. Having done this, the firm can then identify its strengths, weaknesses, its positioning in the industry, opportunities and threats as well as areas of diversification.

2.2.4 Competitive Strategies used by Software Firms

Heeks (1996) points out four key competitive strategies for software firms in developing countries the first being the Export Oriented Strategy. He uses India with its massive software exports as a basis for this strategy. Comparing India to Africa, Heeks (1996) sites high barriers to entry for African software firms due to lack of skills, inadequate infrastructure and limited market information. Altenburg, Schmitz & Stamm (2006) state that entry barriers for new firms in the software industry tend to rise due to technologies becoming more complex and requiring not only world class capabilities but also world class capacity. Key challenges in building an export oriented strategy according to Heeks (1996) are experience, diversified innovation systems, infant industry protection and reverse engineering.

The second strategy according to Heeks (1996) is the Software Package Market Strategy. This strategy focuses on trading software as a packaged commodity. This strategy allows the company to employ simple sales and marketing skills and to apply a simplistic reseller or sales distribution model. A volume -based strategy is the domain of commodity markets and therefore success in this strategy is related to the total units sold or the annual turnover received. The higher the units sold, the better the performance of the particular software firm. Contrary to this thinking, Galliers and Leidner (2006), propose that in order to remain competitive in such markets, firms must remove their focus from policies and practices and concentrate on how the activities in the industry value chain are performed.

Another strategy employed by software firms in developing countries is the Agency Strategy. Here Heeks (1996) argues that local software firms are yet to master the production of software products suited to customer requirements due to a lack of understanding in application modeling and design and the discipline of human computer interaction. He suggests that they would rather master being agents for global software firms and in turn provide installation, training and customization services to their customers. To remain competitive, firms here employ lock-in strategies as per the Delta Model (Hax and Wilde, 1999) thereby raising the exit barrier and effectively reducing the bargaining power of the customer in the long term.

Another strategy used by software firms is the Catch-up Strategy. The catch-up strategy has been practiced in the Chinese market for several years thereby creating a very large counterfeit industry. The catch-up strategy comprises building from scratch, reverse engineering, aggressive product piracy, enhanced benefits from infant industry protection and out-sourcing for skills or products. The catch-up strategy is used in an attempt to localize or customize software products. According to Nduati and Bowman (2004), 20% of software users have unique requirements warranting the need for locally contracted software development firms. Local innovation and software production targets the insurance, healthcare, financial services sectors with a number of firms focusing on web development services.

Considering the advantages presented by using the catch-up strategy, there are no known cases of local software companies counterfeiting global software products such as Microsoft Office (Nduati and Bowman, 2004). Most local software development firms therefore depend on large business opportunities that exist through government contracts and e-government initiatives as a survival strategy. According to Nduati and Bowman (2004), software firms attempting to produce software packages locally are faced with key challenges such as higher development costs, limited information on targeted consumer markets and limited economies of scale. It may therefore be argued that the catch-up strategy is rarely employed by local software firms due to these factors.

Although not mentioned by Heeks in 1996, another strategy employed in the software industry is a cost leadership strategy. Essentially this is a price-based strategy aimed at attaining cost leadership within the market. Since 2002, awareness and the use of software products that do not require remittance of royalty fees have increased. Local software companies using this strategy therefore attempt to reduce the funds payable overseas in the form of intellectual property, royalty or license fees. The competitive strategy employed usually advocates for an elimination of the license fees costs as an unnecessary expense. Ghosh's (2004) primary argument for why a software firm will use the cost leadership strategy is that it will be difficult for a firm to successfully sell a software product if the per user price is significantly higher than the country's per capita income. For example, if Kenya's per capita income is $371 per year then it is highly unlikely for a Kenyan Firm to successfully sell software costing more than this amount per user per year (Ghosh, 2004). Hence software firms that compete, focus on value addition in the form of better personalized services, more affordable products and a better fit solution for each particular customer's context.

2.3 The Performance of a Firm

The performance of a firm may be defined as the measure of the results achieved by that firm (Wikipedia, 2008). Performance is an abstract concept and must be measured relative to an agreed standard unit of measure or reference point. The main reason for measuring performance is to achieve a perceived improvement in these measures relative to the standard reference point. Potential performance improvement areas of a firm would be its inputs (i.e. number of software developers and number of labour hours); its throughput (i.e. number of software developers per project, time taken per project, lines of software code per functionality); its outputs (i.e. product cost/price, product functionality) and finally its outcome (i.e. comparing the output measures to the agreed upon standard performance measure).

2.3.1 The Concept of Performance

It must be noted that the literature gives no clear definition of a firm's performance (Allen, Helms & Marilyn, 2002). Lusch and Laczniak (1989, in Allen et al, 2002) made an attempt to define performance as the total economic results of the activities undertaken by an organization. However Kaplan and Norton (2006) may argue that Allen et al's (2002) definition considers the Financial Perspective and does not encompass the other three important perspectives namely; the Learning and Growth perspective, the Internal Business Processes perspective and the Customer perspective as proposed in their *Balanced Score Card* approach.

Although several researchers disagree on how to define and operationalize performance, most studies on organizational performance use both financial (e.g. turnover, profit, return on capital employed) and non-financial (e.g. innovativeness, market share) metrics. The measurement of performance becomes an even more difficult undertaking when it is measured at a variety of levels such as industry wide, company-wide or product wide; as the comparison of results may be difficult to analyze due to the variance in contexts (Allen et al, 2002).

Johnson et al (2006) point out that benchmarking may be an appropriate method for assessing the relative performance of a firm. It may be historical, industry wide or a comparison with the best in class. However benchmarking may only be able to illustrate whether a firm is operating above the competitive floor rate or has overachieved or underachieved against a set

target. To circumvent these challenges of selecting an appropriate performance measurement tool, Daum and Bretscher (2004) proposes a Vector-Based method for measuring performance, which captures the quantitative, qualitative and relative aspects of performance attributes, the result being a vector which signifies the Absolute Total Performance of a given firm.

2,3.2 Measuring the Performance of Firms

It can therefore be seen that the performance of any given firm is highly dependent on the use of a particular measurement approach and a contextual standard measure that captures the quantitative, qualitative and relative aspects for a firm's metrics. For the measurement of the performance of software firms in Kenya, there could be debate on what the appropriate contextual standard measure would be. This study used a basket of performance metrics that capture the qualitative, quantitative and relative aspects of a particular software firm and compare these to a benchmark.

2.4 Competitive Strategies and the Performance of Firms

The more aligned the mix between endogenous and exogenous competitive strategies with the corresponding internal and external competitive forces, the higher the ability of the given firm to utilize the competitive force to its favour or to its defence (Robson, 1997). It may be argued that a software firm utilizing several competitive forces to its favour and several others to its defence, will be able to benefit from more opportunities in the market place that would increase its revenue and allow it to overcome more threats that would require it to expense more from its current resource base. Having more revenue resources and lower resource expenses may mean that the firm will have more residual resources to have a higher market share or have a higher potential of performing better than other software firms in Kenya.

In his work, Prescott (1986) sites various academic scholars such as Porter (1980 in Prescott 1986), Scherer (1980, in Prescott 1986), Hofer and Schendel (1978, in Prescott 1986) and Pfeffer and Salancik (1978, in Prescott 1986) as being at the forefront of the debate between the relationship between strategy and performance, a relationship whose nature has not yet been resolved. Much of the strategic management literature has focused on the relationship between strategy and performance and considered environments as moderators of that relationship.

Recent studies have investigated the relationship between the environment on the one hand, strategy and performance variables on the other (Hambrick, 1986, in Prescott 1986; Hitt, Ireland and Stadter, 1982, in Prescott 1986; Jauch, Osborn and Gluck, 1980, in Prescott 1986). However Prescott argues that although considerable research has been covered on the topic, it has not adequately addressed the issue of whether environments are independently related to performance, or they are moderators of the relationship between strategy and performance or some combination of the two.

In order to' achieve a performance that may be considered good, relative to other firms in the industry, Porter (1990) proposes a strategy that requires a firm to identify growth segments, work at achieving operational efficiency and continuously enhance the quality of its products and services. According to Porter (1990), it is the continuous measurement of these performance indicators and their management that determines the long term direction of the firm and its survival. For the software industry in Kenya, not only is the continuous measurement of the key performance metrics important to achieve and maintain competitiveness, but also the strategy formulation and implementation process as well

Johnson et al (2006) propose the use of a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis as a key component during strategy formulation and implementation. Through this framework, a firm may easily identify and manage its strategic capability and be able to stretch or add capabilities as a responsive mechanism to varying degrees of the intensity of competitiveness within the software industry. The more dynamic the capabilities built, the more timely the response to changes in the competitive environment.

The essence of strategy according to Porter (1985) is the need for firms to differentiate themselves from their rivals by choosing to perform some activities differently. The competitiveness of firms can greatly be improved if the chosen strategy is carefully executed by linking three processes: people, strategy and operation (Bossidy, Charan & Burck, 2002). Should a firm face difficulty in executing a particular strategy, then it is advisable for that firm to create an effective structure; enhance its communication; improve its information sharing;, introduce incentives; control systems; institute adequate policies and procedures and employ an effective change management strategy (Hrebiniak, 2005). Kaplan and Norton (2006), also suggest the use of the balanced score card as a strategy map that can help translate the strategy into operational terms. Ungerer, Pretorius & Herholdt (2002), state that the template for

operationalizing the strategy must include nine important items: setting strategic goals; developing strategic measurements; developing strategic initiatives; establishing business goals; action to be taken by members of the team; spelling out responsibility of each team member; developing performance indicators; working out the budget and undertaking progress reviews.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

The proposed study adopted a survey research design. In order to achieve the objectives of the proposed study, a broad spectrum of the Software Industry in Kenya was required. Therefore a survey, by design was seen to be more appropriate as it provided the ability of coverage of breadth as opposed to a case study which provides more detailed knowledge about a particular phenomenon.

3.2 Target Population

In their work Nduati and Bowman (2004) note that software firms in Kenya are mainly concentrated in Nairobi and Mombasa. The population of interest therefore consisted of all software firms in Nairobi. These firms were estimated to be approximately 170 according to secondary data collected from a local firm, Sybase East Africa Ltd (See Appendix 2).

3.3 Sampling Design

This study used stratified random sampling. Name of the firms forming the population was rearranged in alphabetical order where each block of alphabet formed a stratum, each of which produced a sample through random sampling. The source described above provided (he sampling frame needed to carry out the study. Cooper and Schindler (2003). advise that a sample size of 5% of the entire population is adequate as precision will not be sacrificed by reducing the sample size to this percentage.

3.4 Data Collection Method

The study employed the questionnaire method to collect primary data. The semi-structured questionnaire was administered to the respondents, mainly the managing directors and entrepreneurs of software firms using the drop and pick method. The data collection instrument consisted of three parts. Part A covered items eliciting the general information about the company and its competitive environment. Part B dealt with the competitive strategies employed by that company to survive within the competitive environment and Part C dealt with the strategies employed for improvement of performance of the software firm (Please see Appendix 1).

3.5 Data Analysis and Presentation

The questionnaires used for the survey were pre-coded to facilitate easy analysis of data and the responses from each questionnaire input into a spreadsheet for tabulation. The SPSS software package was used for further analysis of the data. The first form of analysis was a measure of location or central tendency, namely the mode. This was to determine the most frequently used competitive strategy. The mean was used to determine the average profitability of all software firms in the sector. A measure of spread was then carried out to determine the variability of strategies used and the range of financial performance within the industry. The data was analyzed using Regression Analysis to determine which competitive strategy most likely resulted in improved performance for the software firm. Data was then presented in the form of frequency tables.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Business Profile

The characteristics of the sample taken for this study were analyzed and presented using frequency tables as shown below.

Table 1: Nature of Business

Nature of Business	Frequency	Percentage
Product business	3	30%
Service business	5	50%
Hybrid business	2	20%
Total	**10**	**100%**

Table 1 above shows that a majority of the respondents (50%) were under the service business. This means that a majority of software firms in Kenya focus on the provision of services. Those software firms in product business comprised 30% whereas the rest of the respondents (20%) were hybrid businesses i.e. providing both products and services.

Table 2: Number of Years in Business

No. of Years in Business	Frequency	Percentage
1 year	3	30%
2 - 5years	4	40%
6 - 9years	2	20%
Above lOyears	1	10%
Total ~	**10**	100%

Table 2 above shows that most of the firms interviewed (40%), had been in business for between 2 - 5 years. This means that most of the software firms studied had not been involved in the business for a long time. Only 10% of the firms interviewed were over lOyears old.

Table 3: Number of Employees in the Organization

No. of employees	Frequency	Percentage
1	1	10%
2 - 5	1	10%
6 - 9	5	50%
10-13	2	20%
Above 14	1	10%
Total	**10**	**100%**

Table 3 above, shows that most of the software firms, (50%) had between 6 -9 employees. This may be attributed to the fact that most of the software firms operate as closely held businesses, with their owners acting as experts. Only 10% of the firms interviewed had more than 14 employees.

Table 4: Annual Turnover of the Firms (KES)

Annual Turnover (KES)	Frequency	Percentage
d m	2	20%
1 m - 5m	6	60%
6m - 10m	1	10%
> 10m	1	10%
Total	**10**	**100%**

Table 4 above shows the findings on the annual turn-over for the sample of firms studied. The findings indicate that a majority of the firms (60%) had a turnover of between KES lm and 5m. This may be due to the small size and nature of these software businesses. These businesses started and still had a low capital and asset, base with few employees.

Table 5: Composition of Sales by Product Line

Product line	Frequency	Percentage
Product or license revenue	**1**	10%
Product support or maintenance revenue	2	20%
Services or consultancy revenue	5	50%
Training revenue	**1**	10%
Other revenue	**1**	10%
Total	**10**	**100%**

Table 5 above shows that for a majority of the firms sampled, 50% of their sales composition by product line consisted of services or consultancy revenue. 20% of the Firm's sales composition was made up of product support or maintenance revenue. This may be because most of the software firms focused on providing services and not software products.

Table 6: Percentage of Income Retained

Percentage of Income Retained	Frequency	Percentage
Over 30%		10%
20% - 30%		60%
10%-20%		10%
Under 10%		20%
Total	10	**100%**

Table 6 above shows the percentage of income retained by the sample of firms studied. The results show that for a majority (60%) of firms, the income retained was between 20% - 30%. Only 20%_of the firms studied had retained incomes of less than 10% of their sales. This means that the software sector in Kenya is highly profitable given that over 70% of firms registered retained incomes of over 20% which is generally considered -a good net return compared to bank savings and fixed deposit accounts, thereby making it an attractive industry to invest in.

4.2 Competitive Strategies

This section presents the analysis of the competitive strategies employed by the firms sampled, in order to beat the competition in the market and industry.

4.2.1 Composition of Competitive Forces

The respondents were asked to indicate the composition of the competitive forces that affected them in their operations. The results in Table 7 below show that for a majority of the firms (60%), the competitive forces were largely external; this is because the firms faced many hurdles in their operations, coming from the external environment.

Table 7: Percentage of Competitive Forces

Competitive Forces	Frequency	Percentage
Internal competitive forces	4	40%
External competitive forces	6	60%
Total	**It)**	**100%**

4.2.2 Strengths that Ensure Competitiveness

Table 8: Strengths that Ensure Competitiveness

Competitive Strengths	Frequency	Percentage
Strong marketing abilities	10	100%
Long tradition in the industry / accumulation of experience	9	90%
Strong brand name or good reputation	8	80%
Good product engineering	6	60%
Easy access to large pool of funds	5	50%
Highly differentiated, high quality product	4	40%
Strong capability to carry out market research	3	30%
Good relationship with home / host government	3	30%
Other	2	20%

The respondents were asked to indicate their strengths that ensured competitiveness within their industry. The results as shown in the Table 8 above show that a majority of the respondents considered strong marketing abilities, long tradition in the industry, strong brand name and reputation and good product reengineering to be the strengths that ensure they were competitive.

4.2.3 Weaknesses that make it Difficult to Compete Favorably

Table 9: Weaknesses in Competition

Weaknesses	Frequency	Percentage
Inability to control software piracy or counterfeit products	10	100%
We have over centralized our operations	7	70%
Our product is easily replaced with products from other firms	6	60%
Our products are too pricy for the market	4	40%
Potential buyers find it difficult to access our product	3	30%
Heavy investment in old / outdated technology	2	20%
Potential buyers have limited information regarding our product	2	20%
Other	2	20%

The respondents were asked to indicate the weaknesses they encountered in trying to ensure they competed favorably with other firms. The results as in Table 9 above show that for most of the firms interviewed, the weaknesses experienced include among others, inability to control software piracy or counterfeit products, over-centralized operations and that their products were easily replaced with products from other firms.

4.2.4 Challenges that Affect Survival in the Market

Table 10: Challenges that Affect Survival

Challenges	Frequency	Percentage
Loss of intellectual property	10	100%
Rise in costs associated with producing our product	8	80%
Shift in needs of customers	8	80%
Rise in communication costs	7	70%
Rise in the cost of borrowing	6	60%
Frequent loss of skilled employees to competitors	4	40%
Change in Government policy that does not favour our firm	4	40%
Rise in transport costs	3	30%
Ovhet	1	10%

Table 10 above shows the findings on the challenges that affected the survival of software firms in the market. The results shown above indicate that for most of the firms the challenges included, loss of intellectual property, rise in costs associated with producing the product, shifts in needs of customers, rise in communication costs and rise in borrowing costs which made it difficult to acquire funds for expansion.

4.2.5 Important Competitive Strategies

Table 11: Important Competitive Strategies

Important Competitive Strategies	Frequency	Percentage
Having the best quality product in a particular product line or market segment	10	100%
Having the best quality product in the software industry in Kenya	9	90%
A combination of a or b above	5	50%
Having the lowest product price in the software industry in Kenya	3	30%
Having the lowest price in a particular product line or market segment	1	10%
I don't use any of the above strategies	1	10%

The respondents were asked to indicate the important competitive strategies that they used to ensure survival in the market place. The results as in Table 11 above show that most firms (above 50%) to be able to compete, ensured they had the best quality product in a particular product line or market segment, the best quality product in the software industry in Kenya or a combination of both. However few other firms (10%) focused on low product prices.

4.3 Strategies for Performance Improvement

4.3.1 Anticipated Changes in the Firm

Table 12: Anticipated Changes in Operations

Anticipated Changes in Operations	Mean	Percentage
Capacity for Innovation	5	50%
Ability to take risks in new ventures	5	50%
Relationships with buyers	5	50%
Workforce capacity and skill-set	4	40%
Firm reputation	4	40%
Growth in market share	4	40%
Service levels to customers	4	40%
Distribution channel	4	40%
Efficiency of internal operations	3	30%
Capitalization of the firm	3	30%
Price policy	3	30%
Product Line	3	30%
Relationships with suppliers	2	20%
Corporate brand	2	20%
Product features	2	20%

The respondents were asked to choose the changes that they planned to effect in the future with regards their operations. The results as in Table 12 above indicate that almost half of the firms studied anticipated operational changes with respect to their capacity for innovation, their ability to take risks in new ventures and their relationships with buyers. Other changes they expected were a growth in market share and improved service levels to customers.

4.3.2 Strategies to Improve Performance

Table 13: Strategies to Improve Performance

Strategies to Improve Performance	Frequency	Precentage
Lowest price in a particular product line	3	30%
Lowest price in a particular market segment	2	20%
Best quality product of that product line in the market	5	50%
Best quality product in a particular market segment	4	40%
Other	2	20%

The respondents were asked to indicate the strategies they would undertake to improve performance. Table 13 above shows that most of the firms interviewed, strived to ensure that a particular product line produced the best quality products in the market for the targeted market segment.

4.3.3 Strategies to Specialize

Table 14: Strategies to Specialize

Specialization Strategies	Frequency	Percentage
Focus in particular product lines only	9	90%
Focus in particular geographic areas only	8	80%
Focus on big orders only	5	50%
Focus on particular customers only	4	40%

Table 14 above shows the findings on the strategies that the respondents planned to apply to specialize. As shown in the table above, the results show that most of the firms focused on particular product lines (90%) and in particular geographic areas (80%). Other firms planned to focus on big orders and others on customers only.

4.3.4 Competitive Strategies Employed by Software Firms that Performed Well

Table 15: Exceptionally Performing Software Companies and the Competitive Strategies they Employed

Software Companies with Turn-over over Kes5m	Important Competitive Strategies	Frequency	Percentage
Oracle (EA) Neptune Software Microsoft Cellulant Broadband Access Ltd Akili Africa Ltd	a) Having the best quality product in a particular product line or market segment		100%
	b) Having the best quality product in the software industry in Kenya		66.7%
	c) A combination of a and b above		83.3%
	d) Having the lowest product price in the software industry in Kenya		33.3%
	e) Having the lowest price in a particular product line or market segment		16.7%
	f) Don't use any of the above strategies		**0%**

Table 15 above shows that all of the well established software companies concentrated on achieving product superiority in terms of quality within a particular market segment. 66.7% of them even strove further to strive to have the best quality product in the software industry in Kenya. A minority (33.3%) of the software companies considered to be performing well did not lower prices to have a competitive edge in the market; rather they concentrated on other important competitive strategies such as quality of their products and specialization.

CHAPTER FIVE: SUMMARY, DISCUSSIONS AND CONCLUSIONS

5.1 Summary, Discussions and Conclusions

One of the objectives of the study was to determine the extent of use of competitive strategies in the software industry in Kenya. Tables 8 and 11 confirm that all software firms in Kenya (i.e. 100% of the firms sampled in this study) utilize some form of competitive strategy such as having a strong focus on marketing abilities as in Table 8 above or having the best quality product in a particular line or market segment as in Table 11 above.

Whereas it was determined that software firms in Kenya were influenced by internal and external competitive forces as in Table 7 above, the software firms sampled in this study were even able to identify which particular internal or external competitive forces challenged future prospects of their survival as in Table 10 above. All (100%) of the firms studied believed that an internal competitive force such as the loss of intellectual property challenged their survival in the market and an external competitive force such as a shift in needs of customers influenced their future survival but to a lesser extent (80%) as in Table 10 above. It is with these internal and external competitive forces in mind that software firms anticipated future changes in their operations as in Table 12 above that would adequately address the respective internal and external competitive forces. The better a software firm perceived to be able to execute on an operational change such as improve its capacity for innovation as in Table 12 above, the more competitive it believed it would be in the market place in the future.

From the literature review in Chapter 2 above, it can be seen that competitive strategies are either endogenous (inward looking) or exogenous (outward looking) (Section 2.2 above). Porter and Miller (1985, in Robson, 1997) note that firms are at liberty to use these competitive forces in their favour or in their defence to improve their competitiveness. This advice by all means applies also to the software firms in Kenya. Although research has shown that an external competitive force such as software piracy in Kenya indeed is an industry phenomenon (Business Software Alliance, 2007), the software firms sampled in this study were able to ensure that software piracy did not remain an obstacle for their future survival by focusing more on the provision of services as in Table 1 above and less on the provision of software products which resulted in a lower exposure to a product specific risk like the loss of intellectual property as in Table 5 above, thus ensuring their competitiveness and future survival in the Kenyan market place.

Nevertheless, despite the ability of software firms in Kenya to identify competitive strategies that they could use to ensure Vne'u Mute sum\a\ m V\\e marVelpVace, the results from the tables in Chapter 4 above imply that the strategy formulation and execution process of these firms with respect to competitive strategies lacks a formal well documented process and is centred on a particular individual and more specifically the owner of the firm. This may be primarily due to the youth of these firms, their small size and the informal structure of the industry as a whole (as shown in Tables 2 and 3 above). Hence the determination of whether or not software firms used competitive strategies would not be sufficient to ensure their future survival and therefore the inclusion of the other two objectives of this study as discussed below.

The second objective of the study was to establish which competitive strategy gave software firms a competitive edge. By focusing on particular strengths such as the possession of strong marketing abilities or having a wealth of knowledge through accumulation of experience as in Table 8 above, software firms could ensure that they remained competitive in the marketplace. However focus on core competencies alone would not guarantee that the same firms would possess a competitive edge over their rivals in the market place. Although overcoming weaknesses such as inability to control software piracy and the over-centralization of operations as in Table 9 above could be transformed from an area of attack by rival firms to a core competency, this strategy would still not be able to ensure that software firms in Kenya achieved a competitive edge. The results of the study as seen in Table I 1 above, clearly indicate that the software firms sampled believed that a steady drive for differentiation would allow them to stand out from their peers and achieve the much desired competitive edge, hence the use of competitive strategies such as having the best quality product in a particular product line or market segment was identified by all the firms as the most important competitive strategy as in Table 11 above.

As has been discussed by Robson (1997), the ability of a firm to utilize a competitive force to its advantage either by overcoming the competitive challenge related to the force or utilizing the competitive force to better its position in the market will influence the degree of competitiveness of the firm in the market. Johnson et al (2006) propose the use of a "SWOT Analysis" to determine which competitive strategy gives firms a competitive edge. Although Robson (1997) would agree that the degree by which software firms cease opportunities in the

market place will improve their competitive edge, a firm would need to analyze its core competencies first and address threats from the external environment or the areas where it is weak before ceasing such opportunities. Nevertheless, the higher the ability of any of the software firms in Kenya to address threats using either endogenous or exogenous strategies, the more competitive it would be in the market place.

From the .data in Chapter 4 above, it appears that software firms in Kenya are capable of assessing their capabilities using the SWOT Analysis as discussed above and would be able to identify key competitive strategies that they could use to ensure their future survival. Although the software firms sampled in this study were able to single out the competitive strategies important to them as in Table 11 above, it was not clear however how these firms prioritized these strategies whether endogenous or exogenous and whether they were adequately able to execute on each of them given their small size, the inexperience of most of them in the marketplace and their focus on services which are highly dependent on the number of and quality of employees that a firm has. Hence, the need to benchmark what software firms in Kenya considered those competitive strategies that would give them a competitive edge with those competitive strategies that were used by firms that had already demonstrated some degree of exceptional performance in the market place warranting the need for the third and final objective of the study.

The final objective of the study was to explore the relationship between competitive strategies employed in Kenya's software industry and the firm's performance. As has been discussed in Section 2.4 above, no causal relationship between strategy and performance has yet been determined. Table 4 above shows the annual turnover for software firms in Kenya. 60% of these firms had an annual turnover of between KES1m and KES 5m, whereas only 20% of them had an annual turnover that was above KES5m. Table 6 above shows that only 10% of the software firms sampled retained over 30% of their income whereas 60% of the sampled firms retained between 20% and 30% of their income. Only 10% of the software firms sampled made over KES 10m per year (Table 4).

As has been discussed in section 2.3.2 above, performance depends on the use of a contextual standard measure. Given that a turnover of KES5m was the contextual standard measure used, then using the data above, it was therefore possible to describe an exceptionally performing software firm as one with a gross annual turnover of over KES5m (Table 4) meaning that only

20% of the software firms fell in this bracket. With such a performance benchmark, it was therefore also possible to single out which particular software firms performed exceptionally well and pull out the most frequently used competitive strategies employed by those firms. Table 15 illustrates that 100% of the exceptionally performing firms in the study strived to have the best quality product in a particular product line or market segment. Data from Tables 13 and 14 illustrates that differentiation and specialization strategies respectively are key pillars of the competitive strategies that software firms in Kenya would need to put in place to ensure their future survival in the market place. The data in Table 15 thus implies that for an exceptionally performing software firm in Kenya, a narrow focus, differentiation strategy is paramount.

This study therefore shows that for a software firm in Kenya to perform exceptionally well, it must employ a narrow focus, differentiation strategy as the key pillar of its competitive strategy. This conclusion concurs with Porter's (1980) ideas on competitive strategy whereby a firm must select a particular competitive strategy that differentiates itself from rivals and should not remain "stuck-in-the-middle" or indecisive about its competitive strategy. For Porter (2004), these competitive strategies would primarily evolve explicitly through a planning process or implicitly through approaches dictated by a firm's professional orientation and the incentives of its directors. From the data in this study, software firms primarily use the latter approach. Having made the choice, a firm's next challenge is the sustainability of its competitive position over time amid industry evolution and the erosion of its competitiveness through the behaviour of other competitors (Porter, 1985), this implies that the use of competitive strategies is an iterative process and that exceptionally performing software firms in Kenya today will need to be innovative about their selection and execution of competitive strategies if they are to maintain their competitive position in the market place.

5.2 Limitations of the Study

This study provided a simplistic overview of the software industry in Kenya. It is indeed possible to further stratify software firms by age groups or by employee size. In Table 2 above, 70% of the software firms reviewed in this study had only been in business for up to 5years. It is difficult to determine whether this age limitation had an influence on the software firm's experience in the market place, its competitive strategies or on its general performance.

A majority (50%) of the software firms in this study had between 6 and 9 employees (Table 3). It is also hard to determine the optimal employee levels of a given software firm and the relationship between the number of employees, their individual productivity and group productivity as it related to contribution to performance of the firm. Section 2.3 above proposes an analysis of firms based on an input, output, throughput and outcome grid; this kind of study would require more detailed analysis and time and was therefore not used.

This study was also not able to fully cover the opportunities that were present in the software market place in Kenya today. It must be acknowledged that these opportunities are both diverse and dynamic and may be perceived by different software firms in different ways depending on the experience of the particular software firm, the resources available to that software firm to scope the market for opportunities and the degree of implementation of its external competitive strategies such as in Table 8 above, where only 30% of firms considered market research and forming good relationships with host governments an important competitive strategy.

Whereas the sample size was appropriately chosen for the purposes of this study, it still remains a challenging task to determine the exact number of software firms in Kenya as these are rarely registered with any formal institution and usually operate as small enterprises for the subsistence of their owners. A census would further reduce the sampling error and provide more accurate information to the same questions. Given that the estimated total population of known software firms in Kenya is between 169 (Appendix 2) and 340 (International Data Corporation, 2008), a census is indeed possible.

5.3 Recommendations for Further Research

From the findings of the study, it can be recommended that software firms need to focus on provision of quality products and services to their clients. These efforts are expected to increase market share and eventually shareholder value. The success of a company will depend on how well it differentiated its products from its competitors. These findings concur with Ghosh's (2004) research.

A comparison of these findings to a similar study by Heeks (1996), as described in Chapter 2 above provides room for further research that would attempt to link the major competitive strategies employed by global software firms to those used by Kenyan software firms. The study may contest the competitive strategies outlined by Heeks (1996) or it may provide reasons why Kenyan software companies primarily use differentiation as their competitive strategy as opposed to global software firms which employ a variety of software strategies as outlined by Heeks (1996).

The basket of performance indicators as described in Section 5.1 above may also be refined through further research. More data can be gathered from the entrepreneurs and managing directors of these software firms in Kenya to link their choice of competitive strategy with their academic or economic backgrounds or with their vision for the company.

5.4 Implications for Policy and Practice

The Kenya ICT Board, the Kenya Software Developers Association (KSD) and the Kenya Software Industry Association (KeSIA) are all challenged with gaining adequate information from the local software industry to be able to develop suitable policies and regulatory structures for its players. An identification of the key competitive strategies that give local software firms a competitive edge may improve the disparity within the software industry in Kenya and result in increasing the number of larger players in the market place.

The development of a comprehensive performance benchmark for the software industry in Kenya would provide opportunities for academic institutions to develop programs for best practices and level out the competitive field on a skills level or managerial perspective. It would also ease the ability to differentiate software firms from a performance perspective and allow venture capitalists to invest in highly exceptional firms.

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APPENDICES

Appendix 1: Questionnaire

Part A: Information about your Company and its Competitive Environment

Q1. Name of Company:

Q2. Position held:

Q3. Which category below best describes the nature of business of your software firm?

a. Product Business ( )
b. Service Business ( )
c. Hybrid (Both Product & Services) Business ( )

Q4. How many years has your firm been in business?

a. 1 year ( )
b. 2 - 5 ( )
c. 6 - 9 ( )
d. Above 10 years ( )

Q5. How many employees do you have in your organization?

a. 1 ( )
b. 2 - 5 ( )
c. 6 - 9 ( )
d. 10 - 13 ( )
e. Above 14 ( )

Q6. What is the annual turnover of your firm?

a. Less than Ksh. 1M ( )
b. Between KSh. 2M and 5M ( )
c. Between Ksh. 6M and 10M ( )
d. Over Ksh. 11 KM ( )

Q7. What is the composition of your firm's sales by product line?

a. Product or License revenue ( )
b. Product support or maintenance revenue ( )
c. Services or Consultancy revenue ( )
d. Training Revenue ( )
e. Other Revenue ( )

Q8. What percentage of your firm's annual turnover is expected to be retained at the end of the year (Gross Profit Margin)?

a. Under 10% ( )
b. Between 10% and 20% ( )
c. Between 20% and 30% ( )
d. Over 30% ( )

Part B: Competitive Strategies used by your firm to Survive

Q9. Assign an appropriate percentage to the nature of competitive forces facing your firm.
External Competitive Force - any force outside your organization that influences the degree of competition.
Internal Competitive Force - any force inside your organization that influences the degree of competition.

a. External competitive forces ( )
b. Internal competitive forces ( )

Q10. Briefly indicate by means of a tick which of the following you believe are the strengths that your firm possesses that make it survive in the market or compete favorably against other firms.

a. Strong marketing abilities ( )
b. Good product engineering ( )

c. Highly differentiated, high quality product ( )

d. Strong capability to carry out market research ( )

e. Strong brand name or good reputation ( )

f. Long tradition in the industry / accumulation of experience( )

g. Easy access to large pool of funds ( )

h. Good relationship with home / host government ( )

i. Other ( )

Q11. Briefly indicate by means of a tick which of the following you believe are the opportunities that your firm sees that will make it survive in the market or compete favorably against other firms in future.

a. Improvement in economies of scale ( )

b. Launch of a highly differentiated / high quality product ( )

c. Change in government policy promoting use of software ( )

d. Increase in number of suppliers to choose from ( )

e. Increase in size of order from potential buyers ( )

f. Increase in frequency of orders from potential buyers ( )

g. Growing importance of our key product to buyers ( )

h. Other ( )

Q12. Briefly indicate by means of a tick which of the following you believe are the weaknesses currently plaguing your firm that make it difficult to survive in the market or compete favorably against other firms.

a. Heavy investment in old / outdated technology ( )

b. Inability to control software piracy or counterfeit products ( )

c. Our products are too pricy for the market ( )

d. We have over centralized our operations ( )

e. Our product is easily replaced with products from other firms ( )

f. Potential buyers find it difficult to access our product ( )

h. Potential buyers have limited information regarding our product ( )

i. Other ( )

Q13. Briefly indicate by means of a tick which of the following you believe are the challenges facing your firm that will make it difficult to survive in the market or compete favorably against other firms in the future.

a. Frequent loss of skilled employees to competitors ( )
b. Rise in costs associated with producing our product ( )
c. Rise in the cost of borrowing ( )
d. Rise in transport costs ( )
e. Rise in communication costs ( )
f. Change in Government policy that does not favor our firm ( )
g. Loss of intellectual property ( )
h. Shift in needs of customers ( )
i. Other ( )

Q14. Of the competitive strategies below, which is the most important to your firm?

a. Having the lowest price in a particular product line or market segment ( )
b. Having the best quality product in a particular product line or market segment ( )
c. Having the lowest product price in the software industry in Kenya ( )
d. Having the best quality product in the software industry in Kenya ( )
e. A combination of a, b, c or d above ( )
f. I don't use any of the above strategies ( )

Part C: Strategies for Performance Improvement of your software firm

Q15. You plan to make changes to the following aspects of your firm in the near future:
5 - Complete overhaul; 4 - Major improvements; 3 - Minor improvements; 2 - No improvements; 1 - Do not know.

	5	4	3	2	1
a. Workforce capacity and skill-set	( )	( )	( )	( )	( )
b. Firm reputation	( )	( )	( )	( )	( )
c. Capacity for Innovation	( )	( )	( )	( )	( )
d. Ability to take risks in new ventures	( )	( )	( )	( )	( )
e. Efficiency of internal operations	( )	( )	( )	( )	( )
f. Growth in market share	( )	( )	( )	( )	( )

g. Capitalization of the firm	( )	( )	( )	( )	( )
h. Relationships with suppliers	( )	( )	( )	( )	( )
i. Relationships with buyers	( )	( )	( )	( )	( )
j. Service levels to customers	( )	( )	( )	( )	( )
k. Corporate brand	( )	( )	( )	( )	( )
1. Price Policy	( )	( )	( )	( )	( )
m. Distribution Channel	( )	( )	( )	( )	( )
n. Product Line	( )	( )	( )	( )	( )
o. Product features	( )	( )	( )	( )	( )

Q16. You plan to improve the performance of your firm using the following strategy

a. Lowest price in a particular product line ( )
b. Lowest price in a particular market segment (*)
c. Best quality product of that product line in the market ( )
d. Best quality product in a particular market segment ( )
e. Other ( )

Q17. In future you plan to execute the following strategy to improve the current performance of your firm:

a. Expansion in scale
b. Contraction in scale
c. Change in target market segment
d. Exit from current line of software business
e. Entry into new line of software business

Q18. In future you plan to specialize in the following ways to improve the current performance of your firm:

a. Focus on big orders only ( )
f. Focus on particular customers only ( )
g. Focus in particular geographic areas only ( )
h. Focus in particular product lines only ( )

Appendix 2: List of Software Developers

Source: Sybase EA Ltd CRM as of 30th June 2008.

Number	Company Name	Telephone Number
1	2i Technologies	2543864604
2	3 Mice Media Interactive	573076
3	ABC-Lab.net	3755414/ 415/417 or 0722 419365
4	Ace Mania Systems	0720917854
5	AdTel	574417, 2719011
6	Advance One Ltd	4440414/5
7	Africa Land Computers	213000
8	Afrinet Commerce Limited	445000
9	Aimsoft	0720615168, 2711811/2710260/2711799/2710671/2710280
10	Akili Africa Ltd	228191/2/3
11	Alliance Technologies Ltd	3860986;0721811000
12	Amarco	535234/3/5, 535222
13	Anchor Computer Services	315513,0733858969
14	Antcor Automation & Telecom	4447503
15	Aren Software Ltd	608557/8
16	Bernsoft Interactive	223700
17	Blue Key Kenya	387 4327
18	Blue Sky Communcations	318648
19	Broadband Access Ltd	3740555,3740533
20	Bytech Engineering Limited	722562,724130,710226
21	Cad Creations Kenya	0722711109,386137, 576137
22	Cellulant	3876660
23	Centurion Systems Ltd	4440102/3 4448791
24	Charm Business Services	335104
25	Chemi Systems	254722583763
26	Circuit Business Systems	3754670/1-5
27	Circuits and Packets	2728332
28	Clarity	2734186/2738499/2738489

29	Comprite Software Solutions	3751888
30	Compton Technologies	2213495
31	Compulynx Ltd	244060,0733619602
32	Computacare Consultants	4447975
33	Computech Group	534642,557175, 535338
34	Computer Consultants Ltd	219869,
35	Computer Feeds Ltd	2216481/2
36	Computer Point	4446644,
37	Computer Resources	254721981424 533404
38	Computer Revolution	4446731,4444312,4444338,4440401
39	Copy Cat Kenya Ltd	534008-15, 349170-74
40	Coretec	215697,600309,601265
41	Craft Silicon	4440343,4443738,4448985
42	Cystel Systems	0733391136/0720865563
43	Data Center	333491,224642,250698
44	Data Consultancy Services	558908
45	Delf Systems Ltd	243847,251264, 218849, 221473
46	Diamond Systems Limited	2718120
47	Digital Networks	4441000
48	Dimension Data Kenya	2735329-32
49	Direct Communications Ltd	248572, 248872
50	Dolleks Group	2348051436150
51	Dotsavvy	2731049/4608/4611
52	Doverk Investment Ltd	3874467, 0723969647, 0733542991
53	Easy Soft Consulting	25420570162
54	Eclectics Kenya	216303
55	EIM Solutions	2731058/2730656
56	Electra Software Solutions	247617/0722320986
57	Enke Management Ltd	0722 376165
58	Enterprise Software Solutions	4445159
59	ESRI Easter Africa	0722521341,0733-568381
60	Exact Ltd	0721876070, 0733876070
61	Fasons Business Systems Ltd	211521,333940

62	Fintech	221754/211290
63	Fortune Technologies	2241524,2249814, 0733894623 0722769149
64	Four Tell East Africa	3874930
65	Futrnan Walker Associates	249744/5
66	Gateway 2000 Ltd	224660
67	* Gauff Utility Services Kenya	445288
68	General Equipment Kisumu	057- 2024208/2024840/2024841/2022944/2024585
69	Gestalt Gild	2044550/1
70	Goldfinch & Ibis Ltd	6750057 / 2700697/8/6751568
71	Gravity Solutions	604294,0722-833515
72	Huawei Technologies Ltd	2730168
73	ICL	824381,824382/3/4
7<\	ICT Kenya	0722-841656, 3754286
75	ICT Products	0722419481, 215505
76	Ideaz Software	0722519657, 2210307
77	Impax Business Solutions Ltd	2.728348, 2.734296, 3005000
78	Impression Computer Services	2715984
79	Infininty Resources Ltd	4444930
80	Information Technology Associates	560829,560835,565151, 0733921866, 0733609030
81	Inifinity Systems Ltd	4450613/4/5
82	Inscom Africa	2729295, 2727805, 0722419958
83	Inspac East Africa Technology Ltd	4452578,0722525734
84	Integral Memory Engineering	601425,0722-223260
85	International Business Machines	3753288/89/90/91
86	Internet Solutions	735329, 0733-616866
87	Isolutions Associates	245450/242282
88	IT Associates	560829
89	Jobal Software	312054,312055, 0721499435
90	Johari Solutions	0721880051,341429, 785641
91	Keenston Systems	0721479413
92	KEL	254721225531, 6750994
93	Linuxchix Kenya	0721237507

94	Logitech Software Solutions	0254736311351
95	Maarifa Ltd	3577111, 357800.1
96	Mareba Compters Ltd	4443401/2
97	MediaEye	4450190-6
98	Mercury Technologies	570621,0733-730882
99	Metrocomia	574767,577555,568007
100	Micro Interface Ltd	344028
101	Microbase Limited	447540/39
102	MicroFlex	253261,224813
103	Microflex Business Solutions Africa Ltd	523261, 224813
104	Microhouse dotnet Ltd	2723219,2722174,
105	Microlan Kenya Ltd	0724280213
106	Microsoft	2868000/2712437/2728196/2722066
107	Milestone Sotware Ltd	2726369
108	Mobile Planet	3747954,0722389021/2/3 4456183,4456182 '
109	NanoSoft	215536/0721657699
110	Neptune Software	2719491, 2713639
111	Network Source	2719052, 2719427
112	New Age Information Systems Ltd	0733734523,2735585
113	Nextech Software Ltd	828411,2725287, 2725295/6
114	North West Off-shore Ltd	2034565,3860894,020 3559598/9
115	Objex	0722719827
116	Onsakia Smarthome Ltd	0721804105
117	Open Systems Technologies	0724569157
118	Openview Systems Ltd	4441083/4, 3600900
119	Openworld Ltd	0722494015
120	Oracle EA Ltd	2088182
121	Orange Works	556116
122	Patnox Systems Ltd	0733592924 / 0720485600 / 0202190434
123	Pc Comm Africa Ltd	2732231/2732230
124	Penguin Labs	0720408101
125	Petro Services	550795,65080627
126	Pinnacle RDBMS	8026198, 828791, 0721583641,0722527571

127	Policy Project	2723951,0722449902
128	Pro-Soft Solutions	4440476
129	Prosperity Solutions International	341929/14
130	QeeTronic Systems	444-9277/ 7655
131	Reward and Recognition Limited	602721/6043110722330388
132	Rivotek Kenya	552093
133	Seven Seas Technologies Ltd	4451226-30
134	Silverhedge One Solutions	2723477
135	Simba Technologies	532349
136	Smart International	2731419
137	Smarthome Ltd	0722509707
138	Soft Systems K Ltd	3741412, 3747095
139	Softline Business Systems	651960, 0722378607
140	Software Applications Ltd	440414, 440415, 440672, 443615, 443726, 448612
141	Software Distributors Ltd	2717431/3/4
142	Software Engineering Information Systems	0721279995
143	Software Technologies Ltd	7122971/2/3
144	Soledad Computers	0723872482,2152343
145	Solutech Systems	3742126
146	Soluziona	3655500, 3655608
147	Sona Information Technologies Ltd	3755530
148	Spreading Wings Ltd	310019
149	SPSS EAfrica	575420, 577262, 577263,4348384
150	Symphony	3748300,4455000
151	Systech Ltd	248410
152	Systems Application Product	2723477/8/9
153	Systems At Work	533501/ 537394
154	Tech Africa Ltd	4441085/621286/0724694489
155	Techbase Africa	3754136,
156	'Techno Pag	0722511003
157	TechnoBrain (K) Ltd	3741322, 749704, 751341, 747302,3749704,
158	Technology Development Solutions	2012043,4765264

159	Techzone Ltd	0722155752
160	Thornsoft Ltd	0722302926
161	Total Solutions Ltd	3749056/7, 3748347,3747007,0733725159
162	Triad Software Solutions	27256762
163	Turnkey Africa Ltd	3870572,3878207
164	Turnkey Computer Solutions	575109
165	Unisys Vianet	254 02 374854
166	Verve KO	2722642
167	Virtual City Ltd	3872191, 3873341
168	Vista Systems	0722787897
169	Will Power Communications Ltd	240567