TQM AND OPERATIONS MANAGEMENT TOOLS AS AGILITY
STRATEGIES USED BY FIRMS IN KENYAN DAIRY INDUSTRY

BY

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DECLARATION

This research project has been done by me and has never been submitted for exam in any college, University or any other institute of higher learning.

Signature…………………………… Date……………………………

Stephen Ababu Misiko
REG. D61/84228/2012

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

Signature……………………………..Date……………………………

Zipporah Kiruthu
SUPERVISOR:
DEDICATION

This work is dedicated to my beloved parents Andrew Misigo and Azybetter Mmbone who have always believed in me and encouraged me to follow my dreams, my daughter Sasha who has been a true inspiration to me and gave me reasons to carry on.
ACKNOWLEDGEMENT

I thank Almighty God for good health and for bringing me this far, His grace was sufficient.

I would also like to express my deepest appreciation to all those who provided me the possibility to complete this project. A special gratitude I give to my project supervisor, Mrs. Zipporah Kiruthu, my Moderator Dr. Njihia who pushed me to conquer what seemed impossible, fellow students whose contribution in stimulating suggestions and encouragement helped me to coordinate my project especially in writing this report.

Furthermore I would also like to acknowledge with much appreciation the crucial role of the staff New KCC, Brookside Dairies, Githunguri dairies, Sameer agriculture and livestock, Kinangop and Meru central dairies and Bio food products, who gave the permission to use all required resources to complete this project.
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<table>
<thead>
<tr>
<th>Abbreviation</th>
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<tr>
<td>AM</td>
<td>Agile manufacturing</td>
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<tr>
<td>ERP</td>
<td>Enterprise resource planning</td>
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<td>IS</td>
<td>Information Systems</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
</tr>
<tr>
<td>KCC</td>
<td>Kenya Co-operative Creameries</td>
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<tr>
<td>TQM</td>
<td>Total Quality Management</td>
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ABSTRACT

Globalization and rapid technological developments have contributed to uncertainty and unpredictability in all sectors which have emphasized the importance of the ability of an organization to adapt to unexpected changes, this has led to organizations adapting to the concept of agility. There is increasing recognition that agility is an imperative for success of contemporary firms as they face intense rivalry, globalization, and time-to-market pressures. Organizations are promoting information systems (IS), creativity and innovation and TQM as platforms that foster agility. Dairy industry in Kenya is characterized by severe competition and changes in business environment. This study sought to establish how dairy companies in Kenya utilize TQM and other operations management tools as strategies used to achieve agility. The study was conducted using a cross sectional research design; and entailed the use of quantitative techniques of data collection, data being obtained from the management staff of the selected dairy companies both in the processing, field and distribution departments. The study identified that to a large extent agile firms are resilient to shocks and upheavals in their business environments. It also found out that adoption of IT to a great extent enhances achievement of agility and helps firms in sharing knowledge and development skills in addressing their problems. It also indicates that creativity and innovation influences achievement of agility to a great extent. Dairy companies in Kenya were shown by the study to conduct rejuvenation of dormant brand and developed new business models to enhance their agility. The study concludes that Total Quality Management influences achievement of agility in dairy companies in Kenya to a great extent. Dairy companies employ TQM to enhance quality of their products, enhance employee participation in their companies and hence employee satisfaction and also to achieve enhanced performance effectiveness and efficiency. It also can be deduced that creativity and innovation contributes most to the agility followed by TQM and then IT adoption. The study established that IT is at the center stage of achieving agility. The study recommends that another study should be conducted covering manufacturing firms in Kenya to give a broader perspective and also identify aspects of agility that are specific to firms in certain industries within manufacturing industries.
CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Globalization and rapid technological developments have contributed to uncertainty and unpredictability in all sectors which have emphasized the importance of the ability of an organization to adapt to unexpected changes, therefore, organizations need to tailor their operations to cope with changes in the operating environment. This has lead to organizations adapting to the concept of agility. Organizations with adaptability as one of their main characteristics can survive and prosper in today’s environment. Reed and Blunsdon (2005) highlighted and suggested that organizational flexibility is an organization’s capacity to adjust its internal processes in response to changes in the environment. Similarly, Volberda (2006) indicated that a flexible organization emphasizes on its ability to adapt and respond to change.

According to Sambamurthy, Bharadwaj and Grover (2003) there is increasing recognition that agility is an imperative for success of contemporary firms as they face intense rivalry, globalization, and time-to-market pressures. Beneficial impacts of agility are increasingly acknowledged and more empirical support emerges on the link between agility and firm performance (Giachetti et al., 2003; Goldsby & Stank, 2000; Sharifi & Zhang, 2001; Vokurka, Zank & Lund, 2002). Organizational agility which represents the operational strategies by a firm to execute innovations and competitive moves with speed, surprise, and competitive disruption has attracted significant attention as a business capability for continued operation in the current business environments (Sambamurthy et al. 2003). Agile firms are resilient to shocks and upheavals in their business environments, adaptive to emerging opportunities, and
entrepreneurial in creating new business models or significant operational moves (Bharadwaj & Sambamurthy 2005).

1.1.1 Agility Strategies

Firms employ various agility strategies to adapt and survive in a dynamic business environment (McGrath, Keil & Tukiainen, 2006). Owing to the increasing uncertainty and unpredictability in the business environment, firms are focusing agility strategies to respond to demand changes in a flexible way (Goldsby and Stank 2000; van Hoek et al. 2001). Scholars in the field of information systems (IS) are promoting information technologies as platforms that foster agility by providing a superior information management capabilities, analytical decision support, and enhanced communication, firms are able to utilize information technologies in creating new business models (Weill & Vitale, 2002).

Hage and Dewar (2003) contend that business embraces creativity and innovation as an agility strategy. They indicated that new ideas continue to emerge with accelerated speed pushing old business culture to extinction and therefore to ensure survival, business have to align their products and services with present trends. According to Gunasekaran (2004), agile firms survives and prospers in a competitive environment of continuous and unpredictable change by reacting quickly and effectively to changing markets, driven by customer-defined products and services through creativity and innovation.

Further, Price and Gaskill (2002) highlighted that organizations use TQM as an agility strategy. Pfau (2005) highlighted that TQM functionally, is an integration of two basic functions, total quality control and quality management. Total quality control is a
long-term success strategy for organizations. Customer satisfaction, employee satisfaction, product quality assurance in all its stages, and continuous improvement and innovation, are the main ingredients of total quality control; whereas quality management is a way of planning, organizing and directing that will facilitate and integrate the capabilities of all employees for continuous improvement of anything and everything in an organization to attain excellence even in a dynamic business environment. Thus, TQM in an organization brings all the people together to ensure and improve product-process quality, the work environment and working culture. Price and Gaskill (2002) have identified three dimensions of TQM that include product and service dimension, people dimension and process dimension.

1.1.2 Dairy Industry in Kenya

The dairy industry in Kenya has been developing its dairy agricultural polices since 1950s. These policies tremendously enhanced the development of the dairy industry. The Dairy Industry Act was enacted in 1958 and it protected the liberalized dairy market. The Kenya Dairy Board was established in 1958 by an Act of Parliament, the Dairy Industry Act, Cap 336 of the laws of Kenya (Kenya Dairy Board, 2010). The Act protected the interests of large scale commercial dairy farming and also it enabled the marketing of dairy produce hence enhancing the quality. In the 1950s the dairy produce market was segregated into scheduled (urban or formal) and non-scheduled (rural or informal) categories with Kenya Co-operative Creameries (K.C.C) being appointed as the sole agent of Kenya Dairy Board to carry out the marketing of dairy produce in scheduled areas (Dairy Mail, 2008).

Kenya’s dairy industry is dynamic and plays an important economic and nutrition role in the lives of many people ranging from farmers to milk hawkers, processors, and
consumers. Kenya has one of the largest dairy industries in sub-Saharan Africa. Though the last livestock census was conducted in 1966, the current official cattle population statistics come from the Ministry of Livestock and Development, through its field reports compiled by extension officials. The official statistics place the number of milking cattle at 3.8 million (Government of Kenya, 2008).

There are several milk processors in Kenya; however, three key players dominate the market, New KCC, Githunguri Dairies and Brookside dairies. Ahead of the competition is Brookside Dairies. To increasingly remain ahead, Brookside Dairies acquired Molo Milk and Limuru Milk (Herbling, 2014). In 2010, Brookside merged with Spin Knit. The move by Brookside dairy was in order to compete with the giant New KCC (Sambu, 2010). This represents a strategic agility by the company to achieve and maintain competitiveness in the country. Other licensed milk traders include producers, mini dairies, cottage industries and cooling plants, whose number has been increasing and is now over 1 500. Processors handle more than 80 percent of the total milk and dairy products marketed through the licensed (formal) market channel.

1.2 Problem Statement

Tsourveloudis and Valavanis (2002) state that the problems that strike institutions today are not due to lack of efficiency of workers, but due to the administrative methods used which lack agile thinking, rapid changes and improvements. Sharifi, and Zhang, (2001) add that the attention of most organizations is focused on their concrete material resources and leave the concept of changing agility, despite its importance without the observance of the factors affecting them. Therefore, Sanchez
and Nagi, (2001) highlights the need of an organization to be agile in its operation to handle the uncertainty and unpredictability associated with operational environment.

In the context of milk companies in Kenya, they are faced with a myriad of challenges. For example, in the first 18 months of operations, the new KCC started off with a loss of Ksh 8 million. Boehljea, Roucan-Kaneb and Broring (2011), highlights that agribusinesses operate in highly volatile environment, both in production and market conditions. In 2010, hundreds of thousands of liters of milk went into drain as farmers delivered more milk to the processors than the industry could handle. This illustrates a lapse in TQM as the companies failed to anticipate rise in supply of milk. Also, this indicates lapse in agility for the milk industry players in Kenya to align themselves with changes in the industry. Considering the volatility of the industry in which these firms operate in, there is need for them to ensure that they are flexible enough to unanticipated changes in the industry. Christopher and Towill (2002), notes that only agile companies can survive the turbulence of business environment.

Further, the milk industry in Kenya is very competitive. In view of this competition there are various strategic moves that the organizations can employ to ensure that it enhances its performance in terms of production. For any organization facing similar challenges, it would be prudent to ensure enhanced product quality, employee training and development, product development and innovation and products diversification as part of an agility strategy. Such effort would be aimed at ensuring that the organization production is efficient and effective.

A number of studies have been done in areas of organization agility. Thao (2012) conducted a study on enterprise systems and organizational agility aimed at developing and exploring a causal model. Also, van Stekelenburg (2012) conducted a
study to explore organizational agility and the added value of human resources aimed at creating organizational agility by using individual competencies and organizational practices. In Kenya, Rajab (2011) did a study to establish the effects of information technology on supply chain agility in General Motors East Africa. However, despite this inquiry into the areas of organizational agility no study local or international has been done to investigate agility strategies used by firms in Kenyan dairy industry. This study sought to answer the following research questions; to what extent has the companies adopted IT to achieve agility? How has creativity and innovation been adopted in the companies to assist the company achieve agility? To what extent does the companies apply TQM to achieve agility?

1.3 Objectives of the Study

The study was aimed at achieving the following objectives;

i). To establish the influence of IT adoption on achievement of agility in Kenyan dairy industry.

ii). To find out the extent to which creativity and innovation are used to achieve agility in Kenyan dairy industry.

iii). To investigate the influence of TQM on achievement of agility in Kenyan dairy industry.

1.4 Value of the Study

The study would be important to the government through the relevant ministries and other stakeholders. This is because; the result of this study may be used by these stakeholders in policy formulation that would enhance firms operations in an agile
business environment. Therefore, the results of the study and its recommendation would act as guidelines to formulation of these policies.

The study results would important to all organization in that it will help describe an edge organization, which is characterized by decentralization, empowerment, shared awareness, and freely flowing knowledge required to push power for informed decision making and competent actions to the “edges” of the organization. Also, the management of firms in Kenyan dairy industry would benefit from this study in that implementation of the recommendations; the organization would remain relevant in its operations through aligning itself with changes in the milk industry.

Further, the study would contribute to the pool of knowledge in areas of operational strategies and organizational agility. Therefore, this study would be important to scholars and academicians, as it would form part of reference material in the areas mentioned. Also, the study identified gaps in literature for further studies which future scholars and academicians may seek to fill.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses what has previously been done in relation to organization agility. A detailed review of literature is presented on concepts related to IT, creativity and innovation, and TQM have also been examined.

2.2 Agility in organisations

Organizational agility has been defined as a firm’s ability to sense opportunities and threats and respond by assembling the needed organizational resources with rapidity (Overby et al., 2006; Sambamurthy et al., 2003). Agility, as a business concept, was coined in a manufacturing context – particularly in relation to flexible manufacturing systems (Christopher & Towill, 2002). Agile manufacturing (AM) is the ability of surviving and prospering in a dynamic environment of continuous and unpredictable change by reacting quickly and effectively to changing markets, driven by customer-defined products and services. Kidd (1994) defined agility as a rapid and proactive adaptation of enterprise elements to unexpected and unpredicted changes.

An agile manufacturing system has capabilities (hard and soft technologies, human resources, educated management, and information) to meet the rapidly changing needs of the marketplace (speed, flexibility, customers, competitors, suppliers, infrastructure, and responsiveness) ‘‘(Yusuf et al., 2003). Agility emphasizes the speed and flexibility as the primary attributes of an agile organization (Sharifi and Zhang, 2001; Yusuf et al., 2003). An equally important attribute of agility is the effective response to change and uncertainty (Kidd, 1994; Sharifi and Zhang, 2001).
Sharifi and Zhang (2001) state that responding to change in proper ways and exploiting and taking advantages of changes are the main factors of agility.

Yusuf, Sarhadi and Gunasekaran (2003) proposed that agility is the successful application of bases such as speed, flexibility, innovation, and quality by the means of the integration of reconfigurable resources and best practices of knowledge-rich environment to provide customer-driven products and services in a fast changing environment. Barney and Arikan (2001) note that organization agility helps to adapt new operational strategies that helping an organization remain afloat in turbulent environments.

2.3 Adoption of IT Systems

One of the reasons underlying the heightened attention to organizational agility is the growing sophistication of information technologies. As information technologies provide superior information management capabilities, analytical decision support, and enhanced communication, firms are able to utilize information technologies in creating new business models and competitive advantage (Weill & Vitale 2002). Sambamurthy et al. (2003) argue that information technology (IT) management capabilities provide a platform for firms to develop the appropriate digitized processes and knowledge systems that enhance their agility. Piccoli and Ives (2005) further propose that IT management capabilities are an important part of basis through which firms can launch and sustain competitive success through IT-dependent initiatives.

Sambamurthy et al. (2003) notes that IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes, flexibly alter their market
strategies, and thus respond more quickly to customers’ changing requirements thereby attaining competitive advantage. Information technologies should be viewed as digital options generators, because they have the potential to help firms develop high levels of operational capabilities for organizations. Many of the contemporary business processes are either innovated or reengineered through the functional capabilities of existing or emerging information technologies. However, the ability of firms to harness the power and functionality of information technologies depends on their ability to make appropriate decisions about the acquisition, implementation, and use of the appropriate technologies.

Bharadwaj (2000) notes that for firms to be competitive, their IT management capability should be such that the firms acquire, utilize, and manage information technologies in support of its business processes and activities adequately. Keen (2003) argues that with the same IT resources in an industry, the way that these IT resources are managed determine the competitive advantages or disadvantages of firms.

Earl (2000) noted that rapid adoption of IT have been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs that results. This has led to development of programs that will assist business achieve efficiency; this explains how ERP came to being. In advancing the capabilities that IT offers the customer service function, Quinn et al. (1990) argue that, with new technologies, executives can manage the strategic elements to achieve competitive advantage with minimum transaction costs thus reducing customers exit/turnover. Meuter et al. (2004) argue that customer’s interactions with innovative technologically intellect staff in any industry/sector affect their evaluations and
behaviors. Information technology can play an important role in leveraging productivity and efficiency in both public and private organizations. Advancement in technology, has built a platform on which ERP is built on to aid diverse business processes.

Business practices are now taking new forms and shapes owing to the increase technological advancement and change in consumers’ tastes and preferences as well as heightened competition. This has led to rapid advances in IT to link the activities of many enterprises into large networks, enabling widely dispersed organisations to cooperate via computer networks including the internet. These clusters or “digital enterprise communities” (Brown & Lockett, 2001, p. 56) not only change the way that firms interact; the basis on which business is conducted is also dramatically changed.

Regular risk monitoring provides management and the board with assurance that established control is functioning properly. Communication is an indispensable element of business processes which has greatly been improved since the adoption of ERP. Oke et al. (2007) identified that IT helps firms in sharing of knowledge and development of skills in addressing their problems; therefore, the adoption of IT comes in handy to enhance the very communication that business practices are based on. Therefore, the need to improve business processes has led to many firms to adopt IT systems in order to remain relevant and competitive in the environment they operate from.

2.4 Creativity and Innovation

Creativity and innovation represents a way of organization alignment with business environment to ensure that it remains relevant. This is therefore looked at by Hamel and Valikangas (2003) as adaptive agility. Adaptive agility refers to the ability to
launch competitive actions whose focus is on keeping pace with innovative industry practices or being resilient to changes in business environments. Adaptive agility includes resilience to the emerging threats in a firm’s business environment, whereby a firm is able to take actions to defend its competitive positions (Hamel & Valikangas 2003). Firms that continually launch creative and innovative actions in the form of pricing, product development, promotion changes, or new business models outperform those that launch few competitive moves (Smith et al. 2001). According to Helfat and Peteraf (2003) adoption of IT ensures that organizations achieve the operational goals of speed, quality, cost, and effectiveness in managing interactions with customers, suppliers, and other important stakeholders.

Business today has become challenging due to dynamics in business environment pushing business to be creative and innovative. There are a number of reasons that can make a firm experience declining profits including economic recessions, production inefficiencies and innovative break-through by competitors. In many cases, strategic managers believe that such a firm can survive and eventually recover if a concerted effort is made over a period of a few years to fortify its distinctive competencies through various strategies among them brand rejuvenation strategy (Pearce & Robinson, 2005). Rejuvenation of dormant brand can be a highly profitable strategy under the right circumstances. The brand, among all other strategic variables related to products, provides the strongest differentiation tool and often represents the consumer’s determining element of consumer choice (Docters, 2003).

Cook (2008) indicated that creativity is an element of competitive advantage for organizations. The strive by organizations to be competitive, has led to organization agility to remain relevant. Therefore, organization keeps introducing new products in
the market aligned with market needs. The most profitable new products will be those that meet the customer needs more effectively than the competitor’s products, and are therefore preferred by more customers (Mc Adam & McClelland, 2000). Innovation and creativity benefit companies beyond direct sales growth or efficiency improvements. A company that establishes an effective creativity and innovation process is also likely to realize social benefits that arise from team working and employee motivation (Cook, 2008). Majaro (2003) looks at innovation as a process where ideas are generated and transformed for implementation to business products and services. Creativity is seen as the front end of the innovation process. Innovation typically occurs through four stages, viz. idea generation, screening, feasibility and implementation. However, Andreopoulos (2001) notes that there are five factors of an organization that affect organizational creativity; organizational climate, leadership style, organizational culture, resources and skills, and structure and systems.

Shapiro (2002) asserts that agile business emphasizes on interdependence through collaboration, innovation and integration; this therefore underscores the importance of creativity and innovation in a dynamic business environment. Creativity and innovation are important factors in organizations and organizational leaders because much of today’s competitive marketplace demands ever-increasing value to customers, which translates to lowest total cost, highest total quality, fastest total cycle time, and highest total overall customer satisfaction (Atkins, Dykes, Hagerty & Hoye, 2002). Smith and Munn, (2006) predict that future success globally will be achieved only by driving down costs as well as improving operating efficiencies. Smith and Munn are content that creativity is what it will take to do so. Shapiro (2002) agrees that today’s business world thrives on creativity and innovation in a
climate of uncertainty, volatility, and continuous change. As more organizations vie for significance in the global marketplace, creativity and innovation have become the most important factors in establishing and maintaining a competitive advantage (Meisinger, 2007).

2.5 Total Quality Management (TQM)

Quality gurus like Joseph Juran (1950’s); Edward Deming (1950’s) and Philip Crosby (1980’s) have put forth several approaches to improve company performance. They therefore came up with Total Quality Management (TQM) which is their approaches all embodied in a set of quality management practices. On this account, Wiklund, Klefsjö, Wiklund and Edvardsson (2003) indicated that different approaches have been adopted for the introduction of quality management in organizations, such as self-assessment and external assessment of the institutions, accreditation and certification systems, and different models of TQM. All this is aimed at achieving enhanced organizational performance and therefore achieve competiveness in a changing environment.

Firms in a changing environment can use TQM to differentiate themselves from rivals. According to Lagrosen (2002), TQM as a management approach of an organization is centered on quality, based on the participation of all its members and aiming at long term success. This is achieved through customer satisfaction and benefits to all members of the organization and to society. In other words, TQM is a philosophy for managing an organization in a way, which enables it to meet stakeholders’ needs and expectations efficiently and effectively without compromising ethical values. TQM has been widely implemented throughout the world in organization seeking greater performance.
According to Goldberg and Cole, (2002) Total Quality Management (TQM) offers organizations a strategic option and an integrated management philosophy, to enable them reach their objectives effectively and efficiently, and to achieve sustainable competitive advantage. While Cua, McKone and Schroeder, (2004), highlights that TQM is generally described as a collective, interlinked system of quality management practices that are associated with organizational performance, Kaynak (2003) underlined the importance of causal relations between quality management practices. However, Kirk, (2003), indicates implementation of Total Quality Management Practices is an uphill task and therefore it is hard to achieve expected benefits. However, Kirk, (2003) notes that despite this, firms operating in today’s dynamic business environment, needs to be highly adaptive to ensure quality to all stakeholder. Therefore, firms have to employ all resources to implement TQM to achieve this goal.

According to Yang (2005), total quality management has positive impact on facilitating solving problem and decision-making process. TQM also has an important role in continuous improvement of organization to beat competition. Total quality management is a management integrative system for developing the quality of services and goods by means of the take part of all purposes and levels. Every person has a determining role in the production of quality services and goods. In another study, as cited by Wilson et al, (2000) total quality management is an organization method for creating arrangement wide take part in scheming and creating a continuous improvement action that joins and increases customer requirements (Kumar et al, 2009).

Dale (2003) notes that for an organization to be termed as agile, it needs to employ TQM. Dale notes that TQM approach involves ensures quality in all aspects of an
organization and therefore an important ingredient for achievement of competitive advantage. The achievement of the highest level of quality involves the application of quality management principles to all aspects of organization, including suppliers, customers and their integration with the key business process. According to Dale (2003), the key elements of TQM are commitment and leadership of the chief executive officer, planning and organization, use of tools and techniques, education and training, involvement, teamwork, measurement and feedback and ensuring that the culture is conducive to continuous improvement activity.

According to Dale, Zairi, Van der Wiele, and Williams (2000), the benefits of TQM are improved quality, employee participation, teamwork, working relationship, customer satisfaction, employee satisfaction, productivity, communication, profitability, and market share. TQM cannot only help organization to increase customer satisfaction but also help firms to form an effective culture (Rad, 2006). Therefore, an organization needs to employ TQM to achieve and maintain competitive advantage in today’s ever-changing business environment.

2.6 Conceptual Framework

Independent Variables

| Adoption IT systems | Creativity and Innovation | Total Quality Management |

Dependent Variables

Agility
2.6.1 Description of Variables

Agility

Overby et al., (2006) indicates that agility is firm’s ability to sense opportunities and threats and respond by assembling the needed organizational resources rapidly. An agile manufacturing system has capabilities (hard and soft technologies, human resources, educated management, and information) to meet the rapidly changing needs of the marketplace (speed, flexibility, customers, competitors, suppliers, infrastructure, and responsiveness) ‘‘(Yusuf et al., 2003). Therefore, for an organization to achieve and maintain agility it need to some operational strategies that are relevant to the organization’s operating environment.

Adoption IT systems

As noted by Weill and Vitale (2002) information technologies provide superior information management capabilities, analytical decision support, and enhanced communication, therefore, firms are able to receive analyze and processes information with speed and therefore aid their fast responsiveness. Therefore, IT adoption is a key-driving element of organization agility. This is more so as agility emphasizes the speed and flexibility as the primary attributes of an agile organization (Sharifi and Zhang, 2001; Yusuf et al., 2003).

Creativity and Innovation

In an agile business environment, pricing, product development, promotion changes, or new business models are rapidly changing. Therefore, to achieve agility creativity and innovation is key to come up with new operating technologies and new products to counter the once with competitors. The strive by organizations to be competitive and agile, has lead organization to embrace innovation to remain relevant. Therefore,
creativity and innovation are equally important attribute of agility is the effective response to change and uncertainty (Kidd, 1994; Sharifi and Zhang, 2001).

**Total Quality Management**

Quality has remained one of the strong points for companies that have excelled in business. TQM allows an organization to be managed in a way, which enables it to meet stakeholders’ needs and expectations efficiently and effectively without compromising ethical values. TQM when effective achieves an edge for an organization. TQM would mean that a firm is in a continuous improvement mode to ensure that changes in business environment are taken up in business operations and product development. Therefore, TQM represents a major element of consideration in firm’s agility.
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out various stages and phases that were followed in completing the study. It involved a blueprint for the collection, measurement and analysis of data. This section is an overall scheme, plan or structure conceived to aid the researcher in answering the raised research questions.

3.2 Research Design

This study used cross sectional research design. This was because; the study took a cross section of firms in dairy industry. This approach was been credited due to the fact that it allows analyzing the relations between variables under study using linear regression as long as the sampling units for the study are many. It also allows greater flexibility in terms of money and time as well as avoiding the hardship of hunting for respondents more than once to produce high response rate.

3.3 Target Population

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well defined or set of people, services, elements, events, group of things or households that are being investigated. The target population for this study was the employees in select milk companies in Kenya (New KCC, Githunguri Dairy, Brookside Dairies, Sameer Agriculture and Livestock Limited, Kinangop Dairies, Meru Central Dairy Cooperative Union and Bio Food Products ltd). The study population was Field, Processing and Distribution
supervisors in the seven (7) companies who are 402 in number. The distribution of staff in the three companies was as follows:

**Table 3.1: Target Population**

<table>
<thead>
<tr>
<th></th>
<th>Field</th>
<th>Processing</th>
<th>Distribution</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>New KCC</td>
<td>15</td>
<td>45</td>
<td>35</td>
<td>95</td>
</tr>
<tr>
<td>Brookside Dairies</td>
<td>24</td>
<td>57</td>
<td>79</td>
<td>160</td>
</tr>
<tr>
<td>Githunguri Dairy</td>
<td>8</td>
<td>12</td>
<td>23</td>
<td>43</td>
</tr>
<tr>
<td>Sameer Agriculture and Livestock Limited</td>
<td>14</td>
<td>9</td>
<td>17</td>
<td>40</td>
</tr>
<tr>
<td>Kinangop Dairies</td>
<td>4</td>
<td>7</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>Meru Central Dairy Cooperative Union</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>19</td>
</tr>
<tr>
<td>Bio Food Products Ltd</td>
<td>3</td>
<td>7</td>
<td>13</td>
<td>23</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>402</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
</tr>
</tbody>
</table>

**3.4 Sample Design**

The study used simple random sampling to select a study sample. In random sampling, each item or element of the population has an equal chance of being chosen. A sample of 20% of supervisors from each company was selected to form studies sample. This resulted to a sample size of 81 respondents. Statistically, in order for generalization to take place, a sample of at least 30 must exist (Cooper and Schindler, 2003). Moreover, larger sample minimize errors. Kotler et al. (2001) argues that if well chosen, samples of about 10% of a population can often give good reliability. Therefore, a sample size of 81, which was 20% of the total population, was adequate for the study.
Table 3.2: Sample Size

<table>
<thead>
<tr>
<th>Companies</th>
<th>Population</th>
<th>Sample Ratio</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>New KCC</td>
<td>95</td>
<td>0.2</td>
<td>19</td>
</tr>
<tr>
<td>Brookside Dairies</td>
<td>160</td>
<td>0.2</td>
<td>32</td>
</tr>
<tr>
<td>Githunguri Dairy</td>
<td>43</td>
<td>0.2</td>
<td>9</td>
</tr>
<tr>
<td>Sameer Agriculture and Livestock Limited</td>
<td>40</td>
<td>0.2</td>
<td>8</td>
</tr>
<tr>
<td>Kinangop Dairies</td>
<td>22</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>Meru Central Dairy Cooperative Union</td>
<td>19</td>
<td>0.2</td>
<td>4</td>
</tr>
<tr>
<td>Bio Food Products ltd</td>
<td>23</td>
<td>0.2</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>402</strong></td>
<td><strong>0.2</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>

Source: Researcher, 2014

3.5 Data Collection Procedures and Instruments

The study utilized both primary and secondary data. Primary data was gathered through questionnaires, while secondary data was obtained from published documents or materials such as journals, periodicals, magazines and reports obtained from the company and government reports. These supplemented the primary data received from questionnaires.

This study utilized a questionnaire with both structured and unstructured questions to collect primary data. The study considered questionnaires for they have advantages over other types of research instruments in that they are cheap, do not require as much effort from the questioner as verbal or telephone surveys and often have standardized
answers that make it simple to compile data. The questionnaire designed in this study was devoted to the identification of agility strategies used by firms in dairy industry.

3.6 Data Analysis and Reporting

After data collection data analysis was done. The quantitative data in this research was analyzed by descriptive and inferential statistics using statistical package for social sciences (SPPS) version 20. Descriptive statistics includes mean, frequency, standard deviation and percentages to profile sample characteristics and major patterns emerging from the data. Data was presented in tables, charts and graphs. In addition, a multivariate regression model was applied to determine the relative importance of each of the four variables with respect to agility. The regression model was as follows:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \]

**Where:** $Y =$ Agility; $\beta_0 =$ Constant Term; $\beta_1 =$ Beta coefficients; $X_1 =$ Adoption of IT; $X_2 =$ Creativity and innovation; $X_3 =$ TQM; and $\varepsilon =$ Error Term
CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the information processed from the data collected during the study on the agility strategies used by firms in Kenyan Dairy Industry taking a case of select milk processors in Kenya. The study was conducted in New KCC, Githunguri Dairy, Brookside Dairies, Sameer Agriculture and Livestock Limited, Kinangop Dairies, Meru Central Dairy Cooperative Union and Bio Food Products Ltd. Field, Processing and Distribution supervisors were the target group for the study. The study gave out 81 questionnaires to the respondents, however only 76 were returned duly filled in. This represented a response rate of 93.8%. This response rate was adequate for data analysis and conforms to Mugenda and Mugenda (2003) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

4.2 Organization Agility

Table 4.1: Organization Agility

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization flexibility influences its success in continually seizing competitive</td>
<td>4.0424</td>
<td>0.96825</td>
</tr>
<tr>
<td>opportunities for enhanced performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability of organization to adapt to unexpected changes is critical in achieving and</td>
<td>4.2763</td>
<td>0.74352</td>
</tr>
<tr>
<td>maintaining enhanced performance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational responsiveness to changes serves to avert risks</td>
<td>4.2346</td>
<td>0.70844</td>
</tr>
</tbody>
</table>
Agile organization executes innovations and take competitive moves with speed, surprise to disrupt competition  

Agile firms are resilient to shocks and upheavals in their business environments.  

Agile firms are keen in creating new business models and significant competitive moves  

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agile organization executes innovations and take competitive moves with speed, surprise to disrupt competition</td>
<td>4.1363</td>
<td>0.76871</td>
</tr>
<tr>
<td>Agile firms are resilient to shocks and upheavals in their business environments.</td>
<td>4.4242</td>
<td>0.70844</td>
</tr>
<tr>
<td>Agile firms are keen in creating new business models and significant competitive moves</td>
<td>4.1818</td>
<td>0.76871</td>
</tr>
</tbody>
</table>

The respondents were required by the study to indicate their level of agreement with the above statement that relate to organization agility. According to the study findings, majority of the respondents strongly agreed with statements that agile firms are resilient to shocks and upheavals in their business environments as shown by a mean score of 4.4242, that ability of organization to adapt to unexpected changes is critical in achieving and maintaining enhanced performance as shown by a means core of 4.2763 and that organizational responsiveness to changes serves to avert risks as shown by a means core of 4.2346. Further, the respondents were in agreement with statements that agile firms are keen in creating new business models and significant competitive moves as shown by a means core of 4.1818, that agile organization executes innovations and take competitive moves with speed, surprise to disrupt competition as shown by a means core of 4.1363 and that organization flexibility influences its success in continually seizing competitive opportunities for enhanced performance as shown by a means core of 4.0424.
4.3 IT adoption and Agility

Figure 4.1: Extent IT systems has enhanced achievement of agility

The study also aimed at establishing the extent to which IT systems in the dairy company has enhanced achievement of agility. According to Figure 4.1, majority of the respondent (51.2%) indicated that IT systems has enhanced achievement of agility in the dairy company to a great extent, 19.5% to a very great extent, 14.6% to moderate extent, and 9.8% and 4.9% said that IT systems has enhanced achievement of agility in the dairy company to a little extent and to no extent respectively. It therefore depicts that IT systems has enhanced achievement of agility in the dairy company to a great extent.

Table 4.2: IT adoption and Organizational Agility

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information technologies provide superior information management capabilities, analytical decision support, and enhanced communication for achievement of agility</td>
<td>4.1515</td>
<td>0.71244</td>
</tr>
<tr>
<td>Organizations also promote information systems (IS) as platforms that foster agility by helping achieve time reductions</td>
<td>4.0303</td>
<td>0.95147</td>
</tr>
</tbody>
</table>
and quality enhancements in product design and development

<table>
<thead>
<tr>
<th>Statements</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating communication necessary to coordinate work activities for enhanced agility.</td>
<td>4.2142</td>
<td>0.70844</td>
</tr>
<tr>
<td>IT management capabilities are an important part of basis through which firms can launch and sustain agility</td>
<td>4.1918</td>
<td>0.76871</td>
</tr>
<tr>
<td>IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes</td>
<td>4.2515</td>
<td>0.71244</td>
</tr>
<tr>
<td>IT have been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs</td>
<td>3.8342</td>
<td>0.22622</td>
</tr>
<tr>
<td>IT helps firms in sharing of knowledge and development of skills in addressing their problems</td>
<td>4.3547</td>
<td>0.43863</td>
</tr>
</tbody>
</table>

The study also sought to establish the respondents’ level of agreement with above statements that relate to IT adoption and organizational agility. The data findings are as presented on Table 4.2 above. The respondents strongly agreed with the statements that IT helps firms in sharing of knowledge and development of skills in addressing their problems as indicated by a mean score of 4.3547, that IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes as indicated by a mean score of 4.2515 and that IT facilitates communication necessary to coordinate work activities for enhanced agility as indicated by a mean score of 4.2142. Further, the study indicates that the respondents were in agreement with statements that IT management capabilities are an important part of basis through which firms can
launch and sustain agility as indicated by a mean score of 4.1918 and that information technologies provide superior information management capabilities, analytical decision support, and enhanced communication for achievement of agility as indicated by a mean score of 4.1515. Further, the study indicates that majority of the respondents were in agreement with statements that their organizations also promote information systems (IS) as platforms that foster agility by helping achieve time reductions and quality enhancements in product design and development as indicated by a mean score of 4.0303 and that IT have been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs as indicated by a mean score of 3.8342

4.4 Creativity and Innovation

![Pie chart showing responses to whether creativity and innovation influence achievement of agility](image)

**Figure 4.2: Whether creativity and innovation influences achievement of agility**

The study aimed at establishing from the respondents whether creativity and innovation in their organization influenced achievement of agility. According to the Figure 4.2, majority of the respondents, 75% said that creativity and innovation influences achievement of agility while the rest 15.8% indicated that it does not. It therefore shows that creativity and innovation influences achievement of agility.
On the extent creativity and innovation influences achievement of agility, the Figure 4.3 presents the findings. Most of the respondent (46%) indicated that creativity and innovation influences achievement of agility to a great extent, 37% to a very great extent, 10% to moderate extent, and 7% said that creativity and innovation influences achievement of agility in the dairy industry to a little extent. This therefore indicated that creativity and innovation influences achievement of agility in the dairy industry.

Table 4.3: Creativity and Innovation Action taken by Dairy Companies

<table>
<thead>
<tr>
<th>Action</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rejuvenation of dormant brand</td>
<td>4.2562</td>
<td>0.68223</td>
</tr>
<tr>
<td>Adoption of IT</td>
<td>3.9635</td>
<td>0.65337</td>
</tr>
<tr>
<td>Development of new business models</td>
<td>4.2346</td>
<td>0.70844</td>
</tr>
<tr>
<td>Enhanced product promotion</td>
<td>4.1363</td>
<td>0.76871</td>
</tr>
<tr>
<td>New product development (brand proliferation)</td>
<td>4.3464</td>
<td>0.71244</td>
</tr>
<tr>
<td>Creative pricing of products</td>
<td>4.2167</td>
<td>0.86001</td>
</tr>
</tbody>
</table>

The respondents were required by the study to indicate their level of agreement with the above statement that relate to creativity and innovation action as taken by the dairy company to achieve agility. The data findings are as presented on table 4.3 above. Majority of the respondents strongly agreed that their companies conducted
rejuvenation of dormant brand as shown by a mean score of 4.2562 and that developed new business models as shown by a mean score of 4.2346. Further, the respondents strongly agreed that their companies conducted research to develop new product (brand proliferation) as shown by a mean score of 4.3464 and that they used creative pricing of products as shown by a mean score of 4.2167. Also, the respondents were also agreed that their companies enhanced product promotion as shown by a mean score of 4.1363 and adopted IT as a creativity and innovation action to achieve agility as shown by a mean score of 3.9635.

### 4.4 Total Quality Management

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>65</td>
</tr>
<tr>
<td>NO</td>
<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>76</td>
</tr>
</tbody>
</table>

The study also sought to find out whether the dairy companies have implemented Total Quality Management. According to table 4.4 above, the study indicated that majority of the respondents (85.5%) said that their companies had implemented Total Quality Management while the rest (14.5%) indicated that their companies had not. This therefore depicts that dairy companies in Kenya have implemented Total Quality Management.
On the extent Total Quality Management influences achievement of agility in the dairy companies, Figure 4.4 presents the data findings. According to the figure, most of the respondents (51.2%) felt that Total Quality Management influences achievement of agility to a great extent, 29.3% to a very great extent, 12.2% to moderate extent, and 7.3% and 2.4% felt that Total Quality Management influences achievement of agility in dairy industry to a little extent and to no extent respectively. This depicts therefore that Total Quality Management in dairy industry influences achievement of agility to a great extent.

**Table 4.5: Total Quality Management and Agility**

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean</th>
<th>Std. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>The company employs TQM enhance quality of its products</td>
<td>4.397</td>
<td>0.78321</td>
</tr>
<tr>
<td>TQM implementation at has enhanced performance effectiveness and efficiency</td>
<td>4.327</td>
<td>0.52073</td>
</tr>
<tr>
<td>TQM has helped the company to meet customer</td>
<td>4.129</td>
<td>1.3548</td>
</tr>
</tbody>
</table>
TQM has enhanced employee participation, therefore employee satisfaction and hence enhanced performance

TQM has enhances teamwork for increased performance

TQM has enhanced customer satisfaction

TQM has improved employees working relationship and hence increased performance

<table>
<thead>
<tr>
<th></th>
<th>Mean Score</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TQM has enhanced employee participation, therefore employee satisfaction and hence enhanced performance</td>
<td>4.3963</td>
<td>.82321</td>
</tr>
<tr>
<td>TQM has enhances teamwork for increased performance</td>
<td>3.8452</td>
<td>0.92132</td>
</tr>
<tr>
<td>TQM has enhanced customer satisfaction</td>
<td>4.1093</td>
<td>1.00231</td>
</tr>
<tr>
<td>TQM has improved employees working relationship and hence increased performance</td>
<td>4.2491</td>
<td>0.72614</td>
</tr>
</tbody>
</table>

The study also sought to establish the respondents’ level of agreement with above statements that relate to Total Quality Management and agility. Majority of the respondents strongly agreed that their companies employs TQM to enhance quality of its products as shown by a mean score of 4.3997 and that TQM has enhanced employee participation in their companies, therefore employee satisfaction and hence enhanced performance as shown by a mean score of 4.3963. Also, they strongly agreed that TQM implementation at has enhanced performance effectiveness and efficiency in the dairy companies as shown by a mean score of 4.3276 and that TQM has improved employees working relationship and hence increased employees performance as shown by a mean score of 4.2491. Further, the respondents were in agreement with statements that TQM helped their company to meet customer requirements as shown by a mean score of 4.1293, that TQM has enhanced customer satisfaction as shown by a mean score of 4.1093 and that TQM has enhances teamwork for increased performance in the dairy industry as shown by a mean score of 3.8452.
4.5 Regression analysis

A multiple regression analysis was conducted in this study so as to test relationship among variables (independent) on achievement of agility. The research used statistical package for social sciences (SPSS Version 20) to code, enter and compute the measurements of the multiple regressions.

Coefficient of determination explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (achievement of agility) that is explained by all the three independent variables (adoption of IT, creativity and innovation and implementation of TQM).

4.5.1 Model summary

Table 4.6: Model summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.916</td>
<td>0.839</td>
<td>0.744</td>
<td>0.4436</td>
</tr>
</tbody>
</table>

The three independent variables that were studied, explain only 83.9% of the agility strategies used by firms in Kenyan dairy industry as represented by the $R^2$. This therefore means that other factors not studied in this research contribute 16.1% of the agility strategies used by firms in Kenyan Dairy Industry. Therefore, further research should be conducted to investigate the other strategies (16.1%) employed by firms in Kenyan Dairy Industry.
4.5.2 ANOVA results

Table 4.7: ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>2.534</td>
<td>3</td>
<td>1.267</td>
<td>7.563</td>
<td>.0236</td>
</tr>
<tr>
<td>Residual</td>
<td>9.307</td>
<td>72</td>
<td>2.327</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3.465</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The significance value is 0.0236 which is less that 0.05 thus the model is statistically significant in predicting how adoption of IT, creativity and innovation and implementation of TQM influences achievement of agility in dairy industry. The F critical at 5% level of significance was 3.482. Since F calculated is greater than the F critical (value = 7.563), this shows that the overall model was significant.

4.5.3 Coefficient of determination

Table 4.8: Coefficient of determination

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>1.157</td>
<td>1.335</td>
</tr>
<tr>
<td>Adoption of IT</td>
<td>0.797</td>
<td>0.213</td>
</tr>
<tr>
<td>Creativity and innovation</td>
<td>0.897</td>
<td>0.241</td>
</tr>
<tr>
<td>Implementation of TQM</td>
<td>0.843</td>
<td>0.215</td>
</tr>
</tbody>
</table>

Multiple regression analysis was conducted as to determine the relationship between the three independent variables and achievement of agility in the dairy industry in
Kenya. As per the SPSS generated table above, the equation \((Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \varepsilon)\) becomes:

\[ Y = 1.157 + 0.797X_1 + 0.897X_2 + 0.843X_3 \]

The regression equation above has established that taking all factors into account (adoption of IT, creativity and innovation and implementation of TQM) constant at zero, attainment of agility will be 1.157. The findings presented also shows that taking all other independent variables at zero, a unit increase in adoption of IT will lead to a 0.797 increase in organizational agility while a unit increase in creativity and innovation will lead to a 0.897 increase in organizational agility and a unit increase in implementation of TQM will lead to 0.843 increases in organizational agility. This infers that creativity and innovation contribute most to attainment of organization agility followed by implementation of TQM. At 5% level of significance and 95% confidence interval, adoption of IT had a 0.0142 level of significance, creativity and innovation showed a 0.0109 level of significance and implementation of TQM showed a 0.0131 level of significance; hence the most significant factor is creativity and innovation.

4.6 Discussion

The study found out that IT helps firms in sharing of knowledge and development of skills in addressing their problems and that IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes. These findings are in line with Sambamurthy et al. (2003) who noted that IT applications, such as Internet computing, customer relationship management, enterprise resource planning,
and supply chain management, allow firms to rapidly detect changes, flexibly alter their market strategies, and thus respond more quickly to customers’ changing requirements thereby attaining competitive advantage. Also, IT facilitates communication necessary to coordinate work activities for enhanced agility. This finding is in line with Weill and Vitale (2002) who indicated that information technologies provide superior information management capabilities; analytical decision support, and enhanced communication, thereby ensuring firms are able to utilize information technologies in creating new business models and competitive advantage. Information systems (IS) as platforms that foster agility by helping achieve time reductions and quality enhancements in product design and development. These results confirm those by Earl (2000), who noted that adoption of IT has been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs that results.

Also, the study identified that creativity and innovation influences achievement of agility in dairy companies to a great extent. This is in line with Hamel and Valikangas (2003) who found out that creativity and innovation represents a way of organization alignment with business environment to ensure that it remains relevant and described these efforts to be aimed at achieving agility. Dairy companies in Kenya conducts rejuvenation of dormant brand and develop new business models to enhance their agility. These results concur with Pearce and Robinson (2005) who highlighted that rejuvenation of dormant brand as an agility strategy can be a highly profitable strategy under the right circumstances. Also these companies conduct research to develop new product (brand proliferation). These findings also concurs with Smith et al. (2001) findings that firms that continually launch creative and innovative actions in the form
of pricing, product development, promotion changes, or new business models outperform those that launch few competitive moves.

On TQM and organization agility, the study concludes that Total Quality Management influences achievement of agility in dairy companies in Kenya to a great extent. This finding echoes another by Wiklund, Klefsjö, Wiklund and Edvardsson (2003) who indicated that TQM takes different approaches all aimed at achieving enhanced organizational performance and therefore achieve competitiveness in a changing environment. Dairy companies employ TQM to enhance quality of their products, enhance employee participation in their companies and hence employee satisfaction and also to achieve enhanced performance effectiveness and efficiency. This is in line with Lagrosen (2002) who highlighted TQM as a management approach of an organization is centered on quality, based on the participation of all its members and aiming at long term success.

The study further concludes that TQM has improved employees working relationship, helped companies to meet customer requirements thus achieving enhanced customer satisfaction and also promoting teamwork. This confirms results by Kumar et al, (2009) that total quality management is organization methods for creating arrangement wide take part in scheming and creating a continuous improvement action that joins and increases customer requirements. Further, results indicated above are in line with Dale, Zairi, Van der Wiele, and Williams (2000) who found that the benefits of TQM are improved quality, employee participation, teamwork, working relationship, customer satisfaction, employee satisfaction, productivity, communication, profitability, and market share.
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presented the discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made there-to. The conclusions and recommendations drawn were focused on addressing the objective of the study.

5.2 Summary of Findings and Discussions

The study have found out that agile firms are resilient to shocks and upheavals in their business environments, that ability of organization to adapt to unexpected changes is critical in achieving and maintaining enhanced performance and that organizational responsiveness to changes serves to avert risks. Further, the study indicated that agile firms are keen in creating new business models and significant competitive moves. Agile organizations were indicated to execute innovations and take competitive moves with speed, surprise to disrupt competition. Also, it was indicated by the study that organization flexibility influences its success in continually seizing competitive opportunities for enhanced performance.

On adoption of IT, the study found out that adoption of IT systems in the dairy companies has enhanced achievement of agility to a great extent. Further, the study indicated that IT helps firms in sharing of knowledge and development of skills in addressing their problems and that IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes. Also, it was shown that IT facilitates communication necessary to coordinate work activities for enhanced agility. IT management capabilities are an important part of basis through which firms
can launch and sustain agility and that information technologies provide superior information management capabilities, analytical decision support, and enhanced communication for achievement of agility. According to the study, dairy companies in Kenya promote information systems (IS) as platforms that foster agility by helping achieve time reductions and quality enhancements in product design and development. IT has been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs.

The study findings also indicate that creativity and innovation influences achievement of agility to a great extent. Dairy companies in Kenya were shown by the study to conduct rejuvenation of dormant brand and developed new business models to enhance their agility. Further, these companies were shown to conduct research to develop new product (brand proliferation) and that they used creative pricing of products. The study also revealed that dairy companies enhanced product promotion and adopted IT as a creativity and innovation action to achieve agility.

The study has also shown that Total Quality Management influences achievement of agility in dairy companies in Kenya to a great extent. Dairy companies employ TQM to enhance quality of its products. TQM is indicated by the results to enhance employee participation in their companies, therefore enhancing employee satisfaction and hence enhanced performance. Also, the findings show that TQM implementation has enhanced performance effectiveness and efficiency in the dairy companies and that TQM has improved employees working relationship and hence increased employees performance. Further, TQM was indicated to help dairy companies meet customer requirements, and enhanced customer satisfaction. The study showed that TQM has enhances teamwork for increased performance in the dairy industry.
5.3 Conclusions

The study concludes that adoption of IT systems in the dairy companies has enhanced achievement of agility to a great extent. IT helps firms in sharing of knowledge and development of skills in addressing their problems and that IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes. Also, IT facilitates communication necessary to coordinate work activities for enhanced agility. Information systems (IS) as platforms that foster agility by helping achieve time reductions and quality enhancements in product design and development.

Also, the study concludes that creativity and innovation influences achievement of agility in dairy companies to a great extent. Dairy companies in Kenya conducts rejuvenation of dormant brand and develop new business models to enhance their agility. Also these companies conduct research to develop new product (brand proliferation).

On TQM and organization agility, the study concludes that Total Quality Management influences achievement of agility in dairy companies in Kenya to a great extent. Dairy companies employ TQM to enhance quality of their products, enhance employee participation in their companies and hence employee satisfaction and also to achieve enhanced performance effectiveness and efficiency. The study further concludes that TQM has improved employees working relationship, helped companies to meet customer requirements thus achieving enhanced customer satisfaction and also promoting teamwork.

From the regression analysis the following regression equation was formulated; \( Y = 1.157 + 0.797X_1 + 0.897X_2 + 0.843X_3 \). From the regression equation, it can be deduced
that creativity and innovation contributes most to the agility followed by TQM and then IT adoption. At 5% level of significance and 95% level of confidence, all factors (adoption of IT, creativity and innovation and implementation of TQM) were significant. The most significant factor was creativity and innovation.

5.4 Limitations of the Study

The study was limited to dairy companies in Kenya. Therefore, the findings may not be representative of other organizations outside this scope. The researcher however expects some hindrances while conducting the study. The researcher anticipated low generalizability of finding, where the findings could not be used to present a general picture of state of all organizations in Kenya. However, to mitigate this, the study selected adequate sample that is scientific, conforms to law of large numbers and central limit theorem whereby a sample of 30 cases is considered normally distributed. Therefore a sample of 60 respondents was adequate. With these, generalizations were made assuming that the sample is large enough and scientifically selected.

The researcher further anticipated uncooperative respondents. To counter this challenge, the study assured the respondents of confidentiality of information that they gave and that the information they gave would be used for academic purposes and where applicable may influence policies that would have positive implications on information security in their organizations.

The researcher anticipated that the respondents may be biased in giving out information or giving guarded responses which would compromise the study’s objectivity and reliability. This limitation was overcome by explaining to the sampled
population the essence of the study. Further, the researcher assured the respondents that no one would be victimized on the information that they gave.

5.5 Recommendations and Suggestions

5.5.1 Policy Recommendations

The study established that IT is at the center stage of achieving agility. It is the vehicle for disseminating information on how the workforce, including managers, needs to do their jobs to achieve agility. Therefore, dairy companies should continually employ individuals vast in IT fields to ensure that they help the organization to implement current trends in IT that will propel organizational agility in dairy industry. This will alleviate concerns of how the businesses will survive and prosper in the future. Further, dairy companies should ensure that their IT strategy for agility is well protected from their competitors to enhance information security. To this end, the study recommends that these organizations should make IT policies that align information security with the organization’s objectives and make it everyone’s responsibility to achieve information security.

Also, the study recommends that dairy companies in Kenya should employ research and development department. Establishment of this department should be complemented with high notch a staff who understands the business environment to help the companies to formulate and implement competitive strategies to achieve agility. These staff should be competent in products development and also in formulation of business models that gives their companies an edge ahead of others.

The study recommends that the dairy companies should seek to offer value to all the stakeholders in the value chain systems. In the same sense, the organization should
ensure quality control from material delivery to the delivery of the finished products to the consumers. The companies should embrace the concept of “from farm to folk” to ensure quality of product throughout the value chain.

5.5.2 Suggestions for Further Research

This study was conducted on selected dairy companies in Kenya. Due to the challenge of generalizability, and to augment this study finding, another study should be conducted covering manufacturing firms in Kenya. Such a study will not only give an insight from a broader perspective but also identify aspects of agility that are specific to firms in certain industries within manufacturing industries. Since Adoption of IT, Creativity and innovation, and Implementation of TQM account for 83.9% of the factors that determines the firm’s agility, the other factors that account for 17.1% should also be investigated. Additionally, similar studies should be carried out in other sub-sectors of the economy away from the dairy industry particularly where the industries have not been performing well.
REFERENCES


APPENDICES

Appendix I: Questionnaire

Please answer the following questions as truthfully as you can. Your responses will be treated in strict confidence and are to be used for research purposes only. The questionnaire below has five parts; please answer all questions. Thank you.

Section A: Organization Agility

1. Using a scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree, please indicate your level of agreement with the following statement that relate to organization agility.

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<tbody>
<tr>
<td>Organization flexibility influences its success in continually seizing competitive opportunities for enhanced performance</td>
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<tr>
<td>Ability of organization to adapt to unexpected changes is critical in achieving and maintaining enhanced performance</td>
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<td>Organizational responsiveness to changes serves to avert risks</td>
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<td>Agile organization executes innovations and take competitive moves with speed, surprise to disrupt competition</td>
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<td>Agile firms are resilient to shocks and upheavals in their business environments.</td>
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<td>Agile firms are keen in creating new business models and significant competitive moves</td>
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Section B: IT adoption and Agility

2. In your own opinion, to what extent do you think adoption of IT systems at your company has enhanced achievement of agility?

   Very great extent [  ]  Great extent [  ]
   Moderate extent [  ]  Little extent [  ]
   Not at all [  ]

3. Using a scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree; please indicate your level of agreement with the following statement that relate to IT adoption at your company and agility.

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<tr>
<td>Information technologies provide superior information management capabilities, analytical decision support, and enhanced communication for achievement of agility</td>
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<td>Organizations also promote information systems (IS) as platforms that foster agility by helping achieve time reductions and quality enhancements in product design and development</td>
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<td>Facilitating communication necessary to coordinate work activities for enhanced agility.</td>
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<td>IT management capabilities are an important part of basis through which firms can launch and sustain agility</td>
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<td>IT applications, such as Internet computing, customer relationship management, enterprise resource planning, and supply chain management, allow firms to rapidly detect changes</td>
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IT have been necessitated by the need for increased efficiency of activities, reduction in transaction time and/or reduces costs

IT helps firms in sharing of knowledge and development of skills in addressing their problems

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<th>Section C: Creativity and Innovation</th>
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<tr>
<td>4. In your opinion, do you think creativity and innovation at your company influences achievement of agility?</td>
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<tr>
<td>Yes [ ] No [ ]</td>
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<td>5. If yes, to what extent do you think creativity and innovation at your company influences achievement of agility?</td>
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<td>Very great extent [ ] Great extent [ ]</td>
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<td>Moderate extent [ ] Little extent [ ]</td>
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<td>Not at all [ ]</td>
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<td>6. Using a scale of 1 to 5, where 1 = strongly disagree and 5= strongly agree, please indicate your level of agreement with the following creativity and innovation action as taken by your company to achieve agility.</td>
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<tr>
<td>Rejuvenation of dormant brand</td>
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<td>Adoption of IT</td>
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<td>Development of new business models</td>
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<td>Enhanced product promotion</td>
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<td>New product development (brand proliferation)</td>
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<td>Creative pricing of products</td>
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iii
Section D: Total Quality Management

7. Has your company implemented Total Quality Management?
   Yes [ ]  No [ ]

8. If yes, to what extent do you think Total Quality Management at your company influences achievement of agility?
   Very great extent [ ]  Great extent [ ]
   Moderate extent [ ]  Little extent [ ]
   Not at all [ ]

9. Using a scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree, please indicate your level of agreement with the following statement that relate to Total Quality Management.

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<th>Statement</th>
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<tbody>
<tr>
<td>The company employs TQM enhance quality of its products</td>
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<td>TQM implementation at has enhanced performance effectiveness and efficiency</td>
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<td>TQM has helped the company to meet customer requirements</td>
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<td>TQM has enhanced employee participation, therefore employee satisfaction and hence enhanced performance</td>
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<td>TQM has enhances teamwork for increased performance</td>
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<td>TQM has enhanced customer satisfaction</td>
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<td>TQM has improved employees working relationship and hence increased performance</td>
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