INTERACTION BETWEEN INFORMATION TECHNOLOGY CAPABILITY, ENVIRONMENTAL CONDITIONS AND COMPETITIVENESS OF CONSULTANCY FIRMS IN NAIROBI COUNTY, KENYA

BY

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other university or any other award.

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DEDICATION

This work is dedicated to my family.

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OPERATIONAL DEFINITION OF TERMS

Competitiveness

Is a competitive advantage one business enterprise has over other enterprises within the same industry, via implementation of a value creating strategy not simultaneously being implemented by any current or potential players, thus facilitating the firm to outperform the competition

Consultancy Firm

A consulting firm is a team of experts (consultants) or an individual expert that offer specialized services to an organization or an individual client, to aid development of a game plan or strategy to achieve a specific objective for the firm.

Deployment of Information Technology

Is the deliberate planning, implementation and management of information technology by the firm, to maximize the potential benefits and the overall effectiveness of information technology in the firm, by utilization of the dynamic capabilities of information technology

Dynamic Capability

Is the firm's ability to integrate, build, and reconfigure internal and external competencies to effectively address rapidly-changing business environment conditions

Firm Competence

Is the collective accumulation of skills, knowledge, and experience of the organization from the past and present organizational systems and employees, required for achievement of sustainable competitive advantage in the industry in which the firm operates

Information Technology Capability

Is the firm's ability to mobilize and deploy information technology-based resources by

integration with other firm resources and capabilities to enable the firm to sense, shape up, seize the opportunities and reconfigure its resources in step with the changing business environment

Environmental Conditions

The environmental conditions consist of the micro and macro institutional forces that exert pressure on the organization including, the government laws and regulations, industry self regulation and national culture.

Research Philosophy

Is the orientation of the researcher towards a particular perspective on how the view of the world (nature), view of the generally accepted knowledge and the view of individual values, i.e. positivist, subjectivist or pragmatic view

Resource Dependence

Is the dependence of the organization on external resources in order to achieve organizational effectiveness and competitive advantage

Strategic Capability

Is a high–level routine, resource or firm competence that is recognized as important in order to create and sustain a competitive advantage of the firm via new and innovative ways, in the changing business environment

Technological Orientation

Is the inclination of the firm towards making significant investments in a particular technological deployment and alignment with the business strategies and organizational processes, in order to enhance the competitiveness of the firm. With respect to this study, technological orientation will mean the firm's orientation towards deployment information technology.

ABBREVIATIONS & ACRONYMS

CA	Competitive Advantage
CSR	Corporate Social Responsibility
DC	Dynamic Capabilities
FCT	Firm Competence Theory
GDP	Gross Domestic Product
ICT	Information Communication Technology
Ins T	Institutional Theory
IOE	Industrial Organization Economics
IT	Information Technology
KIHS	Kenya Institute of Household Survey
KM	Knowledge Management
KNBS	Kenya National Bureau of Statistics
OLC	Organizational Life Cycle
PDA	Personal Data Assistant
R&D	Research and Development
RBV	Resource-Based View
RDT	Resource Dependent Theory
SAM	Strategic Alignment Model
SCA	Sustainable Competitive Advantage
SEM	Structural Equation Modeling
SME	Small and Medium Sized Enterprise
USA	United States of America
USD	United states Dollars

ABSTRACT

The business environment is never static, but constantly changing according to the influence of global and national competitive forces and other environmental factors. Firms respond to the conditions surrounding them by adjusting their purpose and shape via deployment of appropriate strategic capabilities to subdue the environmental challenges and enhance competitiveness. Increasingly many firms have resorted to heavy investments in IT capabilities, to cope with the changing business environment. However, only some firms receive pay offs while many others do not. This study is of the view that the difference in competitiveness of firms with respect to the heavy IT investments, is in the manner in which the individual firms uniquely deploy IT capabilities. However, there is scarcity of information on the deployment of IT capabilities as a source of competitiveness. This study undertook to explore how the deployment of information technology capability may be used to build competitiveness among consultancy firms in Nairobi County, Kenya. This study tested six hypotheses covering direct and moderated (by environmental conditions) relationships between IT capability and competitiveness, IT capability and firm competence and between firm competence and competitiveness. This study adopted the positivist philosophical approach. The cross-sectional explanatory research design was used for the study, while random sampling method was used to select the target sample. From the total population of 265 consultancy firms in Nairobi, a target sample of 200 consultancy firms was picked via Microsoft excel generated random numbers. Data collection was done via structured questionnaires, after which simple and multiple regression analyses were used to analyze the data. External validity of the questionnaire was complied with by ensuring adequate sample size, which for this study was 200. The reliability of the research instrument was tested via test-retest method on the same pilot sample and the instrument refined to achieve a Cronbach alpha coefficient of 0.855. The study found that IT capability positively influences firm competitiveness ($R^2 = 0.519$, $\beta = 0.613$, $p < 0.05$). IT capability also positively influences firm competence ($R^2 = 0.464$, $\beta = 0.481$, $p < 0.05$). Firm competence partially mediates the relationship between IT capability and firm competitiveness. The moderating influence of the environmental conditions was found to be contingent upon the behavior of the environmental conditions. At high levels of the environmental conditions, the moderating influence of the environmental conditions on the direct and mediated relationships (mediated by firm competence) between IT capability and firm competitiveness was significant, but at low and medium levels of environmental conditions, the moderating influence of the environmental conditions was not significant. The study thus concluded that it is the level of environmental conditions (low, medium and high) that determines the moderating influence of environmental conditions on the direct and mediated relationships among the study variables. Finally the study recommends that the consultancy firms in Nairobi County should pay more attention to the level of IT capability utilized and use more online interaction with customers and suppliers; enhance the level of automation of processes and customer information; increase the level of usage of email in the organization and lastly, regularly scan the prevailing environmental conditions in Kenya in order to timely upscale the IT capability to match any increase in the environmental conditions. Subsequently, the consultancy firm will enjoy higher level of firm competitiveness in terms of better cost efficiency, more differentiated services and better service quality.

CHAPTER ONE

INTRODUCTION

This first chapter presents the introduction to the study on the deployment of information technology (IT) capability as a source of competitiveness by consultancy firms in Nairobi. This chapter covers the background to the study, statement of the problem, research objectives, research hypotheses, significance of the study and the scope and organization for the study.

1.1   Background to the Study

Local and international businesses over the last ten years have been facing increasing turbulence in the environmental conditions. This turbulence is not only from the local firm industry where business establishments produce similar products or provide similar services, but also from the global arena. According to Porter (2008), firms have to employ sound strategic management techniques in order to survive and prosper in the turbulent business environment and not be misled by the current trend that tends towards emphasizing operational effectiveness without clearly defined strategies. The firm faced by the rapidly changing business environment, has to concern itself with how to reconfigure its resources in order to cope with the changing business environment and how to retain its competitive edge in the industry. There are aspects of strategic management that can be useful to the firm operating in a turbulent environment which include strategic capability, dynamic capability and firm competence (Porter, 2008; Micek, 2012). It is imperative that the firm evolves its strategic management practices dynamically in order to build strategic capabilities to be at

pace with the fast changing business environmental conditions (Teece, Pisano & Shuen, 1997).

The evolution of firm strategies to achieve and sustain competitiveness in the face of increasing turbulence in the business environment may be a big challenge to many firms. The competitive 'five-forces' approach to strategic management views the essence of a competitive strategy formulation to be that of one relating a company to its environment and secondly how these forces determine the profitability of different industries and industry segments (Porter, 2008). According to this approach the industry structure in which the firm operates strongly influences competition and shapes the strategy of the firm. Micek (2012) building on the competitive strategies approach by Michael Porter, emphasizes the importance of the firm's ability to shape up to the changing business environment in order to maintain high performance.

Increased environmental turbulence encompasses the greater global competition as well as a secondary range of new competitive forces in the domestic market and competition among brands. The forces of globalization, which primarily comprise privatization, trade liberalization and deregulation, have profoundly influenced the strategic management practices of organizations in many countries (Smith & Golden, 2003). Collectively, these forces bring about a business environment that is more competitive (Porter, 2008), and impose a significant impact on the economic performance of business organizations. If an organization is to achieve and maintain successful business operations, it should continuously ensure that it dynamically matches the environment at all times by building an ability to

reconfigure its resources and strategies. Thus the firm needs to ensure it possesses the prerequisite strategic capabilities suited to each business environmental condition (Johannesson, 2012). Cho (2013) concurs with the observation of Teece *et al.* (1997) that firms endeavour to develop and sustain competitiveness by building strong strategic capabilities in order to respond effectively to the changing business environment.

1.1.1   The concept of Strategic Capability

Strategic capability is defined by Teece *et al*. (1997, p. 516) as *"the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments"*. Johnson and Whittington (2005) define strategic capability as *"the adequacy and the suitability of the resources and competences of an organization to survive and prosper"*, while Joakim (2010), defines strategic capability as "high–level routines, resources and competences that are recognized as important in order to create and sustain a competitive advantage". Strategic capabilities thus reflect an organization's ability to achieve new and innovative forms of competitive advantage, given the changing nature of the environment (Barrales-Molina, Bustinza & Gutierrez-Gutierrez, 2012).

As businesses compete with one another for customers, market share and revenue, they employ tactics according to the specific strategies of the individual firms. The process of shaping strategies and putting them into action is the responsibility of the strategy managers of the firm (Floyd & Wooldridge, 1992). However, not all businesses have the same advantages when it comes to developing and deploying strategy (Porter, 2008). The

development and deployment of the appropriate strategy for a given business environment requires adequate strategic capability of the firm.

Prahalad and Hamel (1990) presented the concept of core competence as an essential ingredient of strategic capabilities. Johnson, Scholes and Whittington (2008) reclassified strategic capabilities as resources, competencies, core competencies and dynamic capabilities. Johannesson (2012) classifies strategic capabilities as resources, competence, capacity, quality and the respective dynamics. This study adopted the building blocks of strategic capabilities comprising management capability; production capability; marketing capability; customer care and after-sales support; human resource skills and research and development (R&D) based on the view that dynamic capability is a component of strategic capability. Dynamic capability is therefore expected to drive the strategic capability of the firm.

1.1.2   The Concept of Dynamic Capabilities

The concept of dynamic capabilities is grounded in the Resource Based View (RBV) of strategic management, while the RBV is grounded in the Industrial organization economics (IOE) (Williamson, 1985). IOE has been used to provide a theoretical rationale for the adoption of the RBV theory on firm's performance (Hoskisson, Harrison & Dubofski, 1991). The resource-based approach focuses on the relationship between firm's resources and performance. Wernerfelt (1984) considers a resource as a strength or weakness of the firm and observed that different firms possess unique bundles of valuable resources. The resource-

based theory includes the resource-based view of the firm (Wernerfelt 1984), dynamic capabilities (Teece *et al.* 1997) and knowledge-based approaches (Grant 1996). Villalonga (2004), building on the work of Itami (1987) on the theory of "invisible assets", acknowledges the "invisible asset" theory as complementary to the resource-based theory. The "invisible assets" theory argues that information-based invisible assets, such as technology, customer trust, brand image, corporate culture and management skills, are the real sources of competitive advantage because they are difficult-to-imitate. Villalonga's approach postulates that "intangible assets" positively contribute to the development of sustainable competitive advantage.

Reviews on dynamic capabilities provide some broad categories of the various perspectives, including, the nature of dynamic capabilities, factors influencing dynamic capabilities, the process of dynamic capability and performance and dynamic capability (Martin & Eisenhardt, 2004; Priem & Butler, 2001). The dynamic capabilities perspective has enhanced the resource-based theory of the firm by addressing the evolutionary nature of firm resources and capabilities in relation to environmental changes, thus enabling the identification of firm or industry-specific processes that are critical to firm evolution. Winter (2003) is of the opinion that via explorations, firms search and create new competencies. The existing literature suggests that in stable competitive environments, firms can sustain their competitive position by engaging in extensive and prolonged exploitation processes (March, 2007). D'Aveni, (2010) argues that in highly volatile and intensely competitive environments defined by rapid competitive moves, the firm must move quickly to build advantages and erode the advantages of their rivals. In competitive environments, the firm's top strategic

agenda is to increase its agility, that is, to outpace competition by constantly exploring and pursuing new sources of competitive advantage. Dynamic capabilities enable the firm to reconfigure and renew resources so as to achieve a new level of strategic capability in step with the changing business environment.

From the existing literature, dynamic capability transforms an organization from a lower strategic capability level to a higher level to match the complexity in the changing business environment. Put in other words, dynamic capability transforms an organizational operational capability to the required strategic capability through reconfiguration and renewal of resources, thereby ensuring sustained competitive advantage of the organization. Summing the views of Martin and Eisenhardt (2004), Teece (2007), Pettus, Kor and Mahoney (2009), dynamic capability comprises four key components: sensing, shaping, seizing and reconfiguration of resources. Sensing is the ability of the firm to proactively detect the changes in the business environmental conditions. Shaping is the ability of the firm to make the necessary adjustments in order to cope with the detected change in the environment. Seizing is the ability of the firm to timely take the opportunity and shape up for the required changes. Reconfiguration is the ability of the firm to re-integrate its internal and external resources to match the detected changes in the business environment.

From the above discussion, dynamic capability is a strategic resource and IT can enhance the dynamic capability of the firm. Wade and Hulland (2004) classify IT as a strategic firm resource. Porter (2008) postulates that IT facilitates online access to the firm's information on products, services, prices and online purchases. Thus IT enhances the dynamic capability

of the firm, by providing dynamic flexibility on access to information and management of firm's processes, thereby contributing to the firm's strategic capability. Information Technology (IT) capability is an emerging concept in the literature on strategic management that cuts across all the functions of the firm, providing a solid competitive platform via automation of firm processes and interactive communication with all the stakeholders including customers and suppliers. IT capability is increasingly being perceived as a basis for gaining competitiveness (Chen & Tsou 2006). IT capability can be a source of competitiveness, by leveraging on other firm resources. All businesses, including consultancy businesses can therefore enhance their competitiveness by deploying IT capability in today's hypercompetitive business environment.

1.1.3 Information Technology as a Strategic Capability

There has been increasing global interest in Information Technology (IT) due to its revolutionary role in the way people live, work, communicate, and organize their activities (Preece *et al.* 2003). The review of the then existing studies on RBV by Wade and Hulland (2004) identified IT resources as a strategic component to the firm's resources. Strategy scholars on RBV, tend to classify resources into a few broad categories, these are, assets, core competencies, marketing resources, IT infrastructure, managerial IT skills, and IT capability (Prahalad & Hamel, 1990; Bharadwaj, 2000; Sambamurthy, Bharadwaj & Grover, 2003). IT capability is a multidimensional construct which encompasses both the technical and organizational dimensions. In the recent years, strategy scholars have re-framed the discussion on IT capability and re-defined IT capability as the firm's ability to mobilize and

deploy IT-based resources by integration and reconfiguration with other firm resources and capabilities (Peppard & Ward, 2004; Bhatt, 2005).

Wu, Yeniyurt, Kim, and Cavusgil (2006), building on the earlier work by Powell and Dent-Micallef (1997) observe that IT has some linkage to the firm strategy on the improvement of supply chain processes. Wu *et al.* (2006) postulate that IT-enabled supply chain capabilities are firm-specific and hard-to-copy across organizations and can therefore be used to catalyze the transformation of IT-related processes to higher value. Porter (2008) also proposed positive contribution to firm performance by IT, by facilitating customer online access to firm's information on products, services, prices and online purchases. Using the case of the radical transformation of the print media by IT, Porter (2008) demonstrates that customers nowadays prefer to reduce costs via online search engines and purchase of specific e-books and journals as opposed to regular subscriptions.

IT capability is increasingly being perceived as a basis for gaining competitive advantage. IT capability can be a source of value creation instead of a cost. Information has become an invisible asset, which requires IT capability to aid in its management to the advantage of the firm by leveraging on other firm resources (Sampler, 1998). According to Barney, Wright and Ketchen (2001), the ability to obtain information about markets and customers in changing environmental conditions helps the firm to gain competitive advantage over slower, ill-informed competitors. Peppard and Ward (2004) are of the opinion that the role of IT has gradually evolved from that of facilitating efficiency and effectiveness to providing opportunities for competitive advantage to the firm. It is apparent that most of the earlier

literature tended to favour the idea that IT capability can be used positively to improve firm performance. However, according to Mahmood and Soon (1991) and Hitt and Brynjolfsson (1996), the emerging empirical evidence does not strongly show that IT capability results in better firm performance. Powell and Dent-Micallef (1997) in their observation state that there is a weak connection between IT capability and firm performance.

Clemons and Row (1991) are of the view that in relation to RBV, IT capability may not generate a sustainable advantage, because IT capability can be commoditized through competitive imitation and acquisition. However, Powell and Dent-Micallef (1997) postulate that the advantages of IT capability can be protected by embedding and reconfiguration with other resources in the organization to provide a difficult-to-imitate blend. Sambamurthy, Bharadwaj and Grover (2003) observe that the value of IT capability is enhanced when it is used to develop agility in innovation and competitive performance of the firm. Porter (2008) is of the opinion that information technology enhances the performance of the firm via online interaction with the key stakeholders, including customers and suppliers.

Ray, Muhanna, and Barney (2005) observe that IT resources and capabilities that are firm-specific and socially complex positively influence customer care service. Wu (2010) observes that from a resource-based perspective, competencies that are valuable, rare, inimitable and non-substitutable can provide some competitive advantage to the firm. Thus, firms that achieve higher levels of IT capability are expected to report better performance and enhance market share. Based on the RBV fundamental theory, other firm resources and skills

when reconfigured with IT can be rare and firm specific, therefore providing competitive advantage for the firm.

Continuing the debate on strategic capabilities, Brynjolfsson, Hitt and Yang (2002) observe that IT capability is an essential component of the overall firm's response to environmental changes. Melville, Kraemer and Gurbaxani (2004) are of the opinion that there is substantial uncertainty and debate about what is known and what is not known about the contribution of IT to organizational performance. The key finding of the Melville, Kraemer and Gurbaxani (2004, p.283) study is that *"information technology is valuable, but the extent and dimensions are dependent upon internal and external factors, including complementary organizational resources of the firm and its trading partners, as well as the competitive and macro environment"*. It is apparent that IT capability alone partially explains the variation in firm performance. There is therefore need for integration of IT capability with concepts from other relevant theories, notably the resource dependence and institutional theories, to comprehensively explain the effect of IT capability on the competitiveness of firms. From the existing literature, integration of IT capability with other firm resources is expected to influence the competitiveness of the firm.

1.1.4   Strategic Capability and Firm Competitiveness

From the foregoing literature IT has been identified as a strategic capability. However, the deployment of IT as strategic capability by the firm needs to be carried out uniquely in order to be a source of competitiveness. Melville, Kraemer and Gurbaxani (2004) are of the

opinion that "information technology is valuable, but the extent and dimensions are dependent upon internal and external factors, including complementary organizational resources of the firm and its trading partners, as well as the competitive and macro environment". According to Carr (2004), it is not yet clear why certain firms who have invested heavily in information technology are not doing as well as other firms who have also invested heavily in information technology.

Information Technology deployment entails the process and procedures, by which the organization plans, implements and manages information technology to maximize the potential benefits and the overall effectiveness (Croteau & Bergeron, 2001). The information technology deployment concept emerged out of several conceptual frameworks for strategic IT. The initial conceptual framework emphasized the importance of value addition by strategic IT. The conceptual model by Porter and Millar (1985) emphasized the contribution of IT to the organizational competitiveness. The IT strategic management model developed by Bergeron and Raymond (1995) sought to include the key concerns of information technology engineers (role and positioning of IT, strategic use of IT, new information technology applications, IT architecture, and IT security). Lastly, the Henderson and Venkatraman (1989) SAM model proposed that strategic alignment of IT and business strategies should include business strategy, IT strategy, organizational infrastructure and IT infrastructure. The IT deployment process is thus critical to ensure that the final IT systems and IT processes synergize with the organizational strategy and add value to the organization's products and services (Chan & Reich, 2007).

According to Porter (2008), competitive advantage is the ability of the firm to perform at a higher level than others in the same industry or market. The study of firm competitiveness has attracted profound research interest due to contemporary issues regarding superior performance levels of firms in the present highly competitive business environments. Klein (2002) is of the opinion that the concept of firm competitiveness is surprisingly confusing from the various contributions from past studies and that successful firms are successful because they have competitive advantage, which in turn cannot be defined in any other way than as a quality that brings about success.

Competitiveness is a key determinant of superior performance that ensures survival and prominent placing in the market. Powell (2002) stresses that when superior performance is the ultimate desired goal of a firm; competitive advantage becomes the key foundation underpinning the development of superior performance. Barney and Clark (2007) postulate that the real sources of competitive advantage for the firm are firm competence and capabilities, which offer an alternative explanation to that of Michael Porter's positioning concept.

Porter (2008) captures the key strategies of competitive advantage as cost, differentiation and focus. According to Porter (2008), a firm can also focus on cost advantage or focus on differentiation advantage, by blending focus with cost and differentiation strategies respectively. A firm with competitive advantage enjoys at least one or a combination of the following features, lower costs than competitors in the industry, differentiated products and services, high product or service quality, focused low cost services or focused differentiated

products and services. Firm Competitiveness is thus expected to be affected by the strategic capabilities of the firm. The higher the strategic capabilities of the firm, the better the competitive advantage of the firm is expected to be (Barney & Clark, 2007). Thus IT as a strategic capability of the firm is expected to influence the competitive advantage of the firm (Porter, 2008).

Strategic capabilities of the firm derive from organizational competence. Deployment of higher strategic capabilities enhances the overall competence of the organization and enables the organization to effectively shape and implement strategies that sustain competitive advantage (King, Fowler & Zeithaml; 2001). The term "competence" exhibits different aspects in varying contexts in psychology, law and other fields (Sanchez, 2004). In general, competence can be treated as self-organizational disposition (Sanchez, 2004; Grote, Weichbrodt, Gunter, Zala-Mezo & Kunzle, 2009). Firm competence includes the skills of individuals who can blend their expertise with others in innovative ways (Klein & Richey, 2005). Firm competence can fuel service innovation through information technology (Dibrell, Davis & Craig, 2008).

The firm's competence shapes the long-term performance in the changing business environment. Firm competence can be summarized into five broad areas, these are, managerial, marketing, financial, technical and customer care. In today's highly competitive environment, business organizations need to act fast in order to secure their financial situations and their market positions. Firms are continuously striving for ways to attain a sustainable competitive advantage. They need to count more on their internal distinguished

strengths to provide more added customer value, strong differentiation and extendibility; in other words count more on their "core competences" (Hamel & Prahalad, 1994; Srivastava, 2005). Agha, Alrubaiee and Jamhour (2012) postulate that strategy has to move from competing for product or service leadership to competing for core competence leadership.

1.1.5 Environmental Conditions of Consultancy Businesses

A consulting firm is a team of experts (also referred to as consultants), that offers specialized services to an organizational or individual client. The consultancy services often entail helping the client to develop a game plan or strategy to achieve a specific objective for the organization. The consulting firms can be categorized into different sectors including, financial, information technology, management, human resources, legal, hotel and hospitality, engineering and politics (Kipping & Clark, 2012).

The main business challenges of consulting firms include, building good reputation, financial uncertainty, gaps between assignments, development and mobilization of the required skills sets and resource base, development of strategic alliances and business relationships. A study on Chinese consulting firms in Shenzhen indicated that Chinese consulting firms lag behind their rival foreign firms in design and technical capability, experience in international projects, project management ability and financial capacity (Ling & Gui, 2009; Aaker, 2012; Kipping & Clark 2012).

One of the main concerns of both local and foreign owned consultancy firms is business expansion (Phelps, Adams & Bessant, 2007). Parida, Westerberg, Ylinenpaa and Roininen

(2010) are of the opinion that negative reputation can adversely affect the competitiveness of business firms. Consultancy firms with little experience are perceived as lacking the ability to provide quality services and are unable to satisfy several critical assignments simultaneously. Often more competitive firms are selected and given business for their clout and name recognition. Thus consultancy businesses including those in Nairobi, Kenya have an uphill task to substantially build competence so as to effectively compete with the established firms. Therefore it is important for the consultancy businesses to develop strategic capabilities that can boost the firms' reputation and enhance competitiveness. IT capability can aid the consultancy firms to build competitiveness by unique integration with other firm resources, to promptly respond to the changing business environment.

All firms resort to development of strategic capabilities in attempts to timely adapt to the changing business environment. Winners in the global market have been firms demonstrating timely responsiveness and rapid flexible product innovation, along with the management capability to effectively re-configure the internal and external competences (Eisenhardt & Martin, 2000). This source of competitive advantage emphasizes two aspects, the changing nature of the environment and the key role of strategic management in effectively adapting, integrating, and re-configuring internal and external organizational skills, resources, and functional competences towards the changing environment. Consultancy firms in Nairobi, Kenya are expected to borrow from the experiences of international firms and also develop sound strategic capabilities to match the business environment in Kenya.

From early 2000's researchers begun to focus on the development of firm-specific capabilities and the manner in which these capabilities are renewed to respond to the dynamic changes in the business environment (Eisenhardt & Marin, 2000; Winter, 2003). The strategic capabilities approach provides a coherent framework to integrate existing conceptual and empirical knowledge and to develop dynamic capabilities which enable the organization to create and deploy strategies that support sustained superior performance (Teece, 2007). These observations are based on the contributions of the RBV approach that has been criticized for ignoring the external environment of the firm. To complement the attempts by RBV, scholars are pointing at the need to integrate the external environment through the institutional theory and resource dependence theory (Meyer, 2009; Kilika, 2012).

The study findings on the influence of environmental control of scarce resources by Drees and Heugens (2012), suggested that RDT also explains some of the organizational performance and should be considered as contributing to organization theory. Drees and Heugens (2012) also suggested that RDT explains some strategic behaviour of organizations, citing the US firms as "fleeing from mergers to less regulated arrangements like alliances and joint ventures".

Scott (2004) summarizes the evolution and influence of institutions on organizational performance as of varying mechanisms and logics with diverse empirical indicators, and alternative rationales for establishing legitimacy claims. The study also postulated that institutions are composed of various combinations of elements which vary among themselves and over time and that different theorists tend to elevate one or two classes of the elements.

Most economists stress the regulative elements, early sociologists favored normative elements, while more recent organizational sociologists and cultural anthropologists elevate cultural-cognitive elements. According to Scott (2004), there is need to recognize that institutional environments are not monolithic, but often varied and conflicted, with both positive and negative impacts on the organizational performance, depending on the exact nature of the environmental factors. In addition to resource dependence, the institutional environment includes government laws and regulations, industry self regulation, organizational culture and national culture. The institutional environmental forces are therefore expected to influence the development of IT capability and competitiveness of the consultancy firm.

Powell and Dent-Micallef (1997) study findings suggest that resources of technology, business and people have a positive influence on the overall performance of the firm. Rindova and Kotha (2001) suggested that top managers' orientation about the importance of firm evolution to match dynamic environmental changes may have contributed to Yahoo's relative success in evolving from a search-engine company into an internet-portal in the late 1990s, thus sustaining superior performance in the internet industry.

Moving from the global to the local environment, Kenya's technological environment, particularly in the ICT sector, has advanced tremendously over the past ten years. Regional integration and the growth of business process outsourcing are opening huge opportunities for businesses, from expanded markets to new classes of products and talent (World Bank, 2012), with over 17,000 new business per year. From the influence of strategic capabilities

and environmental forces, the consultancy business firms in Kenya would be expected to respond to the changing environmental conditions that surround them by adjusting their purpose, shape and strategies to meet sustained delivery of services to its customers and to sustain competitive advantage (Teece, 2007; Porter, 2008). The individual strategic behaviour of the firm will determine the exact response by the firm. The firms with reactor traits will respond to the environmental challenge after the challenge has occurred, defenders will respond in a defensive manner to the environmental challenge, analyzers will take time to analyze the impact for the environmental challenge before responding in a comprehensive manner, while prospectors will anticipate the environmental challenge, make the necessary strategic adjustments in advance and will be prepared for the challenge when it finally hits the firm (Miles & Snow, 1978; Aragon-Sanchez & Sanchez-Marin, 2005).

IT capability can help the consultancy firm to automate its processes, provide online (web) interaction with its key stakeholders including the customers and suppliers and foster efficient internal communication for faster decision making. IT capability can therefore improve the firm's reputation and enhance the overall competitiveness. IT capability provides flexibility to enable the firm to change with constraints surrounding the firm. IT capability has recently emerged as a key factor in the firm's performance in today's business environment. Subsequently, an important theoretical question for advancing research in this area is "to what extent has IT been deployed as a key strategic capability, to enhance the competitiveness of the firm in the dynamically changing business environment?" There is also need to understand the influence of external environmental factors on the relationship between IT capability and firm competitiveness. Further, there is need to explore the extent

to which firm competence influences the relationship between IT capability and firm competitiveness.

1.2   Statement of the Problem

Some studies on IT capability have been conducted at the global level. Even though the studies suggest that firms are increasingly relying on IT to enhance agility and performance, they lack empirical evidence to demonstrate how IT influences firm competitiveness. Few studies acknowledge the evolutionary trend towards knowledge and organizational competence but do not cover the contribution of IT. Porter (2008) provides a weak treatment of IT which does not cover the influence of IT on firm competitiveness. Prahalad and Hamel (2008) do not address the influence of IT in the development of core competence of the firm. Another study by Wang and Mahoney (2009) concurs that RBV contributes to sustainable performance of the firm, but fails to link IT with firm competence. Past studies on resource dependence and alternative supply of firm resources do not show how resource dependence influences the role of information technology in the firm.

Brammer, Jackson and Matten (2012) suggest that the organizational link to formal institutions, including the government determines whether and what form the organizations will take on corporate social responsibility (CSR), but does not cover the influence of CSR on competence and performance of the firm. Existing literature posit that IT mediates the relationship between knowledge exchange and management innovation but does not link IT with firm competitiveness.

Among the empirical studies that have been conducted in the Kenya local environment, there is none that directly addresses the influence of IT capability on competitiveness of the firm. An empirical study by Onyango (2009) on the determinants of competitive performance of SMEs in Nairobi Kenya, fails to link performance with firm competitiveness. Studies exploring the effect of formal strategic management in Kenyan Medium sized Enterprises (MEs) postulate that formal strategic management positively affects the performance of MEs, however, the studies do not cover at all the influence of IT capability on the firm performance. Even though Mugambi (2011) confirmed that Profit Impact of Market Strategies (PIMS) principles positively influence corporate performance in Kenya, the study was limited in that it did not investigate the relationship between information technology capabilities and firm competitiveness. Further studies on SMEs suggest that business management training improves the growth of the SME, but fails to establish the influence of information technology on the development of firm competence.

The study by Parida, Westerberg, Ylinenpaa and Roininen (2010) postulate that consultancy companies face enormous environmental challenges including, negative reputation, operational efficiency, inadequate skills and stifling competition from established firms. The foregoing literature suggests that IT capability can contribute significantly to business performance. Therefore, consultancy businesses are expected to benefit from the deployment of IT capability to enhance competitiveness.

Apparently, the currently existing literature seems to focus mainly on the resource-based view and to a lesser extent on dynamic capabilities. There is a huge scarcity of literature on

the IT capability that the firm needs to develop in order to attain and sustain competitiveness; and especially in relation to the role that IT plays in development of competitiveness of the firm in the modern fast changing business environmental conditions. Only a few strategy scholars have attempted to explore whether IT capability has any influence on the firm performance (Mugambi, 2011). Further, the extent to which consultancy businesses in Kenya have deployed IT capability to gain and enhance competitiveness is not clearly known. This study therefore concluded that further research focusing on the deployment of IT capability as a source of competitiveness in Kenya, was still required.

Even though extant theory indicates that variation in IT Capability leads to variation in firm competitiveness, empirical studies have not been conclusive. Calls for future research arising from this gap have not suggested relevant concepts that can be included in modeling the relationship. Thus the role of IT capability in enhancing competitiveness of the firm is not clearly understood. Theoretically even though RBV explains the relationship, it has not been applied in empirical work. RBV suggests the possibility of mediating conditions as well as the role of the external context. There is need to examine the relationship between IT capability and competitiveness, while providing for the mediating and moderating roles of firm competence and environmental conditions respectively.

This study therefore sought to establish the interaction between information technology capability, environmental conditions and competitiveness of consultancy firms in Nairobi County, Kenya.

1.3   Research Objectives

1.3.1   General Objectives

The general objective of this study was to establish the interaction between information technology capability, environmental conditions and competitiveness of consultancy firms in Nairobi County, Kenya.

1.3.2   Specific Objectives

The specific objectives of the study were to:

(i)   Determine the relationship between IT capability and competitiveness of consultancy firms in Nairobi County.

(ii)   Establish the relationship between IT capability and firm competence of consultancy firms in Nairobi County.

(iii)   Determine the mediating effect of firm competence on the relationship between IT capability and competitiveness among consultancy firms in Nairobi County.

(iv)   Establish the moderating effect of environmental conditions on the relationship between IT capability and competitiveness of consultancy firms in Nairobi County.

(v) Establish the moderating influence of environmental conditions on the relationship between IT capability and firm competence of consultancy firms in Nairobi County.

(vi) Establish the moderating effect of environmental conditions on the relationship between firm competence and competitiveness of consultancy firms in Nairobi County.

1.4 Research Hypotheses

This study sought to test the following hypotheses:

Ho_1: IT capability has no relationship with the development of competitiveness of consultancy firms in Nairobi.

Ho_2: There is no relationship between IT capability and firm competence of consultancy firms in Nairobi.

Ho_3: Firm competence has no mediating effect on the relationship between IT capability and competitiveness among consultancy firms in Nairobi.

Ho_4: Environmental conditions have no moderating effect on the relationship between IT capability and the competitiveness of consultancy firms in Nairobi.

Ho_5: Environmental conditions do not moderate the relationship between IT capability and firm competence of consultancy firms in Nairobi.

Ho_6: Environmental conditions have no moderating influence on the relationship

between firm competence and competitiveness of consultancy firms in Nairobi.

1.5 Significance and Justification

The findings of the study are considered significant in several ways. First, since the existing theory suggests that variation in IT Capability leads to variation in firm competitiveness, while empirical studies have not been conclusive on this relationship, the theory in strategic management stands to gain through an empirical investigation that explains the role of IT capability in enhancing competitiveness of the firm. In the same reasoning, the study uses RBV to model the relationship between IT capability and firm competitiveness while providing for mediating and moderating roles of the firm competence and environmental conditions respectively.

Secondly, the findings of the study fill the existing knowledge gaps in strategic management, relating to the interaction of the variables of IT capability, firm competence, environmental conditions and firm competitiveness. Since previous researches attempting to relate IT capability with firm competitiveness have not been conclusive, this study measures the same relationship while providing for the mediating role of firm competence and moderating role of environmental conditions. Researchers in strategic management stand to benefit from this rigorous and integrated empirical analysis explaining the role of IT capability in determining the level of firm competitiveness.

Thirdly, most governments are adopting information technology and related policies to encourage ICT adoption by players in divers sectors of the economy. Most organizations need to see the tangible benefits of the deployment of information technology to the industry. The findings of the study points at some of the areas in which they benefit by investing in IT to support business processes. To the government, the findings point at some areas that can be used to inform policy in IT deployment.

1.6   Scope of the Study

The study covered deployment of IT capability by consultancy businesses in Nairobi County, to enhance competitiveness. The IT infrastructure of the firm included servers, routers, internet access, personal computers (PCs), laptops, Personal Data Assistants (PDAs) and smart phones. The consulting firm is a team of experts or an individual expert that offer specialized services to an organization or an individual client to aid development of a game plan or strategy to achieve a specific objective for the firm. The study was guided by the underpinning theories and concepts of RBV, institutional environment, resource dependence, firm competitiveness and IT deployment. Cross-sectional explanatory research design was adopted for the study and the data was analyzed via simple and multiple regression analyses.

1.7   Organization of the Study

The study is presented in five chapters. Chapter one as described above covers the introduction to the study including the main concepts and variables which are, the

independent, moderating, mediating and dependent variables, the context of the study, problem statement, research objectives, research hypotheses and justification for the study. Chapter two covers the literature theoretical review of the key related concepts and theories, empirical review of the research objectives and presents the conceptual framework for the study. Chapter three presents the research methodology proposed for the study and identifies the target population, suitable research instrument, pre-testing and validation of the research instrument, operationalization of the study variables, data collection method, health cheques and pre-analysis of the collected data and finally describes the data analysis techniques to employed. Chapter four presents the actual data analysis and discussions of the study findings. Chapter five presents the summary, conclusions, recommendations and limitations for the study.

CHAPTER TWO

LITERATURE REVIEW

2.1   Introduction

Literature review for this study is presented in this chapter, and covers both theoretical and empirical reviews for the several relevant concepts and theories, these are, resource based view, dynamic capability, strategic capability, IT capability, technological orientation, IT deployment process, institutional environment, resource dependence and firm competitiveness. Theoretical reviews are presented first, followed by empirical reviews. This chapter closes with the summary of research gaps identified in the foregoing literature review and presentation of the conceptual framework.

2.2   Theoretical Literature Review

The influence of IT capability on the competitiveness of the firm is explained using several interacting theories of strategic management. The RBV explains the unique combination of firm resources that enhance the competitiveness of the firm. The contextual environment is explained by the institutional and resource dependence theories. The theoretical literature review therefore covers resource based view, institutional theory and resource dependence theory.

2.2.1   Resource Based View

The resource-based view (RBV) is a way of viewing the firm as a bundle of resources with respect to strategy. Wernerfelt (1984) was among the first strategy scholars to use the term "Resource Based View". However, the basic building blocks of resource-based view can be traced back to the works of Penrose (1959) and Chandler (1962). The resource-based view was popularized by Prahalad and Hamel (1990), Rumelt (1991) and Hamel and Prahalad (1994). The resource-based approach focuses on the relationship between firm's resources and performance and helps to answer the question why different firms perform differently in the same market (Jena, 2008).

The RBV conceptualizes the firm as a bundle of resources. Wernerfelt (1984) considers a resource as a strength or weakness of the firm and that different firms possess unique bundles of valuable resources. The resources, and the way that they are combined make firms different from one another in service delivery and quality of products offered. Though firms are different because they comprise of different resources, RBV is a significant departure from the previous dominant Michael Porter's market-based view of "five forces framework" (Porter, 1985). While in the market-based view, firms are largely seen as being homogeneous and competition as occurring via positioning in the markets, the strategic challenge is to identify attractive markets to compete in (Porter, 1985). Figure 1 summarizes the RBV concept versus the market-based view.

Figure 1: Resource-Based View versus Market-Based View of Strategy

	Static	Dynamic
Market	Market-Based View	Dynamic Capabilities
Firm	Resource-Based View	Dynamic Capabilities

(Source: Encyclopedic Dictionary of Strategic Management)

Firm resources are generally quite loosely defined, tending to include everything internal to the firm. Barney, Wright and Ketchen (2001) put forward a broad classification of resources as property rights, capital, intangible (for example, brand names), technological know-how or organizational skills (for example, routines or processes, including manufacturing). The resources of the firm have to be categorized in terms of strategic importance to facilitate effective utilization, to enhance firm performance against competition (Bowman & Ambrosini, 2003). Borrowing from the work of Barney (2001) on the prioritization of resources in terms of strategic importance, Bowman and Ambrosini (2003) used the four key characteristics of a strategically important resource, these are, valuable (a resource should deliver value to the firm), rare (a resource should deliver a unique strategy compared to other firms in the industry), inimitable (it should not be possible for the competing firms to imitate nor obtain the resource) and non-substitutable (there must be no strategically equivalent valuable resources that other firms can easily acquire). Bueno, Morcillo and Salmador (2006) also adopted the same classification of resources and introduced a link to dynamism of resources, to facilitate transformation into new sources of firm competitiveness.

Though resources can be purchased, strategy scholars argue that to achieve strategic advantage from a resource it needs to be further developed internally. Deployment of such tradable assets does not entail a sustainable competitive advantage, precisely because they are freely tradable (Dierickx & Cool, 1989; Barney, 2001). Internal development of resources, however, can take long periods of time and is often unclear how to proceed. In a sense it is this uncertainty, opaqueness and resource development duration that adds to the potential sustainability and value of the resource, to offer a rare functionality (Barney, 2001; Peteraf & Bergen, 2003). It is important to recognize that firms are different and possess different resources (Barney 2001; Jena, 2008). The key challenge is to identify opportunities in the market that are relevant to the resource base of the firm. Conversely, resources need to fit in their environment to deliver competitive advantage. This could be viewed in a Darwinian sense, in that the firms that have the resources best suited to the market are likely to exhibit better performance (Madsen & McKelvey, 1996; Rahmeyer, 2006).

Firms in an industry facing similar industry conditions are expected, other things being equal, that they will exhibit some degree of similarity with respect to profitability. Porter (2008) argues that it is the industry structure within which organizations compete and how they position themselves against that structure which determines how profitable individual firms will be. In contrast, the resource-based view of strategy points not to industry structure but to the unique configuration of resources and capabilities that the organization possesses (Gruber, Heinemann, Brettel & Hungeling, 2010; Sirmon, Hitt, Ireland & Gilbert, 2011). Therefore, for proponents of the resource-based school, the answer to why firms

within the same industry experience different levels of performance is to be found by looking inside the organization.

Makhija (2003) is of the opinion that under rapidly changing environmental conditions, the RBV better explains the performance of the firm. While Ketchen, Hult and Slater (2007) postulate that RBV is not tautological, because the resources and performance of the firm are not directly related, but rather the realization of the potential value of the resources depends on the strategies of the firm to exploit the resources. Rumelt (1991) made further contributions to the initial stages of the resource-based view. Rumelt's research investigated firm profit differentials within and across industries. The study found that there were greater differentials within industries than across industries. This finding implied that firm specific differences must be contributing to these differences.

Another influential paper on the review of RBV was that by Barney (1991), on *"Firm resources and sustained competitive advantage"*. This paper is widely regarded as the first formalization of the then-fragmented resource-based theoretical framework. Barney (1991) based his articulation of the RBV on two fundamental assumptions, these are, that resources and capabilities are heterogeneously distributed among firms and they are imperfectly mobile. These assumptions jointly allow for differences in the firm resource endowments to both exist and persist over time, thereby allowing for a resource-based competitive advantage. Barney (1991) argued that Empirical Research on the RBV showed that firms that possessed resources that were valuable and rare would attain competitive advantage and enjoy improved performance in the short term. Barney (1991) also contended, drawing

heavily on Dierickx and Cool (1989), that in order for a firm to sustain these advantages over time, its resources must also be inimitable and non-substitutable. Barney's (1991) conceptual model is captured in Figure 2.

Figure 2: Conceptual model of RBV
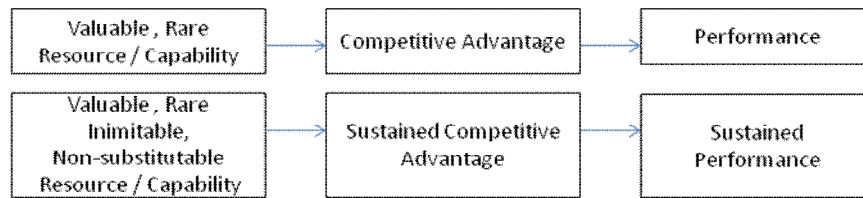
Source: Barney (1991)

One of the major critiques of Barney's (1991) expression of the RBV over time is that, it is rather static. Priem and Butler (2001) argue that although the RBV began as a dynamic approach, much of the subsequent literature tend to portray it as a static concept. Priem and Butler (2001) continue to argue that in Barney's interpretation of the RBV, the processes through which particular resources provide competitive advantage remain in a black box. Barney (2001) seems to admit that the exploitation of the firm's resources to attain competitive advantage requires the firm to understand how to uniquely use the available resources.

Following the above theoretical literature review, it is observed that the RBV has come a long way over the past two decades and has evolved into a dynamic theory, explaining the process by the firm's resources must be utilized to attain sustainable advantage. It is not sufficient for the firm to possess valuable, rare, inimitable, non-substitutable resources and

capabilities; but must be accompanied by the ability to configure and re-configure the resources to maximize their potential.

An empirical study carried out by Lampel, Jamal and Theresa (2006) on research articles supports the RBV. In this study, more than half of the total articles sampled were on RBV. The study found empirical support for all the articles on RBV in the sample. Lockett, Thompson and Morgenstern (2009) carried out a critical review of the RBV twenty years after its worldwide acceptance and concluded that "the permeable and eclectic nature of the RBV stems from its being a theory about what firms are and how they function" and that the popularity of RBV is attributed to the "absence of limiting behavioural assumptions". Kraaijenbrink, Spender and Groen (2010) carried out a study on the RBV to evaluate the major critiques on the RBV theory over the preceding 20 year period, since its popularization in 1991. The study concluded that the RBV core concepts can withstand criticism but that the concepts on resource value and competitive advantage unnecessarily narrow the new economic theories, thereby diminishing the opportunities for further holistic development of the RBV. These authors suggest that RBV should be moved to a genuinely dynamic framework. Thus, the arguments of this theory were used in this study to inform the independent and the mediating variables.

2.2.2   Institutional Theory

There are several views by management scholars on the institutional theory. According to Powell and DiMaggio (2012), the concept of 'institutions' means "the new institutionalism in

organization theory and sociology comprising a rejection of rational-actor models, an interest in institutions as independent variables, a turn towards cognitive and cultural explanations, and an interest in properties of supra-individual units of analysis that cannot be reduced to aggregations or direct consequences of individuals' attributes or motives".

From the review of the existing literature, there is no consensus on the definition of 'institutions'. Scott (2001) views 'institutions' as social structures that have attained a high degree of resilience. Scott (2001) is also of the view that institutions are composed of cultural-cognitive, normative, and regulative elements that, together with associated activities and resources, provide stability and meaning to social life. Scott (2001) goes on to add that institutions are transmitted by various types of carriers, including symbolic systems, relational systems and routines, by operating at different levels, from world systems to local interpersonal relationships.

In order to survive, organizations must conform to the rules and belief systems prevailing in the environment (Meyer & Rowan, 1977). Martinsons (1993) and Porter (1996) observe that even multinational corporations (MNCs) operating in different countries with varying institutional environments will face diverse pressures and that some of those pressures in host and home institutional environments exert fundamental influences on the competitive strategy as well. Zaheer (1995) further observe that institutionalism also affects human resource management practices. Scott (2004) is of the view that institutional theory focuses on the deeper and more resilient aspects of social structure. Authoritative unwritten rules for social behaviour are shaped by institutions via structures, schemes, regulations, norms, and

routines (Scott, 2004). According to Dacin, Goodstein and Scott (2002), institutions drive the changes in interaction across all levels, but the institutions are also subject to change in character and potency over time.

There is substantial evidence that firms in different types of economies react differently to similar challenges. Social, economic, and political factors constitute an institutional structure for a particular environment, which provides firms with advantages and disadvantages for engaging in specific types of activities there. Businesses tend to perform more efficiently if they receive institutional support. Therefore the institutional environment mediates between strategic capabilities and performance of the organization, including the achievement of competitiveness. However, the effect of the institutional environment on firm competitiveness is bound to be different for each business environment.

Campbell (2007) posits that institutional theory shapes the behaviour of organizations to behave in a socially responsible way. The author adds that the several conditions mediate the corporate behavior including, public and private regulation, independent organizations that monitor corporate behavior, institutionalized norms of appropriate corporate behavior and organized dialogues among their various stakeholders. The environmental forces that exert pressure on the organization include government laws and regulations, industry self regulation, national culture and organizational culture. Brammer, Jackson, and Matten (2012) argue that the institutional theory explains the paradoxical behaviour of organizations between the "liberal notion of voluntary engagement" and the contrary implications of

"socially binding responsibilities". Institutional theory is therefore expected to influence the relationship between IT capability and firm competitiveness.

2.2.3 Resource Dependence Theory (RDT)

Resource Dependence Theory (RDT) is the study of how the external resources of organizations affect the behavior of the organization. The procurement of external resources is an important aspect of the strategic management process of a firm. Salancik and Pfeffer (1978) published the initial scholarly work that formalized RDT. The author proposed five options that firms can use to minimize environmental dependences, these are, mergers/vertical integration, joint ventures and other inter-organizational relationships, boards of directors, political action, and executive succession. Thus according to these authors, resource dependence theory has implications on the optimal structure of organizations, recruitment of board members and employees, production strategies and firm structure.

RDT has its origins in the open system theory which views organizations as having varying degrees of dependence on the external environment, particularly for the resources they require to operate. This therefore poses a problem for organization facing uncertainty in resource acquisition (Ulrich & Barney, 1984; Aldrich, 1999) and raises the issue of firm's dependency on the environment for critical resources (Grewal & Dharwadkar, 2002). Often, the external control of these resources may reduce managerial discretion, interfere with the achievement of organizational goals, and ultimately threaten the very existence of the

organization. The management when faced with the costly situation of this nature proactively directs the organization to manage the external dependence to its advantage. Organizational success is achieved when the organization maximizes its outputs and profits.

The organization can manage increasing dependency on external resources by adapting to or avoiding external demands, by executing RDT strategies including, altering organizational interdependence through integration, mergers and diversification; establishing collective structures to form a moderated environment; using legal, political and social action to form a created the desired environment (Salancik & Pfeffer, 1978). Emerson (1962) postulates that in RDT, power and dependency are intimately related. Salancik and Pfeffer (1978) suggested and argued that the firm should develop specific sets of strategies to manage the external environment and the conditions under which the firm operates.

The resource dependence theory shares some similarities with transaction cost economics and institutional theory as well (David & Han, 2004). According to Davis and Cobb (2010) and Drees and Heugens (2013), the resource dependence theory has been under scrutiny in several journal reviews and studies. RDT explains some of the actions of organizations in forming partnerships, alliances, joint ventures, mergers and acquisitions, when striving to fight dependencies on external resources and improve an organizational independence. RDT does not in itself alone explain all the organization's performance (Davis & Cobb, 2010).

Proponents of RDT take the view that the firm should seek to proactively control the resources in order to achieve organization effectiveness. Salancik and Pfeffer (1978) define

effectiveness as "the ability of the organization to create acceptable outcomes and actions". In this view, effectiveness can then be related to proactively managing the competitive environment to the firm's advantage in the quest to create acceptable outcomes and actions. This is propelled by the strategic thrust to proactively manage the organizational competitive environment in the legal, social-cultural dimensions, by incorporating a spectrum of RDT strategies, to achieve competitive advantage (Davis & Han, 2004).

According to Hillman, Withers and Collins (2009) the RDT has been used extensively to explain how organizations can reduce environmental dependence and uncertainty by application of the initial principles proposed by Salancik and Pfeffer in 1978. Thus superior organizational performance results primarily from managing dependencies and uncertainty and choosing the appropriate strategies to proactively influence and control the environment to the advantage of the organization (Davis & Cobb, 2010). This would then open options for the firm to contribute or withhold an important resource or input, which can thereby be used to leverage the bargaining power against the key stakeholders, including partners and customers (Davis & Cobb, 2010). The relationship between the study variables, IT capability and firm competitiveness is therefore expected to be influenced by RDT. RDT is also expected to influence the relationship between IT capability and firm competence and between firm competence and competitiveness.

2.3   Empirical Review

In addition to the strategic management theories discussed in the previous section, a number of strategic management concepts also influence the relationship between IT capability and competitiveness of the firm. This section presents the empirical literature review covering the concept of dynamic capability, the concept of strategic capability, information technology form of strategic capability, firm competence and firm competitiveness, as identified by this study.

2.3.1   The Concept of Strategic Capability

Another closely related derivative of the Dynamic Capabilities theory is Strategic Capability. According to Teece *et al.* (1997) strategic capability can be defined as "the firm's ability to integrate, build and reconfigure internal and external competencies to address rapidly changing environments". Luo (2000) defines Strategic Capability as the capacity of a business to survive, prosper and deliver future value. Johnson, Scholes and Whittington (2005) define strategic capability as "the adequacy and the suitability of the resources and competences of an organization to survive and prosper". According to Joakim (2010), Strategic capability can be defined as "high–level routines, resources and competences that are recognized as important in order to create and sustain competitive advantage of a firm".

Ansoff (1972) made the initial classification of the elements of strategic capability as comprising of general management capability and competence. Prahalad and Hamel (1990)

emphasized core competence as an essential ingredient of strategic capabilities. Eisenhardt and Martin (2000) view Strategic Capability as comprising a number of distinct components, these are, clarity of thinking and action in the long term objectives and strategy, evidence of strategy in action and strategic progress in operational achievement, sensitivity to the future and to the impact of environmental forces upon future performance, investment in resources, strengths and tangible drivers of value and incorporation of the social responsibilities in the strategy of the business. Johnson, Scholes and Whittington (2008) reclassified strategic capabilities as resources, competencies, core competencies and dynamic capabilities. Johannesson and Palona ((2009) classifies strategic capabilities as resources, competence, capacity, quality and the respective dynamics. By expanding to the sub-components, this study adopts the building blocks of strategic capabilities as management capability; production capability; marketing capability; customer care and after-sales support; human resource skills, research and development (R&D) and dynamic capabilities.

Every business in order to survive and thrive in a competitive business environment needs to possess a certain level of strategic capability. The type of strategic capability that the company needs at a specific time is determined by the forces, threats and opportunities in the future business environment (Ansoff, 2007). Threats and opportunities also evolve in the external environment of the business and they impact on the business organization in both positive and negative ways. The threats and opportunities can originate from customers, suppliers, competitors, government, and many other sources (Porter 2008).

Strategic capabilities thus reflect an organization's ability to achieve new and innovative

forms of competitive advantage, given the changing environment (Winter, 2003). The concept of strategic capability has been applied to firms within industries (Teece, 2007; Sirmon, Hitt & Ireland, 2007). As businesses compete with one another for customers, market share and revenue, they employ tactics according to deliberate strategies. The process of shaping strategies and putting them into action is the responsibility of the strategy managers of the firm (Wooldridge, Schmid & Floyd, 2008). However, not all businesses have the same advantages when it comes to developing and deploying strategy. The development and deployment of the appropriate strategy for a given business environment requires adequate strategic capability of the firm (Porter, 2008).

Frequent changes in the threats and opportunities to the business create environmental uncertainties that the business manager may have difficulty adjusting to, because of lack of the capability to successfully identify new opportunities, detect and interpret problem areas and issues, and implement strategic responses (Albright, 2004; Slywotzky & Drzik, 2005).

Chandler (1962) indicated that a change in strategy is driven by the changing business environment and that the new strategy must be followed by an appropriate structural change in the internal configuration of the organization. This perspective of sequencing is supported by other leading strategic management scholars, including Rumelt (1974), Drucker (1974) and Snow, Miles, and Miles (2005). Ansoff (1984) postulates that where there is equilibrium between the strategy and strategic capability, the performance of the organization is optimized for a particular business environment. However, Ansoff (1984) does not cover progression from the existing business environment to the new levels of threats and

opportunities. The transformation should be viewed as a shift to another business/environmental equilibrium rather than a progression, because of the difference between the two business environments. The new business environment may demand a completely different organizational strategic capability and competence, including management, scientific and technological foundation, manufacturing system, distribution and marketing systems (Aragon-Correa & Sharma 2003). While Ansoff's work made useful contributions to this subject, certain questions still remain unanswered. For example, the difference between individual competence (Le Deist & Winterton, 2005) and organizational competence (Sanchez, 2004) is not clear; neither the transformation process from individual competence to organizational competence is explained.

There is strong evidence in the market place for a different logic, where firms create the business environment instead of serving it. Many of the most successful companies of the late 20th century based their business concept on creating a new business environment and needs. Good examples include the creation of the internet, mobile phones, digital cameras and satellite navigation systems, in the 1980s. Some of the most successful companies that seized the opportunity in this era are Yahoo, Google and Coca Cola who created the customer needs (Rindova & Kotha, 2001; Chen & Chang, 2008). This perspective effectively changes the sequence of the relationships among strategy, strategic capability, and the business environment to a complete affirmation of the famous Chandler (1962) perspective of "structure follows strategy". The two approaches in conceptualizing the relationships among strategy, strategic capability, and the business environment and their sequence appear contradictory and call for explanation of the controversy.

In the former case, the business environment comes first, while in the latter case the business environment comes last, as it is created.

A study by Zollo and Singh (2005), on strategic capabilities and knowledge transfer within and between organizations, observed that stockholders of firms make positive economic returns, while acquirers make abnormal returns. However, the study is not conclusive on the explanation of the variation in economic returns between the stockholders and acquirers. Di Benedetto, DeSarbo, and Song (2008) in their study on strategic capabilities and radical innovation found that there is a significant positive relation between technology and IT capabilities with radical innovation. The study observed significant differences among the three countries sampled (USA, Japan and China). For China, the only capability that is significantly related to radical innovation is technology. Marketing capability is more significantly and positively related to radical innovation in the USA than in Japan. Another study by Ordanini and Rubera (2008), conducted among 93 firms in the Italian textile and clothing industry observed that process efficiency and integration capability provides a significant positive contribution to firm performance. The study also observed that the internet enhances the effect of process integration capability. The study, however, failed to explain the link between the integration capabilities and firm competitiveness.

From the existing literature on strategic capabilities, there seems to be no consensus on the influence of strategic capabilities on firm competitiveness. The various strategy scholars make different observations on strategic capabilities. The influence of strategic capabilities on firm competitiveness is therefore not conclusive.

2.3.2   The Concept of Dynamic Capabilities

Different approaches to strategy view the essence of the strategic problems faced by firms differently. The competitive forces framework sees the strategic problem in terms of industry structure, entry deterrence, and positioning (Porter, 2008). The game-theoretic model views the strategic problem as one of interaction between rivals with certain expectations about how each other will behave (Cox, 2009). While the resource-based perspective focuses on strategies for exploiting firm-specific assets and also invites strategies for developing new capabilities (Wernerfelt, 1984). The dynamic capability views the firm's need to develop strategic capability for the next level of turbulence in the business environment (Augier & Teece, 2008).

Teece *et al.* (1997) define dynamic capability as the "the ability to integrate, build, and reconfigure internal and external competencies to address rapidly-changing environments". The dynamic-capabilities theory was introduced by David Teece and is an extension of the resource-based view of the theory of the firm. The resource-based view postulates that the ability of the firm to create and maintain competitive advantage is based on certain set of strategically relevant resources which are valuable, rare, difficult to imitate and non-substitutable. Teece *et al*. (1997) observed that in rapidly changing environmental conditions, for example, a technological disruption, companies will have to adapt their combination of resources in order to retain competitive edge.

The Dynamic Capabilities theory is grounded on the Resource Based View theory (RBV) of strategic management. While Industrial organization economics (IOE) (Williamson, 1985) has been used to provide a theoretical foundation for the adoption of the RBV theory on firm's performance (Hoskisson *et al.* 1991). The concept of dynamic capabilities arose from the major shortcomings of the resource-based view of the firm. The RBV has been heavily criticized for ignoring factors surrounding the resources of the firm, but instead assume that the resources simply exist. Further, RBV is silent on how the resources are developed, integrated within the firm and are released from the firm (Kraaijenbrink, Spender & Groen, 2010). Dynamic capabilities theory attempts to bridge these gaps by adopting a process approach that acts a buffer, between firm resources and the changing business environment and help the firm adjust its resource mix and thereby maintain the firm's competitive advantage. While the RBV emphasizes the choice of appropriate resources, dynamic capabilities emphasize the development and renewal of firm resources (Teece *et al.*, 1997).

According to Wade and Hulland (2004), Dynamic Capabilities concept is particularly useful to firms operating in rapidly changing environments. Thus, even if Dynamic Capabilities do not directly lead the firm to a position of superior sustained competitive advantage, they are critical to the firm's longer-term competitiveness in unstable environments by helping the firm to develop, add, integrate, and release other critical resources over time (Teece, 2007). Hou and Chien (2010) are of the opinion that the concept of dynamic capabilities as the ultimate source of competitive advantage is at the forefront of current strategy research. The field of strategic management seeks to guide those aspects of general management that have critical effects on the survival and success of the business (Teece *et al.*, 1997). The dynamic

capability approach helps to steer managers towards dynamically creating distinctive and difficult-to-imitate competitive advantages. Teece *et al.* (1997) used the term dynamic capabilities to stress the firm's ability to exploit internal and external firm-specific competencies to address the changing environment. Porter (2008) outlined the five-forces framework, which can be used in understanding the structure of the industry and its usefulness for assessing the industry's attractiveness and the state of competition.

From the extant literature, this study observes that dynamic capability transforms an organization from a lower strategic capability level to a higher level to match the complexity in the changing business environment (Teece, 2007). Put in other words, dynamic capability transforms an organizational operational capability to the required strategic capability through reconfiguration and renewal of resources, thereby ensuring sustained competitive advantage of the organization. Summing up the views on dynamic capability by David Teece (2007), Eisenhardt and Martin (2000) and Pettus, Kor and Mahoney (2009), dynamic capability comprises of four key components: sensing, shaping, seizing and reconfiguration of resources. Sensing is the ability of the firm to proactively detect the changes in the business environmental conditions. Shaping is the ability of the firm to make the necessary adjustments in order to cope with the detected changes in the environment. Seizing is the ability of the firm to timely take the opportunity and shape up for the require changes. Lastly, reconfiguration of resources is the ability of the firm to reconfigure its internal and external resources, to match the detected changes in the business environment (Teece *et al.*, 1997).

However, Barreto (2010) is of the opinion that dynamic capabilities do not provide sufficient conditions for competitive advantage, because it "consists of a few simple, often competing, rules that enable highly adaptive behavior". In addition, Ambrosini and Bowman (2009) criticize dynamic capabilities theory despite its extensive popularity, as "abstract and intractable" if the number of empirical studies are not sufficiently increased to provide authoritative support.

2.3.3 IT Form of Strategic Capability

In today's business world, information technology (IT) is becoming more and more important not only to the firm but also to the nation. Sampler (1998) observes that IT capability can be a source of value creation instead of a cost. The increasing interest in Information Technology has been attributed to its revolutionary role in the way people live, work, communicate, and organize their activities (Preece, Maloney-Krichmar & Abras, 2003). The internet which employs IT, plays a major role in today's business world. The ability to effectively manage information helps the organization to proactively deal with the changes in the environment, which can result in a competitiveness. In addition, use of IT by an organization to make information available efficiently via reduction of operational costs including, purchasing, production, marketing and sales, can lead to competitive advantage (Wu *et al.,* 2006).

Strategy scholars on RBV, tend to classify firm resources into a few broad categories, these are, core competencies (Prahalad & Hamel 1990), managerial IT skills (Mata, Fuerst, &

Barney, 1995), IT infrastructure (Duncan, 1995), assets (Ross *et al.,* 1996), marketing resources (Capron & Hulland 1999), and IT capabilities (Bharadwaj, 2000). Based on the RBV perspective, Wade and Hulland (2004) identified IT resources as a strategic component to the firm's resources.

Clemons and Row (1991) are of the view that in relation to RBV, IT capability may not generate a sustainable advantage, because IT capability can be commoditized through competitive imitation and acquisition. However, Powell and Dent-Micallef (1997) indicated that the advantages of IT capability can be protected by embedding and integration with other resources in the organization to provide a difficult-to-imitate blend. According to Barney, Wright and Ketchen (2001), the value of IT capability is also enhanced when firms use it to develop a knowledge base about its competitive environment (customers, markets, competitors, suppliers, distributors and other key drivers of firm performance).

Sampler (1998) is of the opinion that information has become an invisible asset, which requires IT capability to properly manage to the advantage of the firm by leveraging on other firm resources. The competitive benefits of IT capability can be seen from the increased interest of firms to develop strategies that focus on IT capability (Powell & Dent-Micallef, 1997; Bharadwaj, 2000). The ability to obtain information about markets and customers in changing environmental conditions helps the firm to gain competitive advantage over slower, ill-informed competitors (Barney, Wright & Ketchen, 2001). Powell and Dent-Micallef (1997) posit that that from the resource-based perspective, competencies can be inimitable because of unique integration of resources. Thus, firms that achieve higher levels of IT

capabilities are expected to report better performance and enhance market share (Bharadwaj, 2000).

Continuing the debate on strategic organization capabilities, Makadok (2001) distinguishes between firm resources and capabilities, and postulates that that the organizational capabilities are embedded, making them more effective to provide superior long-term firm performance. Brynjolfsson and Hitt (2000) observe that IT capability is an essential component of the overall firm response to environmental changes. However, in the recent years, strategy scholars have re-framed the discussion on IT capability, and re-defined IT capability as the firm's ability to mobilize and deploy IT-based resources by integration with other firm resources and capabilities (Santhanam & Hartono, 2003; Peppard & Ward, 2004; Bhatt, Grover & Grover, 2005).

Bharadwaj *et al.* (1999), point that IT capability is a multidimensional concept encompassing both the technical and organizational dimensions. Bharadwaj *et al.* (1999) measured IT capability by use of six dimensions, these are, IT business partnerships, external IT linkages, business IT strategic thinking, IT business process integration, IT management, and IT infrastructure. However, Bharadwaj *et al.* (1999) did not link these six dimensions of IT capability with the firm performance. However, more recent studies have shifted to the relationship between IT capability and specific components of firm strategy, such as environmental scanning, competitive advantage, organizational performance, and knowledge management (Maier, Rainer & Snyder, 1997; Powell & Dent-Micallef, 1997; Bharadwaj, 2000). It is apparent that substantial literature tends to favour the idea that IT capability can

be used positively to improve firm performance (Rivard, Raymond & Verreault, 2006). However, an earlier position by Mahmood and Soon (1991) and Hitt and Brynjolfsson (1996), was that there were no sufficient empirical evidence to strongly show that IT capability does result in better firm performance. Clearly here, the effect of IT capability on firm performance needs further extensive research to find a more accurate relationship.

Even with the lack of clarity on the influence of IT capability on firm performance, IT has strong spillover effects on long-run productive activities in some sectors. In the last 10 years, high-speed communications networks and the innovative applications they carry have made IT a strategic capability. IT promotes innovation and can trigger fundamental economic transformation and is therefore a powerful strategic capability tool (Preece, Maloney-Krichmar & Abras, 2003). Individuals, by accessing global knowledge, are unleashing uniquely unmatched potential of human capital and creativity. Companies in developing countries are increasingly embracing IT for integration into global production chains and markets. Enterprises in both manufacturing and service sectors that use IT more intensively are more productive, grow faster, invest more, and are more profitable. Governments are becoming more efficient and transparent by offering information and services online. IT has become a necessity tool for strategic capability for firms to guarantee sustained performance into the future, especially with the irreversible global environment that has gradually caught up with everyone in every country.

From the existing literature on IT capability, there still remains a question today as to how IT capability optimally blends together with other firm resources and capabilities to produce

some form of firm competitiveness. Sambamurthy, Bharadwaj and Grover (2003) and Porter (2008) are of the opinion that deployment information technology does result in a positive impact on the competiveness of the firm. In contrast, a study on information technology by Melville, Kraemer and Gurbaxani (2004) is of the opinion that there is uncertainty and debate about what is and not known on the contribution of IT to organizational performance. The key finding of the Melville, Kraemer and Gurbaxani (2004) study is that *"information technology is valuable, but the extent and dimensions are dependent upon internal and external factors, including complementary organizational resources of the firm and its trading partners, as well as the competitive and macro environment"*. Carr (2004), points out that it is not yet clear why certain firms who have invested heavily in information technology are not doing as well as other firms in different regions who have also invested heavily in information technology.

2.3.4 Technological Orientation and IT Deployment

This subsection covers the theoretical foundations for technological orientation, strategic alignment of IT resources and IT deployment process.

2.3.4.1 Technological Orientation

From the 21st century, firms have been making increasing orientation towards significant investments in information technology in order to align IT with business strategies and organizational processes, aimed at subsequently enhancing firm competitiveness

(Sambamurthy, Bharadwaj & Grover, 2003). The firms have deployed information technology to improve organizational processes including, customer relationships, manufacturing, procurement and supply chain (Agarwal & Sambamurthy 2002; Barua, Konana, Whinston & Yin, 2004). According to Dewett and Jones (2001), information technology is an important driver of firm performance. Another reason for firms' inclination to deploy information technology is to aid expansion of scope of products and services offered (Corso & Paolucci 2001; Davis & Sun, 2006).

According to Henderson and Venkatraman (1989), the concept of strategic alignment was greatly influenced by the contingency theory. The contingency theory postulates that the best adaptation to the environmental demands is achieved by the best fit between the organizational and environmental demands. Chan, Huff and Copeland (1997) posit that IT strategic alignment is among the top issues with high concerns to firms in this highly dynamic business environment era. Chan *et al.* (1997), in their study they suggest that IT strategic alignment is an important factor in business performance and that the companies with high IT strategic alignment perform better than those with low IT strategic alignment. According to Chan *et al.* (1997, p. 125), IT strategic alignment is the *"the fit between business strategic orientation and information technology orientation"*.

Bergeron and Raymond (1995) and Chan *et al.* (1997), found that IT strategic alignment had positive effects on some organizational performance variables including, strategic management of IT, organizational structure and business strategy. Understanding the orientation of firms towards information technology has attracted substantial research

studies. However, the studies have mainly focused on IT strategic alignment by large companies (Cragg, Tagliavini & Mills, 2007). Studies on SMEs have been relatively much less (Burgess, 2002). Cragg, Tagliavini and Mills (2007) suggest that IT alignment studies on SMEs should be done from a process approach rather than a strategic approach because not many SMEs possess heavy IT investments and that operational alignment in SMEs is currently under researched. Further, Gutierrez, Orozco and Serrano (2009) are of the opinion that the current studies in IT strategic alignment have not explored the differences across the different organizational sizes. Two knowledge gaps are identified, these are, the study of IT alignment by SMEs in relation to the organizational processes and behaviour of IT strategic alignment in relation to different organizational sizes.

Chan and Reich (2007) postulate that IT orientation is towards strategic alignment of the organizational business strategy and the information technology systems. Chan and Reich (2007) define IT strategic alignment as the degree to which the mission, goals and business plans are shared and supported by IT strategy. While McKeen and Smith (2003) argue that strategic alignment exists when the goals and activities of the organization and information systems remain in synergy. Chan and Reich (2007, p. 297) describe "alignment" as *"fit, connection integration, bridging, fusion, consistency and co-variation"*.

Recent studies on IT strategic alignment have focused on developing general models of fit between the business and IT. The alignment models describe how different elements and processes of the organization interact to achieve effective alignment. According to Chan and Reich (2007), the first alignment model was developed by Massachusetts Institute of

Technology, which argues that strategic changes involving IT investments can only result in tangible rewards if and only if, the key elements of strategy, technology, structure, management and processes are adequately aligned. Gutierrez *et al.* (2009) concur with Henderson and Venkatraman (1989) that the organization performance is affected by the technological orientation and the size of the company as well.

Based on the Massachusetts Institute of Technology model, Henderson and Venkatraman (1992) developed the Strategic Alignment Model (SAM), which has become quite popular among the strategy scholars. The Henderson and Venkatraman (1992) strategic alignment model is anchored on four key interrelated domains, these are, business strategy; IT strategy; organizational infrastructure processes; and IT infrastructure and processes. According to the SAM, alignement is achieved in two dimensions, at the strategic level, between the business strategy and IT strategy; and at the tactical level between the organizational infrastructure and processes and the IT infrastructure and processes. Figure 3 depicts the SAM.

Figure 3 : Strategic Alignment Model
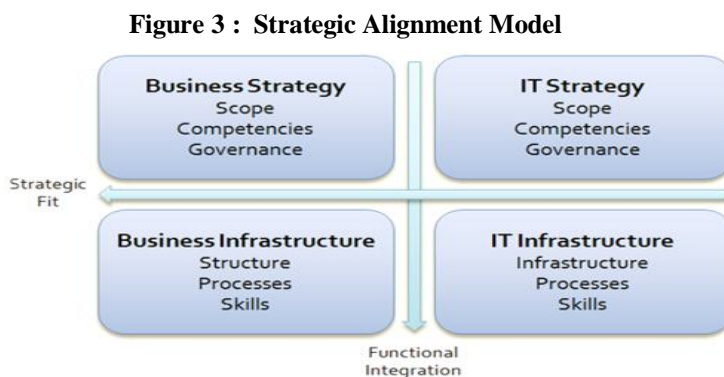
(Souce : Henderson and Venkatraman, 1999)

Notwithstanding the popularity of the Henderson and Venkatraman (1992) model (SAM), a number of strategy scholars have leveled several shortcomings against this model. Smaczny (2001) is of the opinion that the SAM is based on mechanistic view of organizations and is

not workable, as it does not capture all the firm processes. Avison, Jones, Powell and Wilson (2004) claim that the SAM has limited ability to practically help managers understand how the firm can align its technological resources with the firm's strategic goals. Chan and Reich (2007) is of the opinion that depending on the complexity and specialized nature of information required in an industry, the implementation of the SAM model can vary together with the respective outcome.

2.3.4.2 Information Technology Deployment Process

Information Technology deployment process entails the procedures, by which the organization plans, implements and manages information technology to maximize the potential benefits and the overall effectiveness (Croteau & Bergeron, 2001). The information technology deployment concept was born out of several conceptual frameworks for strategic IT.

The initial conceptual framework, developed by McFarlan, McKenney and Pyburn (1983) emphasized the importance of value addition by strategic IT. The conceptual model by Porter and Millar (1985) emphasized the contribution of IT to the organizational competitiveness. Croteau and Bergeron (2001) acknowledges the contribution of Das, Zahra, and Warkentin (1991) model which proposed four key dimensions of the deployment of information technology (distinctive competencies, the role of IT, design and development of IT, as well as technological, organizational and administrative infrastructures). The IT strategic management model developed by Bergeron and Raymond (1995) seeks to include the key

concerns of information technology engineers (role and positioning of IT, strategic use of IT, new information technology applications, IT architecture, and IT security). Lastly, the Henderson and Venkatraman (1999) SAM model postulates that strategic alignment of IT and business strategies should include business strategy, IT strategy, organizational infrastructure and IT infrastructure. The IT deployment process is thus critical to ensure that the final IT systems and IT processes synergize with the organizational strategy and add value to the organization's products and services (Chan & Reich, 2007).

According to Henderson and Venkatraman (1999), it is of critical importance that IT be aligned with business strategy. Organizations can opt for different types of information technology deployments, depending on their respective business strategies Sabherwal and Chan (2001) postulate that the IT activities of prospector organizations would be characterized by more intensive use of IT, better management of IT, more important role of the IT and more intensive information technological scanning, than the other slow-to-act organizations (defenders, reactors and analyzers). IT deployment capability is defined as the organizational capability to configure and reconfigure a company's information system by adding new IT components or by adapting the existing information systems in order to make the whole information system available to support and shape business performance. As more and more companies deploy information technology systems, the organizational capability to effectively deploy information technologies to support and shape business performance becomes increasingly important.

Sabherwal and Kirs (1994), Bergeron and Raymond (1995) and Chan *et al.* (1997) postulate that there exists indirect links between IT and organizational performance and that direct links have not been clearly identified by researchers. According to the study by Santhanam and Hartono (2003) on the impact of "IT investments on firm performance", firms with superior IT capabilities exhibit superior and sustained firm performance compared to average industry performance. Ryssel, Ritter and Gemunden (2004) are of the opinion that deployment of information technology creates value in the organizational business-to-business relationships. Jorgenson, Ho, and Stiroh (2005) observed that the American economy experienced renewed growth since 1990s, and associated economic surge with the development and deployment of information technology. Wu *et al.* (2006) postulate that information technology deployed on the firm supply chain provide firm-specific and hard-to-copy capabilities, thus improving the competitive position of the firm.

However, Sheng, and Mykytyn Jr (2002) are of the opinion that deployment of information technology does not necessarily lead to improved firm performance but is dependent on the quality of the information generated by the IT system and utilized by the management of the firm. Contributing to the debate on the role of IT in creating competitive advantage, Sirmon, Hitt and Ireland (2007) argue that managers need to effectively manage the bundling of resources to build unique capabilities for the firm, that deliver customer value and ultimately a competitive advantage. Dhillon (2008) argues past literature seem to report more cases of failure than of success of IT deployment resulting in any positive gain to the organization. Dhillon (2008) continues to argue that in order to harness to the full potential of IT deployment, it is necessary for the firm ensure adequate organizational competencies are first

put in place. Thus the impact of IT on organizational competitiveness therefore still remains unclear and under researched.

From the existing empirical literature, a number of variables come into play between the IT capability and organizational competitiveness to moderate and mediate the effect of IT capability on the performance of the firm. Three of these have the greatest intermediary role, these are, firm competence, institutional environment and resource dependence. This study sought to establish the intermediary effects of these variables on the relationship between IT capability and firm competitiveness.

2.3.5   Firm Competence

Ansoff (1984), Luo (1998) and Lynch (2003) observe that organizational competence is of critical importance, when building an organization with adequate strategic capabilities for the business. Sambamurthy, Bharadwaj and Grover (2003) are of the opinion that deployment of information technology will improve the organizational competence by enhancing the organizational capabilities in terms of agility, digital options and entrepreneurial alertness. While Kottaridi and Lioukas (2011) are of the same opinion that scaling up of the strategic capabilities of the organization via for example, technological sophistication, will also enhance the overall organizational competence.

Stuart and Lindsay (1997) define organizational competence as "the ability of an organization to sustain coordinated deployments of assets and capabilities in ways that help

the organization achieve its goals". Stuart and Lindsay add that organizational competence includes the individual staff skills which blend their expertise in innovative ways. According to Sanchez (2004) and Grote *et al.* (2009) competence can be treated as self-organizational disposition.

Ansoff (1984) and Lynch (2003) categorize strategic competence into two groups. The first category is individual competence such as the skills, knowledge, experiences, and aspirations of the strategic managers, key management, scientific, technical personnel and other internal stakeholders. The second category is the organizational competence such as formal management systems, structure, scientific and technical competence, organizational culture and organization's logistical competence in respect to the various functions such as marketing and finance, and technologies (Ansoff, 1979; 1984; Lynch, 2003).

Organizational competence is the collective accumulation of skills, knowledge, and experience of the organization from the past and present employees. For example, many talented individuals and group of individuals have contributed their talent, skills, and experiences in creating the policy and procedure manuals for the organization and these manuals become the organizational competence and will be retained after the individuals leave the organization (Prahalad & Hamel, 1990; Lucia & Lepsinger, 1999; Savaneviciene, Stukaite & Silingiene, 2008).

Proponents of organizational competence emphasize the importance of developing core competencies, capabilities and dynamic strategies in today's dynamic business environment

(Gunther, 2004). They argue that a strategy based on a "competition on position" in industry structure works only when markets, regions, products, and customer needs are well defined and durable. As markets fragment and proliferate, and product life cycles accelerate, "owning" any particular market segment becomes more and more difficult and less valuable. In such an environment, the essence of strategy is not the structure of a firm's products and markets but the dynamics of its behavior. A successful firm will move quickly in and out of products, markets, and sometimes even business segments (Yip, 2004; Regner, 2008). However, a solid foundation of core competencies and capabilities that are hard to imitate by the competition is required. These core competencies and a continuous strategic investment in them, determine the long-term sustainability of superior performance by the firm (O'Regan & Ghobadian 2004; Paiva, Roth & Fensterseifer, 2008; Jones, 2010).

Literature on firm competence suggests that strategic capabilities of the firm drive the organizational competence. The organization needs to upscale its competence for it to effectively shape and implement strategies with sustainable competitive advantage (Mooney, 2007). Different strategy scholars have contributed to the construct of organizational competence.

From the currently available literature, firm competence can be summarized into five broad areas, these are, managerial, marketing, financial, technical and customer care. In today's highly competitiveness environment, business organizations need respond promptly to the changing business environment, in order to secure and sustain high performance. Hamel and Prahalad (1994) are of the view that firm competence will assist the firm to attain a

sustainable competitive advantage. According to Prahalad and Hamel (2008), Bani-Hani and AL-Hawary (2009) and Agha, Alrubaiee and Jamhour (2012), strategy has to move from competing on product or service leadership to competing on core competence leadership.

Firm competence is therefore expected to mediate the influence of IT capability on the competitiveness of the firm. This study sought to explore the influence of IT capability on the competitiveness of the firm and also the mediating effect of firm competence on the relationship between IT capability and firm competitiveness.

2.3.6   Firm Competitiveness

Competitiveness is a competitive advantage one business enterprise has over other enterprises within the same industry, via implementation of a value creating strategy not simultaneously being implemented by any current or potential players. Porter (1985) defines competitive advantage (CA) as the strategic advantage one business entity has over its rival entities within the same industry. Achieving competitive advantage strengthens and positions a business better than its competitors within the business environment. Competitive Advantage is a position that a firm occupies in its competitive landscape. Porter (1985) posits that a competitive advantage, sustainable or not, exists when a company makes economic rents, that is, their earnings exceed their costs, including cost of capital. That means that normal competitive pressures are not able to drive down the firm's earnings to the point where all costs are covered at the minimum, just sufficient to even out the cost of capital. Most forms of competitive advantage cannot be sustained for any length of time because the

promise of economic rents drives competitors to duplicate the competitive advantage held by any one firm (Porter, 1985).

According to Porter (1980) and Christensen and Fahey (1984), competitive advantage is the ability gained through combination of attributes and resources of a firm to perform at a higher level than others in the same industry or market. The study of competitive advantage has attracted profound research interest due to contemporary issues regarding superior performance levels of firms in the present highly competitive business environments. Barney (1991) views a firm as having a competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential player. Successfully implemented strategies will lift a firm to superior performance by facilitating the firm with competitive advantage to outperform current or potential players. To gain competitive advantage, a business strategy of a firm manipulates the various resources over which it has direct control to generate the advantage. Superior performance outcomes and superiority in production, reflects competitive advantage (Walton & Huey, 1992). Competitive advantage is a key determinant of superior performance that ensures survival and prominent placing in the market. Powell (2002) stresses that when superior performance is the ultimate desired goal of a firm; competitive advantage becomes the key foundation underpinning the development of superior performance.

A firm possesses a sustainable competitive advantage (SCA) when it has value-creating processes and positions that cannot be duplicated or imitated by other firms, that lead to the production of above normal rents (Porter, 2008). A sustainable competitive advantage is

different from a competitive advantage in that SCA provides a long-term advantage that is not easily replicated. But these above-normal rents can attract new entrants who drive down economic rents. A competitive advantage is a position a firm attains that lead to above-normal rents or a superior financial performance. A company is said to have a competitive advantage over its rivals when its profitability is greater than the average profitability of all other companies competing for the same set of customers. Further, a company has a sustainable competitive advantage when its strategies enable it to maintain above-average profitability for a number of years into the future. The processes and strategies that enable such a position are not necessarily non-duplicable or inimitable (Porter, 2008). Analysis of the factors of profitability is the subject of numerous theories of strategy including the five forces model pioneered by Michael Porter.

In marketing and strategic management, sustainable competitive advantage is an advantage that one firm has relative to competing firms. The source of the advantage can be something the company does that is distinctive and difficult to replicate, also known as a core competency, for example Procter and Gamble's ability to derive superior consumer insights and implement them in managing its brand portfolio. It can also be an asset such as a brand, for example Coca Cola. SCA can also simply be a result of the industry's cost structure, for example, the large fixed costs that tend to create natural monopolies in utility industries (Chen & Chang, 2008). To be sustainable, the competitive advantage must be distinctive and proprietary (Porter, 2008).

Smith and Flanagan (2006) argue that for companies to create sustainable competitive advantage, they need to understand their own existing competitive advantages and use them in sales and marketing. They provide a framework on how companies can evaluate their own operations and develop competitive advantage/competitive positioning statements to better develop their sales and marketing messages. Competitive Advantage statements help to distinguish companies by highlighting what they offer to the customer using tangible terms and concepts.

Competitive advantage varies from situation to situation and from time to time. According to Barney and Arikan (2001) and Porter (2008), competitive advantage can be divided into a few key areas, these are, Cost (low-cost operations), Quality (high quality, consistent quality), Time (delivery speed, on-time delivery, and development speed) and Flexibility (customization, volume flexibility, variety). Michael Porter made a major contribution to the concept of Competitive Advantage as described herein following.

Michael Porter (1985) argues that a firm's relative position within its industry determines whether a firm's profitability is above or below the industry average. The fundamental basis of above average profitability in the long run is sustainable competitive advantage. There are two basic types of competitive advantage a firm can possess, low cost or differentiation. The two basic types of competitive advantage combined with the scope of activities for which a firm seeks to achieve them, lead to three generic strategies for achieving above average performance in an industry: cost leadership, differentiation, and focus. The focus strategy has two variants, cost focus and differentiation focus. Porter (2008) reaffirms the five-forces

framework, which is still useful for understanding the structure of an industry and its usefulness for assessing an industry's attractiveness and facilitating competitor analysis.

In cost leadership, a firm sets out to become the low cost producer in its industry. The sources of cost advantage are varied and depend on the structure of the industry. They may include the pursuit of economies of scale, proprietary technology, preferential access to raw materials and other factors. A low cost producer must find and exploit all sources of cost advantage. If a firm can achieve and sustain the overall cost leadership, then it will be an above average performer in its industry, provided it can command prices at or near the industry average (Porter, 1985).

In a differentiation strategy a firm seeks to be unique in its industry along some dimensions that are widely valued by buyers. The firm selects one or more attributes that many buyers in an industry perceive as important, and uniquely positions itself to meet those needs. This is rewarded for its uniqueness with a premium price.

Porter (2008) continues to argue that the generic strategy of focus rests on the choice of a narrow competitive scope within an industry. The firm selects a segment or group of segments in the industry and tailors its strategy to serving them to the exclusion of others. The focus strategy has two options, i.e, cost focus, where the firm seeks a cost advantage in its target segment and differentiation focus, where the firm seeks differentiation in its target segment. Both options of the focus strategy rest on differences between the firm's target segment and other segments in the industry. The target segments must either have buyers

with unusual needs or else the production and delivery system that best serves the target segment must differ from that of other industry segments. Cost focus exploits differences in cost behaviour in some segments, while differentiation focus exploits the special needs of buyers in certain segments.

Porter (1991) postulates that the success of the firm is dependent on the attractive relative competitive position of the firm in an attractive industry. Sustainable competitive advantage is driven by how the different business activities (including production, marketing, sales, after-sales service and organizational routines) are carried out cost effectively and in a superior value added manner, as compared to competition. Porter continues to argue the reason why some firms are able to perform firm activities at lower costs or create higher value than others lies in the "drivers" (economies of scale, cumulative learning, integration of activities, capacity utilization, location of the activity, timing of investment, institutional factors, initial conditions and firm's policy/managerial choices on configuration of resources to implement specific activities) behind these activities. Figure 4 depicts Porter's determinants of success in the firm. This study sought to establish how IT capability integrates with the firm activities to enhance the competitive advantage of the firm.

Figure 4: Porter's modeling for Competitive Advantage
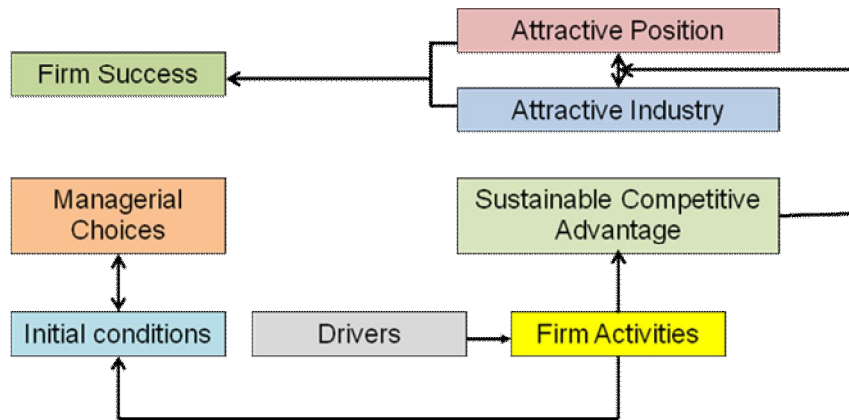
(Source: Porter, 1991. Determinants of firm success)

Porter (2008) postulates that "Competitive advantage grows out of the value a firm is able to create for its buyers that exceeds the firm's cost of creating it". Value is what buyers are willing to pay for, and superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price.

Industry structure and positioning within the industry are the basis for models of competitive strategy promoted by Porter. Porter (2008) maintains the "Five Forces" idea on the theory of competitive advantage and that the Five Forces define the rules of competition in any industry. Competitive strategy must grow out of a sophisticated understanding of the rules of competition that determine an industry's attractiveness. According to Porter (2008), the ultimate aim of competitive strategy is to enable the firm to adapt the rules and behaviour to cope with changing business environment. The five forces determine industry profitability and some industries may be more attractive than others. The crucial question in determining

profitability is how much value firms can create for their buyers, and how much of this value will be captured or competed away. Industry structure determines who will capture the value. But a firm is not a complete prisoner of industry structure because the firm can influence the five forces through its own strategies (Porter, 2008). The Five Forces framework highlights what is important, and directs manager's towards those aspects most important to long-term advantage of the firm. It is necessary to be careful in using this tool; just composing a long list of forces in the competitive environment will not get the firm very far. It is up to the firm to carryout thorough analysis to identify the few driving factors that really define the industry. It is best to use the Five Forces framework as a checklist for getting started, and as a reminder of the many possible sources for what those few driving forces could be.

At the most fundamental level, firms create competitive advantage by perceiving or discovering new and better ways to compete in an industry and bringing them to market, which is ultimately an act of innovation. Innovations shift competitive advantage when rivals either fail to perceive the new way of competing or are unwilling or unable to respond. There can be significant advantages to early movers responding to innovations, particularly in industries with significant economies of scale or when customers are more concerned about switching suppliers. The most typical causes of innovations that shift competitive advantage include, new technologies, new or shifting buyer needs, the emergence of a new industry segment, shifting input costs or availability and changes in government regulations (Porter, 2008).

Porter (2008) also describes the value chain as a systematic way of examining all the activities a firm performs and how they interact. The value chain helps to scrutinize each of the activities of the firm (for example, development, production, operations, marketing, sales, etc.) as a potential source of advantage. The value chain maps a firm into its strategically relevant activities in order to understand the behavior of costs and the existing and potential sources of differentiation. All the activities in the value chain contribute to buyer value, and the cumulative costs in the chain will determine the difference between the buyer value and producer cost. A firm gains competitive advantage by performing these strategically important activities more cheaply or better than its competitors. A firm with competitive advantage will enjoy either lower costs than competitors in the industry, differentiated products and services, high product or service quality, focused low cost services or focused differentiated products and services.

The existing literature suggests that firm competitiveness is expected to be affected by the strategic capabilities of the firm. The higher the strategic capabilities of the firm; the better the competitiveness of the firm is expected to be. Thus IT as a strategic capability of the firm is expected to influence the competitiveness of the firm. However, there is scarcity of literature on the effect of IT capability of the firm on the competitiveness of the firm. This study seeks to explore the influence of IT capability of the firm and specifically on consultancy companies in Nairobi.

2.3.7   Environmental Conditions

This sub-section covers the empirical review relating to the micro and macro institutional environmental conditions that influence the relationship between IT capability and firm competitiveness. Ling and Gui (2009), in their study on Chinese consulting firms in Shenzhen found that Chinese consulting firms lag behind their rival foreign firms in design and technical capability, experience in international projects, project management ability and financial capacity. However, the study did not show how IT capability can be used to influence the competitiveness of the firm. A study by Teece (2007) on strategic capabilities provides a coherent framework to integrate existing strategic management knowledge, to develop dynamic capabilities that create strategies for sustained superior organizational performance.

The RBV approach on creation firm competitiveness by unique configuration of resources has been criticized by some scholars for ignoring the external environment of the firm. Meyer (2009) and Kilika (2012) suggest the need for integration of the external environment. According to these scholars, RBV can be enhanced by adoption of the institutional and resource dependence theories. A study by Drees and Heugens (2012) observed significant contribution of RDT to organizational performance and behaviour. According Scott (2004), the institutional environments are not monolithic, but often varied and conflicted, with both positive and negative impacts on the organizational performance, depending on the exact nature of the environmental factors. The study by Scott (2004) does not, however, show how institutional environmental conditions influence the development of IT capability and competitiveness of the firm.

Further, Lai, Li, Wang and Zhao (2008) observed that technological orientation has significant influence on resource commitment to IT and managerial involvement in developing IT capability. However, the study focused only on the function and supply chain and failed to demonstrate how information technology influences the competence and competitiveness of the firm. The study by Newbert and Tornikoski (2013) suggested resource dependence increases the cost of resource acquisition and also the quality of the resources to be acquired. However, the study used panel data, which may not reflect the true environmental conditions. In addition, the study did not cover the influence of IT and environmental conditions on the development of firm competitiveness.

2.4   Summary of Empirical Review and Knowledge Gaps Identified

The foregoing review of literature leaves some gaps which need to be explored; specifically, coherence on the influence of IT capability in the development of firm competitiveness for survival and success of the consultancy business. IT capability is an emerging concept in strategic capabilities that cuts across all the functions of the firm, providing a solid platform for competition via automation of firm processes and interactive communication with all the stakeholders (management, staff, customers, suppliers, partners, social groups, media and the general public).

The studies covered in the empirical literature review mainly focused on the impact of IT on the overall financial performance of the firm and did not adequately capture how IT contributes to the competitiveness of the firm. Secondly, the past studies concentrated on

manufacturing firms, leaving a huge gap with respect to consultancy firms and information technology. Thirdly, most of the studies were conducted on firms in the developed countries, USA, Europe and China. Very limited research has been conducted on Africa firms and specifically Kenya firms.

Ray, Muhanna, and Barney (2005) found that integration of ICT with the firm resources results in better firm performance, but the actual relationship between these two variables, including firm competitiveness has not been adequately explored (Melville, Kraemer & Gurbaxani, 2004). Onyango (2009), on the study on the determinants of competitive performance of Kenya SMEs in Nairobi, identified weak competitive performance of the Kenyan firms as opposed to multi-nationals, but does not specify the role information technology in enhancing firm competitiveness. Study findings by Drees and Heugens (2012) suggest that resource dependence explains some organizational performance but doe not link resource dependence to information technology and firm competitiveness.

The study by Gichunge (2010) identified formal strategic management as positively affecting the performance of medium enterprises, but did not consider the role of information technology. A study by Parida, Westerberg, Ylinenpaa and Roininen (2010) on new ventures and new firms identified several environmental challenges faced by consultancy firms, including reputation, operational efficiency, inadequate skills and working capital; but did not cover the interaction between information technology, environmental conditions and firm competitiveness. Mungai (2012) study identified a positive effect of business management training to the growth of Small and Medium Sized Enterprise in Kenya. Though business

management training is expected to enhance the firm competence, Mungai (2012) did not look at the influence of information technology on business management training.

The gaps identified in the foregoing conceptual and empirical literature review include, inadequate research on the effect of IT capability on competitiveness of the firm, lack of clear understanding of the influence of IT capability on firm competence, inadequate investigation on the effect of firm competence on competitiveness of the firm, little and inconclusive research on the moderating effect of institutional environmental conditions on the relationship between IT capability and competitiveness of the firm, scanty research on the moderating influence of institutional environmental conditions on the relationship between IT capability and firm competence, little inconclusive research on the influence of institutional environmental conditions on the relationship between firm competence and competitiveness of the firm and no substantive empirical study on the mediating effect of firm competence on influence of IT capability on the competitiveness of the firm. A summary of these research gaps from the conceptual and empirical literature review is presented in table 2.1.

Table 2.1 : Summary of Research Gaps

Theme	Author	Title of study	Findings	Critique	Research gap
IT capability and firm competitiveness	Sambamurthy, V., Bharadwaj, A., & Grover, V. (2003)	Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms.	Firms are increasingly relying on IT to enhance their agility and hence performance	Mainly multi-theoretical approach, still requires rigorous empirical tests	Lacks empirical tests on how IT influences firm competitiveness and performance
	Tippins, M. J., & Sohi,	IT competency and firm performance: is	Organization learning significantly mediates the	Looked at manufacturing	The study failed to show

Theme	Author	Title of study	Findings	Critique	Research gap
	R. S. (2003)	organizational learning a missing link?	effects of IT competency on firm performance	firms only	the effect of IT and firm competitiveness of the firm
	Carr, N. G. (2004).	Does IT matter?: information technology and the corrosion of competitive advantage.	The strategic importance of IT is not growing but diminishing. As IT becomes more powerful, more standardized and more affordable, it is gradually being transformed into a simple factor of production necessary for competiveness but not for advantage	More theoretical approach	This divergent view is yet to be tested empirically
	Bhatt, G. D., Grover, V., & GROVER, V. (2005)	Types of information technology capabilities and their role in competitive advantage: an empirical study.	Identifies IT expertise, relationship infrastructure and organizational learning as significantly related to building IT capabilities and competitive advantage	Looked at only firms in the in the manufacturing sector in the USA only.	Inconsistent with previous studies that indicate no significant contribution of IT to firm performance unless the IT resources are uniquely configured by the firm
	Porter, M. E. (2008)	On Competition, Updated and Expanded Edition.	Porter's five forces that shape competitive strategy plus effect of CSR and Top management as emerging paradigms	Weak treatment of IT	Exact contribution of IT to firm competitiveness is not specified
IT capability and firm competence	Wu, F., Yeniyurt, S., Kim, D., & Cavusgil, S. T. (2006)	The impact of information technology on supply chain capabilities and firm performance: a resource-based view.	Firm-specific and difficult-to-imitate characteristics of RBV enhance the value of IT related resources of the firm.	Gives little treatment on the role of IT on firm competitiveness	Failed to cover the entire scope of the firm, i.e. other support services, production and distribution
	Newbert, S. L. (2008).	Value, rareness, competitive advantage, and performance: a conceptual-level empirical investigation of the resource-based view of the firm.	Value and rareness are related to competitive advantage. Competitive advantage mediates the rareness-performance relationship	Limited scope of the nature of resources, only rareness and value chrematistics covered.	Silent on the role of IT in integration of firm resources to enhance uniqueness

Theme	Author	Title of study	Findings	Critique	Research gap
	Prahalad, C. K., & Hamel, G. (2008)	The core competence of the corporation.	Performance of top executives are judge on their ability to identify, cultivate and exploit the core competencies that enable organizational growth	More oriented towards the competence of the top management, neglecting other strategic resources	The role of IT in the development of core competence is not covered
	Fawcett, S. E., Wallin, C., Allred, C., Fawcett, A. M., & Magnan, G. M. (2011)	Information Technology as an enabler of supply chain collaboration: A Dynamic-Capabilities perspective.	IT make their greatest competitive contribution when they enable dynamic supply chain collaboration capability	Focused on only one functionality, supply chain	The role of IT in enhancing firm competitiveness via other organizational functions (HR, production, customer relations, managerial skills) are not explored
	Barrales-Molina, V., Bustinza, O. F., & Gutierrez-Gutierrez, L. J. (2012)	Explaining the Causes and Effects of Dynamic Capabilities Generation: A Multiple-Indicator Multiple-Cause Modelling Approach.	Organizations whose managers have high degree of environmental dynamism develop dynamic capabilities. Codification of knowledge and technical innovation are significantly related to development of dynamic capabilities.	No justification provided to use of the specific multi-indicator, multi-cause adopted for the study	Failed to show how IT can be used to enhance dynamic capabilities
Firm competence and firm competitiveness	Ray, G., Muhanna, W. A., & Barney, J. B. (2005)	Information technology and the performance of the customer service process: A resource-based analysis.	Tacit, socially complex and firm-specific resources explain the variation of process performance across firms.	Only looked at American Life and Health insurance firms	The study failed to link IT to the competitiveness of the firm
	Overbye, E., Bharadwaj, A., & Sambamurthy, V. (2006).	Enterprise agility and the enabling role of information technology.	IT plays an enabling role to enterprise agility i.e. the ability of the firm to sense environmental change and respond readily for the firm to succeed.	More theoretical approach. No empirical studies done.	The linkage of IT to firm competitiveness is not addressed
	Phelps, R., Adams, R., & Bessant, J. (2007)	Life cycles of growing organizations: A review with implications for	The absorptive capacity at each different life cycle stage is important for crafting interventions for growth	More theoretical approach, not supported by empirical	Failed to relate life cycle stage to organization competitiveness or

Theme	Author	Title of study	Findings	Critique	Research gap
		knowledge and learning.		findings	organization performance
	Knight, G. A., & Kim, D. (2008)	International business competence and the contemporary firm.	International business competence is an overarching intangible resource prerequisite for international performance of SME	Focuses on international competence. Local dimension not covered	The role of IT in facilitating international competence is not clearly captured, neither firm competitiveness angle
	Tallon, P. P., & Pinsonneault, A. (2011)	Competing perspectives on the link between strategic information technology alignment and organizational agility: Insights from a mediation model.	Strategic IT alignment has a positive significant influence on the agility and performance of the firm. The effect of strategic IT alignment is fully mediated by agility and that environmental volatility moderates the link between agility and performance	Study is one sided. There is need to test the negative relationship between IT alignment and agility	Failed to link IT capability with firm competitiveness
The influence of institutional environmental conditions on IT capability and firm competitiveness	Lai, F., Li, D., Wang, Q., & Zhao, X. (2008)	The Information Technology Capability of Third-Party Logistics Providers: A Resource-Based View and empirical evidence from China.	Technology orientation has significant influence on resource commitment to IT and managerial involvement in developing IT capability. IT significantly affects the competitive advantage for third-party logic companies.	Focuses only on function, supply chain	Failed to link IT to firm competence and resource dependence influence on the effects of IT on firm competitiveness.
	Hillman, A. J., Withers, M. C., & Collins, B. J. (2009)	Resource dependence theory: A review.	RDT explains how organizations reduce inter-dependence and uncertainty	Relies mainly on one input from Salancik and Pfeffer. The concept needs to be cross-checked broadly	No link with firm competitiveness and influence of IT.
	Brammer, S., Jackson, G., & Matten, D. (2012)	Corporate social responsibility and institutional theory: New perspectives on private governance.	CSR is beyond the usual voluntary organizational behaviour but link to formal institutions of stakeholder participation and government intervention, in determining whether and what form organizations take on CSR	More theoretical approach, empirical findings not conclusive.	Failed to link with firm competence and firm performance

Theme	Author	Title of study	Findings	Critique	Research gap
	Newbert, S. L., & Tornikoski, E. T. (2013),	Resource Acquisition in the Emergence Phase: Considering the Effects of Embeddedness and Resource Dependence.	The inevitable dependence drives up the cost of resource acquisition. Embedded ties affect the specifications of the resources	Panel data used may not reflect the true conditions	The role of IT and environmental conditions are not covered. Neither the impact on the firm competitiveness is covered
The influence of institutional environmental conditions on IT capability and firm competence	Melville, N., Kraemer, K., & Gurbaxani, V. (2004)	Review: Information technology and organizational performance: An integrative model of IT business value.	IT is valuable, but extent of influence is dependent on other internal and external factors including complementary resources	Study is inconclusive and suggests further research to test the IT/performance relationship.	Relationship of IT with firm competitiveness is not explored.
	Mole, K. F., Ghobadian, A., O'Regan, N., & Liu, J. (2004)	The Use and Deployment of Soft Process Technologies within UK Manufacturing SMEs: An Empirical Assessment Using Logit Models.	Firm-specific factors make the larger influence to adoption of process technologies by firms, rather than competitive factors.	Looked at only one technology – process (soft) technology	Failed to link with how external institutional factors influence the adoption of the technology
The influence of institutional environmental conditions on firm competence and firm competitiveness	Rohrbeck, R., Hölzle, K., & Gemünden, H. G. (2009)	Opening up for competitive advantage – How Deutsche Telekom creates an open innovation ecosystem.	Deutsche Telkom has successfully enhanced innovation through external creativity and knowledge resources via "open" innovation.	Considered only one firm. Study findings not generalizable	failed to indicate how the environmental conditions have influenced the drive to open innovation and firm competitiveness. Neither does it cover the role of IT in enhancing innovation
	Vahedi, M., & Nejad Haji Ali Irani, F. (2011)	Information technology (IT) for knowledge management.	IT deployment for knowledge management will not achieve much if not accompanied by corporate culture change. IT has been designed for knowledge management	More theoretic approach. Study findings inconclusive.	Not linked with competitiveness and firm competence

2.5 Conceptual Framework

The conceptual framework for this study had four main variables, namely firm competitiveness, IT capability, firm competence and environmental conditions. The diagrammatic representation of the conceptual framework is as depicted in figure 5.

Figure 5:   Conceptual Framework for the Study

Moderating Variable

Environmental Conditions

- Government laws and regulations
- National culture
- Industry self regulation
- Resource availability

Independent Variable

Firm IT Capability

- Sensing
- Shaping
- Seizing
- Reconfiguration of resources

H_{01}

H_{04}

Dependent Variable

Firm Competitiveness

- Low cost of services
- Differentiated services
- Focus
- Service quality

Firm Competence

- Production competence
- Managerial competence
- Marketing competence
- Customer service / support
- Financial competence

H_{02}

H_{03}

H_{05}

H_{06}

Mediating Variable

Environmental Conditions

- Government laws and regulations
- National culture
- Industry self regulation
- Resource availability

Moderating Variable

(Source : Researcher, 2015)

The role of the variable of firm competitiveness was the dependent variable. The role of IT capability was the independent variable, while firm competence was the mediating variable. The variable of environmental conditions was the moderating variable for the study. The RBV theory predicts that enhancement of IT capability will lead to enhancement of the competitiveness of the firm, but there has not been any conclusive study carried out to determine this relationship. RBV also predicts that up scaling of IT capability will give rise to increased firm competence, but lacks empirical support. Institutional theory suggests that increase in the level of environmental forces will dampen the competitiveness of the firm, but no empirical study exists to support or dispute this prediction. Although RBV theoretically suggests the mediating role of firm competence and moderating role of environmental conditions on the relationship between IT capability and firm competitiveness, there has been no empirical study carried out to establish these relationships.

CHAPTER THREE

RESEARCH METHODOLOGY

Research methodology is discussed in this chapter, under several sub-topics, these are, research philosophy, research design, target population, sampling design, research instruments, validity and reliability of instruments, operationalization of study variables, procedures for data collection and analysis, and ethical expectations.

3.1   Research Philosophy

Empirical research studies are based on assumptions on how the researchers perceive the world, view the generally accepted knowledge and individual values. These are lifetime questions that philosophers have been arguing about from generation to generation and there is no single perspective that is agreed upon by philosophers (Saunders, Lewis & Thornhill, 2009). Research philosophy is a combination of the two different but interrelated words, research and philosophy. Johnson and Christensen (2008) are of the same opinion that research philosophy is the independent approach undertaken by the individual researcher taking cognizance of the underlying principles of design, implementation, evaluation and assuring that a particular problem will motivate the researcher to investigate and develop a temporary or permanent solution.

According to Saunders *et al.* (2009), research philosophy "is the development of research background, research knowledge, and its nature". Cohen, Marion and Marrison 2000 looked at research philosophy from the paradigm perspective as "a broad frame work which

comprises individual perception, beliefs and understanding of several theories and practices that are used to conduct research." Other contributors, Gliner and Morgan (2000) summarized research philosophy as a "paradigm" which means a pattern or a way of thinking about conducting research.

When undertaking important research, it is advisable to take into account the different research paradigms, since these parameters describe perceptions, beliefs, assumptions, nature of reality and truth and individual values of the researcher; they therefore can influence how the research will be conducted, including the final results and conclusions. Consideration of research philosophy helps to expose, understand and minimize researcher biases. Nevertheless, Kim and Vinnicombe (2002) is of the opinion that all researchers (including all humans) have inherent preferences, which are likely to shape the research process.

There are three research paradigms namely ontology, epistemology and axiology that can further be categorized into three sub-classes of research philosophies namely, positivism philosophy, interpretive philosophy and realism philosophy. Positivism philosophy is commonly used in natural science because it is an objective based method. Positivism approach includes the various philosophies of natural science such as philosophy of unchanging, universal law and the view of all nature. According to Saunders *et al.* (2009), the positivist researcher plays the role of an objective analyst in the evaluation of the collected data.

Because this study heavily relied on objective data collection and analysis in order to achieve useful results, it adopted the positivist philosophy as recommended by Saunders (2009). Positivist philosophy posits that reality is stable and therefore can be observed and described from an objective point of view without interfering with the phenomenon being studied. The primary aim of this study was to inquire into the individual perspectives that exist across the consultancy companies in Nairobi, with respect to deployment of IT capability as a source of competitiveness. Even though the independent variable of the study is dynamic in nature, the data was obtained on a spot basis. The study also entailed interpreting the findings in the context of the relevant theoretical and empirical literature described in chapter two.

3.2   Research Design

In order to define and explain the relationships between the study variables, an explanatory approach was adopted for this study. Belanger and Allport (2008) carrying out a study on "technologies in knowledge telework" employed a cross-sectional explanatory research design. Cuervo-Cazurra and Genc (2008) on their study on "transforming disadvantages into advantages: developing country multi-national enterprises in the least developed countries" also adopted a cross-sectional research design. This study adopted the cross-sectional research design. The positivist philosophy adopted for the study facilitated meaning and objective data.

3.3   Target Population

The target population for this study was the list of all consultancy firms in Nairobi as at December 2013. The list of the total population of 265 consultancy firms in Nairobi, appearing in the Postel Directory (2013) is appended to this study as appendix 4. Nairobi was selected because it is the capital city for Kenya and it is expected that the highest business consultancy concentration in the country is found here. This study borrows from several past studies in the USA and China which have used telephone directory based populations. For example, a cross-sectional study conducted in China by Zhang, Han, Huang, Wu, Dong and Xu (2008) adopted telephone directory based population and random digital dialing for the final sample. Another study by Rainie (2010) on internet, broadband and cell phone statistics in the USA, similarly adopted a telephone directory based population to sample the targeted respondents.

The unit of analysis was the consultancy firm which was studied to analyze the effect of information technology capability on competitiveness across the selected firms; while the unit of observation was the department. The respondents for providing data for the study were senior managers in the departments of IT, marketing and strategy.

3.4   Sampling Design

According to Kothari (2004) the minimum sample size for a known population size can be determined by using the formula $s = z^2NP(1-P) /\{e^2(N-1) + z^2P(1-P)\}$; where z = the z value

from the table at the desired confidence level, N = size of population, P = proportion of the population, and e = degree of accuracy (Kothari, 2004). For the population N = 265, the minimum sample size works out to be 157, applying the above formula (e = 0.05, P = 0.5, z = 1.96). Another option for determining the appropriate sample size is to use the sample size table, which helps to avoid the complex computation of the sample size by providing a computerized output of the sample size formula above, for several confidence levels and margin of errors (Board, 2003).

This study used random sampling technique to select the target consultancy firms. From the list of consultancy business firms in Nairobi as at December 2013, this study employed the random sampling technique to pick the study sample, for detailed statistical analysis. Microsoft excel random number generation technique was employed (Kothari, 2009; Saunders *et al.*, 2009) to select the respondents. The number of questionnaires distributed was adjusted upwards to cushion the target sample against non-response. The total number of questionnaires distributed was 200 and those returned were 166, out of which 161 were valid after error correction.

3.5   Validity of the Research Instrument

Whenever a measuring instrument is used in the data collection process, the validity and reliability of the test instrument is important (Kimberlin & Winterstein, 2008). Validity refers to the degree in which the measuring instrument is truly measuring what it is intended to measure (Liu, 2010). There are three types of validity that were relevant to this study, these

are, external validity, content validity and construct validity. External validity is the extent to which the results of a study can be generalized from the sample to the population. This study took care of the external validity by ensuring adequate sample size. The final sample size was 200, which was above the theoretical minimum sample size of 157. Content validity refers to the appropriateness of the content of the instrument to accurately capture what it is intended to be known (Saunders *et al.*, 2009). Content validity entails matching the questions in the research instrument to accurately assess the attributes of the study variables and concepts as intended to be measured. Content validity in this study was ensured by generating the research constructs from the relevant theories in which the research was underpinned. The content validity of the research instrument was tested via a pilot study before the main field study.

Another relevant form of validity to this study was the construct validity. Construct validity is the degree to which a study test measures the intended hypothetical construct (Kimberlin & Winterstein, 2008). This is checked by validation of the interpretation about the particular construct as indicated by the test scores obtained through experimentation. In this study construct validity was checked via testing of the research hypotheses (Field, 2009).

This study mainly adopted established scales used in previous researches, with the necessary customization to fit the local study environment and study variables (Janssen, Alexiev, Den Hertog & Castaldi, 2012; Gallardo-Vazquez, Sanchez-Hernandez & Martinez-Azua, 2011; Berdine, Parrish, Cassill & Oxenham, 2008). In their study on measuring dynamic capabilities in a service innovation management, Janssen *et al.* (2012) obtained Cronbach

alpha coefficients between 0.656 and 0.864 for the data collection instrument. Gallardo-Vazquez *et al.* (2011) in their study on orientation to corporate social responsibility and other business strategic variables, recorded alpha coefficients of 0.8348, 0.7918, 0.9075, 0.8974, 0.8351 and 0.8719 for the study variables, social dimension, economic dimension, environmental dimension, innovation, performance and competitive success, respectively. The study by Berdine *et al.* (2008) on measuring competitive advantage for United States textile industry, had questions covering marketing, location of firm, customer service, relationship with suppliers, research and development, production efficiency, cost, reliability of delivery, product quality, sourcing for full-package, lead-time and flexibility of the firm.

3.6   Reliability of the Research Instrument

Reliability is synonymous with the consistency of the measuring instrument. There are four main methods of testing reliability of an instrument. Test-retest reliability refers to the consistency of the measuring instrument on repeated tests (Cook & Beckman, 2006). In the test-retest procedure, the samples can be the same but tests are done at different times or different samples in the same population can be used. Inter-observer reliability is the degree to which different research observers give consistent answers or estimates using the same instrument (Saunders *et al.,* 2009). Parallel-forms reliability is the reliability of two tests constructed the same way, from the same content (Bryman, 2012). Internal consistency reliability refers to the consistency of results across items, usually measured with Cronbach's alpha coefficient. Cronbach's alpha coefficient is the correlation coefficient for the repeated tests and usually a value of 0.7 or more is acceptable to indicate reliability of an instrument

(Tabachnick & Fidell, 1996). The relevant methods of reliability for this study were the test-retest and internal consistency methods.

3.7 Data Collection

Data collection was done by use of a predetermined questionnaire as the main research instrument, developed to match the operationalized variables in the conceptual framework and administered by research assistants. The research assistants underwent one day training by the researcher, prior to be being deployed to the field. The questionnaires were administered to senior managers in the IT, marketing and strategy departments. The questionnaires were dropped to the respondents by the research assistants. The research assistants explained to the respondents the purpose of the questionnaire and assured them that the data would be kept confidential used for academic purposes only. The research assistants took each respondent through the instructions on how to fill in the questionnaire and provided any further necessary clarifications on the questions. The data was collected in the period 15th October - 7th November 2014.

3.8 Operationalization of Variables

Operationalization of a variable means finding a measurable, quantifiable, and valid index for the study variables, the independent and dependent variables (Trochim & Donnelly, 2008). Not all variables are easily measurable, hence the need to operationalize. Factors that are objective, effort independent and concrete are more easily measured by use of appropriate

equipment, while factors that are subjective, effort dependent or abstract are hard to measure.

All the variables in this study, including the components of independent, moderating, mediating and dependent variables were operationalized as detailed in the table 3.1.

Table 3.1 : Operationalization of variables

Variable	Operationalization	Indicators	Measurement in Research Questionnaire
Independent			
IT Capability Sensing	Deployment of IT infrastructure (servers, routers, internet access and end user equipment i.e. PCs, laptops, PDAs and smart phones) to help the firm to timely sense the changing business environment	- Detection of change - online interaction with suppliers -online interaction with customers -online interaction with professional bodies	The ability of the firm's IT resources to sense changes in the business environment, on a scale of $1 - 7$ (questionnaire section 2.1.2)
shaping	Utilization of the IT the firm infrastructure to help the firm to timely shape up for the necessary changes to match the changing business environment	-Adjustment to cope -Online sharing of information by managers -upto date inventory of organizational resources -Aid to decision making of managers	The ability of the firm's IT resources to assist the firm to shape up to match the changes in the business environment, on a scale of $1 - 7$ (questionnaire section 2.1.3)
Seizing	Use of the firm IT infrastructure to help the firm to timely seize the opportunity to implement the necessary changes to match the changing business environment. Plus the capability of managers to seize the opportunity.	-Identification of opportunity -Response to opportunity -Ability of managers to use computers/laptops	The ability of the firm's IT resources to assist the firm to seize the opportunity to implement the necessary changes to match the changing business environment, on a scale of $1 - 7$ (questionnaire section 2.1.4)
Reconfiguration of resources	Deployment of the firm IT infrastructure to help the firm to timely configure or reconfigure the resources to match the changing business environment	-Automated process -Integrated processes -Reintegration of resources -Matching of the environment	The ability of the firm's IT resources to help the firm to configure resources to match the changing business environment, on a scale of $1 - 7$ (questionnaire section 2.1.5)

Variable	Operationalization	Indicators	Measurement in Research Questionnaire
Moderating			
Environmental conditions Government laws and regulations	Enforcement of government laws and regulations, for example, taxes on IT equipment, exorbitant business license fees, stringent environmental operating conditions	-Existence of government laws -Existence of industry regulations -Taxation for consultancy services	The degree of impact of government laws and regulation on the business on a scale of 1-7 (most negative to most positive, 0 = no impact) (questionnaire section 2.4.1)
National culture	The external influence of corporate social responsibility (CSR), driven by the expectation of the society in which the firm operates	- Government guidelines on business conduct and integrity -Impact of CSR -Tolerance to corrupt practices	The degree of expectation by the society for implementation of CSR programs by the firm (questionnaire section 2.4.2)
Industry self regulation	Presence of self regulation in the industry by way of professional bodies or associations, in which the firm operates	-Existence of a professional body for self regulation -Existence of industry code of conduct -impact of membership to industry code of ethics	The degree of impact of self regulation on a scale of 1-7 (questionnaire section 2.4.3)
Resource Availability	Firm's dependence on acquisition of a external resource, for business operations and service delivery	-Availability of human resources -Availability of financial resources -Availability of equipment -Availability of raw materials	The level of dependence of on external acquisition of resources, o a scale of 1-7 (questionnaire section 2.4.4)
Mediating			
Firm Competence Managerial competence	Educational level, managerial trainings, experience in number of years, largest organization handled	-Education level of most managers -Decision making capability of managers -Level of experience of managers -Future orientation of managers	Tertiary education = 2, 1st Degree = 4, 2nd Degree = 6 Phd = 7, Any level plus experience in years add 1 for every 2 years (questionnaire section 2.3.1)

Variable	Operationalization	Indicators	Measurement in Research Questionnaire
Operational competence	State the ability of the consultants to deliver quality work and capability of the IT system to support the consultants improve quality and efficiency.	-Level of anticipation to market needs -Level of client support -Level of proposal development -Level of service delivery	Ability of the consultants on a scale of 1-7. Quality of service on a scale of 1-7. Efficiency level on a scale of 1-7 (questionnaire section 2.3.2)
Marketing competence	Competence of marketing staff and marketing skills of consultants	-Quality of marketing staff --Identification of market needs -Design of services to match market needs -Ability to expand market for services	1st Degree = 4, 2nd Degree = 6 Phd = 7, Any level plus experience in years add 1 for more than 5 years. Use of consultants, add 1 (questionnaire section 2.3.3)
After-sales support	Possession of online or physical customer care centre	-Presence of customer care webpage or communication channel -Quality of customer care staff -Feedback from customers -Handling of customer complaints	Quality of customer care support, quality of online customer care, overall feedback from clients on satisfaction, on a scale of 1-7, caliber of the customer staff (Tertiary education = 2, Degree = 5, post graduate sales and marketing course/degree = 7) (questionnaire section 2.3.4)
Financial competence	Possession financial management skills	-Financial management qualifications -Liquidity of the firm -Ability of the firm to access external funding -Ability of the firm to minimize overruns	Accountant with AC&C certificate = 2, accountant with CPA(K) = 4, graduate accountant with CPA(K) = 5, professional financial manager + accountant CPA(K) = 6, accountant + use of consultant financial manager = 7 (questionnaire section 2.3.5)
Dependent			
Firm Competitiveness Low cost of services	Offering of low cost services	-Low pricing for services -Leverage on economies of scale -Targeting of mass market -Minimization of costs for service delivery	Pricing level of the firm's services in relation to competition, on a scale of 1-7. Lowest = 1, low = 2, somewhat low = 3, average = 4, somewhat high = 5, high = 6, very high = 7 (questionnaire section 2.2.1)

Variable	Operationalization	Indicators	Measurement in Research Questionnaire
Differentiation of services	Offering of differentiated services	-Differentiated services -Use of quality inputs -Charge of premium prices Use of state-of-art technology	Degree of differentiation between the firm's services, compared to competition, on a scale of 1-7. None = 1, very little = 2, somewhat = 3, average = 4, much = 5, very much = 6, largest = 7 (questionnaire section 2.2.2)
Focus	Offering of either focused low cost services or focused differentiated services	-Focus on a unique segment of customers -Focus on the total market for similar services -Pricing to match specific customer segments -Focus on low cost services	Degree of focus on low cost or differentiated services aimed at specific market segments, in relation to competition, on a scale of 1-7. None = 1, low = 2, somewhat low = 3, average = 4, somewhat high = 5, high = 6, very high = 7 (questionnaire section 2.2.3)
Service quality	Pursuance of quality of service	-Quality of similar services as compared to competition -Relevance of services to market needs -Timeliness of service provision -Degree of conformance to market needs	Quality level of the firm's services, compared to competition, on a scale of 1-7. Lowest = 1, low = 2, somewhat low = 3, average = 4, somewhat high = 5, high = 6, very high = 7 (questionnaire section 2.2.4)

(Source : Researcher, 2015)

3.9 Data Analysis

Data analysis is the process of inspecting, cleaning and formatting the data with the aim of discovering useful information that facilitates sound basis for decision making. The main objective of data analysis is to make meaning out of data collected. Data cleaning is an important preliminary step, necessary to correct any errors introduced during data collection,

including mismatch of records, duplication of records, missing data and incomplete records (Saunders *et al.*, 2009; Field, 2009)

The quality of the data also needs to be confirmed before the data can be accepted for the actual statistical analysis. Some of the common techniques for checking the quality of quantitative data includes descriptive statistics (mean, standard deviation, median), normality tests (skewness, kurtosis, frequency histograms) and the necessary corrections are carried out. Validity and reliability of the data also needs to be ascertained (Saunders *et al.*, 2009). To avoid duplication of variables, multicollinearity needs to be confirmed as well (Field, 2009). The key data quality requirements for this study (validity, reliability and multicollinearity) are discussed in more detail in the preceding sections (3.5.2 and 3.5.3).

The data collected in this study was subjected to a pre-analysis process for further error detection and correction, before coding of the questionnaires (Pallant, 2010). Any missing data was cross checked by phone and via a physical visit where the respondent was not reachable by phone. The data from each respondent was averaged per variable, using the geometric mean technique to appropriately scale any outliers (Vandesompele *et al*., 2002; (Wu & Ye, 2009). Thereafter, descriptive statistics were used to further clean up the data to prepare it for detailed analysis by use of multiple regression multivariate techniques. The empirical models relevant to the study were tested as described following.

3.9.1 Regression Model for Direct Relationship

The empirical model defines the relationship between study variables to be verified by empirical research. In research, the process of defining the empirical model by inclusion of relevant independent variables and exclusion of irrelevant independent variables is referred to as "model specification" (Brambor, Clark & Golder, 2006).

To test the direct relationships for hypotheses one and two, as depicted in the figures 6, the following simple linear regression model was employed (MacKinnon & Fairchild, 2009; Hayes, 2009).

Figure 6 : Model for Direct Relationship

(X = IT capability, Y = firm competitiveness, for hypothesis one), (X = IT capability, Y = firm competence for, hypothesis two)

$$Y = b_0 + b_1X + e \quad \text{(Model 1)}$$

3.9.2   Regression Model for the Moderated Relationship

To test the moderating influence of environmental conditions on the relationships between IT capability and firm competitiveness, IT capability and firm competence, firm competence

and firm competitiveness, as depicted in the figures 7, the following multiple linear regression steps were employed (Preacher & Hayes, 2004; MacKinnon & Fairchild, 2009; Hayes, 2009).

Figure 7 : Model for moderating variable
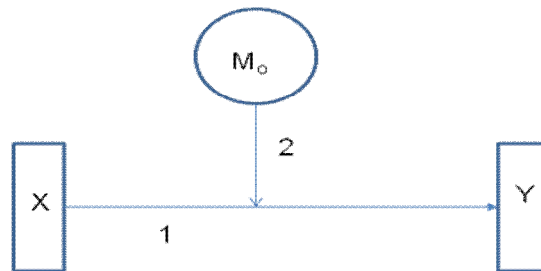
(X = IT capability, M_o = Environmental conditions, Y = firm competitiveness, for hypothesis four)

(X = IT capability, M_o = Environmental conditions, Y = firm competence, for hypothesis five)

(X = Firm competence, M_o = Environmental conditions, Y = firm competitiveness, for hypothesis six)

Step 1: Regress Y on X and note the r square value, r^2_1

$$Y \ = \ b_0 + b_1X + e \quad \text{(Model 1)}$$

Step2: Introduce the M_o and note the new r square value, r^2_2

$$Y \ = \ b_0 + b_1X + b_2M_o + b_3XM_o + e \quad \text{(Model 2)}$$

The difference in the r square, r^2_1 - r^2_2 represents the moderating effect of M_o on the relationship between X and Y. Also note the significance of the beta coefficient (at $p < 0.05$) for the interactive term XM_o for each of the hypotheses four, five and six.

3.9.3 Regression Model for the Mediated Relationship

To test for the mediating effect of firm competence on the relationship between IT capability and firm competitiveness, the model shown in figure 8 was used.

Figure 8 : Model for mediating variable
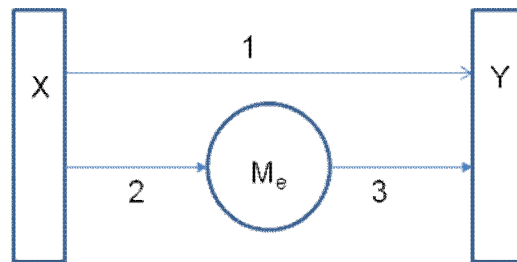
(X = IT capability M_e = firm competence, Y = firm competitiveness, for hypothesis three)

Step 1: Regress Y on X and note the significance of the relationship

$$Y \;=\; b_0 + b_1X + e \quad \text{(Model 1)}$$

Step2: Regress M_e on X and note the significance of the relationship

$$M_e \;=\; b_0 + b_1X + e \quad \text{(Model 2)}$$

Step3: Regress Y on X and M_e and note the significance of paths 1 and 3.

$$Y \;=\; b_0 + b_1X + b_2M_e + e \quad \text{(Model 3)}$$

If path 1 is significant and either path 2 or 3 is also significant, then some form of mediation is supported. If in step 3, X is no longer significant after controlling for M, then full mediation is supported. If in step 3, path 3 remains significant after controlling for X, then partial mediation is supported.

Sobel test, as a further confirmatory procedure to determine the magnitude and significance of mediation was conducted. The Sobel test estimates the direct effect of the independent variable on the dependent variable via the mediator, whether it is significantly different from zero (Preacher & Hayes, 2008).

3.9.4   Test of Hypotheses

To test the hypotheses described in chapter one, the study adopted the empirical models presented in table 3.2, in the order of the research objectives.

Table 3.2 : Statistical approach for testing the hypotheses for the study

Objective	Hypothesis	Statistical model	Thresholds for the statistical test at $\alpha = 0.05$: VIF ≥ 5.263, t ≤ 0.19, (Field, 2009)
Determine the relationship between IT capability and competitiveness of consultancy firms in Nairobi County	IT capability has no relationship with the development of competitiveness of consultancy firms in Nairobi.	$Y = \beta_0 + \beta_1 X_1 + e$	Note the values of r^2, β_1 and F change for the regression model If $p < 0.05$, Fail to Accept Ho_1 If $p > 0.05$, Accept Ho_1
Establish the relationship between IT capability and firm competence of consultancy firms in Nairobi County	There is no relationship between IT capability and firm competence of consultancy firms in Nairobi.	$X_2 = \beta_0 + \beta_1 X_1 + e$	Note the values of r^2, β_1 and F change for the regression model If $p < 0.05$, Fail to Accept Ho_2 If $p > 0.05$, Accept Ho_2
Determine the mediating effect of firm competence on the relationship between IT capability and competitiveness among consultancy firms in Nairobi County	Firm competence has no effect on the relationship between IT capability and competitiveness among consultancy firms in Nairobi.	**Model 1:** $Y = \beta_{01} + \beta_1 X + e$ **Model 2:** $M_e = \beta_{02} + \beta_2 X + e$ **Model 3:** $Y = \beta_{03} + \beta_3 X + \beta_4 M_e + e$	Note the values of r^2, β_1 and F change for regression model 1 Note the values of r^2, β_2 and F change for regression model 2 Note the values of r^2, β_3, β_2, β_4 and F change for regression model 3, after controlling for M_e Note the change in the beta coefficient for IT Capability ($\beta_3 - \beta_1 < 0$) If β_1 and either β_2 or β_3 is also significant, then some mediation is supported If β_3 is no longer significant after controlling for M_e, then full mediation is supported If β_4 is significant after controlling for X, then partial mediation is supported

Establish the moderating effect of environmental conditions on the relationship between IT capability and competitiveness of consultancy firms in Nairobi County.	Environmental conditions have no influence on the relationship between IT capability and the competitiveness of consultancy firms in Nairobi.	**Model 1:** $Y = \beta_{01} + \beta_1 X_1 + e$ **Model 2:** $Y = \beta_{02} + \beta_2 X_1 + \beta_3 X_3 + e$	Note the values of r^2, β and F change for regression model 1 and model 2 Note the change between r^2_1 and r^2_2 $\beta_2 - \beta_1 < 0$ If $p < 0.05$ for both models and $\beta_2 - \beta_1 < 0$, Fail to Accept Ho_4 If $p > 0.05$ for either model, Accept Ho_4
Establish the moderating influence of environmental conditions on the relationship between IT capability and firm competence of consultancy firms in Nairobi County	Environmental conditions have no effect on the relationship between IT capability and firm competence of consultancy firms in Nairobi.	**Model 1:** $X_2 = \beta_{01} + \beta_1 X_1 + e$ **Model 2:** $X_2 = \beta_{02} + \beta_2 X_1 + \beta_3 X_3 + e$	Note the values of r^2, β and F change for regression model 1 and model 2 Note the change between r^2_1 and r^2_2 $\beta_2 - \beta_1 < 0$ If $p < 0.05$ for both models and $\beta_2 - \beta_1 < 0$, Fail to Accept Ho_5 If $p > 0.05$ for either model, Accept Ho_5
Establish the moderating effect of environmental conditions on the relationship between firm competence and competitiveness of consultancy firms in Nairobi County	Environmental conditions do not influence the relationship between firm competence and competitiveness of consultancy firms in Nairobi.	**Model 1:** $Y = \beta_{01} + \beta_1 X_1 + e$ **Model 2:** $Y = \beta_{02} + \beta_2 X_2 + \beta_3 X_3 + e$	Note the values of r^2, β and F change for regression model 1 and model 2 Note the change between r^2_1 and r^2_2 $\beta_2 - \beta_1 < 0$ If $p < 0.05$ for both models and $\beta_2 - \beta_1 < 0$, Fail to Accept Ho_6 If $p > 0.05$ for either model, Accept Ho_6

(Source : Researcher, 2015)

3.10 Diagnostics Tests

Diagnostic tests are carried out on the collected data prior to inferential data analysis, to establish the validity of results of regression analyses employed in the study (Gujarati &

Porter, 2009; Field, 2009). The relevant diagnostics tests for the study were multicollinearity,

normality, adequate sample size, outliers and linearity. The sample size for the study was

200, which was above the theoretical minimum of 157 (Kothari, 2004). Outliers were taken

care of via adoption of geometric mean of the individual item indices, to arrive at the

composite index for each of the study variables (Vandesompele *et al*., 2002; Wu & Ye,

2009). The condition of linearity was verified by observing the correlation between the independent and dependent study variables (Field, 2009).

3.10.1 Controlling for the Effect of Multicollinearity

Multicollinearity refers to a situation in which two or more explanatory variables in a multiple regression model are highly linearly related. There exists a perfect multicollinearity if, in a regression model, the correlation between two independent variables is equal to 1 or -1. However, practically the correlation coefficient between any two explanatory variables normally lies between 1 and -1. In this study, multicollinearity was checked by running diagnostics tests before the actual analysis of the clean data. According to Field (2009), some correlation is considered to exist if the correlation coefficient between two explanatory variables is greater than 0.3. Tabachnick and Fidell (1996) recommends that careful consideration has to made before including two variables with a correlation coefficient of 0.7 or more, while Field (2009) recommends correction for multicollinearity for correlation coefficients of 0.9 or more.

Another way to detect multicollinearity is to examine the tolerance and the Variance Inflation Factor (VIF) in SPSS analysis. A small tolerance value indicates that the variable under consideration is almost a perfect linear combination of the independent variables already in the equation and that it should not be added to the regression equation. A tolerance of less than 0.1 indicates existence of multicollinearity (Field, 2009). The VIF measures the impact of collinearity among the variables in a regression model. The VIF is 1/tolerance and hence it

is always greater than or equal to 1. Values of VIF that exceed 10 are often regarded as indicating multicollinearity, but for weak models lower values up to 2.5 may indicate presence of multicollinearity (Field, 2009).

Multicollinearity can also be detected by examining the regression coefficients, to see the changes when other variables are included or excluded from the model. Large changes in the regression coefficients indicate that the particular variable causes multicollinearity and should be excluded from the model. This process can be repeated until the model regression coefficients do not change significantly by further addition or removal of explanatory variables in the model. Multicollinearity also results in large standard errors of the regression coefficients and reduction in standard errors for the coefficients indicates reduction in multicollinearity (Field, 2009). This study adopted the suggestion by Field (2009), to detect multicollinearity by examination of the correlation coefficients between two explanatory variables and flagged any correlation coefficient greater than 0.9 for exclusion of one of the variables.

3.10.2 Normality Test

Normality in statistics refers to the likelihood of a random variable to be normally distributed over the population sample (Kothari, 2009). One of the ways of testing for normality is plot the histogram of the data sample. The empirical distribution of the sample data should be bell-shaped, for a normal distribution. Another graphical tool for assessing normality is the normal probability plot of the standardized residuals against the dependent variable,

where the correlation between residuals and the dependent variable measures the goodness of fit. For a normal distribution, probability plot approximately along a straight line, indicating high positive correlation (Field, 2009).

Gujarati and Porter (2009) recommend that before sample data can be analyzed via regression analysis, it is important to ascertain that the normality condition is met. Normality for the study data was verified by plotting the histogram of the standardized residuals against the dependent variable. The study also conducted a normal probability plot of the standardized residuals to confirm normal distribution.

3.11   Ethical Considerations

Ethics is commonly defined as "norms for conduct", which distinguishes between acceptable and unacceptable behavior. Another commonly used definition for "ethics" is "a method, procedure, or perspective" for guiding the treatment of complex problems and issues (Bryman, 2012).

Several reasons exist as to why there is need to adhere to ethics in research. Norms promote the aims of research, such as knowledge, truth and avoidance of error. Since research often involves a great deal of cooperation among many different people and sometimes across organizations, ethical standards promote the values that are essential to collaborative work including, trust, accountability, mutual respect, and fairness. The ethical norms help to ensure that researchers are held accountable to their work. Research ethics also help to promote

other important moral and social values including, social responsibility, human rights, animal welfare, compliance with the law and health and safety (Bryman, 2012).

In line with the expected research code of ethics, this study followed the following procedures, in order to ensure compliance, obtained a research permit from the National Council for Science and Technology at the beginning of field work and obtained further clearances from the offices of the Nairobi County Commissioner and the Nairobi County Education Officer. In addition, the study adhered to the research ethics of the university. The reason for data collection was also explained clearly to the firms and individual respondents. The study observed trust, confidentiality of respondent data, accountability and fairness values in the research process.

CHAPTER FOUR

RESEARCH FINDINGS

4.1 Introduction

Chapter four presents the study findings, data analysis and discussions on the findings. The purpose of this study was to determine the relationship between IT capability and firm competitiveness under the influence of firm competence and environmental conditions for consultancy firms in Nairobi County. The research instrument used was a structured questionnaire which measured the levels and magnitudes of IT capability, firm competence, environmental conditions and firm competitiveness. Structured questionnaires were administered to a total of 200 consultancy firms in Nairobi County picked via random sampling. Responses from 166 firms were received; out of which 5 were rejected because they were partially completed and 161 were accepted for the final sample (slightly above the required sample size of 157). The overall response rate achieved was 80.5% (161/200).

4.1.1 Validity of the Research Instrument

The external validity of the study instrument was complied with by adequate sample size of 200, which was above the theoretical minimum sample size of 157. The content validity in this study was ensured by generating the research constructs from the relevant theories in which the research was underpinned, which was confirmed during the pilot and final surveys. Results for the corrected item-total correlation for the pilot survey (0.823, 0.782, 0.873, 0.766) and for the final survey (0.746, 0.750, 0.461, 0.779), are shown in table 4.1. Each of

the survey results indicated corrected item-total correlation above the 0.7 threshold, recommended by Field (2009). Therefore, the scale of the respective items measured the same thing as the overall scale; hence the research instrument for the study was valid.

4.1.2 Reliability of the Research Instrument

The reliability of the research instrument used for this study was tested via a pilot test and the main survey, as described in table 4.1.

Table 4.1 : Pre-testing Results of the Research Instrument

Item	Pilot Test	Main Survey
Cronbach Alpha	0.855	0.836
Scale Statistics		
Mean	19.7113	19.2484
Standard deviation	3.1755	3.0073
No of Items	4	4
Inter – Item Correlation between:		
IT Capability and Firm Competitiveness	0.713	0.721
IT Capability and Firm Competence	0.696	0.681
IT Capability and Environmental Conditions	0.410	0.412
Firm Competence and Firm Competitiveness	0.741	0.727
Firm Competence and Environmental Conditions	0.544	0.486
Environmental Conditions and Firm Competitiveness	0.556	0.425
Range of correlation coefficients	0.41 - 0.74	0.41 - 0.73
Corrected Item – Total Correlation		
IT Capability	0.823	0.746
Firm Competence	0.782	0.750
Environmental Conditions	0.873	0.461
Firm Competitiveness	0.766	0.779
Cronbach′s Alpha if Item is deleted		
IT Capability	0.873	0.766
Firm Competence	0.782	0.762
Environmental Conditions	0.873	0.869
Firm Competitiveness	0.766	0.738

(Source : Survey data, 2015)

The pre-testing of the research instrument was performed with a sample size of 40, which recorded a Cronbach alpha coefficient of 0.855, which is above the threshold of 0.7 recommended by Field (2009), indicating that the instrument's internal consistency is high and hence high reliability. The final Cronbach alpha coefficient for the research instrument was 0.836 for the study sample of 161, which compared well with the pre-test value of 0.855 (the slight variation of 0.019 is attributed to the different sample sizes between pre-test and final study samples). The research instrument for the study was therefore reliable. The results of the pre-test of the research instrument are summarized in table 4.1. The geometric mean statistical technique was used to average the several item scores and convert to a single composite measure for each variable.

Descriptive statistics and variable correlations were used to check the sanity of the final study data collected as indicated in table 4.1. Table 4.1 indicates the total number of items in the scale as 4, with a scale mean of 19.2484. The inter-item correlations are 0.721, 0.681, 0.412, 0.727, 0.486 and 0.425. The corrected item-total correlation lies between 0.461 and 0.779, which is above the 0.3 threshold recommended by Tabachnick and Fidel (1996). The Cronbach alpha coefficients if item is deleted are below the overall alpha for three items, ie. IT capability = 0.766, firm competence = 0.762, competitiveness = 0.738, while that for environmental conditions was 0.869 (just slightly above the overall alpha 0.836). From the above data and as captured in table 4.1, the scale adopted for the study was reliable. In addition, the Cronbach alpha coefficient from the pilot test for this study compared well with those from the past studies above, further confirming the reliability of the scale adopted by the study.

4.2   Respondents Characteristics

Table 4.2 shows the frequencies for the sampled respondents for the study. Approximately 48% of the respondents were under financial and information technology sectors, while about 22% were under other sectors. The respondents under management services category were about 12%. The remaining 30% were under human resources, legal, hotel and hospitality, engineering and politics with relatively small individual composition between 2.5% and 5.0%. 42.9% of these respondents were located in the central business district (CBD) of Nairobi City. About 58% had annual revenues below Kshs 50 million, 24% between Kshs 50 million − 500 million and 17% above Kshs 500 million. These demographics suggest that over 60% of the consultancy firms in Nairobi County are offering financial, information technology and business management services and are mainly small and medium sized enterprises.

Table 4.2   Characteristics of the respondents

Industry Category	Actual Frequency	Percent
Financial	39	24.2%
Information Technology	38	23.6%
Management	19	11.8%
Human Resource	6	3.7%
Valid Legal	8	5.0%
Hotel & Hospitality	4	2.5%
Engineering	8	5.0%
Politics	4	2.5%
Other	35	21.7%
Total	161	100%

Location of Firm	Actual Frequency	Percent
Central Business District	69	42.9%
Westlands	12	7.5%
Millimani & Lavington areas	8	5.0%
Valid Mombasa Road	8	5.0%
Other area	64	39.8%
Total	161	100%

Size of Firm – by Turnover	Actual Frequency	Percent
Less than 50m Kshs	94	58.4%
Valid Between 50 - 500m Kshs	39	24.2%
Over 500m Kshs	28	17.4%
Total	161	100%

(Source : Survey data, 2015)

4.3   Descriptive Analysis

In this section, the descriptive statistics for the study variables, IT capability, firm competitiveness, firm competence and environmental conditions are reported. The descriptive statistics summarize the main characteristics of the study variables.

4.3.1 Firm Competitiveness

In this sub-section, the descriptive statistics for the dependent study variable, firm competitiveness are reported.

Table 4.3 Detailed Descriptive Statistics on Firm Competitiveness

Low Cost	N	Minimum	Maximum	Mean	Std. Deviation
Rating of the firm to charge the lowest prices in the market	161	1	7	4.2857	1.4117
Rating of the firm to leverage on economies of scale	161	1	7	4.9130	1.4204
Rating of the firm targeting the mass market	161	1	7	4.9938	1.5632
Rating of the firm to minimize costs for service provision	161	1	7	5.1056	1.4474
Aggregate	161			4.8245	1.4607
Differentiation					
To what degree do your organizational services differ from the services of other competing firms	161	1	7	4.2050	1.5934
To what degree does your organization use quality inputs	161	2	7	5.1988	1.3685
To what degree does your organization charge premium prices for services offered	161	2	7	4.9441	1.3704
To what degree does your organization deploy state of the art technology	161	2	7	5.0807	1.2746
Aggregate	161			4.8572	1.4017
Focus					
Rating for your company to serve the needs of unique group of customers as opposed to all customers in the market	161	1	7	4.5280	1.7538
Rating for your company to serve the total market for similar products and services	161	1	7	4.6149	1.5086
Rating for your company to match prices with specific customer segments	161	1	7	4.5839	1.4472
Rating for your company to customize different products and services to specific sets of customers	161	1	7	5.2733	1.5968
Aggregate	161			4.7500	1.5766
Quality of Service					
Estimate the degree of quality of service from your company as compared to similar services from other companies	161	1	7	5.2112	1.4723
Estimate the degree of relevance of the services provided by your company	161	3	7	5.6957	1.0726
Estimate the timeliness for service provision by your company	161	2	7	5.0994	1.2855
Estimate the degree of conformance of the services by your company to the market needs	161	2	7	5.2236	1.3873
Aggregate	161			5.3075	1.3044

(Source : Survey data, 2015

The aggregated parameters for the sub-variables of firm competitiveness are low cost services ($\mu = 4.823$, $\sigma = 1.461$), differentiation of services ($\mu = 4.857$, $\sigma = 1.402$), focus ($\mu = 4.750$, $\sigma = 1.577$) and quality of service ($\mu = 5.308$, $\sigma = 1.304$). The mean scores for three of the sub-variables of firm competitiveness, low cost services, differentiation of products and focus are just below the 5.0 level mark in the measurement scale, implying that the level of competitiveness is perceived to be at medium level. The mean of 5.308 for the fourth sub-variable, quality of service, suggests a somewhat high level of competitiveness. The sub-variable of quality of service had the least variability with standard deviation of 1.304, while focus had the highest variability with standard deviation of 1.577. Low cost and differentiation of services sub-variables had similar variability ($\sigma = 1.461$ and $\sigma = 1.402$ respectively).

4.3.2   IT Capability

This sub-section presents the descriptive statistics for the independent variable, IT capability.

Table 4.4 Detailed Descriptive Statistics on IT Capability

General information	N	Minimum	Maximum	Mean	Std. Deviation
Deployment of IT infrastructure	161	2	7	4.9130	1.3105
Quality of internet connection	161	3	7	5.5280	1.1460
Total number of computers or laptops in use	161	3	7	5.7764	1.2795
Number of staff that have mobiles that can access email	161	3	7	6.1304	1.2100
Aggregate				5.5870	1.2365
Sensing					
Extent to which IT enable online interaction with customers	161	1	7	4.6025	1.8482
Extent to which IT enable online interaction with suppliers	161	1	7	4.8323	1.6667
Extent to which IT enable online interaction with other professional organizations	161	1	7	4.8261	1.4940
Extent to which IT enable online interaction with the general public	161	1	7	4.4286	1.7165
Aggregate				4.6724	1.6814

Shaping					
Level to which IT system aids organizational knowledge sharing among staff	161	1	7	5.2422	1.3954
Level to which IT system aids preservation of important company information in soft copy	161	2	7	5.0559	1.7112
Level to which IT system aids keeping of up to date inventory of organizational resources	161	2	7	5.0497	1.4824
Level to which IT system aids mangers in decision making	161	1	7	4.3789	1.5770
Aggregate				4.9317	1.5415
Seizing					
Rating of ability level of managers to use personal computers and laptops	161	1	7	5.5963	1.5304
Rating of ability level of managers to access online information	161	2	7	5.6522	1.4154
Rating of level preparedness of managers to respond to changes in the business environment	161	1	7	4.7826	1.3495
Rating of the adequacy of resources to respond to changes in the business environment	161	2	7	4.9752	1.4228
Aggregate				5.2516	1.4295
Reconfiguration (a)					
Use of email as the main means of communication among the staff	161	2	7	5.7578	1.4781
Use of email by managers to communicate to the staff in day to day work	161	2	7	5.6398	1.4342
Level of automation of work processes	161	2	7	4.9689	1.5669
Level of automation of customer information	161	1	7	4.7081	1.8085
Aggregate				5.2687	1.5719
Reconfiguration (b)					
Level of integration of customer care services with other processes in the organization	161	1	7	4.7453	1.5624
Level of integration of human resource processes with other processes in the organization	161	2	7	4.7764	1.3783
Level of integration of sourcing function with other processes in the organization	161	1	7	4.5280	1.5373
Level of integration of the management information system with other processes in the organization	161	3	7	5.2050	1.3282
Aggregate	161			4.8137	1.4515

(Source : Survey data, 2015)

The summary of the descriptive statistics for the sub-variables of the independent variable, IT capability is shown in table 4.4. The aggregated mean for the sub-variable of sensing capability was 4.672 which was rated average level on the measurement scale, and was less than the mean of the composite variable of IT capability (μ = 4.911). The aggregated mean score for the sub-variable of shaping was 4.932, implying an average level of IT capability on the measurement scale. The sub-variable of seizing had an aggregated mean of 5.252, which suggests a somewhat high level of IT capability. The reconfiguration sub-variable

consisted of two further sub-variables, automation of processes and integration of processes. The aggregate mean score for automation of processes was 5.269, while that for integration of processes was 4.814, resulting in an overall aggregated mean score for the reconfiguration sub-variable of 5.041. The overall mean score for reconfiguration is approximately the same as that for the composite variable of IT capability, pointing to a somewhat high level of IT capability, on the measurement scale.

It is also note worthy that the aggregated standard deviations for all the sub-variables, sensing (σ = 1.681), shaping (σ = 1.542), seizing (σ = 1.430), and reconfiguration (σ = 1.512), were higher than the standard deviation of the composite variable (σ = 1.146), suggesting higher variability in the sub-variables. The comparison of the standard deviations for the main and sub-variables was consistent with the expected effect of geometric mean to scale down outliers from the sub-variables. However, the seizing sub-variable (σ = 1.430) had the least standard deviation, suggesting that seizing had the least variability among the four sub-variables of IT capability.

4.3.3   Firm Competence

The descriptive statistics for the study variable, firm competence are presented in this sub-section.

Table 4.5 Descriptive Statistics on Firm Competence

Managerial Competence	N	Minimum	Maximum	Mean	Std. Deviation
Indicate the level of education of most managers	161	3	7	5.3665	0.8852
Indicate the level of decision making capability of the management	161	3	6	5.3106	0.9030
Indicate the level of experience possessed by most managers	161	4	7	6.2857	0.9515
Indicate the level of future orientation of the management	161	1	7	5.4720	1.3787
Aggregate	161			5.6087	1.0296
Operational competence					
Rate the level of anticipation of the firm to the market needs	161	1	7	4.9006	1.2560
Rate the level of client support by your organization	161	3	7	5.4783	0.9493
Rate the level of proposal development	161	2	7	5.1801	1.0891
Rate the level of service delivery	161	3	7	5.3230	1.0583
Aggregate	161			5.2205	1.0882
Marketing Competence					
Estimate the level of the firm to identify market needs	161	2	7	5.0683	1.0376
Estimate the level of the firm to design products and services to the selected markets	161	2	7	5.0497	1.1336
Estimate the level of the firm to deliver the selected services	161	3	7	5.0870	0.9836
Estimate the level of the firm to expand the market of the firm's services	161	1	7	5.2298	1.1950
Aggregate	161			5.1087	1.0874
After Sales Support					
Rate the quality level of customer care support	161	3	7	5.0373	1.1879
Rate the quality level of customer care staff in your organization	161	1	7	5.0435	1.2567
Rate the quality level of customer feedback system	161	1	7	4.8199	1.2139
Rate the quality level of handling of customer complaints	161	1	7	5.0683	1.3880
Aggregate	161			4.9923	1.2616
Financial Competence					
Rate the ability level of your firm to raise project finance	161	1	7	5.0683	1.4367
Rate the ability level of your firm to make advance payments	161	1	7	4.7640	1.6106
Rate the ability level of your firm to command goodwill from customers	161	2	7	5.0248	1.3507
Rate the ability level of your firm to minimize cost overruns	161	1	7	4.9752	1.6045
Aggregate	161			4.9581	1.5006

(Source : Survey data, 2015)

The aggregated parameters for the sub-variables of firm competence were managerial competence ($\mu = 5.609$, $\sigma = 1.030$), operational competence ($\mu = 5.221$, $\sigma = 1.088$), marketing competence ($\mu = 5.109$, $\sigma = 1.087$), after sales support ($\mu = 4.992$, $\sigma = 1.262$) and financial competence ($\mu = 4.958$, $\sigma = 1.501$). The sub-variables of managerial competence ($\mu = 5.609$), operational competence ($\mu = 5.221$) and marketing competence ($\mu = 5.109$), each

recorded a somewhat high level on the study measurement scale. After sales support (μ = 4.992) and financial competence (μ = 4.958), each was at a medium level on the measurement scale. The sub-variables of managerial competence and operational competence had the lowest variability. Financial competence had the highest variability at σ = 1.501.

4.3.4 Environmental Conditions

The descriptive statistics for the variable of environmental conditions are reported as follows.

Table 4.6 Descriptive Statistics on Environmental Conditions

Government Laws	N	Minimum	Maximum	Mean	Std. Deviation
Estimate the magnitude of negative impact of the laws governing registration of businesses	161	1	7	4.2360	1.5228
Estimate the magnitude of negative impact of laws governing competition of businesses	161	2	7	4.2981	1.2838
Estimate the magnitude of negative impact of taxation law	161	2	7	4.8199	1.3318
Estimate the magnitude of negative impact of the regulations governing bidding for government contracts	161	1	7	4.4969	1.5934
Aggregate	161			4.4627	1.4329
National Culture					
What is the magnitude of the positive impact of corporate social responsibility to the organizational business	161	1	7	4.7640	1.5432
What is the magnitude of the positive impact of gender balance of work opportunities to the organizational business	161	1	7	5.0932	1.2339
What is the magnitude of the positive impact of non-tolerance to corruption to the organizational business	161	3	7	5.3540	1.2962
What is the magnitude of the positive impact of organizational integrity to the organizational business	161	3	7	5.7081	1.1707
Aggregate	161			5.2298	1.3110
Industry Self Regulations					
Indicate the magnitude of positive impact of the existing industry code of ethics	161	1	7	4.9752	1.4184
Indicate the magnitude of positive impact of membership to industry association	161	2	7	5.5901	1.2169
Indicate the magnitude of positive impact of conformity to the operating regulations in the industry	161	2	7	5.6398	1.2326
Indicate the magnitude of positive impact of cooperation with other members in the industry	161	1	7	5.3168	1.4596
Aggregate	161			5.3805	1.3319
Resource Availability					
Rate the magnitude of availability of human resources	161	1	7	3.6770	1.4603
Rate the magnitude of availability of financial resources	161	1	7	4.4037	1.5140
Rate the magnitude of availability of equipment	161	1	7	4.3043	1.5250
Rate the magnitude of availability of raw materials	161	1	7	3.8944	1.7944
Aggregate	161			4.0699	1.5734

(Source : Survey data, 2015)

The aggregated parameters for environmental conditions are government laws ($\mu = 4.463$, $\sigma = 1.433$), national culture ($\mu = 5.230$, $\sigma = 1.311$), industry self regulations ($\mu = 5.381$, $\sigma = 1.332$) and resource availability ($\mu = 4.070$, $\sigma = 1.573$). From the study scale, national culture and industry sub-variables each registered a somewhat high level on the measurement scale, while the government laws ($\mu = 4.463$) and resource allocation ($\mu = 4.070$) were at neutral levels. National culture and industry self regulations had the least variability. The variability of resource availability was the highest at $\sigma = 1.573$.

4.3.5 Summary of the Descriptive Statistics

The summary of the descriptive statistics for the test scores for the study variables is presented in table 4.7.

Table 4.7 Summary of Descriptive Statistics

Main Variables	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic
IT Capability	161	2.37	6.87	4.9106	1.14567
Firm Competence	161	3.20	6.84	5.0622	.80930
Environmental Conditions	161	2.95	6.07	4.5161	.67774
Competitiveness	161	2.24	6.41	4.7595	.97507
Valid N (listwise)	161				

(Source : Survey data, 2015)

The mean score for the IT capability variable was recorded at 4.911, which translates to medium level of IT capabilities from the measurement scale used for the study. This implies that the consultancy firms in Nairobi County possessed medium sensing, shaping seizing and resource reconfiguration capabilities with respect to the business environment. From the scores of the sub-variables of the independent variable IT capability, it was noted the minimum score (1.19) for sensing capability was comparatively lower (53%) than the three

sub-variables (2.21). The mean score for the firm competence variable was 5.062, which is rated good firm competence on the measurement scale. The mean score for firm competence implies that on the average, the managerial and marketing staff possessed at least one university degree and the firms were of medium efficiency. Environmental conditions scored a mean of 4.516, which is about the medium rating on the study scale (4.0). On the overall, the environmental conditions upon the consultancy firms in Nairobi were of average level. The mean score for firm competitiveness was 4.760, which implies that the pricing for the consultancy services were of average level compared to competition, the level of service differentiation was medium, the quality of the services offered were of average level and the tendency to focus on either low cost or differentiation of services were also at medium level. The standard deviations for the study variables ranged between 1.15 and 0.68, with IT capability having the most variability ($\sigma = 1.15$) and environmental conditions having the least variability ($\sigma = 0.68$).

4.4   Diagnostic Tests

Multicollinearity and normality were the key diagnostics tests for the study. Other relevant diagnostic tests included sample size, outliers and linearity. The sample size of 200 for the study was above the theoretical minimum of 157 (Kothari 2004). The geometric mean technique was used to take care of outliers via transformation of the individual item indices, to arrive at the composite index for each of the study variables (Vandesompele *et al.,* 2002; Wu, & Ye, 2009). Linearity condition was verified by observing the correlation between the independent and dependent study variables (Field, 2009). The results for the diagnostics tests

for multicollinearity and normality are reported below. In the overall, the study data met the conditions for regression analysis.

4.4.1   Results for Controlling for the Effect of Multicollinearity

The study tested for multicollinearity and the results of the test are summarized in table 4.8. The correlation coefficients among the study variables, firm competitiveness, IT capability, firm competence and environmental conditions ranged between 0.425 and 0.727. The observed correlation coefficient values among the study variables fell within the range (0.3 − 0.9) recommended by Field (2009), since no value fell below 0.30 nor above 0.9. Further, from table 4.8 none of the recorded correlations were significant at 5% level of confidence (sig = 0.000 for all variables). Therefore multicollinearity among the study variables was not significant at 5% level of confidence.

Table 4.8   Correlations between the study variables

		(a) Correlations			
		Competitiveness	IT Capability	Firm Competence	Environmental Conditions
Pearson Correlation	Competitiveness	1.000	.721	.727	.425
	IT Capability	.721	1.000	.681	.412
	Firm Competence	.727	.681	1.000	.406
	Environmental Conditions	.425	.412	.406	1.000
Sig. (2-tailed)	Competitiveness	.	.000	.000	.000
	IT Capability	.000	.	.000	.000
	Firm Competence	.000	.000	.	.000
	Environmental Conditions	.000	.000	.000	.
N	Competitiveness	161	161	161	161
	IT Capability	161	161	161	161
	Firm Competence	161	161	161	161
	Environmental Conditions	161	161	161	161

		(b) VIF Values		
Model		Correlations	Collinearity Statistics	
		Zero-order	Tolerance	VIF
1	(Constant)			
	IT Capability	.721	.514	1.946
	Firm Competence	.727	.517	1.934
	Environmental Conditions	.425	.801	1.248

(Source : Survey data, 2015)

4.4.2   Results for the Test for Normality

A further check was done to confirm the normality of the population sample for the study via histogram and normal probability plots (P-P) of the residuals. Figure 9 depicting the histogram of the standardized residual shows that the distribution of the residuals is approximately normal. The normal P-P plots of the residuals falls approximately on a straight

diagonal line from left to right as shown in figure 10, thus confirming the normality of the

sampled population (Field, 2009).

Figure 9 – Histogram of standardized residuals
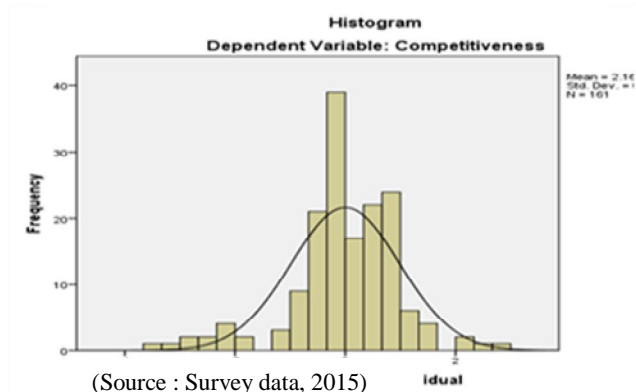
Figure 10 – Normal P-P plot of residuals

(Source : Survey data, 2015)

(Source : Survey data, 2015)
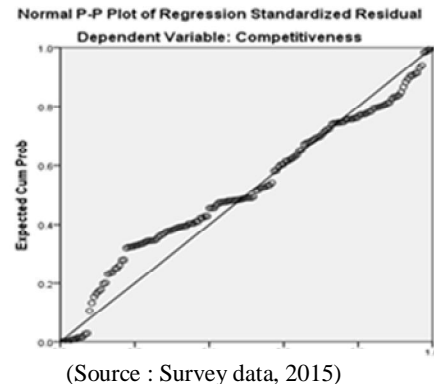
According to Gujarati and Porter (2009) the results for regression analysis are valid if the normality

condition of the sample data is satisfied. The plots for the histogram and normal probability depicted

in figures 9 and 10 respectively confirm the normality of the study sample. Consequently, the results

of the simple and multiple regression analyses adopted by study are valid.

4.5 Test of Hypotheses

The data collected from the field was formatted using Microsoft excel in preparation for

inferential analyses. The sub-variables scores were averaged into composite measures using

the geometric mean, for each respondent firm. Geometric mean helps to reduce the effect of

outliers and also normalize the research data (Vandesompele *et al*., 2002; Wu & Ye, 2009).

The formula for geometric mean is expressed as

$$\mu = (X_1.X_2.X_3....X_n)^{1/n} \,,$$

where $X_1, X_2, X_3, ..., X_n$ are the scores for the respective sub-variables upto n^{th} sub-variable, as obtained from the study scale.

The final data used for the statistical analysis for this study is attached as Appendix 5. Testing for the hypotheses was done as per the respective procedures described in chapter three of this thesis. Hypotheses one and two were tested using one-step simple regression analysis. Hypothesis three was tested using three-step regression analysis, simple regression for models 1 and 2 and multiple regression for model 3. Lastly, each of the hypotheses four, five and six was tested via two-step regression analysis, simple regression for model 1 and multiple regression for model 2. Following is a detailed description of tests for each hypothesis.

4.5.1 Test of Hypothesis One

The focus of hypothesis one was to determine the relationship between IT capability and firm competiveness for consultancy firms in Nairobi County. To test the first hypothesis, the index for firm competitiveness as the dependent variable was regressed upon the index for IT capability as a composite independent variable. The following results were obtained as summarized in table 4.9.

Table 4.9 : IT Capability and Firm Competitiveness as composite variables

						(a) Model Summary			
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.721[a]	.519	.516	.67828	.519	171.657	1	159	.000
a. Predictors: (Constant), IT Capability									
b. Dependent Variable: Competitiveness									

		(b) Coefficients				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.748	.236		7.408	.000
	IT Capability	.613	.047	.721	13.102	.000
a. Dependent Variable: Competitiveness						

		(c) ANOVA				
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78.973	1	78.973	171.657	.000[b]
	Residual	73.150	159	.460		
	Total	152.122	160			
a. Dependent Variable: Competitiveness						
b. Predictors: (Constant), IT Capability						

(Source : Survey data, 2015)

The regression equation obtained from this output was:-

Firm Competitiveness = 1.748 + 0.613 IT Capability + e ....equation (1)

From the findings shown in table 4.9, the R square for the regression of firm competitiveness on IT capability is 0.519, which means that IT capability explains 51.9% of the variation in firm competitiveness. From the ANOVA results, the F-ratio $F(1, 159) = 171.657$ for this relationship is significant at $p < 0.001$, which indicates that the model significantly predicts the outcome of the relationship between IT capability and firm competitiveness. The beta un-standardized coefficient for IT capability is 0.613 is also significant at $p < 0.001$, which means that when IT capability changes by one unit in the measurement scale, firm competitiveness changes by 0.613 units. The coefficient for the constant term is 1.748, implying that when IT capabilities is zero, firm competitiveness would have a default value of 1.748. Therefore the null hypothesis one, which stated that IT capability has no

relationship with the development of competitiveness of consultancy firms in Nairobi, is not accepted at $p < 0.05$. The implication is that there exists a significant positive relationship between IT capability and firm competitiveness.

This study relied on the theoretical framework and empirical studies reported in the literature review chapter of the study. From the theoretical framework, the study used the postulates of the RBV theory. The main argument from the RBV theory used is that unique combination of resources aids the firm′s strategic capability and subsequently enhances firm competitiveness. The study also relied on the previous empirical study by Chan and Reich (2007) on the Strategic Alignment Model for deployment of information technology resources. The model argues that strategically aligned deployment of IT resources by the firm enhances the firm′s unique combination of resources. The observation from the test of hypothesis one is consistent with the theoretical framework, where increased levels strategic capability is expected to drive up the competitiveness of the firm (Barney & Clark, 2007). However, it is observed that IT capability explains only 51.9% of the variation in firm competitiveness. This study is of the opinion that the balance of unexplained variation in firm competitiveness can be explained by the RBV theory (Sirmon, Hitt, Ireland & Gilbert, 2011), with the inference that IT capability has to be uniquely combined with other firm resources in order to provide a competitive edge. Further, part of the unexplained variation in firm competitiveness can be explained by the view by Chan and Reich (2007) that firm IT systems and processes need to synergize with the organizational strategy in order to add value to the organization.

The above observation contributes to the bridging of the knowledge gaps identified in chapter two of this study. Porter (2008) looked at how the porter′s five forces influence the competitive strategy of the firm together with the effects of corporate social responsibility and top management, but failed to show the exact contribution of information technology to firm competitiveness. Another empirical study by Newbert (2008) concluded that value and rareness are related to competitive advantage and that competitive advantage mediates the relationship between rareness and firm performance. However, Newbert (2008) was limited in scope, covering only rareness and values characteristics of the firm and was silent on how information technology can combine with value and rareness to enhance the competitiveness of the firm. A study by Prahalad and Hamel (2008) dealt more on the role of competence of top management in determining the competitive advantage of the firm, neglecting the role of other strategic resources of the firm including information technology. Previous studies were not conclusive on the relationship between IT capability and firm competiveness for consultancy firms in Nairobi County. This study therefore contributes to the stream of knowledge on RBV, that IT capability deployment makes a significant positive influence on the competitiveness of consultancy firms in Nairobi County.

4.5.2   Test of Hypothesis Two

The aim of hypothesis two was to determine the relationship between IT capability and firm competence for consultancy firms in Nairobi County. To test this hypothesis, Firm Competence as the dependent variable was regressed upon IT capability as the independent

variable. The findings of the relationship between IT capability and firm competence are summarized in table 4.10.

Table 4.10 : IT Capability and Firm Competence

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.681[a]	.464	.461	.59428	.464	137.724	1	159	.000

a. Predictors: (Constant), IT Capability
b. Dependent Variable: Firm Competence

(b) Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.699	.207		13.054	.000
IT Capability	.481	.041	.681	11.736	.000

a. Dependent Variable: Firm Competence

(c) ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	48.640	1	48.640	137.724	.000[b]
Residual	56.154	159	.353		
Total	104.794	160			

a. Dependent Variable: Firm Competence
b. Predictors: (Constant), IT Capability

(Source : Survey data, 2015)

The regression model drawn from this test was expressed as:-

Firm competence = 2.699 + 0.481 IT capability + e ……………… equation (2)

The R square for the regression model depicted in equation (2) is 0.464, indicating that IT capability explains 46.4% of the variation in firm competence. The F change $F(1,159) = 137.724$, $p < 0.001$ is significant, suggesting that the regression model significantly explains the relation between IT capability and firm competence. The un-standardized beta coefficients for IT capability and the constant term are 2.699 and 0.481 respectively. The un-standardized beta coefficient for IT capability ($\beta = 0.481$) implies that a unit changes in IT

capability changes the magnitude of firm competence by 0.481 units, while the constant term (β = 2.699) implies that the default level of firm competence is 2.699 units (for a firm with very low or no IT capabilities). The significance of the beta coefficient for IT capability (β = 0.481, p < 0.05) suggests the null hypothesis two, which states that there is no relationship between IT capability and firm competence of consultancy firms in Nairobi County is not supported. The un-standardized beta coefficient of 0.481 suggests that there is a positive relationship between IT capability and firm competence and therefore the alternative hypothesis is accepted.

For hypothesis number two, this study relied on the empirical studies on firm competence reported in chapter two (O'Regan & Ghobadian, 2004; Paiva, Roth & Fensterseifer, 2008; Jones, 2010). The main argument from the empirical studies on firm competence used was that a continuous investment in the core competencies and capabilities that are hard to imitate by the competition, determine the long-term sustainability of superior performance by the firm. The results of hypothesis two are consistent with the above past empirical studies relied upon by this study. The above results also concur with the observation by Agha, Alrubaiee and Jamhor (2012), on the positive contribution of core competence of an organization to perform better than the competition. This study is of the view that IT capability enhances the core competence of the organization. An empirical study by Fawcett, Wallin, Allred, Fawcett, and Magnan, (2011), focused mainly on the supply chain of the firm and failed to show how information technology can enhance other functions of the firm like human resources, production and customer and subsequently enhance competence of the firm. Another study by Barrales-Molina *et al.* (2012) concluded that codification of knowledge and

technical innovation are significantly related to dynamic capabilities of the firm, but failed to relate how information technology can enhance firm competence. Though the study findings are consistent with the theoretical and empirical expectations, no conclusive study had been done before on the relationship between IT capability and competence of consultancy firms in Nairobi County. This study contributes to the existing body of strategic management knowledge by adding that there exists a positive relationship between IT capability and competence of consultancy firms in Nairobi County.

4.5.3 Test of Hypothesis Three

The goal of hypothesis three was to determine the mediating effect of firm competence on the relationship between IT capability and competitiveness among consultancy firms in Nairobi County. Hypothesis three was tested in three steps. In step one, firm competitiveness was regressed upon IT capability and the results are summarized in table 4.11. In step two, firm competence was regressed upon IT capability and findings are shown in table 4.12. During step three, firm competitiveness was regressed upon IT capability and firm competence simultaneously and the findings are summarized in table 4.13. The results from steps one, two and three are further summarized in table 4.14. A further test (Sobel test) was conducted to assess the level of mediation by firm competence in the relationship between IT capability and firm competitiveness and the results of the Sobel test are shown in table 4.15.

Step 2 : Regression of Firm Competence on IT Capability

Table 4.12 : Regression of IT Capability on Firm Competence

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.681[a]	.464	.461	.59428	.464	137.724	1	159	.000

a. Predictors: (Constant), IT Capability
b. Dependent Variable: Firm Competence

(b) Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	2.699	.207		13.054	.000		
IT Capability	.481	.041	.681	11.736	.000	1.000	1.000

a. Dependent Variable: Firm Competence

(c) ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.640	1	48.640	137.724	.000[b]
	Residual	56.154	159	.353		
	Total	104.794	160			

a. Dependent Variable: Firm Competence
b. Predictors: (Constant), IT Capability

(Source : Survey data, 2015)

The regression model from test was:-

Firm competence = 2.699 + 0.481 IT Capability + e ....equation (4)

Step 3 : Regression of Firm Competitiveness on IT Capability and Firm Competence

Table 4.13 Firm competiveness regressed on IT Capability and Firm Competence

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.789[a]	.623	.618	.60235	.623	130.635	2	158	.000

a. Predictors: (Constant), Firm Competence, IT Capability

b. Dependent Variable: Competitiveness

(b) Coefficients							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.316	.302		1.046	.297		
IT Capability	.358	.057	.420	6.301	.000	.536	1.866
Firm Competence	.531	.080	.441	6.604	.000	.536	1.866

a. Dependent Variable: Competitiveness

(c) ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	94.796	2	47.398	130.635	.000[b]
Residual	57.327	158	.363		
Total	152.122	160			

a. Dependent Variable: Competitiveness

b. Predictors: (Constant), Firm Competence, IT Capability

(Source : Survey data, 2015)

The regression model from this test was :-

Firm competitiveness = 0.316 + 0.358 IT Capability + 0.531 Firm Competence + e

........equation (5)

Table 4.14 summarizes the R square, F change and beta coefficients of the regression results of steps 1 to 3 above, for test of hypothesis three.

Table 4.14 : Summary of regression results for Hypothesis 3

Parameter	Step 1	Step 2	Step 3	Change
R^2	0.519	0.464	0.623	0.104
F value	171.657*	137.724*	130.635*	-41.022
β Constant	1.748*	2.699*	0.316***	-1.432
β IT Capability	0.613*	0.481*	0.358*	-0.255
β Firm Competence	-	-	0.531*	0.531

Dependent = Firm Competitiveness, Independent = IT Capability, Mediating = Firm Competence

*value significant at $p < 0.001$, *** value not significant at $p < 0.05$

(Source : Survey data, 2015)

The overall regression model for test of hypothesis three was expressed as:-

Firm competitiveness = 0.316 + 0.358 IT Capability + 0.531 Firm Competence + e
........equation (6)

In step 1, regression of firm competitiveness on IT capability resulted in R square of 0.519 and a significant beta coefficient for IT capability of 0.613 ($p < 0.001$), as shown in table 4.14 above. IT capability therefore explains 51.9% of the variation in the regression model for step 1. The ANOVA for step 1 recorded significant F-ratio of $F(1, 159) = 171.657$, $p < 0.001$, confirming the significance of the regression model. Regression of firm competence on IT capability in step 2 resulted in R square of 0.464 (table 4.14) and a significant beta coefficient for IT capability of 0.464 ($p < 0.001$). IT capability explains 46.4% of the

variation in the regression model for step 2. The regression analysis for step 2 registered significant beta coefficient for IT capability ($\beta = 0.481$, $p < 0.05$), therefore IT capability significantly affects firm competence. During step 3, the simultaneous regression of firm competitiveness on IT capability and firm competences resulted in R square of 0.623 (table 4.14) and a significant beta coefficients for IT capability ($\beta = 0.358$, $p < 0.001$) and firm competence ($\beta = 0.531$, $p < 0.001$). This implies in step 3, IT capability and firm competence explain 62.3% of the variation in firm competitiveness, as compared to 51.9% by IT capability alone in step 1. The ANOVA results for step 3 indicated significance of the regression model at $F(2, 158) = 130.635$, $p < 0.001$.

Thus steps 1 to 3 were used to test the null hypothesis Ho_3: Firm competence has no effect on the relationship between IT capability and competitiveness among consultancy firms in Nairobi. From the outcome of the regression model for step 1, IT capability significantly influences the dependent variable, firm competence. From the results of regression model for step 2, IT capability also significantly influences the mediating variable, firm competence. The regression model for step 3 suggests that firm competence significantly influences the relationship between IT capability and firm competitiveness. In the mediated regression model the R square value increases by 10.4% implying that the explanatory power of IT capability on the variability of firm competitiveness increases. Thus it is observed that the relationship between IT capability and firm competitiveness depends on firm competence. The regression coefficients results for the regression models for steps 1 to 3 are shown in figure 11 depicting the mediation model and the respective regression coefficients.

Figure 11 : Mediation model with regression coefficients
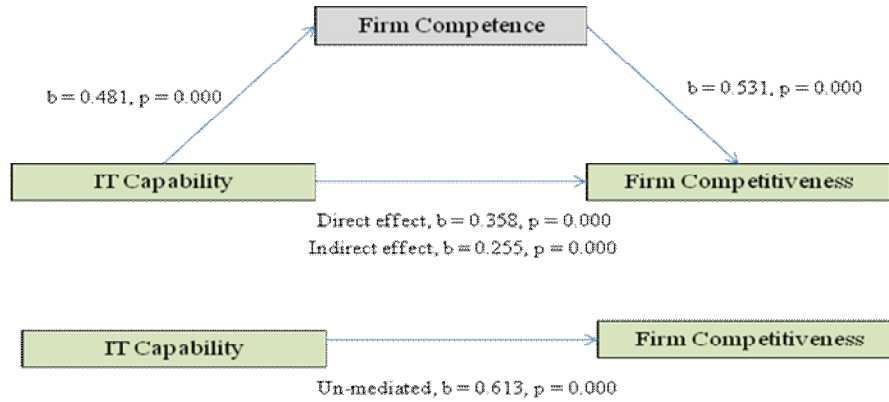
(Source : Survey data, 2015)

Using the criteria suggested by Preacher and Hayes (2004), MacKinnon and Fairchild (2009) and Hayes (2009) for assessing the mediation effects, the above observations for test of hypothesis 3 suggest a partial mediation effect of firm competence on the relationship between IT capability and firm competitiveness. A further confirmatory procedure on the suggested mediation by the regression analysis was conducted via Sobel test. The Sobel test estimates the direct effect of the independent variable on the dependent variable via the mediator whether it is significantly different from zero (Preacher & Hayes, 2008). The results of the Sobel test are shown in table 4.15. The Sobel test statistic was recorded at 5.578 at $p < 0.001$, which confirms that the mediation effect of firm competence in the relationship between IT capability and firm competitiveness is significantly different from zero.

Table 4.15 : Results for Sobel test

Input		Test	Test Statistic	Std Error	P value
			3	4	
A	0.481	Sobel test	5.577698185	0.04421184	1 e-8
B	0.531	Aronian test	5.76114921	0.044334	1 e-8
s_a	0.041	Goodman test	5.479294574	0.04409	1 e-8
s_b	0.080				

(Source : Survey data, 2015)

At $p < 0.05$, the null hypothesis Ho_3 was therefore not supported and the study concludes that firm competence mediates the relationship between IT capability and firm competitiveness for consultancy firms in Nairobi County. The mediation effect was partial mediation, which decreased the beta coefficient of IT capability by 0.255 (from 0.481 to 0.358). This implies that for one unit change of IT capability the outcome firm competiveness would decrease by 0.255 units under the influence of firm competence.

From the above observations, the overall equation for the suggested mediation of firm competence on the relationship between IT capability and firm competitiveness, with the un-standardized coefficients can be expressed by equation (6), under regression step 3. The mediation equation in regression step 3 implies that a change in the magnitude of IT capabilities by one unit results in change of in the level of firm competitiveness by 0.358, holding the effect of firm competence constant. The output of the un-mediated relationship was 0.613 units of firm competiveness from the regression model for step 1.

With respect to hypothesis three, the study relied on the theoretical proposition of RBV that unique combination of firm resources enhances firm competitiveness and the empirical

studies by Mahoney (2007) and Jones (2010) that up-scaling of organizational competence is required for the organization to effectively adapt to the environment to be able it to implement strategies with sustainable competitiveness. The results of hypothesis three are consistent with the theoretical and empirical predictions. Another study by Tallon and Pinsonneault (2011) observed that strategic IT alignment has a positive influence on the agility and performance of the firm and that agility fully mediates the effects of strategic IT alignment. But the study did not look into the effects of IT capability on the competitiveness of the firm, under the mediation of firm competence. Knight and Kim (2008) came to the conclusion that international business competence is pre-requite for international performance of an SME, but lacked incorporation of the role of information technology in facilitating international competence. The unique contribution of this study arising from the test results of hypothesis three, is that firm competence significantly mediates the relationship between IT capability and firm competitiveness of consultancy firms in Nairobi County. Prior studies tended to focus more on the manufacturing, financial and health sectors.

4.5.4   Test of Hypothesis Four

Hypothesis four aimed at establishing the moderating effect of the environmental conditions on the relationship between IT capability and the competitiveness of consultancy firms in Nairobi County. Hypothesis four was tested via two regression models. Simple regression analysis was used for model 1 in step 1, while multiple regression analysis was used for model 2 in step 2. Model 1 entailed regression of firm competitiveness on IT capability,

while model 2 entailed the introduction of environmental conditions and the interaction term between environmental conditions and IT capability, in addition to IT capability. The interaction term consisted of the product of IT capability and environmental conditions. The interaction term was centered before being used in the regression model (Mackinnon & Fairchild, 2009). The effect of the different levels of the interaction term, low, medium and high were plotted on a scatter graph and is depicted in figure 12. The results of the tests for hypothesis four are summarized in tables 4.16 and 4.17, while the summary of the regression models for hypothesis four is presented in table 4.18.

Step 1 : Regression of Firm Competitiveness on IT Capability

Table 4.16 : Regression of Firm Competitiveness on IT Capability

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.721[a]	.519	.516	.67828	.519	171.657	1	159	.000

a. Predictors: (Constant), IT Capability
b. Dependent Variable: Competitiveness

(b) Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.748	.236		7.408	.000
	IT Capability	.613	.047	.721	13.102	.000

a. Dependent Variable: Competitiveness

(c) ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	78.973	1	78.973	171.657	.000[b]
	Residual	73.150	159	.460		
	Total	152.122	160			

a. Dependent Variable: Competitiveness
b. Predictors: (Constant), IT Capability

(Source : Survey data, 2015)

The regression model from this test was:-

$$\text{Firm competitiveness} = 1.748 + 0.613 \text{ IT Capability} + e \text{ ....equation (7)}$$

Step 2 : Regression of Firm Competitiveness on IT Capability and Environmental Conditions

Table 4.17 : Regression of Firm Competitiveness on IT Capability and Environmental Conditions

(a) Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.739[a]	.546	.537	.66358	.546	62.824	3	157	.000

a. Predictors: (Constant), Moderating - ITCap & EnvC, Environmental Conditions, IT Capability
b. Dependent Variable: Competitiveness

(b) Coefficients									
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1 (Constant)	.840	.382		2.200	.029	.086	1.594		
IT Capability	.574	.051	.675	11.215	.000	.473	.676	.799	1.251
Environmental Conditions	.236	.085	.164	2.763	.006	.067	.405	.820	1.220
ITCap x EnvC	.102	.067	.085	1.524	.130	-.030	.235	.922	1.085

a. Dependent Variable: Competitiveness
b. ITCap x EnvC = IT Capability x Environmental Conditions

(c) ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	82.990	3	27.663	62.824	.000[b]
Residual	69.132	157	.440		
Total	152.122	160			

a. Dependent Variable: Competitiveness
b. Predictors: (Constant), Moderating - ITCap & EnvC, Environmental Conditions, IT Capability

(Source : Survey data, 2015)

The regression model from this test was:-

Firm Competitiveness = 0.840 + 0.574 IT Capability + 0.236 Environmental Conditions + 0.102 IT Capability x Environmental Conditions + e ....equation (8)

Table 4.18 summarizes the R square, F change and beta coefficients of the regression results of steps 1 and 2 above, for test of hypothesis four.

Table 4.18 : Summary of regression results for Hypothesis 4

Item	Step 1	Step 2	Change
R^2	0.519	0.546	0.027
F value	171.657*	62.824*	-108.833
β Constant	1.748*	0.840**	-0.908
β IT Capability	0.613*	0.574*	-0.039
β Environmental Conditions	-	0.236*	0.236
β IT Capability x Environmental Conditions	-	0.102***	0.102

Dependent = Firm Competitiveness, Independent = IT Capability, Moderating term = IT Capability * Environmental Conditions

* value significant at $p < 0.001$, ** value significant at $p < 0.05$, *** value not significant at $p < 0.05$

(Source : Survey data, 2015)

The overall regression model for the test of hypothesis four was then expressed as follows, after dropping the non-significant interaction term:-

Firm Competitiveness = 0.840 + 0.574 IT Capability + 0.236 Environmental Conditions + e

............equation (9)

The R square for model 1 was 0.519, while that for model 2 was 0.546, resulting in the R square change of 0.027. The F change in model 1 is $F(1, 159) = 171.657$, $p < 0.001$, therefore the model relationship is significant. In model 1, IT capability alone explains 51.9% of the variation in firm competitiveness. The change in R square suggests that environmental conditions explain the additional 2.7% of the variation in firm competitiveness in model 2.

The beta coefficient for IT capability in model 1 is 0.613 which changes to 0.574 in model 2, implying that the influence of IT capability on firm competitiveness is dampened by 0.039 units (0.574 - 0.613) with the introduction of environmental conditions.

In model 2, the beta coefficient for environmental conditions is significant ($\beta = 0.236$, $p < 0.05$), which implies that environmental conditions significantly affect the relationship between IT capability and firm competitiveness. However, the beta coefficient for the interaction term (IT capability * Environmental conditions) is 0.102 and is not significant ($p = 0.130$) at 5% level of confidence, thereby suggesting that the environmental conditions do not moderate the relationship between IT capability and firm competitiveness. However, the moderation effect by environmental conditions reaches significance at 13% level of confidence. The F change in model 2 is $F(3, 157) = 62.824$, $p < 0.001$ is significant, thereby implying that the model significantly predicts the outcome of firm competitiveness from IT capability and environmental conditions. Although the interaction term in model 2 is not significant ($\beta = 0.102$, $p = 0.130$), the beta coefficient for the main effects of environmental conditions is significant ($\beta = 0.236$, $p < 0.05$) and the F change for model 2 is also significant, thus suggesting that the null hypothesis Ho_4: Environmental conditions have no influence on the relationship between IT capability and the competitiveness of consultancy firms in Nairobi County, should not be entirely rejected but only the interaction term to be dropped. Thus, the null hypothesis Ho_4 is partially supported. The overall model 2 equation suggested by the foregoing discussion can then be expressed as in equation (9) above, adopting the un-standardized coefficients.

Examination of the scatter graph (figure 12) for the effects of the interactive term at different levels (low, medium and high) on the relationship between IT capability and firm competitiveness shed some light as to the strange behaviour of the interaction term. At low levels of environmental conditions, the interaction term exerts a positive relationship between environmental conditions and firm competitiveness. At moderate levels of environmental conditions, the interaction term exerts a more positive relationship between environmental conditions and firm competence. However, at high levels of environmental conditions, the interaction term reverses and exerts a negative relationship between the environmental conditions and firm competitiveness.

Figure 12 : Moderation Levels for Hypothesis 4
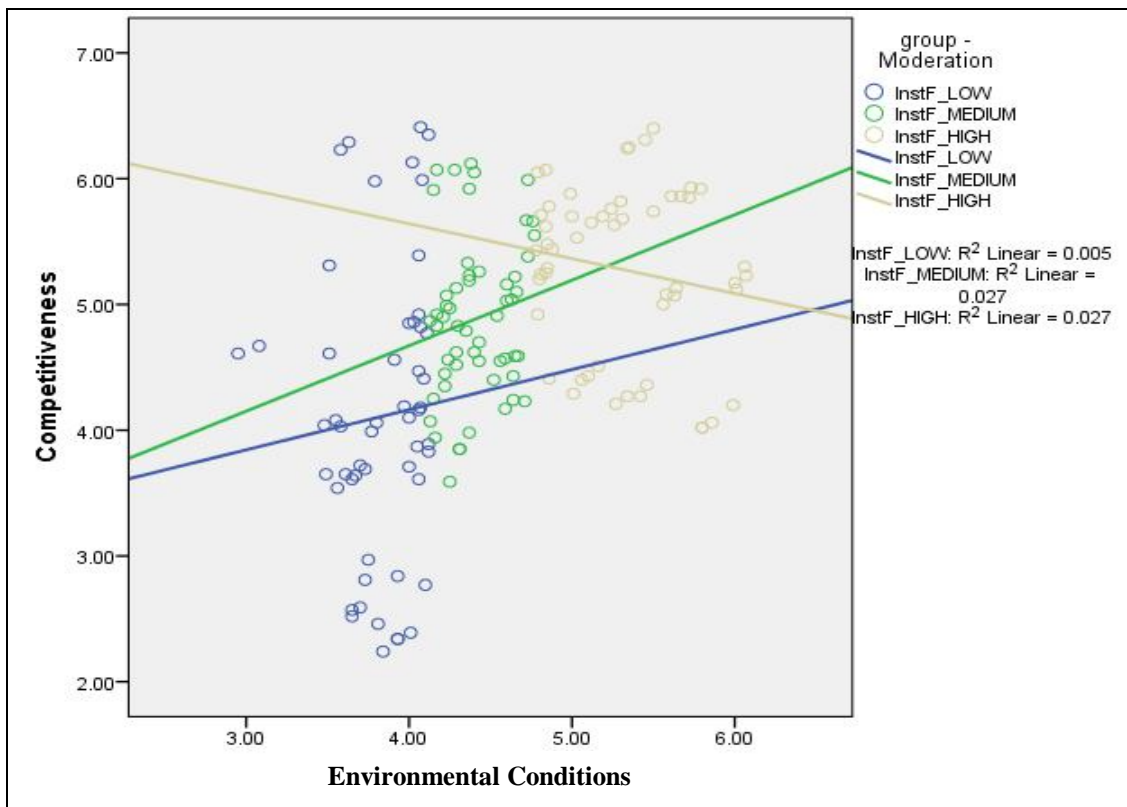
(Source : Survey data, 2015)

Test of hypothesis four of the study relied on the RBV and institutional theoretical predictions. The RBV theory postulates that unique combination of firm resources enhances firm competitiveness, while institutional theory posits that environmental conditions influence organizational behavior (Campbell, 2007). More intensity of environmental conditions was expected to dampen the influence of firm IT capability on competitiveness, by compelling the firm to engage more resources to counter the of effect environmental conditions. The foregoing observation at high level of environmental conditions is consistent with the theoretical expectations of this study. However, at lower and medium levels of environmental conditions, the study observations are inconsistent with the theoretical expectations. This study takes the view that increased intensity of environmental conditions compels the firm to adapt more effectively and thereby build more competence and capabilities, thereby increasing competitiveness, but at high levels of environmental conditions, the adaption of IT capabilities of the firm is unable to cope with the intensity of the opposing environmental conditions and firm competitiveness starts to decline.

An empirical study by Lai, Li, Wang and Zhao (2008) concluded that technological orientation has significant influence on resource commitment to information technology and managerial involvement in the development of IT capability but failed to demonstrate how environmental conditions like resource dependence influence the relationship between IT capability and competitiveness of the firm. A study by Newbert and Tornikoski (2013) found out that resource dependence drives up the cost of resource acquisition, however, did not cover the effect of information technology on resource dependence and competitiveness of the firm.

From the above analysis, the new knowledge contributed by hypothesis four is that of the role of the influence of varying degrees of environmental conditions on the relationship between IT capability and firm competitiveness. At low and medium levels of environmental conditions, environmental conditions do not moderate the relationship between IT capability and competitiveness. However, moderation is experienced at high levels of environmental conditions. The implication of this observation is that the level of environmental conditions determines the moderating effect of environmental conditions on the relationship between IT capability and firm competitiveness. Previous studies focused more on the overall impact of environmental conditions on firm competitiveness, but this study has gone a step further to determine the influence of the different levels of intuitional forces (low, medium and high) on the relationship between IT capability and firm competeveness.

4.5.5   Test of Hypothesis Five

The objective for Hypothesis five was to determine the moderating effect of the environmental conditions on the relationship between IT capability and the firm competence of consultancy firms in Nairobi County. This hypothesis was tested using two regression models. Simple regression analysis was used for model 1 (step 1), while multiple regression analysis was used for model 2 (step 2). In Model 1, firm competence was regressed on IT capability, while in model 2, environmental conditions and the interaction term between environmental conditions and IT capability were introduced, in addition to IT capability. The interaction term consisted of the product of IT capability and environmental conditions. The interaction term was centered before being used in the regression model (Mackinnon &

Fairchild, 2009). The effect of the different levels of the interaction term (low, medium and high) were plotted on a scatter graph and is depicted in figure 14. The results for the tests for hypothesis five are summarized in tables 4.19 and 4.20, while the summary of the regression models for hypothesis five is presented in table 4.21.

Step 1 : Regression of Firm Competence on IT Capability

Table 4.19 : Regression of Firm Competence on IT Capability

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.681[a]	.464	.461	.59428	.464	137.724	1	159	.000

a. Predictors: (Constant), IT Capability
b. Dependent Variable: Firm Competence

(b) Coefficients					
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.699	.207		13.054	.000
	IT Capability	.481	.041	.681	11.736	.000

a. Dependent Variable: Firm Competence

(c) ANOVA					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.640	1	48.640	137.724	.000[b]
	Residual	56.154	159	.353		
	Total	104.794	160			

a. Dependent Variable: Firm Competence
b. Predictors: (Constant), IT Capability

(Source : Survey data, 2015)

The regression model for this test was:-

Firm Competence = 2.699 + 0.481 IT Capability + e ....equation (10)

Step 2 : Regression of Firm Competence on IT Capability & Environmental Conditions

Table 4.20 : Regression of Firm Competence on IT Capability and Environmental Conditions

								(a) Model Summary		

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
					Change Statistics				
1	.727[a]	.529	.520	.56096	.529	58.676	3	157	.000

a. Predictors: (Constant), Moderating - ITCap & EnvC, Environmental Conditions, IT Capability
b. Dependent Variable: Firm Competence

(b) Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	2.475	.323		7.670	.000	1.838	3.113		
	IT Capability	.405	.043	.573	9.349	.000	.319	.490	.799	1.251
	Environmental Conditions	.148	.072	.124	2.052	.042	.006	.291	.820	1.220
	ITCap x EnvC	-.221	.057	-.222	-3.895	.000	-.333	-.109	.922	1.085

a. Dependent Variable: Firm Competence
b. ITCap x EnvC = IT Capability x Environmental Conditions

(c) ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.391	3	18.464	58.676	.000[b]
	Residual	49.403	157	.315		
	Total	104.794	160			

a. Dependent Variable: Firm Competence
b. Predictors: (Constant), Moderating - ITCap & EnvC, Environmental Conditions, IT Capability

(Source : Survey data, 2015)

The regression model for this test was:-

Firm Competence = 2.475 + 0.405 IT Capability + 0.148 Environmental Conditions − 0.221 IT

Capability x Environmental Conditions + e ....equation (11)

Table 4.21 summarizes the R square, F change and beta coefficients of the regression results

of steps 1 and 2 above, for test of hypothesis five.

Table 4.21 : Summary of regression results for Hypothesis 5

Item	Step 1	Step 2	Change
R^2	0.464	0.529	0.065
F value	137.724*	58.676*	-79.048
β Constant	2.699*	2.475*	-0.224
β IT Capability	0.481*	0.405*	-0.076
β Environmental Conditions	-	0.148**	0.148
β IT Capability x Environmental Conditions	-	-0.221*	-0.221

Dependent = Firm Competence, Independent = IT Capability, Moderating term = ITC Capability * Environmental Conditions

* value significant at $p < 0.001$, ** value significant at $p < 0.05$, *** value not significant at $p < 0.05$

(Source : Survey data, 2015)

The moderated regression model for test of hypothesis four was expressed as:-

Firm Competence = 2.475 + 0.405 IT Capability + 0.148 Environmental Conditions − 0.221 IT Capability x Environmental Conditions + e ....equation (12)

For model 1, the R square was 0.464, while that for model 2 was 0.529, resulting in the R

square change of 0.065. The F change in model 1 is $F(1, 159) = 137.724$, $p < 0.001$,

suggesting that the model relationship is significant. In model 1, IT capability individually

explains 46.4% of the variation in firm competence. The change in R square suggests that

environmental conditions explain the additional 6.5% of the variation in firm competence in

model 2. The beta coefficient for IT capability in model 1 is 0.481 which changes to 0.405 in

model 2, thereby suggesting that the influence of IT capability on firm competence decreases by 0.076 units (0.405 - 0.481) with the introduction of environmental conditions.

Model 2 records the beta coefficient for environmental conditions as significant ($\beta = 0.148$, $p < 0.05$), implying that environmental conditions significantly affect the relationship between IT capability and firm competence. The beta coefficient for the interaction term (IT capability * Environmental conditions) is -0.221 and is significant ($p < 0.001$), suggesting that environmental conditions moderates the relationship between IT capability and firm competence. The F change for model 2 is $F(3, 157) = 58.676$, $p < 0.001$, which implies that the model significantly predicts the outcome of firm competence from IT capability and environmental conditions. Since interaction term in model 2 is significant ($\beta = -0.221$, $p < 0.05$), this suggests that the null hypothesis Ho_5: Environmental conditions have no influence on the relationship between IT capability and firm competence for consultancy firms in Nairobi County, is not supported. The conclusion is that environmental conditions moderate the relationship between IT capability and firm competence for consultancy firms in Nairobi. The overall equation for model 2 can then be written down as in equation (12) above, with the un-standardized coefficients and the constant term.

The scatter graph (figure 13) depicts the effects of the interactive term at different levels (low, medium and high) on the relationship between IT capability and firm competence. At low levels of environmental conditions, the impact of the interaction term produces a positive relationship between environmental conditions and firm competence. At moderate levels of environmental conditions, the interaction term produces a less positive relationship between

environmental conditions and firm competence. However, at high levels of environmental conditions, the interaction term reverses all the gains in the low and medium levels of environmental conditions produces a negative relationship between the environmental conditions and firm competence.

Figure 13 : Moderation Levels for Hypothesis 5
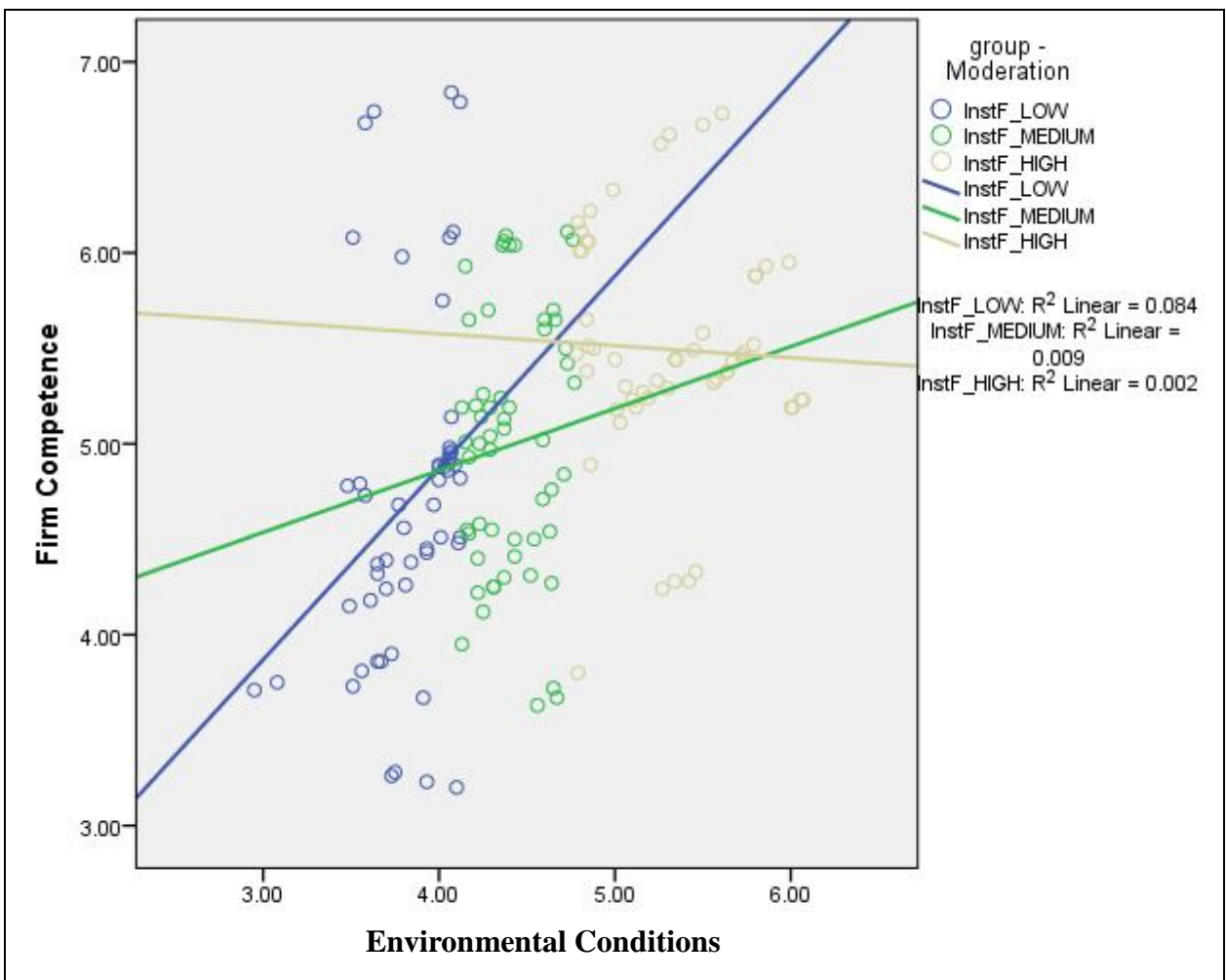
(Source : Survey data, 2015)

Similar to hypothesis four, hypothesis five relied on the RBV and institutional theoretical predictions (Campbell, 2007). More intensity of environmental conditions was expected to dampen the influence of firm IT capability on competence, by compelling the firm to engage more resources to counter the of effect environmental conditions. Institutional theory also suggests negative influence of resource dependence on firm competence. The above observation on test of hypothesis five is somewhat consistent with the conceptual predictions of this study. Campbell (2007) postulates that environmental conditions shape organizational behavior. The firm needs to deploy more resources to counter the moderating effect environmental conditions. This study is of the view that at low and medium levels of environmental conditions, the firm is able to cope with increased levels of environment forces by up-scaling IT capabilities and still register net positive firm competence. However, at very high levels of environmental conditions, the consultancy firm is unable to match the environmental challenges. An empirical study by Melville, Kraemer and Gurbaxani (2004) observed that the value of information technology is dependent on other internal and external factors but the study was inconclusive on the exact role of information technology in the development of competence of the firm. Another study by Mole, Ghobadian, O'Regan and Liu (2004) observed that firm-specific factors highly influence the adoption of soft process technologies but did not cover how the environmental conditions affect the adoption of soft technology, nor the competence of the firm.

The RBV theory postulates that unique combination of resources positively influences the competitiveness of the firm. The institutional theory suggests negative influence of resource dependence on firm competitiveness. The knowledge contribution from hypothesis five is

that in the overall, environmental conditions moderates the relationship between IT capability and firm competence. However, at low and medium levels of environmental conditions, there exists a positive relationship between the moderating term and firm competence, which turns to negative at high levels of environmental conditions. The implication of this finding is that the level of environmental conditions determines the moderating effect of environmental conditions on the relationship between IT capability and firm competence.

4.5.6   Test of Hypothesis Six

Hypothesis six was aimed at establishing the moderating effect of the environmental conditions on the relationship between firm competence and the firm competitiveness of consultancy firms in Nairobi County. Hypothesis six was tested via two regression models. In model 1, simple regression analysis was used, while multiple regression analysis was used for model 2. In model 1, firm competitiveness was regressed on firm competence. In model 2, environmental conditions and the interaction term between environmental conditions and firm competence was added to the independent variable of IT capability. The interaction term consisted of the product of firm competence and environmental conditions. The interaction term was centered before being used in the regression model, similarly to hypotheses four and five. The effect of the different levels of the interaction term (low, medium and high) were plotted on a scatter graph and is shown in figure 13 under hypothesis four. The results for the tests for hypothesis six are summarized in tables 4.22 and 4.23, while the summary of the regression models for hypothesis six is presented in table 4.24.

Step 1 : Regression of Firm Competitiveness and Firm Competence

Table 4.22 : Regression of Firm Competitiveness and Firm Competence

(a) Model Summary								
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.727[a]	.528	.526	.67166	.528	178.201	1	159	.000

a. Predictors: (Constant), Firm Competence
b. Dependent Variable: Competitiveness

(b) Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.326	.336		.968	.334
	Firm Competence	.876	.066	.727	13.349	.000

a. Dependent Variable: Competitiveness

(c) ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	80.392	1	80.392	178.201	.000[b]
	Residual	71.730	159	.451		
	Total	152.122	160			

a. Dependent Variable: Competitiveness
b. Predictors: (Constant), Firm Competence

(Source : Survey data, 2015)

The regression model for this test was:-

Firm Competitiveness = 0.326 + 0.876 Firm Competence + e........................equation (13)

Step 2 : Regression of Firm Competitiveness on Firm Competence and Environmental Conditions

Table 4.23 : Regression of Firm Competitiveness on Firm Competence and Environmental Conditions

(a) Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.756[a]	.572	.564	.64404	.572	69.916	3	157	.000

a. Predictors: (Constant), Moderating - FirmC & EnvC, Environmental Conditions, Firm Competence
b. Dependent Variable: Competitiveness

(b) Coefficients									
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
(Constant)	-.075	.403		-.186	.853	-.872	.722		
Firm Competence	.737	.072	.612	10.228	.000	.595	.880	.762	1.313
1 Environmental Conditions	.258	.083	.180	3.110	.002	.094	.422	.818	1.223
FirmC x EnvC	-.293	.100	-.160	-2.926	.004	-.491	-.095	.911	1.097

a. Dependent Variable: Competitiveness
b. FirmC x EnvC = Firm Capability x Environmental Conditions

(c) ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	87.001	3	29.000	69.916	.000[b]
1	Residual	65.121	157	.415		
	Total	152.122	160			

a. Dependent Variable: Competitiveness
b. Predictors: (Constant), Moderating - FirmC & EnvC, Environmental Conditions, Firm Competence

(Source : Survey data, 2015)

The regression model for this test was:-

Firm Competitiveness = -0.075 + 0.737 Firm Competence + 0.258 Environmental Conditions − 0.293

Firm Competence x Environmental Conditions + e ....equation (14)

Table 4.24 summarizes the R square, F change and beta coefficients of the regression results of steps 1 and 2 above, for test of hypothesis six.

Table 4.24 : Summary of regression results for Hypothesis 6

Item	Step 1	Step 2	Change
R^2	0.528	0.572	0.044
F value	178.201*	69.916*	-108.285
β Constant	0.326***	-0.075***	-0.401
β Firm Competence	0.876*	0.737*	-0.139
β Environmental Conditions	-	0.258**	0.258
β Firm Competence x Environmental Conditions	-	-0.293**	-0.293

Dependent = Firm Competitiveness, Independent = Firm Competence, Moderating term = Firm Competence * Environmental Conditions

* value significant at $p < 0.001$, ** value significant at $p < 0.05$, *** value not significant at $p < 0.05$

(Source : Survey data, 2015)

The moderated regression model for test of hypothesis six was then expressed as:-

Firm Competitiveness = -0.075 + 0.737 Firm Competence + 0.258 Environmental Conditions − 0.293 Firm Competence x Environmental Conditions + e ....equation (15)

The R squares values for models 1 and 2 were 0.528, and 0.572 respectively. The change in R square between the two models was 0.044. The F change in model 1 was $F_{(1, 159)}$ = 178.201, $p < 0.001$, suggesting that the model relationship was significant. In model 1, firm competence individually explains 52.8% of the variation in firm competitiveness. The change in R square suggests that environmental conditions explain the additional 4.4% of the variation in firm competitiveness in model 2 indicating that the explanatory power increases. The beta coefficient for firm competence in model 1 is 0.876 which changes to 0.737 in

model 2, thereby suggesting that the influence of firm competence on firm competitiveness decreases by 0.139 units (0.737 - 0.876) with the introduction of environmental conditions.

The beta coefficient for environmental conditions in model 2 was significant ($\beta = 0.258$, $p < 0.05$), which suggested that environmental conditions significantly affects the relationship between firm competence and firm competitiveness. The beta coefficient for the interaction term (firm competence x environmental conditions) was -0.293 and was significant ($p < 0.05$), suggesting that environmental conditions moderates the relationship between firm competence and firm competitiveness. The F change for model 2 was $F(3, 157) = 69.916$, $p < 0.001$ was significant, implying that the model significantly predicts the outcome of firm competitiveness from firm competence and environmental conditions. With the interaction term in model 2 being significant ($\beta = -0.293$, $p < 0.05$), this suggests that the null hypothesis Ho_6, stating that environmental conditions have no influence on the relationship between firm competence and firm competitiveness for consultancy firms in Nairobi County, should not be accepted. Therefore the conclusion is that environmental conditions moderate the relationship between firm competence and firm competitiveness for consultancy firms in Nairobi. The overall equation for model 2 can then be expressed by equation (15) above, incorporating the un-standardized coefficients.

Figure 13 under test of hypothesis four displays the effects of the interactive term at different levels (low, medium and high) on the relationship between firm competence and firm competitiveness. At low levels of environmental conditions, the impact of the interaction term projects a positive relationship between environmental conditions and firm

competitiveness. At moderate levels of environmental conditions, the interaction term projects a less positive relationship between environmental conditions and firm competence. However, at high levels of environmental conditions, the interaction term projects negative relationship between the environmental conditions and firm competitiveness.

Hypothesis six also relied on the RBV and institutional theoretical predictions (Campbell, 2007). More intensity of environmental conditions was expected to dampen the influence of firm competence on firm competitiveness, by compelling the firm to engage more resources to counter the of effect environmental conditions. Institutional theory also predicts negative influence of resource dependence on firm competitiveness. The above observation on test of hypothesis six was consistent with the theoretical predictions of this study at high levels of environmental conditions. Campbell (2007) postulates that environmental conditions shape organizational behavior. The firm needs to deploy more resources to counter the moderating effect of environmental conditions. This study is of the view that at low and medium levels of environmental conditions, the firm is able to cope with increased levels of environment forces by up-scaling firm competence and still register net positive firm competitiveness. Nevertheless, at very high levels of environmental conditions, the competence of the consultancy firm will be unable to match the environmental challenges.

Rohrbeck, Holzle Gemunden (2009) arrived at the conclusion that the Dutch national telecommunications company successfully enhanced innovation through creativity and knowledge resources and open-innovation but the study failed to show how the environmental conditions influenced the drive towards open-innovation and subsequently

firm competitiveness. The study by Vahedi and Nejad Haji Ali Irani (2011) observed that deployment of information technology did not achieve much if not accompanied by corporate culture change. However, the study took a more theoretical approach with no empirical tests. In addition, the study did not cover how corporate culture change influences the relationship between firm competence and competitiveness of the firm. The RBV theory predicts that a unique combination of resources positively influences the competitiveness of the firm, while the institutional theory postulates a negative influence of resource dependence on firm competitiveness.

The regression results for hypothesis six make a contribution to the body of strategic management knowledge by adding that, at high levels of environmental conditions, environmental conditions moderates the relationship between firm competence and firm competitiveness. However, at low and medium levels of environmental conditions, the moderating effect is not strong enough to dampen the relationship between firm competence and firm competitiveness and the net effect is positive. The implication of this observation is that the level of environmental conditions determines the moderating effect of environmental conditions on the relationship between firm competence and firm competitiveness.

4.5.7   Summary on Test of Hypotheses

Table 4.25 summarizes the test results for the study hypothesis as discussed above.

Table 4.25 : Summary of the test results for the study hypotheses

Hypothesis	Result	Conclusion
Ho$_1$: IT capability has no relationship with the development of competitive advantage of consultancy firms in Nairobi County.	Not supported	IT Capability has a significant positive relationship with firm competitiveness
Ho$_2$: There is no relationship between IT capability and firm competence of consultancy firms in Nairobi County.	Not supported	IT Capability has a significant positive relationship with firm competence
Ho$_3$: Firm competence has no mediating effect on the relationship between IT capability and competitiveness among consultancy firms in Nairobi.	Not supported	Firm competence partially mediates IT capability and firm competitiveness
Ho$_4$: Environmental conditions have no moderating effect on the relationship between IT capability and the competitiveness of consultancy firms in Nairobi.	Not supported	Moderation by environmental conditions is not significant at low and medium levels, but becomes significant at high levels
Ho$_5$: Environmental conditions do not moderate the relationship between IT capability and firm competence of consultancy firms in Nairobi.	Not supported	Moderation by environmental conditions is not significant at low and medium levels, but become significant at high levels
Ho$_6$: Environmental conditions have no moderating influence on the relationship between firm competence and competitiveness of consultancy firms in Nairobi	Not supported	Moderation by environmental conditions is not significant at low and medium levels, but become significant at high levels

(Source : Researcher, 2015)

CHAPTER FIVE

SUMMARY, CONCUSSIONS AND RECOMMENDATIONS

This last chapter of this thesis presents the summary, conclusions, recommendations and limitations for the study. The purpose of this study was to determine the influence of environmental conditions and firm competence on the relationship between IT capability and competitiveness of consultancy firms in Nairobi County, Kenya.

5.1   Summary

The general objective of this study was to establish the role of institutional forces and firm competence on the relationship between IT capability and competitiveness of consultancy firms in Nairobi County. The study tested the direct relationship between IT capability and firm competitiveness, the mediating effect of firm competence on the relationship between IT capability and firm competitiveness and the moderating role of the institutional forces on the direct and mediated relationships.

The study adopted a positivist philosophy approach, cross-sectional explanatory research design and random sampling in order to arrive at meaningful and objective data. From the total population of 265 consultancy firms in Nairobi, the target sample of 157 consultancy firms were picked via Microsoft excel generated random numbers. About half of the respondents were under the financial and information technology sectors, a third under human resources, legal, hotel and hospitality, engineering and politics, while the remaining were under other sectors. More than half of the respondents had annual revenues below fifty

million Kenya shillings, suggesting that majority of the consultancy firms in Nairobi were mainly small and medium sized enterprises.

5.1.1   Summary on Descriptive Findings

For the independent variable of the study, the sub-variables of sensing and shaping each had a medium IT capability, while seizing and reconfiguration each had a high IT capability. The aggregated standard deviations for all the sub-variables, sensing, shaping, seizing, and reconfiguration were higher than the standard deviation of the composite variable, suggesting higher variability in the sub-variables.

The mean scores for three of the sub-variables of firm competitiveness (low cost services, differentiation of products and focus) were just below the somewhat high level mark in the measurement scale, implying that these three sub-variables had average levels of firm competitiveness. The fourth sub-variable, quality of service, recorded somewhat high level of firm competitiveness. The sub-variables of managerial competence, operational competence and marketing competence registered somewhat high level, each on firm competence, on the study measurement scale. After-sales support and financial competence had average levels of firm competence, on the measurement scale. Lastly, from the study scale, national culture and industry sub-variables each recorded somewhat high levels of environmental conditions, while the government laws and resource allocation recorded average levels of environmental conditions.

5.1.2   Summary on Objective One

The focus of objective one was to determine the relationship between IT capability and firm competiveness among consultancy firms in Nairobi County. The findings of objective one suggest that IT capability explains 51.9% of the variation in firm competitiveness, in the relationship between IT capability and firm competitiveness. Even though the relationship was found to be significant, the study observed that IT capability explains only 51.9% of the variation in firm competitiveness. The study offered an explanation of this balance using the postulates of the RBV theory and Venkatraman′s strategic alignment model. Previous studies on the relationship between these two variables had not been conclusive. Thus in terms of the research gaps that underpinned the study, the findings of objective one contribute towards the existing knowledge in strategic management by explaining the relationship between IT capability and firm competitiveness, that IT capability has a significant positive influence on the competitiveness of consultancy firms in Nairobi County.

5.1.3   Summary on Objective Two

The aim of objective two was to determine the relationship between IT capability and firm competence among consultancy firms in Nairobi County. Although the relationship was found to be significant, the study observed that IT capability explains only 46.4% of the variation in firm competence. The study provided an explanation of the balance of variation in firm competence using the postulates of the RBV theory. With respect to the research gaps that underpinned this study, the findings of objective two contribute towards the existing

knowledge on RBV in strategic management by explaining the relationship between IT capability and firm competence, that there exists a positive relationship between IT capability and competence of the firm. Prior studies on the relationship between IT capability and firm competence were not conclusive on the link between these two variables.

5.1.4   Summary on Objective Three

The goal of objective three was to determine the mediating effect of firm competence on the relationship between IT capability and competitiveness among consultancy firms in Nairobi County. From the results of objective three, the study found that firm competence partially mediates the relationship between IT capability and firm competitiveness among consultancy firms in Nairobi County. The results of objective three were consistent with the theoretical and empirical predictions that guided the conceptualization of the study. The Sobel test results confirmed that the mediation effect of firm competence on the relationship between IT capability and firm competitiveness was significantly different from zero. The study noted that even though previous RBV studies had been attempted on IT capability and competitiveness, they had not offered a clear understanding on the role of firm competence on the relationship between IT capability and firm competitiveness. The findings of objective three contribute towards understanding the role of firm competence on the relationship between IT capability and firm competitiveness.

5.1.5   Summary on the Moderated Relationships

Objectives four, five and six aimed at establishing the moderating effect of environmental conditions on the direct relationship between IT capability and competitiveness among consultancy firms in Nairobi County, as well as the moderating effect of environmental conditions on this relationship as mediated by firm competence. The outcome of objectives four, five and six was that, at low and medium levels of environmental conditions, the moderating effect of environmental conditions on the direct and mediated relationships was not significant, a finding that this study observed that it was inconsistent with the predictions of the institutional theory. However, at high levels of environmental conditions, the moderating effect of environmental conditions on these relationships was significant. The study offered an explanation based on the fact that, even though increased intensity of environmental conditions compels the firm to adapt more effectively and build more competences and capabilities, leading to higher level of competitiveness; in the case of IT capability deployment at high levels of environmental conditions, the adaptation of IT capabilities of the firm is unable to cope with the high levels of intensity of environmental conditions and firm competitiveness starts to decline.

The results of objectives four, five and six fill the research gaps on the role of environmental conditions on the direct and mediated relationships between IT capability and firm competitiveness. Previous studies carried out on the relationships among these three variables, IT capability, firm competence and firm competitiveness failed to provide conclusive findings. The new knowledge contributed by objectives four, five and six is that,

it is not the environmental conditions per se that moderate the relationships, but the level of environmental conditions that moderate the relationships among the variables investigated in this study. The implication of this observation is that the level of environmental conditions determines the moderating effect of environmental conditions on the direct and mediated relationship between IT capability and firm competitiveness. Previous studies focused more on the overall impact of environmental conditions on firm competitiveness, but this study has gone a step further to determine the influence of the different levels of environmental conditions (low, medium and high) on the relationship between IT capability and firm competiveness.

5.2   Conclusions

The study sought to establish the role of institutional forces and firm competence on the relationship between IT capability and competitiveness of consultancy firms in Nairobi County. From the research findings and the explanations offered, the study makes four major conclusions. Firstly, the study concludes that IT capability has a significant positive influence on firm competitiveness for consultancy firms in Nairobi County and that the consultancy firms can enhance this relationship by using more online interaction with customers and suppliers. According to the study findings, this will lead to better cost efficiency, more differentiated services and better service quality. Secondly, the study concludes that IT capability exerts a significant positive influence on firm competence among consultancy firms in Nairobi County and that the consultancy firms can improve their competence level by enhancing the level of automation of processes and customer information, which will

result in better decision making by managers, anticipation of market needs and capability to offer customer care services.

Thirdly, the study concludes that firm competence partially mediates the relationship between IT capability and firm competitiveness for consultancy firms in Nairobi County and the consultancy firms can strengthen this relationship by increasing the level of email usage by the organization, automation of organizational processes and automation of customer information, which will give rise to better firm competence and ultimately higher level of competiveness. Lastly, with regard to the moderating effect of the environmental conditions, the study concludes that the level of the environmental conditions determines the moderating influence of environmental conditions on the direct and mediated relationships among consultancy firms in Nairobi County and that the consultancy firms can reduce the negative effect of higher level environmental conditions by timely up-scaling their IT capability via integration of organizational processes, particularly customer care services and management information system.

5.3   Recommendations for Policy

From the study findings and conclusions, the study makes several recommendations. The first recommendation is that the consultancy firms in Nairobi County need to pay more attention to the level of IT capability utilized by the firm and use more online interaction with customers and suppliers in order to enjoy better firm competitiveness in terms of cost efficiency,   more   differentiated   services   and   better   service   quality.   The   second

recommendation is that the consultancy firms in Nairobi should enhance the level of automation of processes and customer information, resulting in better competence of the firm from better decision making by managers and higher anticipation of market needs. Thirdly, the consultancy firms in Nairobi should increase the level of email usage by the organization, resulting in better firm competence and subsequently higher level of firm competiveness. Lastly, the study recommends that the consultancy firms should regularly scan the prevailing environmental conditions in Kenya and timely up-scale their level of IT capability to counter the increase in the level of environmental conditions by integration of customer care service processes and the management information system. This will enable the firm to match any increase in the level of environmental conditions and thus sustain their competitiveness.

5.4   Limitations of the Study

The study faced a number of limitations. Firstly, the scope of this study was consultancy firms in Nairobi County. Therefore, the results of the study should be used carefully, without undue generalization to other counties in Kenya. The contextual factors in the other counties are not the same as the contextual factors in Nairobi and will therefore differently influence the study variables. Similarly, the use of the final results to predict outcomes in the global arena will be limited to similar environmental conditions. Secondly, the study was a cross-sectional snap shot among the consultancy firms in Nairobi County and did not cover the longitudinal aspect, for example over the last five years. The study results do not therefore cover the evolutionary trend of the study variables. Thirdly, the study did not cover exhaustively all the variables that influence the relationship between IT capability and firm competitiveness, hence the outcome of the study is limited in this sense. Fourthly, the study

variables were too few (only four) for pre-analysis, via factor analysis to shortlist the variables that have more influence on the relationship between IT capability and competitiveness of the firm, for further statistical analysis. Fifthly, the study employed multiple regression analysis for statistical analysis of the data, which is a less rigorous statistical tool than structural equation modeling (SEM). Sixthly and lastly, in the methodological approach, the study adopted a final sample of 200 out of the total population of 265 firms; which yielded less accurate results in terms of the explanatory power, than a census study.

5.5   Areas for further Research

The possibilities for future research in this area are several. This study looked only at consultancy firms; therefore, similar studies can be conducted on other business sectors in Kenya, for example, manufacturing and marketing which are heavy users of IT. The study can also be replicated in other counties, to contrast any variations in regional demographics. A national study can also be carried out on the impact of IT capability on firm competitiveness across all consultancy firms in Kenya. Since the study was cross-sectional in nature, a longitudinal study over a span of at least five years can be done to examine the evolutionary effect of IT capability on the competitiveness of consultancy businesses in Kenya. Another area for more research is to expand the scope of the independent variable to include all major variables that influence the competitiveness and competence (in addition to IT capability) of business firms in Kenya. Further, a more rigorous statistical analysis tool, for example SEM, can be employed in a similar study, instead of the less accurate regression

analysis used in the study. Lastly, a census survey can be conducted for all consultancy firms in Nairobi, instead of the sample of 200 used for the study.

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APPENDICES

Appendix 1 : Questionnaire – Business Administration (KU, 2014)

This Questionnaire is provided as a guide for identifying the external influences on your organization and the capabilities that the organization has put in place to gain and maintain competitive advantage. Your responses will be combined with those of other respondents and used to compile a report for an academic research being carried out by the researcher. Your individual answers will be kept confidential, together with the information of your organization; and will only be used for the purposes of the academic research.

This questionnaire consists of two parts. Part I requests basic background information about your association with your organization. Part II seeks information on the capabilities and environment of your organization and the measures that your organization has put in place to deal with the named issues.

When completing this questionnaire, you are kindly to also attach any supporting documents to the information you provide.

Part I: Background

Industry Category for your Organization (indicate code as suggested below *)				
Location				
CBD	Westlands	Milimani & Lavington areas	Mombasa Road	Other areas (Name)
Title/Position/Office		Department		
Date of completion of questionnaire				
Size of the Organization in terms of annual turnover				
Less than 50m Kshs		Between 50m and 500m Kshs		Over 500m Kshs

* Industry Code :   1 = Financial, 2 = Information Technology, 3 = Management, 4 = Human Resource,   5 = Legal, 6 = Hotel and Hospitality, 7 = Engineering, 8 = Politics, 9 = Other

Instructions on how to fill - in the Questionnaire

Please use the following scores to fill – in the answers to the questions in this questionnaire appropriately, on a scale of 1 -7

7 Point Likert Scale

Scale 1 - 7	Quantity	Quality	Likelihood	Level / Degree Magnitude
1 – None, zero	None	Lowest	None	Lowest
2 – Very little, less than 10%	Very little	Bad	Rarely	Low
3 – Somewhat, bout 30%	Somewhat	Somewhat	Occasionally	Somewhat low
4 – Neutral / Midpoint, about 50%	Average	Average	Average	Neutral
5 – Much, about 70%	Much	Good	Likely	Somewhat high
6 – Very much, 90%	Very much	Very good	More likely	High
7 – Maximum / All the time, 100%	Maximum	Excellent	Every time	Very high

Part II

2.1   Information Technology Capability

2.1.1   General information of IT infrastructure

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

In your organization, how do you rate the :

		1	2	3	4	5	6	7
1	Deployment of IT infrastructure?							
2	Quality of internet connection?							
3	Total number of computers or lap tops in use?							
4	Number of staff that have mobile phones that can access email?							

2.1.2 Sensing Changes in the Business Environment

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please estimate the extent to which the firm Information Technology System is designed to enable online interaction with:

		1	2	3	4	5	6	7
1	Customers							
2	Suppliers of materials and services to your organization							
3	Other professional organizations							
4	The general public							

2.1.3 Shaping for Effective Response

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please estimate the level to which the firm Information Technology System is designed to aid:

		1	2	3	4	5	6	7
1	Organizational knowledge sharing among staff							
2	Soft copy preservation of important company documents as opposed to filing of hard copies							
3	Up to date inventory of the organizational resources							
4	Managers in decision making							

2.1.4 Seizing of Opportunity

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

In the firm how do you rate the level of:

		1	2	3	4	5	6	7
1	Ability of managers to use personal computers and laptops?							
2	Ability of managers to access online information?							
3	Preparedness of managers to respond to changes in the business environment?							
4	Adequacy of resources to respond to the changes in the business environment?							

2.1.5(a) Reconfiguration of Resources (automated processes)

Using the scale of : 1 = none, 2 = very little, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

In your organization, how much:

		1	2	3	4	5	6	7
1	Is Email used as the main means of communication among the staff?							
2	Is Email used by managers to communicate to the staff in the usual day to day work?							
3	Automation of work processes has been done?							
4	Automation exists for your customer information?							

2.1.5(b) Reconfiguration of Resources (integrated processes)

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please estimate the level of integration of the following with other processes in the organization:

		1	2	3	4	5	6	7
1	Customer care services							
2	Human resource processes							
3	Sourcing function							
4	The management information system							

2.2   Firm Competitiveness

2.2.1 Low cost of services

Using the scale of : 1 = Lowest, 2 = low, 3 = somewhat low, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

How do you rate the firm :

		1	2	3	4	5	6	7
1	Charging the lowest prices in the market?							
2	Leveraging on economies of scale?							
3	The firm targeting the mass market?							
4	To minimize the costs for service provision?							

2.2.2 Differentiation of services

By use of the scale of : 1 = none, 2 = very little, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

To what degree does:

		1	2	3	4	5	6	7
1	The services by your organization differ from similar services from other competing firms?							
2	Your organization use high quality inputs?							
3	Your organization charge premium prices for services offered?							
4	Your organization deploy state of the art technology?							

2.2.3 Focus

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please rate the degree to which your company is:

		1	2	3	4	5	6	7
1	Trying to serve the needs of unique group of customers as opposed to all customers in the market.							
2	Serving the total market for similar products and services.							
3	Trying to match prices with specific customer segments.							
4	Trying to customize different products and services to specific sets of customers.							

2.2.4 Quality of service

By use of the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please estimate the degree of the:

		1	2	3	4	5	6	7
1	Quality of service from your company, as compared to similar services from other companies.							
2	Relevance of the services provided by your company.							
3	Timeliness of the services provided by your company.							
4	Conformance of the services by your company to the market needs							

2.3   Firm Competence

2.3.1 Managerial Competence

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum and for education, Tertiary education = 2, 1st Degree = 5, 2nd Degree = 6 Phd = 7;

Please indicate the level of :

		1	2	3	4	5	6	7
1	Educational level of most managers.							
2	Decision making capability of the management.							
3	Experience possessed by most managers in your organization (if more than 6 years, indicate the maximum 7)							
4	Future orientation of management.							

2.3.2 Operational competence

By use of the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

For the firm, please rate the level of :

		1	2	3	4	5	6	7
1	Anticipation to the market needs.							
2	Client support.							
3	Quality of proposal development.							
4	Service delivery.							

2.3.3 Marketing Competence

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Estimate the ability level of the firm to:

		1	2	3	4	5	6	7
1	Identify market needs							
2	Design products and services to the selected markets.							
3	Deliver the selected services.							
4	Expand the market of the firm's services.							

2.3.4 After-sales Support

By using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

For the organization, please rate the quality level of:

		1	2	3	4	5	6	7
1	Customer care support.							
2	Customer care staff in your organization							
3	Customer feedback system.							
4	Handling of customer complaints.							

2.3.5 Financial Competence

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

How do you rate the ability level of your firm to:

		1	2	3	4	5	6	7
1	Raise project finance.							
2	Make advance payments.							
3	Command good will form customers							
4	Minimize cost overruns.							

2.4   Environmental Conditions

2.4.1 Government Laws and Regulations

By using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please estimate the magnitude of negative impact of :

		1	2	3	4	5	6	7
1	The laws governing the registration of businesses							
2	The laws governing competition of businesses							
3	Taxation law							
4	The regulations governing bidding for government contracts							

2.4.2 National Culture

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

What is the magnitude of the positive effect of the following practices on the business of your organizational:

		1	2	3	4	5	6	7
1	Corporate social responsibility (CSR)							
2	Gender balance of work opportunities							
3	Non-tolerance to corruption							
4	Organizational Integrity							

2.4.3 Industry Self Regulation

Using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

Please indicate the magnitude of positive impact of :

		1	2	3	4	5	6	7
1	The existing industry code of ethics							
2	Membership to Industry Association							
3	Conformity to the operating regulations in the industry							
4	Cooperation with other members in the industry							

2.4.4 Resource Availability

By using the scale of : 1 = none, 2 = very low, 3 = somewhat, 4 = medium, 5 = much, 6 = very high, 7 = maximum;

How do you rate the magnitude of availability of the following:

		1	2	3	4	5	6	7
1	Human resources							
2	Financial resources							
3	Equipment							
4	Raw materials							

APPENDIX 2 : LIST OF POPULATION

List of consultancy firms in Nairobi County, as at December 2013

Name
1. Acacia Consultants Ltd
2. Accenture Concepts
3. Adam Smith International Africa Ltd
4. Adaptive Management
5. Adrec Ltd
6. Advanced Innovations Ltd
7. Afre-Link Consultancy
8. Afri Salon Consultants Ltd
9. Afri-Universal Consulting Co Ltd
10. Afrotech Machinery Ltd
11. Aga Khan Foundation (First Microfinance Agency)
12. Agency for personal Services
13. Agricom Consultants Ltd
14. Agrilivestock Services bureau
15. Akiwa General Agencies
16. Algan Insurance Services Consultants
17. Alhas Consultants
18. Alison McCormick
19. Alliance Technologies
20. Allied Resource Partners
21. Amka Investment Management Ltd
22. Ampee Consultancy Services
23. Andrews Consultants
24. Animesh Deb Creative Consultants Ltd
25. Anthill Construction Co Ltd
26. Apex Africa Consulting Ltd
27. Appropriate Development Consultants Ltd
28. Arable Management Ltd
29. Asap Consultants Ltd
30. Ascendant Consulting Ltd
31. Asentric Consulting Ltd
32. Bark Properties Consultants
33. BASEPlan Associates
34. Batiment Consulting
35. Beldan Consultants Ltd
36. Bellway Gardens Ltd
37. Bemi Africa Consultants
38. Beneve Associates
39. Bess Associates Ltd (Development Consultants)
40. Betta
41. Bezalel Engineering Consultants Ltd
42. Bison consultants
43. Blue Eyes Limited
44. Bluenet Solutions Ltd
45. Bob Consultancy & Training Ltd
46. Bon Sante Consulting
47. Bonki Consultants
48. Bookman Consultants Ltd

Name
49. Brand Consultants Ltd
50. Breldan Consultants Ltd (1986)
51. Burnham Consultants Ltd
52. Business Consortium
53. Caldev International Ltd
54. Califonia Miramar University
55. Caroline Communications Ltd
56. Cecilla Consultants & Marketing Centrum Business Link
57. Chasmac Consulting Associates
58. Clovers Management and Training Consultants Ltd
59. Clovers Management Training Consultants Ltd .
60. Cobtrad Consultants
61. Coda Consulting Group Ltd
62. Community Organisation Consultants
63. Comprint Technologies
64. Cordi, Dr Donato
65. Cutea Regional Consultancy Ltd
66. Dal Sterling (Africa) Ltd
67. Daniels Consulting Services
68. Data Associates Consultants
69. Decisions Management Consultants
70. Decision Management Consulting
71. Deloitte Consulting Overseas projects
72. Development Alternative Inc.
73. Development Impact Consulting
74. Document Consulting Ltd
75. Dokal Consultants
76. Downs Consultants
77. Downing street Build Consultancy
78. Dunhill Consulting Ltd
79. E A Casino Consultants Ltd
80. E & d Consult
81. Ecobiz Management Ltd
82. Economatics Consultants Ltd
83. Ecosite Development Consultants Ltd
84. Ecotech Ltd
85. Elite Business Consultants
86. Ellies Business Consultants
87. Emjay Consultants
88. Environments Health & Safety (EHS) Management Consultants Ltd
89. Eridy Consultants (EA) Ltd
90. Esalia Secretariet
91. Essence International Limited
92. ETC East Africa Ltd
93. Everblue Environment Consultants Ltd
94. Extropica Consultants Ltd
95. Fibec Ltd
96. Fine Line Systems & Management Ltd
97. Foreign Movements Services

Name
98. Foresight Africa Ltd
99. Fotcom Consult Ltd
100. Future Force Consultancy
101. Gakumu Investments & Consultancy
102. Garfield Promotions Ltd
103. Gathara Partners
104. Gearr Consultants Ltd
105. Geecko Limited
106. Gibb Africa Ltd
107. Gilly Consultants
108. Global Training Institute
109. Gordon Melvin & Partners
110. Ground-Truth Consultants Ltd
111. Guiding Systems (G S) Consult Ltd
112. HACCP International Africa Ltd
113. Hans Mehr (EA) Ltd
114. Harun International Ltd
115. Health Media International
116. HFDC Rasi Grds,
117. Hipora Business Solutions EA Ltd
118. HOLISTIC Systems Ltd
119. Horizon Resources Ltd
120. Ibis Hospitality Consultants Ltd
121. Icon Sports Marketing Ltd
122. ICS Cooperation EA Ltd
123. Impact Consultants Ltd
124. Integrity Management Advisory Centre
125. Intellect Consulting Ltd
126. Inter Bill Consultants
127. Inter Data Ltd
128. Interconsult Engineers Ltd
129. Intermedia Development Consultants (CDC)
130. IPA Eat Africa Consultants
131. Irritech Ltd
132. Isis Agency Ltd
133. Ivory Consult Ltd
134. J B Agencies & Consultancy Services
135. J.M Dr. Mburu
136. J. Theuri Consultants
137. Jess Kim Consultants
138. Jemna Ltd
139. Josem Trust Co. Ltd
140. Josper Occupational Health & Safety Consultants Ltd
141. JSK Etiquette Consortium Ltd
142. Kamfor Co Ltd
143. Kaniu & Preiske Project Management
144. Kanpet Investors Economic Analysers Ltd
145. Karumasi Consultancy Ltd

Name
146. Kenface Enconsult Africa Ltd
147. Kenlogic Bismanage Consultants Ltd
148. Kenmon Enterprises
149. Kenya Liason & Sort Ltd
150. Kenya Organic Agriculture Network
151. Kimetrica
152. Kingfisher Consultants Ltd
153. Kite Consulting Services Ltd
154. Koala Information & Advice Centre
155. Koditex Consultants
156. Ktig Consulting
157. Kurrent Technologies Ltd
158. Lake Ways Estate Ltd
159. Lawrie Green Education – Kenya
160. Leadership Institute of Kenya
161. Macany Consultants Limited
162. Mak Consulting Engineers Ltd
163. Makimwa Consultants Ltd
164. Mancons Ltd
165. Marion Hopbs
166. Matrix development Consultants
167. Mawasiliano Africa Consultancy Ltd
168. Mbeu Consultants
169. Mckinney Rogers Africa
170. Mear Enviro Consult Ltd
171. Microsave Consulting Ltd
172. Mile Stone Wedding Consultancy
173. Millennium Global Education Services
174. Miradi Consultants
175. Mjaji Investments
176. Moir Counseling Agency
177. Mulusiah Land Consultants Ltd
178. Muriason & Associates
179. Musau, Dr Betty
180. Mwangi, Wachira George
181. N M Itotia & Co
182. Namba One Co.
183. Nestle Consultants
184. Newport Africa Risk and Security Management Services
185. Nexus Consulting Ltd
186. North Wind Consulting Ltd
187. Orgut Kenya Consultants
188. Outstanding Achievement Consultants
189. Partechs Solutions
190. Participatory Training Promotions Institute Ltd
191. Passnet Consultants Ltd
192. Pear Noble Consultants Ltd
193. Personal Development Center (Africa)
194. Pie Consultancy Ltd
195. Pinkfoot Consult

Name
196. Plateau Consultants Ltd
197. Polished Management Consultant
198. Ppd Consultants
199. Preamlink Services
200. Progressive Consultants
201. Prozy Auto Consultants
202. PwC
203. Pyramids Consultants
204. Quadz Consulting Limited
205. Quality Plus International Ltd
206. Quants Consult
207. Quintessential Consultants
208. Rational Construction Ltd
209. Real Options Consultings Co. Ltd
210. Regent Overseas Education Consultants
211. Research Triangle Africa
212. Resource Link Consultants
213. Resource Mobilization Centre
214. Rewarding Business Consultancy & Advisory Services
215. Reward Consultancy Services
216. Risk Management Initiative Ltd
217. Roughton International (K) Ltd
218. Safe & Healthy Work Environment Consultancy Kenya
219. Selwood Consultants
220. Sema Ltd
221. Shape Afrika Limited
222. Sherryton Consultancy Services
223. Shretton Consultancy Services
224. Shreyas Consultancy Ltd
225. SMG Consultants Ltd
226. Southlink Consultants Ltd
227. Sprint Consulting Ltd
228. Stan Business Consortium
229. Stellan Consults Ltd
230. Strategic & Consulting Ltd
231. Summation Consultants
232. Sunesis Consulting Ltd
233. Sustainable Agriculture T Consult
234. Swot Management Consultants
235. Taipan Consultant Ltd
236. Taiyo Enterprises Ltd
237. Taketen Consultants
238. Talent Africa Consultancy
239. Tas Consultancy
240. Task Agencies Ltd
241. Tech Analysis Consultants
242. Technandy C Consultancy
243. Terra Consultant Limited
244. Tertiary International Ltd

Name
245. Third World
246. Topnotch Consultants
247. Topridas Consultancy Services
248. Trade Watch Africa Ltd
249. Triline Agencies
250. True North Career Map
251. Uhundisi Communication Services
252. Umakant Associates
253. Umbrella Consultants
254. University of Nairobi Enterprises & Services Ltd (UNES)
255. Vas Consultants Ltd
256. Venture Property Investment Kenya
257. Vision Motor Consultants
258. Viva Africa Consulting LLP
259. Wage Consultants
260. Wajuzi Consultants Ltd
261. Wegs Consultants (K)Ltd
262. Wetlands Geo-Consult Ltd
263. Wilcon Consultants
264. Wwics Africa Ltd
265. Xerxus Consultants

APPENDIX 3 : FINAL DATA USED IN THE STATISTICAL ANALYSIS

Final Data used in the Statistical Analysis

(Where : Resp = Respondent, ITC = IT Capability, FC = Firm Competence, INSF = Environmental Conditions, Comp = Firm Competitiveness)

Firm	Background			ITC	FC	INSF	COMP	ITC			
No	Category	Location	Size					Sensing	Shaping	Seizing	Reconfiguration
1	1	1	1	5.76	5.11	5.03	5.53	5.73	5.73	5.48	5.73
2	3	1	2	3.10	3.95	4.13	4.07	2.78	4.16	2.71	2.67
3	1	3	1	5.74	5.65	4.17	6.07	5.38	5.38	5.96	5.89
4	1	2	1	6.33	5.58	5.50	6.40	5.48	5.96	6.74	6.58
5	1	1	1	5.59	5.50	4.72	5.67	4.36	5.69	5.60	6.07
6	9	5	2	5.63	4.41	4.43	4.55	5.18	5.86	5.48	5.72
7	9	5	1	6.02	5.50	4.88	5.44	6.00	5.73	6.48	5.84
8	7	1	2	2.42	3.73	3.51	4.61	2.00	2.21	2.71	2.63
9	2	1	1	3.94	4.76	4.64	4.24	4.36	4.92	2.83	3.52
10	9	5	1	5.14	5.13	4.37	5.23	4.73	4.95	5.23	5.56
11	1	1	1	4.46	4.55	4.30	4.83	4.43	4.23	3.94	4.54
12	2	2	3	3.66	5.95	5.99	4.20	4.16	2.78	2.21	4.73
13	2	5	2	5.81	5.48	5.73	5.93	6.48	5.23	6.00	5.86
14	9	2	1	6.05	5.37	5.63	5.07	5.96	6.48	5.60	5.91
15	1	5	1	4.30	4.93	4.17	4.92	4.40	3.08	4.47	4.47
16	2	4	1	4.17	4.27	4.64	4.43	3.22	4.47	5.38	3.94
17	3	5	3	4.07	4.95	4.06	4.16	1.41	3.98	5.42	5.14
18	9	5	1	5.16	5.24	4.35	4.79	4.95	4.95	6.48	4.20
19	7	5	2	6.13	5.02	4.59	4.57	6.48	6.24	6.00	6.36
20	2	3	1	6.87	6.84	4.07	6.41	7.00	6.74	7.00	6.87
21	9	5	2	5.54	4.98	4.06	3.61	4.82	6.48	5.29	5.21
22	1	5	1	6.81	6.33	4.99	5.88	7.00	6.74	7.00	7.00
23	2	1	3	2.96	3.26	3.73	2.81	2.99	2.83	3.31	2.33
24	9	1	2	3.40	4.78	3.48	4.04	2.63	3.56	3.66	3.36
25	3	1	1	6.07	3.72	4.65	4.59	5.96	6.19	5.86	6.18
26	5	1	3	3.39	5.30	5.06	4.40	2.21	3.94	6.19	2.85
27	1	4	1	6.43	6.73	5.61	5.86	7.00	5.66	7.00	6.71
28	2	1	2	3.75	4.37	3.65	2.57	1.86	3.56	4.73	4.06
29	3	1	1	4.53	5.19	4.13	4.87	3.46	5.18	3.46	4.64
30	3	1	2	6.07	6.09	4.38	6.12	6.24	6.24	6.00	6.12
31	5	1	1	3.57	4.15	3.49	3.65	2.38	2.63	4.36	3.44
32	1	5	1	5.73	6.06	4.84	5.25	5.73	4.16	6.74	5.96
33	1	5	3	3.19	3.86	3.65	3.61	1.73	2.21	4.56	3.43
34	2	5	1	5.34	6.08	3.51	5.31	4.36	6.48	5.00	4.94
35	9	5	3	4.76	4.43	3.93	2.34	3.83	4.82	5.48	4.75
36	3	5	3	4.66	4.28	5.42	4.27	5.48	3.76	5.73	4.09

37	2	1	1	5.47	5.65	4.66	5.10	5.00	5.69	5.63	4.97
38	1	1	1	3.84	4.55	4.16	3.94	3.36	2.21	3.66	4.25
39	4	1	1	5.27	5.23	6.06	5.30	6.19	4.95	5.69	4.88
40	1	5	1	6.04	6.16	4.79	6.05	5.44	6.00	7.00	5.52
41	1	1	1	5.76	5.19	5.12	5.65	5.73	5.73	5.23	5.84
42	3	1	2	3.25	4.25	4.31	3.85	3.66	4.16	2.71	2.81
43	1	3	1	5.74	5.65	4.84	6.07	5.38	5.38	5.96	5.89
44	1	2	1	6.24	5.44	5.35	6.25	5.48	5.96	6.44	6.58
45	4	1	1	5.54	5.32	4.77	5.55	4.36	5.69	5.60	5.96
46	9	5	2	5.49	4.50	4.43	4.70	5.18	5.86	5.48	5.52
47	9	5	2	6.10	5.42	4.73	5.38	6.00	5.73	6.48	5.96
48	2	1	1	2.37	3.67	3.91	4.56	2.00	2.21	2.71	2.50
49	2	1	1	3.89	4.71	4.59	4.17	4.36	4.92	2.63	3.42
50	9	5	1	5.03	5.00	4.23	5.07	4.16	4.95	5.23	5.56
51	1	1	1	4.38	4.48	4.11	4.77	4.43	4.23	3.94	4.41
52	2	2	3	3.55	5.88	5.80	4.02	3.46	2.78	2.21	4.73
53	2	5	2	5.52	5.43	5.67	5.86	6.48	5.23	6.00	5.38
54	6	2	1	5.94	5.32	5.56	5.00	5.96	6.48	5.60	5.91
55	9	5	1	4.26	4.88	4.00	4.85	4.40	3.08	4.47	4.47
56	9	4	1	4.14	4.22	4.22	4.35	3.22	4.47	5.18	3.94
57	9	5	3	3.95	4.89	4.00	4.10	1.19	3.98	5.42	5.14
58	9	5	1	5.12	5.19	4.40	4.62	4.73	4.95	6.48	4.20
59	7	5	2	6.08	4.97	4.29	4.52	6.48	6.24	6.00	6.36
60	2	3	1	6.82	6.79	4.12	6.35	7.00	6.74	7.00	6.87
61	9	5	2	5.49	4.81	4.00	3.71	4.56	6.48	5.29	5.21
62	9	5	1	6.73	6.22	4.86	5.78	6.74	6.74	7.00	7.00
63	1	1	3	2.88	3.20	4.10	2.77	2.99	2.83	3.31	2.21
64	9	1	2	3.27	4.68	3.77	3.99	2.63	3.56	3.66	3.08
65	2	1	1	6.00	3.63	4.56	4.55	5.96	6.19	5.63	6.18
66	5	1	3	3.29	5.18	5.01	4.29	2.21	3.94	6.19	2.75
67	1	4	1	6.35	6.67	5.50	5.74	7.00	5.45	7.00	6.71
68	2	1	2	3.71	4.26	3.81	2.46	1.86	3.56	4.73	4.06
69	3	1	1	4.47	5.14	4.07	4.82	3.46	4.95	3.46	4.64
70	3	1	2	5.99	6.04	4.40	6.05	6.24	6.24	6.00	6.00
71	1	1	1	3.55	4.12	4.25	3.59	2.38	2.63	4.36	3.44
72	1	5	1	5.65	6.01	4.80	5.20	5.73	4.16	6.74	5.84
73	9	5	3	3.15	3.81	3.56	3.54	1.73	2.21	4.56	3.43
74	2	5	1	5.27	6.04	4.43	5.26	4.36	6.48	5.00	4.84
75	2	5	3	4.67	4.38	3.84	2.24	3.83	4.82	5.48	4.66
76	8	5	3	4.62	4.24	5.27	4.21	5.48	3.76	5.73	4.09
77	2	1	1	5.39	5.60	4.60	5.03	5.00	5.69	5.38	4.97
78	1	1	2	3.81	4.51	4.12	3.89	3.36	2.21	3.66	4.25
79	5	1	1	5.23	5.19	6.00	5.17	5.96	4.95	5.69	4.88
80	1	5	1	6.01	6.11	4.73	5.99	5.44	6.00	7.00	5.52

81	5	1	1	5.84	5.24	5.19	5.70	5.73	5.73	5.48	5.84
82	4	1	2	3.25	4.25	4.31	3.85	3.66	4.16	2.71	2.81
83	8	3	1	5.77	5.75	4.02	6.13	5.38	5.38	5.96	5.89
84	6	2	1	6.29	5.49	5.45	6.31	5.73	5.96	6.44	6.58
85	4	1	1	5.58	5.38	4.84	5.62	4.56	5.69	5.60	5.96
86	9	5	2	5.54	4.50	4.54	4.91	5.18	5.86	5.48	5.68
87	8	5	2	6.13	5.47	4.78	5.43	6.00	5.73	6.48	6.07
88	2	1	1	2.48	3.71	2.95	4.61	2.51	2.21	2.71	2.50
89	2	1	1	3.93	4.84	4.71	4.23	4.68	4.92	2.63	3.42
90	9	5	1	5.08	5.04	4.29	5.13	4.40	4.95	5.23	5.56
91	1	1	1	4.43	4.53	4.17	4.83	4.43	4.47	3.94	4.41
92	2	2	3	3.55	5.88	5.80	4.02	3.46	2.78	2.21	4.73
93	2	5	2	5.56	5.52	5.79	5.92	6.48	5.23	6.00	5.38
94	9	2	1	6.00	5.38	5.64	5.13	5.96	6.48	5.60	6.07
95	3	5	1	4.28	4.92	4.06	4.92	4.40	3.08	4.47	4.47
96	3	4	1	4.23	4.31	4.52	4.40	3.22	4.47	5.18	3.94
97	1	5	3	4.13	4.96	4.07	4.18	1.57	3.98	5.42	5.14
98	9	5	1	5.12	5.19	4.29	4.62	4.73	4.95	6.48	4.20
99	7	5	2	6.04	4.93	4.06	4.47	6.19	6.24	6.00	6.36
100	6	3	1	6.78	6.74	3.63	6.29	7.00	6.74	6.74	6.87
101	9	5	2	5.53	4.86	4.05	3.87	4.56	6.48	5.29	5.21
102	9	5	1	6.68	6.11	4.81	5.71	6.74	6.48	7.00	7.00
103	3	1	3	2.93	3.23	3.93	2.84	3.31	2.83	3.31	2.21
104	2	1	2	3.30	4.73	3.58	4.03	2.63	3.56	3.66	3.08
105	9	1	1	6.05	3.67	4.67	4.59	5.96	6.19	5.63	6.18
106	1	1	3	3.39	5.23	5.10	4.43	2.45	3.94	6.19	2.85
107	1	4	1	6.27	6.62	5.31	5.68	6.74	5.45	7.00	6.58
108	2	1	2	3.78	4.32	3.65	2.52	2.06	3.56	4.73	4.06
109	3	1	1	4.51	5.20	4.21	4.90	3.46	5.23	3.46	4.64
110	3	1	2	5.94	5.98	3.79	5.98	6.24	6.24	5.73	6.00
111	1	1	1	3.61	4.18	3.61	3.65	2.63	2.63	4.36	3.44
112	1	5	1	5.69	6.06	4.85	5.29	6.00	4.16	6.74	5.84
113	9	5	3	3.20	3.86	3.67	3.64	1.73	2.45	4.56	3.43
114	1	5	1	5.32	6.04	4.36	5.33	4.36	6.48	5.00	4.98
115	3	5	3	4.64	4.45	3.93	2.34	3.66	4.82	5.48	4.66
116	7	5	3	4.67	4.28	5.34	4.27	5.48	3.98	5.73	4.09
117	2	1	1	5.47	5.65	4.60	5.16	5.00	6.19	5.38	4.97
118	1	1	2	3.87	4.56	3.80	4.06	3.36	2.45	3.66	4.25
119	1	1	1	5.27	5.23	6.07	5.23	5.96	4.95	5.69	4.88
120	1	5	1	5.97	6.06	4.37	5.92	5.44	6.00	7.00	5.52
121	5	1	1	5.87	5.33	5.24	5.76	5.96	5.73	5.48	5.84
122	4	1	2	3.28	4.30	4.37	3.98	3.66	4.16	2.71	2.81
123	8	3	1	5.74	5.70	4.28	6.07	5.38	5.38	5.96	5.89
124	2	2	1	6.24	5.44	5.34	6.24	5.48	5.96	6.44	6.58

125	4	1	1	5.62	5.44	5.00	5.70	4.74	5.69	5.60	5.96
126	3	5	2	5.58	4.54	4.63	5.04	5.42	5.86	5.48	5.68
127	2	5	2	6.17	5.51	4.85	5.48	6.00	5.73	6.48	6.07
128	2	1	1	2.60	3.75	3.08	4.67	3.16	2.21	2.71	2.50
129	2	1	1	3.96	4.89	4.86	4.41	4.90	4.92	2.63	3.42
130	9	5	1	5.12	5.08	4.37	5.19	4.61	4.95	5.23	5.56
131	1	1	1	4.47	4.58	4.23	4.99	4.68	4.47	3.94	4.41
132	2	2	3	3.58	5.93	5.86	4.06	3.66	2.78	2.21	4.73
133	2	5	2	5.52	5.46	5.72	5.85	6.48	5.23	5.73	5.38
134	9	2	1	5.96	5.34	5.58	5.08	5.73	6.48	5.60	6.07
135	7	5	1	4.24	4.88	4.03	4.86	4.16	3.08	4.47	4.47
136	1	4	1	4.28	4.40	4.22	4.45	3.46	4.47	5.18	3.94
137	2	5	3	4.20	5.01	4.15	4.25	1.73	3.98	5.42	5.14
138	9	5	1	5.09	5.14	4.24	4.56	4.73	4.95	6.48	4.20
139	7	5	2	5.99	4.89	4.09	4.41	6.19	6.24	6.00	6.36
140	6	3	1	6.74	6.68	3.58	6.23	6.74	6.74	6.74	6.87
141	9	5	2	5.49	4.82	4.12	3.83	4.36	6.48	5.29	5.21
142	9	5	1	6.64	6.07	4.76	5.66	6.74	6.24	7.00	7.00
143	3	1	3	2.96	3.28	3.75	2.97	3.50	2.83	3.31	2.21
144	2	1	2	3.33	4.79	3.55	4.08	2.78	3.56	3.66	3.08
145	9	1	1	6.11	3.80	4.79	4.92	5.96	6.19	5.96	6.18
146	5	1	3	3.43	5.27	5.16	4.51	2.63	3.94	6.19	2.85
147	1	4	1	6.23	6.57	5.26	5.63	6.74	5.45	7.00	6.58
148	2	1	2	3.89	4.39	3.70	2.59	2.45	3.56	4.73	4.06
149	3	1	1	4.56	5.26	4.25	4.97	3.72	5.23	3.46	4.64
150	3	1	2	5.90	5.93	4.15	5.91	5.96	6.24	5.73	6.00
151	7	1	1	3.67	4.24	3.70	3.72	2.63	2.91	4.36	3.44
152	1	5	1	5.65	6.01	4.81	5.24	6.00	4.16	6.74	5.84
153	9	5	3	3.24	3.90	3.73	3.69	1.86	2.45	4.56	3.43
154	2	5	1	5.37	6.08	4.06	5.39	4.36	6.48	5.00	5.12
155	1	5	3	4.69	4.51	4.01	2.39	3.94	4.82	5.48	4.66
156	9	5	3	4.70	4.33	5.46	4.36	5.69	3.98	5.73	4.09
157	2	1	1	5.51	5.70	4.65	5.22	5.00	6.19	5.38	5.09
158	1	1	2	3.91	4.68	3.97	4.19	3.56	2.45	3.66	4.25
159	2	1	1	5.23	5.19	6.01	5.12	5.96	4.73	5.69	4.88
160	1	5	1	6.01	6.11	4.08	5.99	5.69	6.00	7.00	5.52
161	5	1	1	5.87	5.29	5.30	5.82	5.96	5.73	5.48	5.84

Appendix 4 : Approval of Research Proposal

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: kubps@yahoo.com
dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 57530

Internal Memo

FROM: Dean, Graduate School

DATE: 17th September, 2014

TO: Mr. Joel Kipkirui Tanui
C/o Business Administration Dept.
Kenyatta University

REF:D86/CTY/PT/25172/11

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

We acknowledge the receipt of your revised Research Proposal as per recommendations raised by the Graduate School Board of 13th August, 2014.

You may now proceed with your Data collection, subject to clearance with the Principal Secretary, Higher Education, Science and Technology.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed supervision Tracking Forms per semester. The form has been developed to replace the progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you.

JOSEPHINE KENDI
FOR: DEAN, GRADUATE SCHOOL

c.c.   Chairman, Business Administration Dept.

Supervisors:

1. Dr. James M. Kilika
C/o School of Business
KENYATTA UNIVERSITY

2. Dr. George Mugambi M'Nchebere
School of Business & Economics
Moi University
C/o Business Administration Dept.

JK/cao

Appendix 5 : Letter of Introduction to Ministry of Education

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke

Website: www.ku.ac.ke

OUR REF: *D86/CTY/PT/25172/11*

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Date: 17th September, 2014

The Principal Secretary,
Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR MR. JOEL K. TANUI REG. NO. D86/CTY/PT/25172/11

I write to introduce Mr. **Tanui who** is a Postgraduate Student of this University. He is registered for Ph.D. Degree programme in the **Department of Business Administration in the School of Business.**

Mr. Tanui intends to conduct research for a proposal entitled, **IT Capability and Competitiveness of Consultancy Firms in Nairobi County, Kenya".**

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL

JK/cao

Appendix 6 : Authorization for Research by National Commission for Science, Technology and Innovation AND Nairobi County Commissioner

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Telephone: +254-20-2213471, 2241349, 310571, 2219420
Fax: +254-20-318245, 318249
Email: secretary@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9ᵗʰ Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No.

Date:
15ᵗʰ October, 2014

NACOSTI/P/14/1482/3536

Joel Kipkurui Tanui
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on *"IT capability and competitiveness of consultancy firms in Nairobi County, Kenya,"* I am pleased to inform you that you have been authorized to undertake research in **Nairobi County** for a period ending **31ˢᵗ December, 2014.**

You are advised to report to **the County Commissioner and the County Director of Education, Nairobi County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: SECRETARY/CEO

16 OCT 2014
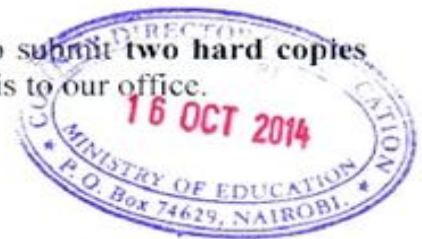
Copy to:

The County Commissioner
The County Director of Education
Nairobi County.

COUNTY COMMISSIONER
NAIROBI COUNTY
P. O. Box 30124-00100, NBI
TEL: 341666