ROLE OF MANAGEMENT INFORMATION SYSTEMS ON STRATEGIC DECISION MAKING AMONG TEA FACTORIES IN KENYA

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Role of Management Information Systems on Strategic Decision Making Among Tea Factories in Kenya

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DECLARATION

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

Signed: ……..…… Date: ……

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This thesis has been submitted for examination with our approval as University supervisors.

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DEDICATION

This thesis is dedicated to my family and parents who have all given me the support making my life better and more abundant today. Besides the support from the university administration, the support I get from my wife and my immediate family has been a great source of my strength in compilation of my thesis. Their integrity, humility, love and loyalty have left an indelible impression on my life.

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ABBREVIATIONS AND ACRYONMS

AFFA Agriculture, Fisheries and Food Authority

ANOVA Analysis of Variance

B2B Business to Business

CRM Customer Relationship Management

DOI Diffusion of Innovation

EIS Executive information Systems

ERP Enterprise Resource Planning

GDP Gross Domestic Product

HRIS Human Resource Information System

IAS IAS International Accounting Standards

ICT Information and Communication Technology

IFRS International Financial Reporting Standards

IS Information System

IT Information Technology

JKUAT Jomo Kenyatta University of Agriculture and Technology

KMO Kaiser Meyer Olkin

MIS Management Information Systems

PCM Principal Components Method

SD	Standard Deviation
SPSS	Statistical Package for Social Sciences
TAM	Technology Acceptance Model
TBK	Tea Board of Kenya
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology

DEFINITION OF KEY TERMS

Information and Communication Technology usually abbreviated as **ICT**, refers to telecommunications (telephone lines and wireless signals), computers, middleware as well as necessary software, storage, and audio-visual systems, which enable users to create, access, store, transmit, and manipulate information. In other words, ICT consists of IT as well as telecommunication, broadcast media, all types of audio and video processing and transmission and network based control and monitoring functions (Laudon & Laudon, 2007).

Customer Relationship Management (CRM): is defined as an enterprise-wide commitment to identify the individual customers of an organization and to create a relationship between the organization and these customers as long as the relationship is mutually beneficial(Pushkala, Wittmann &Rauseo,2006).

Information: Processed data that is purposeful and meaningful to a user. In other words, various businesses and professions in every sphere of life rely heavily on information (Raji, 2008).

Strategy: It is the pattern or plan that integrates an organization's major goals, policies and action sequence into a cohesive whole (Thompson & Strickland, 2004).

Strategic Planning: Strategic planning helps determine the direction and scope of an organization over the long term, matching its resources to its changing environment and in particular its markets, customers and clients so as to meet stakeholder expectations (Johnson & Scholes, 1993).

Strategy Implementation: Strategy implementation is also defined as the manner in which an organization should develop, utilize, and amalgamate organizational structure, control systems, and culture to follow

strategies that lead to competitive advantage and a better performance. Implementing an operations strategy involves taking ideas, decisions, plans, policies, objectives and other aspects of the strategy and implementing them into actions (Waters & Waters, 2006).

Information Management: is a means by which a centre maximizes the efficiency with which it plans, collects, processes, controls, dissemination and uses its information and through which it ensures that the value of that information is identified and exploited to the fullest extent (Cronin, 1990).

Human Resource Information System: is a systematic procedure for collecting, storing, maintaining, retrieving, and validating data needed by organization about its human resources, personnel activities, and organization unit characteristics (Hendrickson, 2003).

Management Information Systems: is a general term for the computer systems in an enterprise that provide information about its business operations. It is also used to refer to the people who manage these systems. Typically, in a large corporation, "MIS" or the "MIS department" refers to a central or centrally-coordinated system of computer expertise and management, often including mainframe systems but also including by extension the corporation's entire network of computer resources (Dantes & Hasibuan, 2011).

Strategic Decision Making: is the process of developing and putting into action choices that will influence the long-term welfare of the organization. These choices often involve major organizational changes and large resource commitments that are difficult to reverse once they are implemented (Lampel, 2015).

Supply chain management (SCM): is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer

to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed) (Barrat, 2004).

ABSTRACT

The continued increase in the use of Information systems in organizations has significantly changed the manner in which organizations operate and communicate. Information technology and information systems play a crucial role in the present knowledge based economy and are applied in a wide range of areas in several organizations. This study therefore sought to bridge this pertinent gap in literature by establishing the role of management information systems on strategic decision making among tea factories in Kenya. The objective of the study was to establish therole of management information systems on strategic decision making among tea factories in Kenya. Specifically the study sought to find out the role of human resource management information system, customer relationship management information system, supply chain management information system, computerized accounting and financial management information system and executive management information system on strategic decision making among tea factories in Kenya. This study adopted a descriptive survey design. The target population of this study was all employees, management and directors of tea factories in Kenya. The tea factories which are the units of analysis and which constitute the population of study are 108 factories which are licensed by the Tea Directorate formally known as Tea Board of Kenya. Stratified random sampling was used. Within each tea factory three strata was created of employees, management and directors. Within each stratum, simple random sampling was used to identify individual respondents. The target and accessible population was large and greater than ten thousand and hence the study used a sample of at least 390 respondents. Primary information was gathered by use of a likert scale questionnaire coupled with informal interviews that were guided by the questionnaire. Information was sorted, coded and input into the statistical package for social sciences (SPSS) for production of graphs, tables, descriptive statistics and inferential statistics. The study findings indicated that the role of management information system was statistically significant in explaining the strategic decision making among the tea factories in Kenya. The study concluded that intensive usage of management information systems in the tea factories

generally increases the efficiency of doing business by creating new products and services, shortening the time to get to market, reducing the costs, decreasing the prices and more efficiently answering on the moves of the competitors and market changes. Therefore the strategic intention of managers of these factories should be a creation of new organizational climate based on the tighter cooperation between the individuals with the aim of achieving the synergic effects in internal entrepreneurial activities. The study recommends that tea factories should emphasize customer relationship by investing in a customer relationship management system. Specifically, tea factories should invest in a robust Information technology system as this can certainly help companies to create satisfied and loyal customers. It is further recommend that companies must develop a supportive organizational culture, market relationship management internally, intimately understand customer expectations, create and maintain detailed customer database and organize and reward employees in such a way that the objectives of customer relationship management are achieved.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The role of information in decision-making cannot be overemphasized; and effective decision-making demands accurate, timely and relevant information. As the number of employees, customers and transaction increases in an organization, the more it becomes multifaceted, and the information needed for effective management, planning, decision-making and control invariably becomes more complex. Decision-making is the task of every top management in an organization and they need relevant and timely information to assist in making decisions. According to Lucey (2005), relevant information increases knowledge, reduces uncertainty and is usable for the intended purpose. Although information does not serve as an alternative for good management, conversely management cannot be good without adequate information. Laudon (2006) defined information systems as a set of interrelated components that collect, process, store, and distribute information to support decision-making, coordination, and control in an organization. In addition to supporting decision-making, coordination, and control, information systems may also help managers and workers analyze problems, visualize complex subjects, and create new products.

The information needs of modern organizations have become quite enormous and challenging to the extent that every organization needs to pay great attention to how information is gathered, stored, disseminated and utilized. This situation has arisen because of factors such as increased organizational size, expanded operational scope, competitive influence and overall environmental vagaries. Today's organizations require tools to support quicker and automated decisions, as well as ways to minimize uncertainly; only an effective management information system can ameliorate this challenge(Agwu, Adeola, Etefia & Ogwu, 2010).

The term management information systems, popularly abbreviated as MIS according to Lucey (2005) has become synonymous with computer; yet, both concepts are not

exactly the same because management information systems existed in the life of pre-modern organizations long before the advent of the computer technology. This argument is substantiated by the fact that computer was not in use when organizations kept records using traditional and manual mechanisms to manage information. It is important though to pinpoint that the computer takes credit for increased interest in management information systems because it eases and facilitates data processing as well as adds new vistas of interesting career options in MIS (Ottih, 2005).

With faster access to needed information through MIS, managers are able to make effective and timely decisions regarding investments, employment, new products and many more as it concerns their organizations. By decision - making, we refer to the process of choosing certain lines of action from among numerous alternatives. Decisions are basically an integral chunk of management and it occurs in every level (for example top management, middle management and lower management) and in every function (marketing, accounting, human resources, and production) (Lucey, 2005).

The effectiveness or otherwise of any organization is dependent on the quality of decisions that informs its operation. If decisions are right, it translates in positive organizational outcomes, but where organizational activities are executed in conditions of poor decisions resulting from insufficient or inaccurate information, such organization could be doomed. This is why decision making is a major determinant of organization's success or failure.

As a key consideration, Management Information Systems is a highly complex and delicate arena that calls for a lot of caution to be taken by its managers. It is for this reason that it is recommendable for organizations to ensure that they carefully select the individuals who are placed to control the systems. The more cautious and professional a person is, the better the person gets an assurance of positive prospects of a MIS with regards to decision making and other related areas of business (Lingham, 2006).

Having clearly delineated that, what then are some of the scholarly arguments, facts, opinions and observations made by various macroeconomists with regards to the roles of Management Information System in improving decision making? MIS provides a fitting platform for good decision making (Kumar, 2006). Essentially, without the established systems of getting information in MIS, it would be extremely difficult for organizations to make their decisions. This is because they would be forced to making baseless information due to the lack of confirmed information. Moreover, MIS normally lays a firm foundation for the establishment of concrete decisions through its systematic tools, timely information and adequate managerial policies and regulations.

Management information Systems statutes regarding businesses act as guidelines to business owners when making critical decisions about their businesses. As a result, managers and key decision makers are bridled from overstepping their boundaries or exceeding their business mandate. This is very crucial as it helps in keeping businesses checked and balanced thus ensuring that only proven decisions are considered while the untried ones are thwarted. More importantly, the capacity to guide decision-making facilitates progress and improvement of the operations in a company (Lingham, 2006).

In addition, most MIS programs are endowed with the capacity to give real-time updates of the occurrences in company or system. By real-time, scholars simply refer to immediate updates of occurrences in a system. These immediate updates help managers to take necessary actions as soon as is deemed appropriate especially during the discovery and management of crises. This augments progress and improvement in company operations through timely decision making. This is important for companies in the modern-day generation where any slight lapse indecision making can lead to very huge losses (Allen, Heurtebise & Turnbull,2010).

Management information systems are very elemental improving company securities(Davenport & Short, 2008). For example, in many instances, most management information systems can be easily programmed by the owner to conduct certain actions at certain times. In effect, managers can program the system

to perform certain routine checks which can help in improving efficiency of a company through easy discovery of bugs or problems. Furthermore, the programmability of most MIS saves a lot of priceless time and resources for owners. In other words, through programmability, business managers can program the systems to automatically discover certain deficiencies and even solve them.

Consequently, the manager or system operator can use the time and resources he/she would have used in monitoring or fixing problems for other key uses. By routinely programming a Management Information System, the business is bound to make positive progress since time and resources can be easily channeled into rightful business paths (Allen *et al*., 2010). As a fundamental point, a good number of MIS used today can perform multiple tasks all at the same time. This potential to multitask increases efficiency in a company since several business operations can be conducted simultaneously. With special regards to decision making, the capacity to multitask ensures that decisions are made speedily when compared to those systems which can only handle one task at a time.

Jahangir (2005) stated that some MIS allow multiple users to access the same content all at the same time without any discrepancies. This potentiality boosts accountability from the business operators since multiple people can access a particular content and verify whether they are consistent or whether they are not. As a matter of fact, most organizations tend to suffer due to poor accountability from those charged with the mandate to manage certain details. This safeguard action of some MIS is what macroeconomists refer to as the "gate-keeping" role of MIS in decision making and overall well-being of the organization.

A good number of MIS play the role of record keeping or institutionalization of data bases that can easily keep confidential or invaluable information. In essence, decision making often calls for the reading of certain past work (Jahangir, 2005). This is where record-keeping comes in handy. On the flipside, databases normally function towards providing future places of information retrieval. Principally, the record keeping and data-basing tool of MIS definitely ensures that decisions are made viably while businesses run smoothly. In contributing to the arguments

regarding the role of MIS in improving decision making, Rhodes (2010) also adds that management information systems give managers quick access to information. This can include interaction with other decision support systems, information inquiries, cross-referencing of external information and potential data mining techniques. These systems can also compare strategic goals with practical decisions, giving managers a sense of how their decisions fit organizational strategy.

With the development of information systems (IS) and information technologies the use of information sharing and decision making is growing at a very fast pace. Information Technology solutions are no longer likely to provide strategic advantage, but imply the business basics. The competitive advantage for organizations originates from development of creative information technology strategies and implementing them. Information systems enable existing strategies to be realized, Information flows provide the linkage that allows the supply chain to operate efficiently. Information technology is needed to handle routine transactions in an efficient manner. It can also play a critical role in facilitating the timely sharing of planning, production and purchasing information; capturing and analyzing production, distribution and sales data at new levels of detail and complexity. Information technology provides an integrating tool that makes it possible to convert data into meaningful pictures (Gabriel, 2013). However in the Kenyan tea sector industry there is low usage of management information systems thus slow decision making due to most processes being manual, bureaucratic, many levels of approval, incorrect data and many a times managers have to travel to their company's head office for any decisions to be made.

Globally, tea is the most widely consumed drink after water and the most widely drank beverage. However, tea as a beverage faces competition from other drinks offered in the market. Other issues affecting tea worldwide include changes in consumer tastes and preferences and high as well as rising costs of production. In spite of these challenges, the future for the global tea industry remains bright. Some of the opportunities that the industry should seize include adoption of new technologies and value addition. In a speech by his Excellency Hon. Mwai Kibaki,

C.G.H., M.P., President of The Republic of Kenya during the first African tea convention at Mombasa on 21st July, 2011, he challenged and encouraged the East Africa Tea Trade Association to remain forward looking, embrace and adopt more efficient processes in line with emerging opportunities such as leveraging on management information systems. This indicates the Government commitment to have all sectors embrace new technologies (GoK, 2012).

Even though there are numerous opportunities in using management information systems in various fields, a widespread inequality in its usage is reported, which, in turn, delays the substantial amount of efficiency and productivity loss at many sectors. Tea sector in Kenya has been playing a dominant role in the economy in terms of foreign exchange earnings, employment generation and utilization of land etc. its contribution to the Gross Domestic Product (GDP) of the country, consequently it has a greater potential to increase its overall efficiency in its supply chain so that it can be competitive with the current global and regional trends taking place in this industry (GoK, 2012). In light of this, although some of the value chain players managed by the Corporate Sector have already gone into adoption of various types of management information system to a various degree and obtained a "first mover advantage", some others have not paid much attention to this phenomenon. For that reason, there exists a "gap" with respect to the factors influencing the adoption of management information systems by value chain players leading to digital divide in the tea sector in Kenya.

1.1.1 Kenya Tea Sector

Tea is ranked as the third major foreign exchange earner in Kenya behind Tourism and Horticulture. In the agricultural economy, tea accounts for 24% of the GDP employing two thirds of the population and accounting for 70% of the exports earnings. Most of the tea produced in Kenya is Black Tea. However green tea, yellow tea and white tea are produced on order by major tea producers. Tea was first introduced to Kenya in 1903 from India by a European settler GWL Caine. The British Colonial Administration started exporting it to London by 1933. The cultivation of tea in the colonial period was basically the preserve of the British

settlers. After independence in 1963, the cultivation of tea was desegregated to African farmers both small scale and large scale farmers who had bought land from the British settlers.

The planting and production of tea has rapidly increased since independence in 1963. Tea production has risen from 18,000 tons in 1963 to 294,170 tonnes in 1998. Increased production of tea has guaranteed Kenya the third position after India and Sri Lanka, in the global tea exporters list and commands 21 per cent of all tea exported to the world and 10 per cent of the global tea production. As at 2014, Pakistan ranks as the highest importer of Kenyan tea at 37,900,000 kgs at a value of Kshs. 5.7 billion, the UK ranks third with total tea imports at 18,600,000 kgs at a value of Kshs. 2.81 billion; the Netherlands is placed at twentieth position with imports of 261,343 kgs at a value of Kshs. 48.6 million.

Small scale farmers have continued to play a vital role in the cultivation of tea in Kenya; it is estimated that small scale farmers contribute up to 60 per cent of the total crop in the country whereas large scale tea estates contribute 40 per cent. The tea sector employs 4 million people directly and indirectly a figure which is translated to about 10 per cent of the population. Kenya prides itself as the producer of the best quality black tea in the world. In order to meet growing global consumer demand for black teas, Kenya has specialized in black tea processing and has developed a wealth of expertise to satisfy these needs. Apart from being the world's largest exporter of black tea, Kenya also produces limited amounts of green and orthodox tea.

The tea sub-sector currently offers a number of investment opportunities for those wishing to invest in the industry. The attractiveness of Kenya as an investment location for the tea sub-sector is further strengthened by the presence of big multinationals in the sector. The tea industry performance in 2014 posted Kshs 109 billion in foreign exchange. This was 12.4 % higher than the 2013 earnings that were Kshs 97 billion. The cumulative local tea consumption in 2014 was 20 million kgs valued at shs 11 billion. Production has considerably increased over the last few years owing to growing of high yielding tea varieties, increased productivity from

improved husbandry and minimal expansion in acreage. Kenya has 108 tea factories out of which 67 are managed by the Kenya Tea Development Agency Holdings Ltd (KTDA H. Ltd) through its factory unit management and support services company-KTDA Management Services Ltd.

1.2 Statement of the Problem

Transition from industrial society to information and knowledge society has its impact on social, economic and cultural aspect of life. There are only few aspects of life nowadays which are unaffected by information technology. In recent years, information systems technology has become crucial and is playing a critical role in contemporary society and dramatically is changing economy and business. Business is conducted in a global environment and simply could not serve without computer based information systems (Lucey, 2005). Furthermore, we are entering the information age because of information technology and information systems usage. The use of information systems especially is often understood to be changing the way business and organizations work as well as help managers reduce uncertainty in decision making.

Use of information technology, along with a variety of information systems that are designed for different needs is expanded. Information enables managers to make more and better connection with organization, the environment and each other. More participation in decision making, speed up decision making, increase the speed of identifying the issues, reducing the height of organization pyramid, improve coordination and increase skilled staff, improve coordination and increase skilled staff, are just some of the impact that information technology and information systems have on some organization (Haag & Cummings, 2006).

According to Thompson and Beer (2000) in addition to more traditional systems which assist in the day-to-day business operations, information system is increasingly providing a competitive advantage for the organization. Several studies have found and reported diverse findings regarding information systems usage in decision making (Davis &Olson, 1985; Hicks, 1997; Kumar & Mittal, 2006;

Jawadekar, 2008). Although decision making is one of the areas that information systems have sought most of all to affect, there have been only a few existing studies (Lucey, 2005; Haag & Cummings, 2006; Mueller et al., 2007) that have dealt and examined the role of information systems in management decision making. Lucey et al. (2005) and Haag and Cummings (2006) noted that information systems support decision making in organizations and vary among managerial levels. Information systems usage to support managers in decision-making falls into one of two general categories of systems that help users to analyze situation and leave the decision up to him/ her and systems that actually make some sort of recommendation concerning what action to take (Lucey, 2005; Haag & Cummings, 2006).

Companies have been investing heavily in information technology and systems so as to gain a competitive edge. This study is based on the premise that the passage of time and the very numerous and significant changes in the tea sector industry have led to totally different factors influencing the use of management information systems in the industry. Some studies for instance Richard *et al.* (2007), Shaukat & Zafarullah (2010), Hadzagas, (2011) and Mohammad and Haroon (2012) attempting to shed some light on the subject under study are more generalist and have failed to give detailed insights and analysis of the issues by the current study. This therefore leaves a knowledge gap that this study sought to address on the role of management information systems on strategic decision making among tea factories in Kenya. Hence given that no study of this nature has been done in Kenya, the researcher has attempted to study the role of management information systems on strategic decision making among tea factories in Kenya.

1.3 Research Objectives

1.3.1 General Objective

The general objective of this study was to establish the role of management information systems on strategic decision making among tea factories in Kenya.

1.3.2 Specific Objectives

1) To establish the role of human resource management information system on strategic decision making among tea factories in Kenya.
2) To determine the role of customer relationship management information system on strategic decision making among tea factories in Kenya.
3) To establish the role of supply chain management information system on strategic decision making among tea factories in Kenya.
4) To evaluate the role of computerized accounting and financial management information system on strategic decision making among tea factories in Kenya.
5) To assess the role of executive management information system on strategic decision making among tea factories in Kenya.

1.4 Research Hypotheses

In the hypotheses below H_O refers to the null hypothesis while $H_a$refers to the alternate hypothesis.

The hypotheses of the study were:

H_{O1}Human resource management information system has no significant effect on strategic decision making among tea factories in Kenya.

H_{a1} Human resource management information system has significant effect on strategic decision making among tea factories in Kenya.

H_{O2}Customer relationship management information system has no significant effect on strategic decision making among tea factories in Kenya.

H_{a2}Customer relationship management information system has significant effect on strategic decision making among tea factories in Kenya.

H_{O3}Supply chain management information system has no significant effect on strategic decision making among tea factories in Kenya.

H_{O3}Supply chain management information system has significant effect on strategic decision making among tea factories in Kenya.

H_{O4}Computerized accounting and financial management information system has no significant effect on strategic decision making among tea factories in Kenya.

H_{a4}Computerized accounting and financial management information system has significant effect on strategic decision making among tea factories in Kenya.

H_{O5}Executive management information system has no significant effect on strategic decision making among tea factories in Kenya.

H_{a5} Executive management information system has significant effect on strategic decision making among tea factories in Kenya.

1.5 Significance of the Study

The management team can use the findings as the base upon which to review company performance at tea factories. Necessary improvements identified could be undertaken to enhance strategic decision making at the work place. The findings can also be used by management in other companies to help in boosting decision making at the various workplaces. This study is important to tea factories management as it can help determine areas of wastage on the resources, control same thus save on costs.

Tea factories can also do an exhaustive study in the application of ICT in marketing, human resource, supply chain and other departments to aid in competing with other companies within the Eastern Africa Region. The regulators and the policy makers can use the finding as reference for policy guidelines on information communication and technology in the tea sector industry. They can use the findings of the study to formulate viable policy documents that effectively would in turn boost productivity.

These may relate to regulating those aspects that threaten to adversely impact on the operations and development of such organizations.

The findings of this study would enrich existing knowledge and hence would be of interest to both researchers and academicians who seek to explore and carry out further investigations. It provides some basis for further research.

1.6 Scope of the Study

This study dealt with examining the role of management information systems on strategic decision making among tea factories in Kenya. The target population and respondents were all employees of the tea factories. The sampled respondents were only those employees who had worked for the company for a minimum period of one year. The study only focused on the variables stated in the objectives. This study was conducted in the year 2015. The tea factories that were studied are those that are managed by the Kenya Tea Development Holdings Agency Ltd and also the other privately owned factories.

1.7 Limitations

Many organizations hold their internal operations in a discrete manner and in many instances they would like to shield their operations as their business secrets. The area of ICT is quite guarded by organizations due to the amount of information that is held in the ICT systems. Due to this fact, the tea factories management did not feel comfortable participating in a study that requested for information related to their ICT investments and this posed a challenge to this study and needed to be handled with utmost care. To overcome this limitation, the benefits of this study to the factory management were demonstrated and showed them the benefits of participating in the study. Assurance was also provided to the management that this study was used for academic purposes and all confidential information was protected and was not to be disclosed without their permission.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviews theoretical foundations that discuss and explain the role of management information systems. The theories assist in appreciating the role of management information systems on strategic decision making among tea factories in Kenya. It then deals on literature from empirical studies that discuss the link between management information systems and strategic decision making.

2.2 Theoretical Framework

This section reviews theoretical foundations that discuss and explain strategic decision making. The theories assist in appreciating how use of management information systems affects strategic decision making in Kenya. The theories that are discussed are the strategic leadership theory, resource based theory and open systems theory.

2.2.1 Strategic Leadership Theory

The essence of strategic leadership involves the capacity to learn, the capacity to change and managerial wisdom (Boal & Hooijberg, 2001).Strategic leadership theories are concerned with the leadership of organizations and are marked by a concern for the evolution of the organization as a whole, including its changing aims and capabilities (Selznick, 1984). According to Boal & Hooijberg (2001) strategic leadership focuses on the people who have overall responsibility for the organization and includes not only the head of the organization but also members of the top management team.

Activities associated with strategic leadership include making strategic decisions, creating and communicating vision of the future, developing key competences and capabilities, developing organizational structures, processes and controls; sustaining effective organizational cultures and infusing ethical value systems into the

organization (Hunt, 1991; Ireland & Hitt, 1999). Strategic leaders with cognitive complexity would have a higher absorptive capacity than leaders with less cognitive complexity. To the extent that these leaders also have a clear vision of where they want their organization to go the absorptive capacity will have a greater focus. That is, strategic leaders look at the changes in the environment of their organization and then examine those changes in the context of their vision (Boal & Hooijberg, 2001).

This theory is relevant to the study as it highlights the functions of a leader and how they manage change and maintain proper organizational structures, processes and culture for success. The theory also emphasizes that the environment turbulence can also be maintained through strategic leadership.

2.2.2 Resource Based Theory

Resource based theory argues that firms possess resources which enable firms to achieve competitive advantage and lead to superior long term performance. Valuable and rare resources can lead to the creation of competitive advantage. That advantage can be sustained over longer time periods to the extent that the firm is able to protect against resource limitation, transfer or substitution (Frawley & Fahy, 2006). Information system resources may take on many of the attributes of dynamic capabilities and may be useful to firms operating in rapidly changing environment. Information resources may not directly lead the firm to a position of superior sustained competitive advantage but they may be critical to the firm's long term competitiveness in unstable environments if they help it develop, add, integrate and release other key resources over time (Wade & Hulland, 2004).

Resources such as adequate finance and competent human resource are crucial for the effectiveness of market entry strategy management practices in a rapidly changing environment (Wade & Hulland, 2004) as well as the dynamic capabilities which consist of the activities and mechanisms of managing resources in the creation of value which enables companies manage its activities for improvement in performance.

It is expected that an organization that has adequate financial resources would have more influence on the effectiveness and success in change management programs, leadership and management of the external environment. This theory is also relevant to the study as it explains how resources at a firm's disposal are a critical factor to consider before making decisions on implementing strategies, analyzing the environment or reviewing its leadership and top management team.

2.2.3 Open Systems Theory

Organizations are strongly influenced by their environment. Open systems theory was developed after World War II in reaction to earlier theories of organizations, such as the human relations perspective of Elton Mayo and the administrative theories of Henri Fayol. As a result, open systems theories come in many flavors. For example, contingency theorists argue that organizations are organized in ways that best fit the environment in which they are embedded. Institutional theorists see organizations as a means by which the societal values and beliefs are embedded in organizational structure and expressed in organizational change. Resource dependency theorists see the organization as adapting to the environment as dictated by its resource providers. Although there is a great variety in the perspectives provided by open systems theories, they share the perspective that an organization's survival is dependent upon its relationship with the environment (Bastedo, 2004).

Open systems theory has profoundly altered how we understand organizations and the demands placed upon leaders. Treating schools as if they are independent of their environment would lead to wide misperceptions of the driving factors behind organizational change. Contemporary studies of accountability movements, professionalization and instructional leadership all benefit from a strongly open systems approach to understanding environmental demands and the resulting adaptation in policy and its implementation, or lack thereof. This is theory is relevant in the study since it highlights the way organizations are achieving and improving competitive advantage through embracing technology in this the way tea factories have invested in information management systems to ease decision making process

with the availability of accurate and timely data from the various management information systems in use.

2.2.4 Diffusion of Innovation Theory

Rogers' (1995) Diffusion of Innovation (DOI) theory is a popular model used in information systems research to explain user adoption of new technologies. Rogers defines diffusion as 'the process by which an innovation is communicated through certain channels overtime among the members of a social society' (Rogers, 1995). An innovation is an idea or object that is perceived to be new (Rogers, 1995).

According to DOI, the rate of diffusion is affected by an innovation's relative advantage, complexity, compatibility, trial ability and observability. Rogers (1995) defines relative advantageous 'the degree to which an innovation is seen as being superior to its predecessor'. Complexity, which is comparable to TAM's perceived ease of use construct, is the degree to which an innovation is seen by the potential adopter as being relatively difficult to use and understand'. Compatibility refers to 'the degree to which an innovation is seen to be compatible with existing values, beliefs, experiences and needs of adopters'. Trial ability is the 'degree to which an idea can be experimented with on a limited basis'. Finally, observability is the degree to which the results of an innovation are visible' (Rogers, 1995).

The diffusion theory is relevant because it explains the reason why organizations adopt technical innovations. One of the reasons why organizations adopt technical innovations is relevant advantage and improves performance. This means that tea factories that adopt technical innovations have relatively better competitive advantage than those which do not and they have increased efficiency and transparency in the way they carry out their activities.

2.2.5 Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM), originally conceived by Fred Davis in 1986 is an intention-based model derived from the Theory of Reasoned Action (TRA) but tailored to meet the broad needs of information technology research (Davis et al., 1989). Davis (1989) presented a theoretical model aiming to predict and explain ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to the degree to which a person believes that using a particular system would enhance his or her job performance", and perceived ease of use refers to "the degree to which a person believes that using a particular system would be free of effort (Davis, 1989).

Since its introduction, TAM has enjoyed wide acceptance and has proven to be a reasonably accurate predictor of both users' intentions to use an information technology and of their actual system usage. TAM has evolved through the years, and many researchers have tested the addition of new variables to the model in an attempt to increase its explanatory power. TAM is one of the theories that Venkatesh (2003), integrated with seven other dominant models in the field of technology acceptance to introduce the Unified Theory of Acceptance and Use of Technology (UTAUT).

Despite its wide use, TAM has often been criticized by many scholars for its questionable heuristic value, limited explanatory and predictive power, triviality, and lack of any practical value. (Chuttur, 2009) suggest that TAM has diverted researchers' attention away from other important research issues and has created an illusion of progress in knowledge accumulation. Furthermore, the independent attempts by several researchers to expand TAM in order to adapt it to the constantly changing IT environments have led to a state of theoretical chaos and confusion (Benbasat and Barki, 2007). In general TAM focuses on the individual 'user' of a computer, with the concept of 'perceived usefulness', with extension to bring in more

and more factors to explain how a user 'perceives' 'usefulness', and ignores the essentially social processes of IS development and implementation, without question where more technology is actually better, and the social consequences of IS use.

This theory is relevant because it explains why organizations accept and adopt technology. This is because of perceived usefulness and perceived ease of use of technology.

2.3 Conceptual Framework

The conceptual framework is developed from analysis of the variables with intention of determining the relationship between independent variables and dependent variables. A conceptual framework is a basic structure that consists of certain abstract blocks which represent the observational the experiential and analytical aspects of a process or system being conceived (Bogdan & Biklen, 2003 and Smyth, 2004).

A variable is a measurable characteristic that assumes different values among the subjects (Mugenda & Mugenda, 2003). Saunders, Lewis and Thornhill (2007) defines a variable as an individual element or attribute upon which data have been collected, while Kisilu and Tromp (2006) says that the term variable is derived from variations. Variables are attributes or qualities of the cases that we measure or record. Cooper and Schindler (2006) looks at variable as a symbol of events, act, characteristic, trait, attribute that can be measured and to which we assign categorical value.

Figure 2.1 shows the diagrammatical representation of the relationship among variables under study drawn from the literature review. It depicts the effect of human resource management information system, customer relationship management information system, supply chain management information system, accounting and financial management information system and executive management information system as independent variables and strategic decision making as the dependent variable.

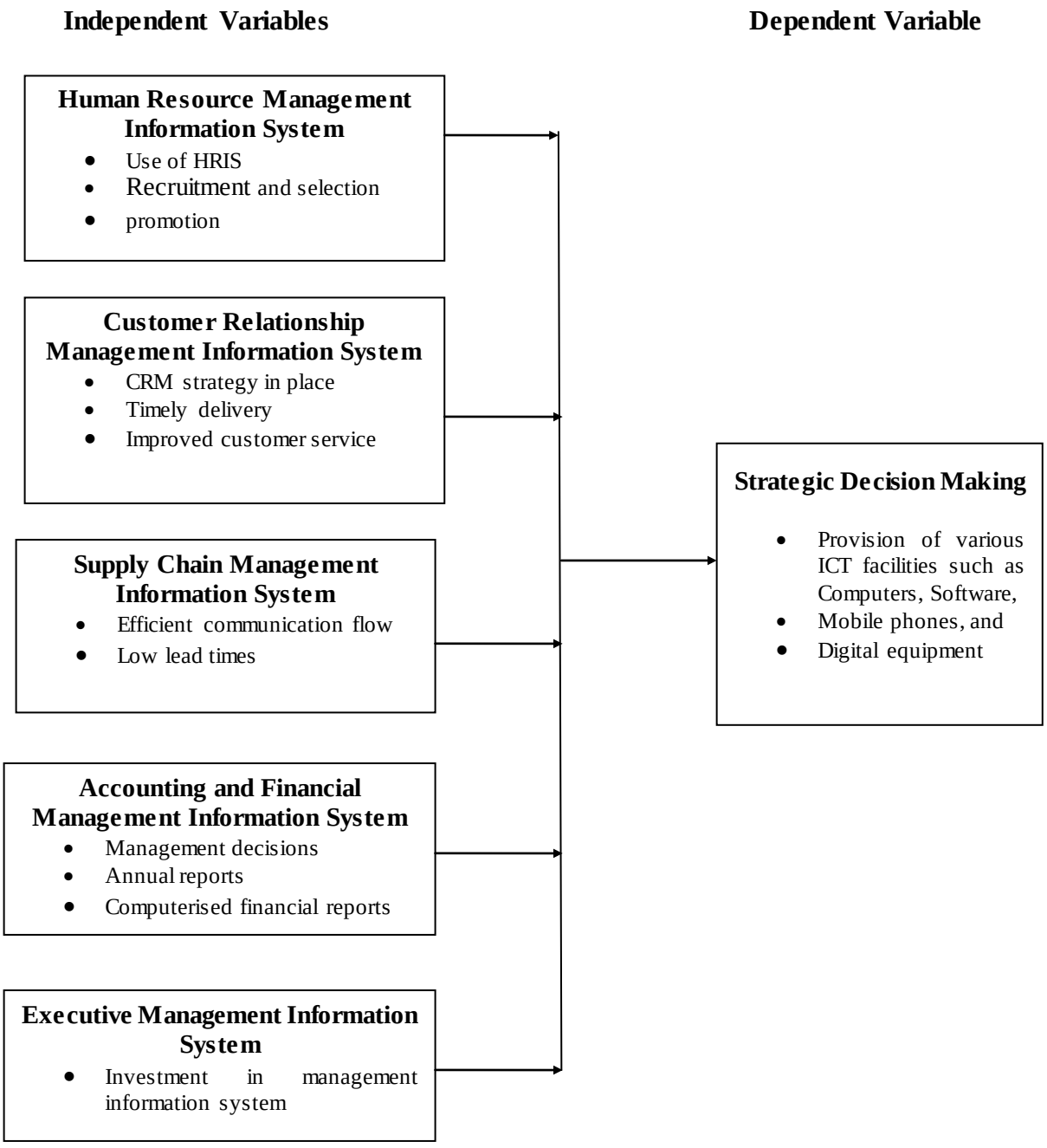

Figure 2.1: Conceptual Framework

2.4 Review of Literature on Variables

This section presents previous studies done that relates to the current research. Empirical results are presented according to the variables under investigation in this study.

2.4.1 Human Resource Management Information System and Strategic Decision Making

The effective management of human resources in a firm to gain a competitive advantage in the marketplace requires timely and accurate information on current employees and potential employees in the labor market. With the evolution of computer technology, meeting this information requirement has been greatly enhanced through the creation of HRIS. The IT-driven automation and redesign of work processes certainly help reduce costs and cycle times as well as improve quality. Management information systems (MIS) can further help decision makers to make and implement strategic decisions. However, IT is only a tool and can only complement, not substitute, the people who drive it. Often, organizations mistake IT as a message and not the messenger and divert time, effort, and money away from long-term investment in people to developing and deploying information technologies (Thite, 2004). The critical success factors in information systems project implementation are nontechnical and are due more social and managerial issues (Martinsons & Chong, 1999). With the increasing use of information technologies in HR planning and delivery, the way people in organizations look at the nature and role of HR itself may change (Roehling *et al.*, 2005).

Recent developments in technology have made it possible to create a real-time information-based, self-service, and interactive work environment. Personnel Information Systems have evolved from the automated employee recordkeeping from the 1960s into more complex reporting and decision systems of late (GerardineDeSanctis, 1986). Today, managers and employees are assuming activities once considered the domain of human resource professionals and administrative personnel. This represents a significant break with the past, but an improvement in overall organizational effectiveness. Consequently, given the

authority and relevant accessible information for decision making, both managers and employees respond more quickly to changes (Lengnick-Hall & Lengnick-Hall, 2002).

Human resource information systems HRIS provides management with strategic data not only in recruitment and retention strategies, but also in merging HRIS data into large-scale corporate strategy. The data collected from HRIS provides management with decision-making tool. Through proper HR management, firms are able to perform calculations that have effects on the business as a whole. Such calculations include health-care costs per employee, pay benefits as a percentage of operating expense, cost per hire, return on training, turnover rates and costs, time required to fill certain jobs, return on human capital invested, and human value added (Seif 2007).So there have been many studies in the area of evaluating human resources information systems as one of the most important issue in recent times. Many of the studies have addressed evaluating human resources information systems from several points of view.

The study of Mohammad and Haroon (2012) aimed to demonstrate the impact of the effectiveness of the Application of Human Resources Management System in Corporate Performance which perspective of workers in the Banking Sector in Jordanian Firm, The study found asset of results, including: 1) There is a significant effect between the quality of the output of human resources information system and institutional performance in banking sector in the Jordanian firm. 2) There is a statistically significant effect between motives and corporate performance in the banking sector in the Jordanian firm. 3) There is a significant effect between training and organizational performance in the banking sector in the Jordanian firm.

Jaber (2011) in his study identify the impact of environmental factors on the efficiency of internal organizational human resources management functions in the public institution for social security, the study found that there is an impact of environmental factors on the efficiency of internal organizational human resources management functions in the public institutions of social security. One of the most

important recommendations was to focus on each delegation of authority, specialized work and moral incentives for staff.

Al-kharabsheh study (2010) aimed to identify the impact of administrative policies on human resources efficiency in Jordanian public institutions from the point of view of managers and identify factors and positive practices enhancing human resources efficiency. The study found that there are efficient medium for human resources within public Jordanian institutions. And no trace of administrative policies on the efficiency of human resources in institutions due to gender, age, number of years in work and qualification variables. The study recommended the need to stop using patronage and medium when recruiting for the jobs.

Alfarsi (2006) describe the impact of the human resources management functions in achieving organizational change at The Sultanate of Oman central ministries. The study found that there are positive results for these posts on achieving organizational change. The study recommended activation of human resources management and increase of depending on them.

The study of Lee and Wesley (2002) weighted scale has been used in this study to measuring the performance of human resources information systems in organizations. It found that many challenges facing Human resources management firstly, is how to measure the performance of human resources information systems in order to justify the added value from the use of these systems to accomplish organizational goals. It showed the benefits of measuring the performance of human resources information systems using a weighted grading as it is single, simple, and easy to understand and communicate with others and is considered a way to determine whether the overall system performance improves over time.

Gerardine (2001) study describes the status quo of human information systems to support and improve the status of the Organization. The study found that the role of interconnected and symmetric information systems in the same industry where human resources information systems is not clear any standard will not continue, and that the topics themselves will be controversial. The study concluded that there

would be a clear lack of competencies of managers of system functionality and efficient Directors as well need to be specialized in human resources function in addition to having skills in information systems.

2.4.2 Customer Relationship Management Information System and Strategic Decision Making

Customer relationship management (CRM) is the overall process of building and maintaining profitable customer relationships by delivering superior customer value and satisfaction. A CRM strategy involves the entire enterprise and is employed on an ongoing basis. Despite the fact that CRM projects incur huge expenditures, a large percentage fails to achieve the stated objectives. A real successful CRM should integrate information technology (such as basics installation, applicable system), information resource (such as customer data base, well interaction with customer), organizational resource (for example, customer-oriented business culture, etc) all these can actually exert the best effectiveness (Pushkala*et al.*, 2006)

CRM applications are relatively new to the business world, conceived in the 1980s, but only attaining marketing prominence in the late 1990s primarily due to advances in information technology, data management systems, improved analytics, enhanced communications, systems integration and the rapid adoption of the Internet (Greenberg, 2002). The adoption of such technologies provides efficiencies for business change initiated by customer demand for customized, personal service. By collecting past customer transaction information, demographics, psychographics, media and channel preferences marketers hope to create personalized product and service offers that capture customer share, build customer loyalty and enhance profit over time (Ling & Yen, 2001).

CRM technology capability is broadly defined as the effective deployment of information technology solutions that are designed to support customer relationships. This includes systems that provide support for sales (e.g., sales force automation), marketing (e.g., planning and budgeting, campaign and promotions management, etc.), customer service, analysis (e.g., calculating customer retention rates, customer lifetime value, etc.), data integration, and external collaboration (Jayachandran *et al.*,

2005). Recognizing that resources need to be combined to develop idiosyncratic capabilities, several scholars provide evidence that suggests CRM technology capability may best be conceptualized as a multidimensional construct comprised of not only technology resources but also complementary resources. Bharadwaj (2000) demonstrates that IT infrastructure, when combined with human resources and IT-enabled intangibles, leads to improved performance.

Jayachandran*et al.* (2005) conducted a study on the role of relational information processes and technology use in customer relationship management and proposes to examine the key drivers and outcome of relational information processes and the role of technology in implementing CRM using data collected from a diverse sample of firms. The results show that relational information processes play a vital role in enhancing an organization's customer relationship performance. By moderating the influence of relational information processes on customer relationship performance, technology used for CRM performs an important and supportive role. The study provides insights into why the use of CRM technology might not always deliver the expected customer relationship performance outcome.

Ahearne *et al.* (2007) did a study on why sales representatives should welcome information technology by measuring the impact of CRM-based IT on sales effectiveness and proposed to seek to answer the following question: Can sales representatives enhance their performance through their acceptance of information technology (IT) tools? Using data collected from two companies, we saw that despite uncertain results and the frequent resistance among salespeople to IT interventions, and IT acceptance indeed has a positive effect on sales performance. This occurs because salespeople using IT expand their knowledge and in turn, gain improved targeting abilities, enhanced presentation skills, and increased call productivity. Thus, sales representatives have a strong incentive to accept IT because doing so is likely to sharpen their own job performance.

Richard *et al.* (2007) did an examination of customer relationship management (CRM) technology adoption and its impact on business-to-business customer relationships. He explores the linkage between CRM technology adoption and B2B

relationships. CRM technology adoption is considered as a possible antecedent to relationship strength and relationship performance. Ten marketing and sales managers, and their respective customers, from a variety of New Zealand companies were interviewed on their perspectives on the relationship between CRM technology and relationships. Findings indicate that CRM technology does have a role to play in sustaining and maintaining B2B relationships, but it is the customer communications and people aspect that may be most important. Customers have expectations of CRM technology and are generally more optimistic that CRM will provide benefits to the customer in terms of customer satisfaction and service. Respondents were in agreement that the important elements of relations include trust, commitment and communications. Relationship performance is generally measured using customer satisfaction, loyalty and/or customer retention. Future research will focus on developing a CRM technology adoption instrument and empirically testing the conceptual model with larger samples.

Shaukat & Zafarullah (2010) carried out a study on impact of information technology on organizational performance. An analysis of quantitative performance indicators of Pakistan's banking and manufacturing companies. The authors aimed to examine the impact of IT on organizational performance with respect to increase/decrease in organizational income and in number of employees versus IT expenses incurred by the organizations working in manufacturing and banking sectors of Pakistan over period of 1994-2005. The primary data was collected through in-depth interviews and field surveys of 48 companies, 24 in manufacturing sector (12 local and 12 foreign) and 24 in banking sector (12 local and 12 foreign). The data was tested by applying different statistical/financial techniques. The conclusion of the research is that, IT has positive impact on organizational performance of all the organizations. The banking sector performance outstrips the performance of manufacturing sector. In the banking sector local companies are taking the lead, while in manufacturing companies multinationals are at the top.

Battor and Bator (2010) examined the direct impact of both CRM and innovation on firm performance. Moreover, they investigated the role of innovation as a mediating

mechanism to explain the effect of CRM on performance. The authors used structural equation modeling to test the relationships among these constructs. The results supported the direct impact of CRM and innovation on performance. Also, the findings indicated that the indirect effect of CRM on firm performance through innovation is significant. These results reinforced the view that developing close relationships with customers enhances a firm's ability to innovate.

Soliman(2011) conducted a study to explore the theoretical foundations of customer relationship management and its relationship to the marketing performance from the several perspectives. The study findings concluded that there is positive relationship between CRM and marketing performance in addition to effects of the dimensions of CRM on marketing performance in financial institutions. Originality value: the study treats the question of CRM and its relationship marketing performance for marketing academicians and professionals by investigating structural relationship among focus on main customers, the organizational efficiency and customer knowledge management and marketing performance.

Rodriguez and Honeycutt (2011) examined the impact of customer relationship management (CRM) technology on business to business (B2B) sales professionals' ability to collaborate with internal stakeholders and also assess the relationship between CRM utilization and sales performance. The study moves from assuming that CRM utilization positively impacts salesperson effectiveness and performance to assessing this outcome from the perspective of the salesperson. A survey that was comprised of four scales was sent to 115 B2B sales professionals and usable surveys were received from 70 respondents. The data were analyzed using partial least squares regression to test the hypothesized paths. Partial least squares regression has been shown to work for small sample sizes. The findings emphasizes that there is empirical evidence that CRM adoption and utilization positively impacts sales performance, sales effectiveness, and collaboration. As a partial mediator, collaboration positively influenced CRM utilization's effect on sales performance.

2.4.3 Supply Chain Management Information System and Strategic Decision Making

Supply chain management includes the methods, systems and leadership that continuously improve an organization's integrated processes for product and service design, purchasing, inventory management, planning and scheduling, logistics, distribution, and customer satisfaction (Mentzer *et al*., 2001). These factors are more and more being accomplished in a collaborative manner across a network of linked business partners (Golicic *et al*., 2002; Barrat, 2004). Supply chain management issues can be classified into two broad categories: configuration (design-oriented) issues that relate to the basic infrastructure on which the supply chain executes and coordination (execution-oriented) issues that relate to the actual execution of the supply chain (Swaminathan & Tayur, 2003). Configuration-level issues include topics such as procurement and supplier decisions (supplier selection, outsourcing decisions, procurement policies), production decisions (manufacturing sites, capacity allocations), distribution decisions (channels, distribution and retail locations, transportation issues), and information support decisions. Respectively, coordination level issues comprise material flow decisions, information flow decisions, and cash flow decisions. It is thus clear that supply chain management spans several functional and geographical areas, introducing complexities both in terms of design and execution.

Suppliers gain access to manufacturer's production plans and can reduce their reliance on uncertain forecasts. Manufacturers obtain early warning about possible disruptions of supply due to unforeseen events faced by the suppliers and can reschedule their plans and avoid costly disruptions. These and other similar uses of the LIS ensure a smooth flow of information pertaining to order, product design and development, market intelligence, production scheduling, payments, and any other information flow for managing coordination among the various actors in the supply chain (Swaminathan & Tayur, 2003).

According to Bagchi & Larsen (2002), supply chain management consists of the entire set of processes, procedures, the supporting institutions and business practices that link buyers and sellers in a marketplace. A supply chain involves four distinct flows, requirement information from buyer to seller which triggers all later activities; the movement of goods from sellers to buyers; transfer of ownership rights from seller to buyer and payment from buyer to seller. To be effective, a supply chain has to link the members of the network and the functions to ensure uninterrupted flow by matching supply and demand flows in a network and securing accurate response at each buyer-seller transaction in the chain. Coordinating these flows in a network requires integration of supply chain partners to ensure unhindered flows at each of the many buyer-supplier interfaces in a supply chain network.

Experts believe supply chain integration involves efficient management of information and closer organizational coordination among supply chain partners. Lee outlines three dimensions of supply chain integration: information, coordination and organizational linkage. Information integration refers to the sharing of information and knowledge among the members in the supply chain, including sales forecasts, production plans, inventory status and promotion plans. Coordination refers to the realignment of decisions and responsibility in the supply chain. Organizational linkages include communication channels between the members in the supply chain, performance measurement, and sharing of common visions and objectives (Bagchi & Larsen, 2002).

According to Bag chi and Larsen (2002), organizational integration encourages partners to become more entrenched members of the network and instills a sense of belonging to the supply chain. It becomes easier to generate trust among partners in an integrated supply chain. Trust promotes collaboration and decision delegation, reduces irrational behavior and "second guessing" among supply chain members thereby reducing the need for safety stocks. The objective of organizational integration is not merely to resolve conflicts should they arise, but rather to recognize and avoid potential conflicts and/or divergence of interest in advance and device governance structure to forestall or avoid it. True organizational integration

thus paves the way for individual members of the chain to behave more like a unified entity sharing ideas, skills and culture alike. Supply chain integration may fail to blossom without organizational integration among supply chain partners.

2.4.4 Computerized Accounting and Financial Management Information System and Strategic Decision Making

According to Vertmaat and Shelly (2011), society has reaped many benefits from using computers. Both business and home users can make well informed decisions because they have instant access to information from anywhere in the world. Students another type of users, have more tools to assist them in the learning process. Benefits from using computers are possible because computers have the advantages of speed, reliability, consistency, storage and communication.

Jarvis *et al*. (2000) found that financial management is critical to the success of any type andsize of business. This highlights the importance of financial management in small businesses. Previous studies explored the benefits of financial reports in providing assistance to small business owners, understanding financial literacy in small businesses, measuring business performance, and small firms' financial structure (Carton & Hofer, 2010; Chittenden *et al.*, 1996; Halabi *et al.*, 2010). This study, on the other hand, seeks to examine NZ small business owners' management practices and focuses on how financial information is used in management decision making. Investigation from this standpoint is likely to enhance the importance of financial information in making business decisions. The study makes contribution to understanding the behaviours of NZ small business owners in making business decisions. The empirical findings may also identify current and potential problems that may impede the application of financial information in decisions making. The findings will likely assist the owners in enhancing business growth, profitability, and overcoming potential failure of small businesses.

Prior research has examined the application of a computerised accounting system in small firms from different perspectives such as producing financial reports, measuring business performance and making accurate decisions (Breen et al., 2003). Other studies examined the role of accountants assisting owners on the adoption of

computerized accounting system(Halabi *et al.*, 2010), alignment of small firms accounting needs with information technology (Ismail & King, 2007), and the role of computerized accounting in meeting management accounting needs (Marriot & Marriot, 2000). This study expands the scope of these studies by specifically investigating, within the NZ context, the owners' level of computer literacy, financial literacy, and any financial problems that may prevent them from implementing a computerized accounting system.

Indira (2008) pronounced the improvement in business performance as a result computerization of the accounting systems as it is a highly integrated application that transforms the business processes with the performance enhancing features which encompass accounting, inventory control, reporting and statutory processes. He then says, this helps the company access information faster and takes quicker decisions as it also enhances communication. McBride (2000) stated that managers cannot easily satisfy statutory and donor reporting requirements such as profit and loss account, balance sheet and customized reporting without using computerized accounting systems. With the system in place, this can be done quickly and with less effort. Computerized accounting systems ease auditing and have better access to required information such as cheque numbers, payments, and other transactions which help to reduce the time needed to provide this type of information and documentation during auditing. According to Carol (2002), it is easy to do accounting functions using computerized accounting systems. Posting transactions to the ledger, the principle of double entry can largely be automated when done through the use of computerized accounting system.

Horngren, Sundem & Stratton (2004) see the main function of accounting information in the decision-making process, as the understanding of accounting information contributes to better decisions. So, by reporting and collecting accounting information, controllers can influence management's decision-making and lead them towards decisions that are in accordance with the organization's objectives. Emmanuel, Otley and Merchant (2005) consider control as the primary purpose of accounting information. Management control includes both, strategic and

operational matters and thus, planning and control are not separated issues. However, decision-making falls within this wider process of management control and is thus identified as a "vital aspect of the overall control process.

William (2006)states that that the decision maker decides what information inputs he/she considers as relevant for his/her decision. If the proportion of input of accounting information compared to non-accounting information is more then zero, then the accounting data may affect the decision. This proportion or the use of accounting information varies from decision to decision and from the decision maker whose choice may be affected by experience, perceptions and objectives. Further the probability that accounting information is used for decision-making rises if the information provided is relevant for the decision, if the decision maker conceives the accounting information as reliable or if not adequate non-accounting information is available.

2.4.5 Executive Management Information System and Strategic Decision Making

Executive information systems (EIS) are computerised systems that provide executives with on-line easy access to internal and external information relevant to their business success factors (Rainer & Watson, 2005). The aim of EIS is to bring information from the external environment and all parts of an organization and present it in a way that is meaningful to executive users (McBride, 2007). Nonetheless, the actual engagement or use of these systems by executives is relatively low (Young & Watson, 2005; Fitzgerald, 2008).

Several studies (Bergeron *et al.*, 2005; Singh *et al.*, 2002) have reported the growing popularity of EIS in organizations as new concepts such as enterprise resources planning (ERP), data warehousing, data mining, web-base portal to "dashboard" and "scorecards" and the on-line analytical processing (OLAP) engine have paved the way for a new era of managing corporate data. Despite these, the underutilization of EIS by senior managers remained an important challenge to user organizations. Top officers don't use executive information systems (Wildt, 2004).

The characteristics of EIS such as, the ability to move freely between a high-level view of data and a detailed view (drill-down'), a concentration on data relating to key performance indicators and critical success factors, the ability to highlight exceptions and variances automatically and to present information in graphical, tabular, textual and colours to the executives make EIS a suitable tool for executives' work (McBride, 2007).

Nandhakumar and Jones (2007) witnessed an EIS development project in their in-depth study of the development methods in organizations where potential executive users were not involved in the design phases. As a result, they suggest that there should be better theoretical conceptualization of the dynamic relationship between the developers and executives to assist in understanding how the relationship shapes, and is shaped by various constraints.

McBride (2007) studied the progress of an EIS project within a manufacturing organization in the UK over a 9-year period. The study demonstrates the importance of the interaction between the business environment, the organizational environment and the perceptions and interpretations of events by stakeholders on the success or failure of EIS. Particularly, it illustrates the importance of the organizational context and the dynamic nature of the social, economic and technical factors critical in shaping acceptance and use of EIS in organizations.

Information Communication Technologies (ICT) can provide powerful strategic and tactical tools for organizations, which if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness. The proliferation of the Internet, as a main stream communication media and as an infrastructure for business transactions has generated a wide range of strategic implications for businesses in general as well as for the travel and airline industries in particular (Li-Hua and Khalil, 2006). Internet technology and web based commerce have dramatically transformed the airline industry in the decade (Werthner& Klein, 2005). Information and Communication Technologies (ICT) have always played a predominant role in the airline sector (Poon, 2003) but with the advent of the Internet and open source technology their impact is becoming increasingly more crucial and

evident (Buhalis, 2004; Jacobsen , Gary, , Cashman, & Tim, 2008). Web distribution combined with cheaper and more flexible technologies allows new players on the market to implement effective low-cost direct distribution strategies and intensify competition in the sector (Dennis, 2007; Buhalis& Law, 2008).

Adeosun, Adeosun & Adetunde (2009) state that the use of ICT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. ICT causes fundamental changes in the nature and application of technology in businesses. ICT can provide powerful strategic and tactical tools for organizations which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness (Buhalis, 2004). Hengst & Sol (2001), state that ICT enables organizations to decrease costs and increase capabilities and thus assist to shape inter organizational coordination. The use of ICT can assist to lower coordination cost and increase outsourcing in organizations. ICT is used to exchange information and it provides a medium for learning. Ramsey et al. (2003) note that organizations generally stand to gain from ICT in areas such as reduced transaction costs, information gathering and dissemination, inventory control, and quality control.

2.4.6 Strategic Decision Making

Decision making is the one of the most important functions of managers in any kind of organization (Nooraie, 2012). Without decisions, an organization cannot achieve any success. Various definitions of the decision making process could be found in the literature, but they are all stating that it is a continuous process, very time consuming for the decision maker, representing the basis of the business existence and performance, and targeting mainly managers. Among different manager's decision, strategic decision making is the most important and plays vital roles in any organization. It is central managerial activity in all types of business organizations; large and small, for profit and not - profit, private and public (Elbanna & Child, 2007). Which way the business organization will take, and where that way will lead it, depends on strategic decisions. They are long term, highly unstructured, complex, and inherently risky and have great impact on the future of the organization.

Strategic decisions determine the stream of all business activities required to achieve organizational objectives. They differ from other types of decisions (administrative and operational) because they deal with the range of organizational activities, cope with uncertainty, involve extensive risks and changes, etc. They have been described as decisions that commit significant resources, set precedents, and drive a series of lesser decisions (Mintzberg, 2006); as ill-structured, non-routine, and complex in their nature (Schwenk, 2008). They influence organizational direction, administration, and structure (Christensen & Lægreid, 2008). They are dealing with the problems that have extremely high stakes, and whose solutions have long–term implications for the organization, targeting mainly business areas essential for organizational growth, prosperity, and survival. Its importance primarily results from effects it has on organizational performance. Namely, successful strategic decision making enables an organization to maintain competitive position, align internal operations with external environment and survive threats and challenges, while conversely, because of their magnitude, a single, poorly made strategic decision can lead to the demise of an organization and result in corporate embarrassment, large economic losses for stakeholders or even bankruptcy (Mueller, 2007). Therefore, it is not surprising that there is a growing interest into the nature of strategic decision making among researcher all over the world.

Understanding strategic decision making as a process structured from the activities of information gathering, processing and assessment; as a process of knowledge and information transformation in managerial activities (March,2011), in the literature which deals with the issues of how decision making truly happens in organizations, have contributed to the identification of two basic approaches to decision making: analytical and intuitive. These approaches, based on the principles of main behavioral decision theories, are explaining how decision making happens in organization. The differences between them reflect different behavior of decision makers with regard to their way of thinking, perception of the entire environment, understanding of different internal and external variables and their interactions, interpretation of events, undertaken activities in the search for possible outcomes in order to achieve defined goals, etc.

Analytical approach denotes decision making based on formal analysis, it is methodological by nature, proactive, and time exhaustive, while the intuitive approach denotes decision making based on overall knowledge, experience, available information, but without the support of formal analysis. Generally, when it is about strategic decision making, researchers have given preference to analytical decision making over intuitive decision making. One of the basic assumptions is that systematic and careful analysis yields choices which are superior to those coming from intuitive processes, but this assumption, as Khatri & Ng (2010) are stressing, has recently come under fire, because advances in cognitive and artificial intelligence confirmed that there is nothing mystical or magical about intuitive processes. Moreover, as Khatri & Ng (2010) are emphasizing, researchers confirmed that intuitive processes evolve from long experience and learning and "consist of the mass of facts, patterns, concepts, techniques, abstractions, and generally what we call formal knowledge or beliefs, which are impressed on our minds" (Barnard, 1938 cited in Simon, 2007). Empirical researches have confirmed that both approaches are represented in the field of strategic decision making.

2.5 Empirical Review

Burbach and Dundon (2005) conducted a study to assess the strategic potential of HRIS to facilitate people management activities in 520 organizations in the Republic of Ireland. They found that foreign owned large organizations adopted HRIS more often than smaller Irish owned organizations. They also found that HRIS technologies were used for administrative rather than strategic decision-making purposes. Another recent study conducted by Delorme and Arcand (2010), aimed to elaborate on the development of the roles and responsibilities of HR practitioners from a traditional perspective to a strategic perspective, found that the introduction of new technologies in the organization affected the way HR professionals accomplished their tasks within the HR department and the rest of the organization. The study of Krishnan and Singh (2006) explored the issues and barriers faced by nine Indian organizations in implementing and managing HRIS. The main HRIS problems were lack of knowledge of HR department about HRIS and lack of

importance given to HR department in these organizations. Cooperation is required across various functions and divisions of the organization for proper implementation of HRIS.

Kinyua (2012) conducted a study on the challenges facing state corporations in Kenya in the implementation of human resource management information systems. Consequently, the researcher undertook a cross sectional census survey which was appropriate because of the investigations of organizations at the same point in time. The population of this study consisted of all state corporations in Kenya and primary data was collected using of a semi-structured questionnaire while secondary data was collected from individual state corporation's strategic plans, human resource management information systems operational plans and reports. The respondents were heads of human resource function in the State Corporations and questionnaires were administered through electronic mail. Priori coding and descriptive statistics were utilized in analyzing the data collected. Research findings indicated that majority of the responding human resource managers ranked Information Communication Technology (ICT) adoption and use as the major source of challenge in the implementation of Human Resource Management Information Systems in Kenyan state corporations. Moreover, Kenyan state corporations were effectively facilitated for by providing competent and skilled staff, approving adequate funds, effective time management and information technology support. However, the adoption and use if ICT remains a major challenge in the implementation of Human Resource Management Information Systems in Kenyan state corporations.

Holger *et al.* (2011) under the title customer relationship management and company performance the mediating role of new product performance, aimed to develop a conceptual framework in which multiple facets of CRM are linked to new product and company performance. They tested this model based on a cross-functional sample consisting of115 R&D and 122 Marketing managers from firms spanning multiple industries. The results provided evidence that CRM has a positive effect on new product performance and further, that this effect is moderated by CRM reward

systems but not CRM technology. Also the results showed that new product performance mediates the relationship between CRM and company performance.

Hadzagas, (2011) conducted a study entitled "applying customer relationship management systems for customer satisfaction: An empirical approach for small-and medium sized companies", aimed to examine the extent to which Customer Relationship Management(CRM) systems contribute to the increase of: (i) customer satisfaction, and (ii) growth of Small-Medium-Sized (SMS) companies, according to an empirical research conducted in Greece. The four hypotheses formulated from literature review refer to the influence of CRM systems to customers' satisfaction, customers' loyalty, and attraction of new customers, performance of personnel and the operating and financial growth of SMS companies. The four hypotheses were matched against the views of 43 business managers of SMS companies; all hypotheses, except one, were not rejected. CRM systems improve customers 'satisfaction, personnel performance, and the growth of SMS companies. On the other handcar systems do not seem to significantly influence customers' loyalty and the attraction of new customers.

Okumu (2012) did a study on the role of Information and Communication Technology in achieving organization's strategic development goals has been an area of constant debate and as well perceived in different management dimensions. Most universities are therefore employing it (ICT) as a tool for competitive advantage to support the accomplishment of their objectives. Universities are also known to have branches or campuses that need strong and steady strategic plans to facilitate their steady expansion and growth. Besides production of quality services from the various levels of management in these universities, they require quality strategic plans and decisions. In addition, to realize the steady growth and competitive advantage, ICT not only has to be an additive but a critical component towards supporting management processes in the universities. The research sought to determine the role of ICT in supporting management processes in institutions of higher learning in Kenya. The research investigated how the different levels of management used ICT in their management processes and whether the use had any

effect on management processes. The research further made recommendations to the universities on better use of ICTs in their management processes. A public university in Kenya was used as a case study in this research.

2.6 Critique of Existing Literature

Richard *et al.* (2007) did an examination of customer relationship management (CRM) technology adoption and its impact on business-to-business customer relationships. He explores the linkage between CRM technology adoption and B2B relationships. Ten marketing and sales managers, and their respective customers, from a variety of New Zealand companies were interviewed. Findings indicated that CRM technology does have a role to play in sustaining and maintaining B2B relationships, but it is the customer communications and people aspect that may be most important. Customers have expectations of CRM technology and are generally more optimistic that CRM will provide benefits to the customer in terms of customer satisfaction and service. Respondents were in agreement that the important elements of relations include trust, commitment and communications. The finding from above study in New Zealand was only limited to effect of customer relationship management technology adoption on business to business customer relationships. The above study was also done in New Zealand, which is a developed economy. The current study was carried out in Kenya, which is a developing economy

Shaukat and Zafarullah (2010) carried out a study on impact of information technology on organizational performance. An analysis of quantitative performance indicators of Pakistan's banking and manufacturing companies. The authors aimed to examine the impact of IT on organizational performance with respect to increase/decrease in organizational income and in number of employees Vs IT expenses incurred by the organizations working in manufacturing and banking sectors of Pakistan over period of 1994-2005. The primary data was collected through in-depth interviews and field surveys of 48 companies, 24 in manufacturing sector (12 local and 12 foreign) and 24 in banking sector (12 local and 12 foreign). The data was tested by applying different statistical/financial techniques. The conclusion of research is that, IT has positive impact on organizational performance

of all the organizations. The banking sector performance outstrips the performance of manufacturing sector. In the banking sector local companies are taking the lead, while in manufacturing companies multinationals are at the top. The findings from this study though looked into impact of information technology; did not include other key areas like human resource management information and customer relation management information. This study was also done in emerging economy. The current study was done in Kenya, which is a developing economy.

Hadzagas, (2011) conducted a study entitled "applying customer relationship management systems for customer satisfaction: An empirical approach for small-and medium sized companies", aimed to examine the extent to which Customer Relationship Management (CRM) systems contribute to the increase of: (i) customer satisfaction, and (ii) growth of Small-Medium-Sized (SMS) companies, according to an empirical research conducted in Greece. The four hypotheses formulated from literature review refer to the influence of CRM systems to customers' satisfaction, customers' loyalty, and attraction of new customers, performance of personnel, and the operating and financial growth of SMS companies. The four hypotheses were matched against the views of 43 business managers of SMS companies; all hypotheses, except one, were not rejected. CRM systems improve customers' satisfaction, personnel performance, and the growth of SMS companies. On the other hand, CRM systems do not seem to influence significantly customers' loyalty and the attraction of new customers. The finding from above study in Greece was only limited to the effect of customer relationship management systems on customer satisfaction. The above study was also done in Greece, which is a developed economy. The current study was carried out in Kenya, which is a developing economy

The study of Mohammad and Haroon (2012) aimed to demonstrate the impact of the effectiveness of the Application of human Resources Management System in Corporate Performance which perspective of workers in the Banking Sector in Jordanian Firm, The study found asset of results, including: 1) There is a significant effect between the quality of the output of human resources information system and

institutional performance in banking sector in the Jordanian firm. 2) There is a statistically significant effect between motives and corporate performance in the banking sector in the Jordanian firm. 3) There is a significant effect between training and organizational performance in the banking sector in the Jordanian firm. The finding from above study in Jordan was only limited to impact of human Resources Management System in Corporate Performance in the banking sector in Jordanian firm. The above study was done in Jordanian firms, which is a developed economy. The current study was carried out in Kenya, which is a developing economy

Al-kharabsheh study (2010) aimed to identify the impact of administrative policies on human resources efficiency in Jordanian public institutions from the point of view of managers and identify factors and positive practices enhancing human resources efficiency. The study found that there are efficient medium for human resources within public Jordanian institutions and no trace of administrative policies on the efficiency of human resources in institutions due to gender, age, number of years in work and qualification variables. The finding from above study in Jordan was only limited to impact of administrative policies on human resources efficiency in Jordanian public institutions. The above study was done in Jordanian firms, which is a developed economy. The current study was carried out in Kenya, which is a developing economy

Alfarsi (2006) describe the impact of the human resources management functions in achieving organizational change at The Sultanate of Oman central ministries. The study found that there are positive results for these posts on achieving organizational change. The study recommended activating human resources management and increase depending on them. The findings from this study though looked into impact of human resources management functions in achieving organizational change; did not include other key areas like supply chain information management and customer relation information management. This study was also done in emerging economy. The current study was done in Kenya, which is a developing economy

2.7 Research Gap

A critical review of past literature show that several conceptual and contextual research gaps existed in the role of management information systems on strategic decision making among tea factories in Kenya. For instance, the studies by Poston and Grabski (2011) examined financial impact of ERP implementations. The results indicated no significant change in costs as a percentage of revenue until the fourth year. Moreover, a significant decrease in costs only for cost of goods sold as a percentage of sales was shown. On the other hand, there were no significant decreases associated with selling, general, and administrative costs scaled by revenues. However, there was a significant decrease in the number of employees as a percentage of revenue all 3 years after ERP implementation.

Adeosun, Adeosun and Adetunde (2009) stated that the use of ICT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. ICT causes fundamental changes in the nature and application of technology in businesses. ICT can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness.

Mohammad and Haroon (2012) aimed to demonstrate the impact of the effectiveness of the Application of human Resources Management System in Corporate Performance which perspective of workers in the Banking Sector in Jordanian Firm, The study found that there was a significant effect between the quality of the output of human resources information system and institutional performance in banking sector in the Jordanian firm. Results also indicated that there was a statistically significant effect between motives and corporate performance in the banking sector in the Jordanian firm. However, these studies were done in developed countries such as Japan and emerging economies such as India. Studies conducted for Africa in general and Kenya in particular are scanty and this paucity of local studies form a contextual knowledge gap. It is in the hope of addressing these contextual and

conceptual gaps that this study attempts to examine the role of management information systems on strategic decision making among tea factories in Kenya.

2.8 Summary of literature

The above chapter reviewed the various theories that explain the independent and dependent variables. The reviewed theories are then critiqued for relevance to specific variables. The chapter also explored the conceptualization of the independent and the dependent variables by analyzing the relationships between the two set of variables. In addition, an empirical review was conducted where past studies both global and local were reviewed in line with the following criteria, title, scope, methodology resulting into a critique. It is from these critiques that the research gap was identified.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter described the methods that were used to set out the research process of gathering and analyzing information to address the research objectives. It covers; research design, population, sampling design, instruments and data analysis.

3.2 Research Design

This study adopted a descriptive survey design. According to Upagade and Shende (2012), research design is the arrangement of condition from collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. It is the logical manner in which individuals or other units are compared and analyzed and acts as the basis of making interpretations from the data.

Descriptive survey is a method of collecting information by interviewing or administering a questionnaire to a sample of individuals (Orodho, 2003). It can be used when collecting information about peoples' attitudes, opinions, habits or any other social issues. Descriptive research is a description of the state of affairs as it exists (Orodho & Kombo, 2002). Sekaran & Bougie (2011) concurs with Orodho & Kombo (2002) by asserting that descriptive study is undertaken in order to ascertain and be able to describe the characteristics of the variables of interest in a situation. Sekaran and Bougie (2011) avers that descriptive study has several advantages such as; it helps in understanding the characteristics of a group in a given situation as well as assisting in systematic thinking about aspects in a given situation. It also offers idea for further probe and research and helps in making certain simple decisions. Zikmund, Babin, Carr and Griffin (2010) say that descriptive research is to describe characteristics of objects, people, groups, organizations, or environments. In other words, descriptive research tries to "paint a picture" of a given situation by addressing who, what, when, where, and how questions.

3.2.1 Research Philosophy

A research philosophy is a way of thinking about and conducting a research. It is not strictly a methodology, but more of a philosophy that guides how the research is to be conducted (Gliner & Morgan, 2000). Research philosophy comprises various factors such as individual's mental model, researcher's way of seeing thing, different perceptions, variety of beliefs towards reality, etc. This concept influences the beliefs and value of the researchers, so that one can provide valid arguments and terminology to give reliable results.

This study adopted the concept of positivism research philosophy which is directly associated with idea of objectivism. In this kind of philosophical approach, researchers give their viewpoint to evaluate social world with the help of objectivity in place of subjectivity (Cooper & Schindler, 2006). According to this philosophy, researchers are interested to collect general information and data from a large social sample instead of focusing details of research. According to this position, researcher's own belief has no value to influence the research study. The positivism philosophical approach is mainly related with the observations and experiments to collect numeric data (Smith *et al.*, 2006)

3.3 Population

The target population of this study was all the 108 tea factories as the unit of analysis and the unit of observation were all the employees, management and directors of tea factories in Kenya. The tea factories which constituted the population of study are 108 factories which were licensed for operations in year 2015 by the Tea Directorate formally known as the Tea Board of Kenya. The study concentrated on only tea factories because it was expected that the players have the relevant and accurate information needed in this study. The tea factories were also selected for this study to find out if the public institutions are embracing technological changes as the private counter parts such as private institutions. Hence the researchers' interest to study the role of information management systems on the strategic decision making among the tea factories in Kenya.

According to Mugenda and Mugenda (2003), a population refers to an entire group of individuals, events or objects having a common observable characteristic. In other words, population is the aggregate of all that conforms to a given specification (Mugenda, 2003). Sekaran and Bougie (2011) refers to a population as the entire group of people, events or things of interest that the researcher wishes to investigate.

3.4 Sampling Frame

Sampling frame is a (physical) representation of all the elements in the population from which the sample is drawn (Sekaran & Bougie, 2011). Turner (2003) defines a sampling frame as the set of source materials from which the sample is selected. The definition also encompasses the purpose of sampling frames, which is to provide a means for choosing the particular members of the target population that are to be interviewed in the survey. More than one set of materials may be necessary and this is generally the case in a multiple survey with a multi-stage nature.Upagade and Shende (2012) also refers to a sampling frame as a source list containing all names of the universe.

The sampling frame of this study was derived from the database of the Tea Directorate, 2015 (formally known as the Tea Board of Kenya) which is the sole licensing authority of all tea factories operating in Kenya. The list of 108 tea factories licensed for operations in the year 2015 is shown on appendix III. The target population was derived from the listed organizations. The target population was the directors, management and officers employed by the sampled tea factories. Strategic management issues are mostly handled by top managers of organizations. Strategy is initiated and led by top management and hence they appreciate the influence of strategic initiatives in a company more than the ordinary workers. This study therefore handpicked top management and middle management employees from the firms given that they are more informed about strategic issues and have strategic responsibilities in the organization. The general employees were randomly selected since they also use that information management systems in the organization and it deemed right to use them for study to avoid biasness from the

management employees. The specific population groups targeted in this study are shown on Table 3.1.

3.5 Sample and Sampling Technique

A sample is a subset of the population as it comprises some members selected from it. By studying the sample one is able to draw conclusions that are generalizable to the population of interest (Sekaran & Bougie, 2011; Mugenda & Mugenda, 2003; Kothari, 2004). Kombo and Tromp (2009) also define a sample as a finite part of a statistical population whose properties are studied to gain information about the whole or universe. Stratified sampling is a probability sampling design that first divides the population into meaningful non overlapping subsets, and then randomly chooses the subjects from each subset Sekaran and Bougie (2011) while Mugenda and Mugenda (2003) and Kothari (2001) agree to this definition. Kombo and Tromp (2009) refer to stratified sampling as the dividing of the population into homogenous subgroups then taking a simple random sample from each subgroup.

The essence of stratification was to ensure inclusion, in the sample, of subgroup, which otherwise would be omitted entirely by other sampling methods because of their small numbers in the population. Simple random sampling is a probability sampling design in which every element in the population has a known and equal chance of being selected as a subject Sekaran and Bougie (2011). Upagade and Shende (2012) confirm that a simple random sampling is probabilistic and is also known as chance sampling. Simple random sampling was easy to implements and every unit has an equal chance of being selected and hence eliminating selection biasness.

The sample was determined at two levels. The sampling was at an organisational level or tea factory level and the respondents' level. There are 108 tea factories and for the purposes of this study 30 factories were randomly selected as the units of study. To select the 30 factories, all the 108 factories were clustered into the eight tea growing zones. These regions include the areas around Mt. Kenya, Aberdares, Nyambene, Mau escarpment, Kericho Highlands, Nandi, Kisii Highlands and

Cherangani Hills. Three KTDA managed factories were randomly selected from each zone which adds upto 24 and the balance six were randomly selected from private run factories. This made up the 30 factories. The list of the 30 factories that were selected for the study is shown in appendix IV. This represents 28% of the 108 factories whereas Mugenda and Mugenda (2003) and Gay (1981) recommend a 10% sample for a descriptive study.

Further within each of the 30 randomly selected tea factories, stratified sampling random sampling was used. Within each tea factory three strata were created of employees, management and directors. In the strata of directors and management purposive sampling was done in order to conveniently target the real users and decision makers related with ICT matters in the factories. In each factory, the respondents sampled purposively were two directors, the factory manager, the ICT manager, finance manager and the operations manager. Sekaran and Bougie (2011) also refer to convenience sampling as judgment sampling and that it is good when choosing subjects who are most advantageously placed or in the best position to provide the information required. It therefore calls for special efforts to locate and gain access to the individuals who do have the requisite information. Within the stratum of employees, simple random sampling was used to identify individual respondents.

The target and accessible population was large and greater than ten thousand and hence the study used a sample of at least 384 respondents as recommended by Mugenda and Mugenda (2003) that the minimum sample from large population should be at least 384. This minimum sample of a large population was recommended when there was an assumption of a normally distributed population and a degree of confidence of 95% and a significance level of 5%. The formula for determining a minimum sample of a large population is as follows.

$$n=Z^2*p*(1-p)/d^2$$

Where:

n = Sample size for large population, Z = Normal distribution Z value score, (1.96)

p = Proportion of units in the sample size possessing the variables under study, where for this study it was set at 50% (0.5), d = Precision level desired or the significance level which is 0.05 for the study

The substituted values in determining the sample size for a large population are as follows.

$$n= \frac{(1.96)^2*(0.5)(0.5)}{(0.05)^2}= 384$$

The sample was distributed equally in all factories. Due to the rounding off of the distribution the sample has been rounded to the nearest decimal point leading to a sample of 390 respondents. The sample size was as laid on the sample matrix below on table 3.1

Table 3.1: Sample Matrix

Category	Sample Per Factory	Total Sample
Directors	2	60
Factory Manager	1	30
ICT Manager	1	30
Finance Manager	1	30
Operations Manager	1	30
Employees	7	210
Total	**13**	**390**

3.6 Data Collection Instruments

Primary information was gathered by use of a questionnaire coupled with informal interviews that was guided by the questionnaire. A likert scale questionnaire was used. A questionnaire is a pre-formulated written set of questions to which the respondents record the answers usually within rather closely delineated alternatives. Liker scale is an interval scale that specifically uses five anchors of strongly disagrees, disagree, neutral, agree and strongly agree. The likert measures the level of agreement or disagreement. Likert scale is good in measuring perception, attitude, values and behavior. The likert scale has scales that assist in converting the

qualitative responses into quantitative values (Mugenda & Mugenda, 2003;Upagade & Shende, 2012; Zikmund, Babin, Carr & Griffin, 2010).

3.7 Data Collection Procedures

The questionnaires were issued to the respondents through self introductions and also internal informants were used to give a lead on how to get to the respondents. For the respondents who were not willing to fill the questionnaire, they were guided on how to respond and they were engaged by use of informal interviews which were guided by the questionnaire statements.

3.8 Pilot Test

The questionnaire was pilot tested to determine its validity and reliability. Pilot test was conducted in order to determine approximate length of the survey in terms of time, as well as to further refine the instrument. Pilot testing of the instrument includes opportunities for comments relating to the clarity and content of the instrument.

Pilot testing was a crucial step in conducting a research. Even modest pretesting can avoid costly errors and therefore the questionnaire was tested for its reliability and validity. A pilot test was an evaluation of the specific questions, format, question sequence and instructions prior to use in the main survey. Questions answered by the pilot test include: Is each of the questions measuring what it is intended to measure? Are questions interpreted in a similar way by all respondents? Do close-ended questions have a response which applies to all respondents? Are the questions clear and understandable? Is the questionnaire too long? How long does the questionnaire take to complete? Are the questions obtaining responses for all the different response categories or does everyone respond the same?

3.8.1 Validity

According to Rodney (1998), an instrument is valid if it measures the concept that it is supposed to measure. The validity of the questionnaire was tested through

discussion with two randomly selected factory managers. Their proposed changes were evaluated and considered for adjusting the questionnaire to enhance its validity. This ensured that the questionnaire content does not conflict on the confidentially and ensured that vague statements are rectified.This study used both construct validity and content validity. For construct validity, the questionnaire was divided into several sections to ensure that each section assessed information for a specific objective, and also ensured that the same closely ties to the conceptual framework for this study. To ensure content validity, the questionnaire was subjected to thorough examination by two randomly investors. They were asked to evaluate the statements in the questionnaire for relevance and whether they were meaningful, clear and loaded of offensive. On the basis of the evaluation, the instrument were adjusted appropriately and subjected to the final data collection exercise. Their review comments were used to ensure that content validity was enhanced.

3.8.2 Reliability

A variable is reliable if it is consistent. A Reliability test answers to the consideration whether the procedures of data collection and analysis generated the same results on other occasions or other observers made similar observations and arrive at the same conclusions from the raw data (Smith *et al.*, 2002 and Saunders *et al.*, 2007). It means that repeat observations give similar results.

Baker *et al.* (2001) states that the size of a sample to be used for piloting testing varies depending on time, costs and practicality, but the same would tend to be 5- 10 per cent of the main survey. According to Cooper and Schindler (2006) the respondents in a pilot test do not have to be statistically selected when testing the validity and reliability of the instruments.

In this study, data collection instrument which was a questionnaire was tested on 5% of the sample of the questionnaires to ensure that it was relevant and effective. Reliability was tested using questionnaire duly completed by twenty (20) randomly selected respondents. These respondents were not included in the final study sample in order to control for response biasness.

The questionnaire responses were input into statistical package for social sciences (SPSS) and Cronbach's alpha coefficient generated to assess reliability. The closer Cronbach's alpha coefficient is to 1, the higher the internal consistency reliability (Sekaran, 2003). Kurpius and Stafford (2006) recommend that a cronbach alpha reliability correlation coefficient should be around 0.70 for a newly developed tool.

3.9 Data Analysis and Presentation

According to Hyndman (2008), data processing involves translating the answers on a questionnaire into a form that can be manipulated to produce statistics. This involves coding, editing, data entry, and monitoring the whole data processing procedure. The main aim of checking the various stages of data processing is to produce a file of data that is as error free as possible. Burns and Grove (2003) define data analysis as a mechanism for reducing and organizing data to produce findings that require interpretation by the researcher. De Vos (2002) goes ahead and describes data analysis as a challenging and creative process characterized by an intimate relationship of the researcher with the participants and data generated. Data analysis is the processing of data collected to make meaningful information out of them (Sounders, Lewis and Thornhill, 2009**).** This is necessary as raw data convey little meaning to most people.

After data had been obtained through questionnaires and secondary sources, it was prepared in readiness for analysis by editing, handling blank responses, coding, categorizing and keyed into SPSS (Statistical Package for Social Sciences) computer software for analysis. The information gathered in the questionnaires was sorted, coded and input into the statistical package for social sciences (SPSS) for production of frequencies, descriptive statistics and inferential statistics. The information generated by the SPSS was used to make generalizations and conclusions of the study. Statistical indicators like the mean, standard deviation and percentages were used to enable the process of making conclusions. Other statistical indicators that were used are the F-test, t-test and level of significance.

Quantitative information is usually analyzed through statistical procedures. Statistical analyses cover a broad range of techniques, from simple procedures that we all use regularly (e.g., computing an average) to complex and sophisticated methods. Although some methods are computationally formidable, the underlying logic of statistical tests is relatively easy to grasp, and computers have eliminated the need to get bogged down with detailed mathematical operations (Polit & Beck, 2003).

Qualitative modes of data analysis provide ways of discerning, examining, comparing and contrasting, and interpreting meaningful patterns or themes. Meaningfulness is determined by the particular goals and objectives of the project at hand: the same data can be analyzed and synthesized from multiple angles depending on the particular research or evaluation questions being addressed. Content analysis was used for qualitative data analysis since it involves discussion. The results were presented using tables and pie charts to give a clear picture of the research findings at a glance.

Factor analysis was used to establish the appropriateness of the questionnaire constructs. Specifically factor loadings were used to establish the weights of the various statements on extracted factors. Before the factor analysis was conducted, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was conducted to determine whether adequate correlation exists between the individual items contained within each of the sections of the questionnaire. A KMO statistic, an associated Bartlett's p-value and an Anti-image correlation statistic are determined when using this test.

A multiple regression model was used to test the significance of the influence of the independent variables on the dependent variable. The multiple regression model was as laid below.

$$Y = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\beta_5X_5+ e$$

Where:

Y = the value of the dependent variable

$\{\beta_i; i=1,2,3,4,5\}$ = The coefficients representing the various independent variables.

$\{X_i; i=1,2,3,4,5\}$ = Values of the various independent (covariates) variables.

e is the error term which was assumed to be normally distributed with mean zero and constant variance.

Y = Strategic decision making

X_1 = Human resource management information system,

X_2 = Customer relationship management information system

X_3 = Supply chain management information system

X_4 = Computerized accounting and financial management information system

X_5 = Executive management information system

Analysis of data using regression model was used previously by Aduda (2011) in a study which investigated the relationship between executive compensation and firm performance in the Kenyan banking sector. Also Ngugi (2001) used a regression analysis in a study on the empirical analysis of interest rates spread in Kenya while Khawaja and Mulesh (2007) used regression analysis to identify the determinants of interest rates spread in Pakistan.

Using SPSS, the regression model was tested on how well it fits the data. The significance of each independent variable was also tested. Fischer distribution test called F-test was applied. It refers to the ratio between the model mean square divided by the error mean square. F-test was used to test the significance of the overall model at a 5 percent confidence level. The p-value for the F-statistic was applied in determining the robustness of the model. The conclusion was based on the basis of p value where if the null hypothesis of the beta was rejected then the overall model was significant and if null hypothesis was accepted the overall model was insignificant. In other words if the p-value was less than 0.05 then it was concluded that the model was significant and had good predictors of the dependent variable and that the results are not based on chance. If the p-value was greater than 0.05 then the

model was not significant and cannot be used to explain the variations in the dependent variable.

Similarly the t-test statistic was used to test the significance of each individual predictor or independent variable and hypothesis. The p-value for each t-test was used to make conclusions on whether to fail to accept or fail to reject the null hypotheses. The benchmark for this study for failure to reject or failure to accept the null hypothesis was a level of significance of 5 percent. If the p-value was less than five percent the null hypothesis failed to be accepted and the alternate hypothesis failed to be rejected. Also if the p-value was greater than 5 percent the null hypothesis failed to be rejected and the alternate hypothesis failed to be accepted.

3.10 Operationalization of Variables

Table 3.2: Operationalization of Variables

Variable Name	Type of Variable	Data Collection method	Type of Scale	Type of analysis	Indicator	Level of analysis
Strategic decision making	Dependent Variable	Questionnaire Observations	Interval & Nominal	Qualitative & Quantitative	Provision of various ICT facilities such as Computers, Software, Mobile phones, and Digital equipment	Descriptive & Inferential statistics
Human resource management information system	Independent Variable	Questionnaire & informal Interview	Interval & Nominal	Qualitative & Quantitative	Use of HRIS Recruitment and selection promotion	Descriptive & Inferential statistics
Customer management relationship information system	Independent Variable	Questionnaire & Interview	Interval & Nominal	Qualitative & Quantitative	CRM strategy in place Timely delivery Improved customer service	Descriptive & Inferential statistics
Supply chain management information system	Independent Variable	Questionnaire & Interview	Interval & Nominal	Qualitative & Quantitative	Efficient communication flow Low lead times	Descriptive & Inferential statistics
Computerized accounting and financial management information system	Independent Variable	Questionnaire & Interview	Interval & Nominal	Qualitative & Quantitative	Management decisions Annual reports Computerised financial reports	Descriptive & Inferential statistics
Executive managementinforrmation system	Independent Variable	Questionnaire & Interview	Interval & Nominal	Qualitative & Quantitative	Investment in management information system	Descriptive & Inferential statistics

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter deals with the analysis of data. The data analysis is in harmony with the specific objectives where patterns were investigated, interpreted and inferences drawn on them.

4.2 Response Rate

The number of questionnaires, administered to all the respondents, was 390. A total of 284 questionnaires were properly filled and returned from the tea factory employees. This represented an overall successful response rate of 73%. According to Mugenda and Mugenda (2003), a response rate of 50% or more is adequate. Babbie (2004) also asserted that return rates of 50% are acceptable to analyze and publish, 60% is good and 70% is very good.

Table 4.1: Response Rate

Response Rate	Frequency	Percent
Returned	284	73%
Unreturned	106	27%
Total	390	100%

4.3 Demographic Information

4.3.1 Department of the Respondents

The respondents were asked to indicate thedepartments they worked in. Figure 4.1 illustrates that 38% of the respondents were in production, while 33% of the respondents were in tasting and 21% were in blending department. The findings imply that the respondents were well distributed among the departments which could have contributed to accurate responses.

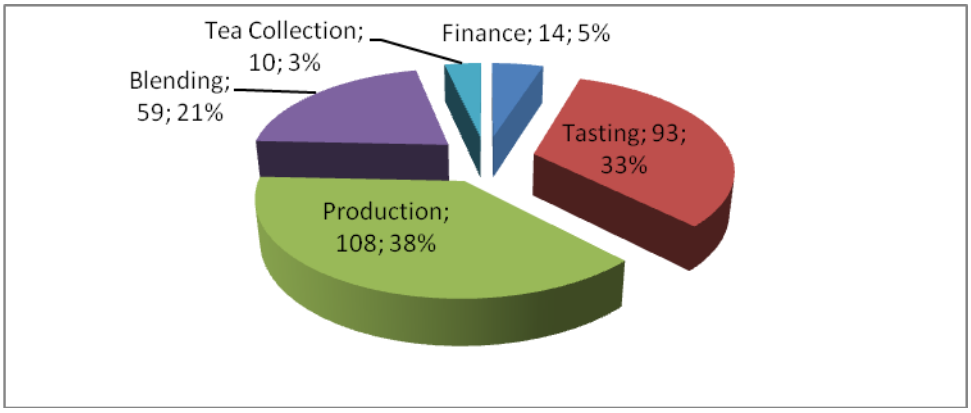

Figure 4.1: Department of the Respondents

4.3.2 Years Worked in Tea Sector

The study sought to find out the years the respondents had worked in the organization. Figure 4.2 shows that 52% of the respondents indicated they had worked for the organization between 3 to 5 years while 36% indicated between 1 to 2 years and 12% indicated less than 1 year. The findings imply that the respondents had worked long enough in the firms and hence had knowledge about the issues that the researcher was looking for.

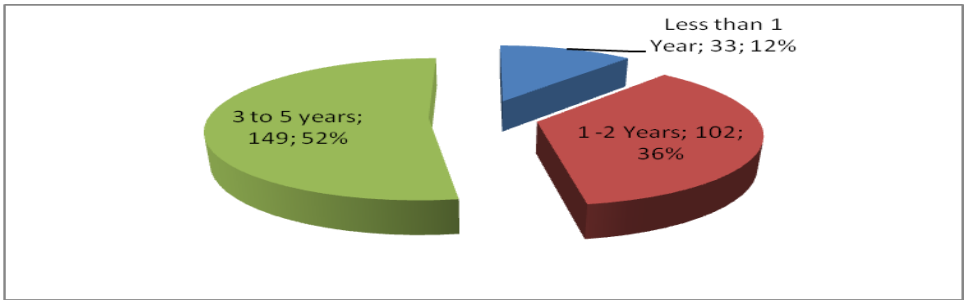

Figure 4.2: Length of Employment

4.4 Strategic Decision Making

4.4.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on strategic decision making, a coefficient of 0.746 was found as shown in Table 4.2. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the strategic decision making variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.2: Reliability Test for Strategic Decision Making

Variable	Strategic Decision Making
Number of items	7
Cronbach's Alpha	0.746

4.4.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.3 showed that the KMO statistic was 0.744 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 450.32 with 21 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in Table 4.3. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.3: Strategic Decision Making KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.744
Bartlett's Chi- Square	450.32
Bartlett's df	21
Bartlett's Sig.	0

4.4.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 7 statements on strategic decision making can be factored into 1 factor. The total variance explained by the extracted factor is 41.06% as shown in Table 4.4. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.4: Strategic Decision Making Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.875	41.064	41.064	2.875	41.064	41.064
2	1.067	15.245	56.31			
3	0.921	13.153	69.463			
4	0.693	9.896	79.359			
5	0.622	8.892	88.251			
6	0.481	6.868	95.119			
7	0.342	4.881	100			

Extraction Method: Principal Component Analysis.

4.4.4 Descriptive Analysis

The study sought to determine the strategic decision making process among the tea factories in Kenya. Table 4.5 shows that 65.9% of the respondents agreed that the use of internet communication facilities has enhanced information flow between

administrators and employees in their factory, 75% agreed that use of MIS facilities such as emails, sms, for communication has resulted into quick decision making in their factory due to easy information flow and 83.1% agreed that MIS has improved collaboration between top managers, administrators and other employees, customers and suppliers in their factory.

In addition, 78.9% of the respondents agreed that use of MIS for correspondence in their factory has increased participation of all stakeholders in factory activities and operations, 66.2% agreed that use of MIS has increased transparency and accountability in factories activities as well as programs. 79.5% agreed that information systems and communication facilities at their factory are efficient for their factory communication needs.

Finally, 80.7% of the respondents agreed that use of MIS facilities has helped in improving the monitoring and evaluation of different department activities. The mean score for the responses was 3.82 which indicate that many employees agreed to the statements regarding strategic decision making among tea factories in Kenya.

Table 4.5: Strategic Decision Making

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
The use of internet communication facilities has enhanced information flow between administrators and employees in our factory.	13.4%	9.9%	10.9%	33.5%	32.4%	3.62
Use of MIS facilities such as emails, sms, for communication has resulted into quick decision making in our factory due to easy information flow.	6.7%	9.2%	9.2%	53.2%	21.8%	3.74
MIS has improved collaboration between top managers, administrators and other employees, customers and suppliers in our factory.	4.2%	4.9%	7.7%	52.8%	30.3%	4.00
Use of MIS for correspondence in our factory has increased participation of all stakeholders in factory activities and operations.	5.6%	8.1%	7.4%	50.4%	28.5%	3.88
Use of MIS has increased transparency and accountability in factories activities and programs.	6.7%	18.3%	8.8%	36.6%	29.6%	3.64
Information systems and communication facilities at our factory are efficient for our factory communication needs.	6.0%	10.2%	4.2%	49.6%	29.9%	3.87
Use of MIS facilities has helped in improving the monitoring and evaluation of different departments activities.	0.4%	10.9%	8.1%	47.2%	33.5%	4.02
Average	6.1%	10.2%	8.0%	46.2%	29.4%	3.82

4.5 Human Resource Management Information System

4.5.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on human resource management information system, a coefficient of 0.731 was found as shown in Table 4.6. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the human resource management information system variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.6: Reliability Test for Human Resource Management Information System

Variable	HRM Information system
Number of items	10
Cronbach's Alpha	0.731

4.5.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.7 showed that the KMO statistic was 0.686 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 690.549 with 45 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in

Table 4.7. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.7: Human Resource Management Information System KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.686
Bartlett's Chi- Square	690.549
Bartlett's df	45
Bartlett's Sig.	0

4.5.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 10 statements on human resource management information system can be factored into 1 factor. The total variance explained by the extracted factor is 29.57% as shown in Table 4.4. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.8: Human Resource Management Information System Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.958	29.577	29.577	2.958	29.577	29.577
2	1.826	18.263	47.84			
3	1.231	12.307	60.146			
4	0.933	9.335	69.481			
5	0.728	7.284	76.765			
6	0.654	6.54	83.305			
7	0.503	5.031	88.336			
8	0.446	4.46	92.795			
9	0.416	4.155	96.951			
10	0.305	3.049	100			

Extraction Method: Principal Component Analysis.

4.5.4 Descriptive Analysis

The first objective of the study was to establish the influence of human resource management information system on strategic decision making among tea factories in Kenya. Table 4.9 indicates that 76.8% of the respondents indicated that their HRIS had made their HR decision-making more effective, 75.3% agreed that the information generated from their HRIS helps their institution decide on employee issues and 73.9% agreed that the information generated from their HRIS helps their institution to make more effective promotion decisions.

Furthermore, 79.6% of the respondents agreed that the information generated from their HRIS helps their institution decide when to hire, 76.1% agreed that the information generated from their HRIS helps their institution make better decisions in choosing better employees and 73.3% agreed that the information generated from their HRIS helps their institution decide when training and skill development are necessary.

In addition, 71.8% of the respondents agreed that overall their administration thinks that HRIS is effective in meeting strategic goals, 70.4% agreed that the information generated from their HRIS has improved the strategic decision making of top administrators and 66.2% agreed that the information generated from their HRIS has made HR a more strategic partner in the institution.

Sixty six point two percent of the respondents agreed that the information generated from their HRIS has increased coordination between HR department and top administrators. The mean score for responses for this section was 3.81 which indicates that majority of the respondents agreed that human resource management information system was a key determinant of strategic decision making among tea factories.

The study findings are inconsistent with those in Burbach and Dundon (2005) conducted a study to assess the strategic potential of HRIS to facilitate people management activities in 520 organizations in the Republic of Ireland. They found that foreign owned large organizations adopted HRIS more often than smaller Irish owned organizations. They also found that HRIS technologies were used for administrative rather than strategic decision-making purposes.

The study findings agree with those in Delorme and Arcand (2010), who aimed to elaborate on the development of the roles and responsibilities of HR practitioners from a traditional perspective to a strategic perspective, found that the introduction of new technologies in the organization affected the way HR professionals accomplished their tasks within the HR department and the rest of the organization.

Table 4.9: Human Resource Management Information System

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
Our HRIS has made our HR decision-making more effective.	2.5%	13.0%	7.7%	51.4%	25.4%	3.84
The information generated from our HRIS helps our institution decide on employee issues.	2.1%	11.6%	10.9%	46.1%	29.2%	3.89
The information generated from our HRIS helps our institution to make more effective promotion decisions.	1.4%	13.0%	11.6%	47.5%	26.4%	3.85
The information generated from our HRIS helps our institution decide when to hire.	1.4%	10.9%	8.1%	53.2%	26.4%	3.92
The information generated from our HRIS helps our institution make better decisions in choosing better employees.	3.9%	12.3%	7.7%	52.5%	23.6%	3.8
The information generated from our HRIS helps our institution decide when training and skill development are necessary.	4.6%	12.7%	9.5%	43.7%	29.6%	3.81
Overallary our administration thinks that HRIS is effective in meeting strategic goals.	4.9%	15.5%	7.7%	34.5%	37.3%	3.84
The information generated from our HRIS has improved the strategic decision making of top administrators.	2.8%	14.4%	12.3%	32.0%	38.4%	3.89
The information generated from our HRIS has made HR a more strategic partner in the institution.	3.5%	17.3%	13.0%	38.7%	27.5%	3.69
The information generated from our HRIS has increased coordination between HR department and top administrators.	1.4%	16.9%	15.5%	52.1%	14.1%	3.61

Average	2.9%	13.8%	10.4%	45.2%	27.8%	3.81

4.5.5 Relationship between HRM Information and Strategic Decision Making

Table 4.10 shows the correlation results which indicate that there was a positive and significant relationship between human resource management information system and strategic decision making. This was evidenced by the p value of 0.000 which is less than that of critical value (0.05)

Table 4.10: Relationship between HRM Information and Strategic Decision Making

Variable		Strategic Decision Making	HRM Information
Strategic DecisionMaking	Pearson Correlation	1	
	Sig. (2-tailed)		
HRM Information	Pearson Correlation	0.534	1
	Sig. (2-tailed)	0.000	

Regression analysis was conducted to empirically determine whether human resource management information system was a significant determinant of strategic decision making among tea factories in Kenya. Regression results in Table 4.11 indicate the goodness of fit for the regression between human resource management information system and strategic decision making was satisfactory. An R squared of 0.285 indicates that 28.5% of the variations in strategy decision making are explained by the variations in use of human resource management information system. This implies that 71.5% of the unexplained variations in strategic decision making is accounted for by the other variables including customer relationship management information system, supply chain management information system, computerized accounting and financial management information system and executive management information system.

Table 4.11: Model Summary for HRM Information System

Indicator	Coefficient
R	0.534
R Square	0.285
Std. Error of the Estimate	0.60367

The overall model significance was presented in table 4.12. An F statistic of 112.508 indicated that the overall model was significant. The findings imply that HRM information system was statistically significant in explaining strategic decision making among tea factories in Kenya.

Table 4.12: ANOVA for HRM Information System

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	41	1	41	112.508	0.000
Residual	102.766	282	0.364		
Total	143.766	283			

The human resource management system coefficients are presented in table 4.13. The results show that human resource management system contributes significantly to the model since the p-value for the constant and gradient are less than 0.05. The findings imply that one positive unit change in use of human resource management systemled to a change in strategy decision making effectiveness at the rate of 0.656. This confirms the positive effect of human resource management system on strategic decision making.

The study findings agree with those in Delorme and Arcand (2010), who aimed to elaborate on the development of the roles and responsibilities of HR practitioners from a traditional perspective to a strategic perspective, found that the introduction of new technologies in the organization affected the way HR professionals accomplished their tasks within the HR department and the rest of the organization.

Table 4.13: Coefficients of HRM Information System

Variable	Beta	Std. Error	t	Sig.
Constant	1.314	0.239	5.506	0.000
HRM Information	0.656	0.062	10.607	0.000

4.6 Customer Relationship Management Information System

4.6.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on customer relationship management information system, a coefficient of 0.731 was found as shown in Table 4.14. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the customer relationship management information system variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.14: Reliability Test for Customer Relationship Management Information System

Variable	CRM Information system
Number of items	6
Cronbach's Alpha	0.731

4.6.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.15 showed that the KMO statistic was 0.721 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 415.289 with 15 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in Table 4.15. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.15: Customer Relationship Management Information System KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.721
Bartlett's Chi- Square	415.289
Bartlett's df	15
Bartlett's Sig.	0

4.6.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach's alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 6 statements on customer relationship management information system can be factored into 1 factor. The total variance explained by the extracted factor is 43.62% as shown in Table 4.16. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.16: Customer Relationship Management Information System Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.618	43.628	43.628	2.618	43.628	43.628
2	1.222	20.363	63.99			
3	0.734	12.229	76.219			
4	0.622	10.374	86.593			
5	0.481	8.023	94.617			
6	0.323	5.383	100			

Extraction Method: Principal Component Analysis.

4.6.4 Descriptive Analysis

The second objective of the study was to establish whether customer relationship management information system affects strategic decision making among tea factories in Kenya. Results on table 4.17 illustrates that 70.1% of the respondents agreed that customer relationship information management system enabled the organization to analyze the customer profiles, 69.4% agreed that customer relationship information management system helped tea factories to identify the most profitable customer and prospects and 68.3% agreed that customer relationship information management system enabled the organization to provide better customer service. Seventy one point one percent of the respondents agreed that customer relationship information management system has assisted in improving the image of tea factories over time, 74.6% agreed that customer relationship information management system enabled tea factories discover new clients and increase revenues and 61.6% agreed that customer relationship information management system enabled the organization to analyze the customer profiles. The mean score for responses for this section was 3.69 which indicates that majority of the respondents agreed that customer relationship management information system was a key determinant of strategic decision making among tea factories.

The study findings agreed with those of Battor and Battor (2010) who examined the direct impact of both CRM and innovation on firm performance. Moreover, they

investigated the role of innovation as a mediating mechanism to explain the effect of CRM on performance. The authors used structural equation modeling to test the relationships among these constructs. The results supported the direct impact of CRM and innovation on performance. Also, the findings indicated that the indirect effect of CRM on firm performance through innovation is significant. These results reinforced the view that developing close relationships with customers enhances a firm's ability to innovate.

The study findings are in agreement with those of Holger *etal*.(2011) who conducted a study on customer relationship management and company performance the mediating role of new product performance, aimed to develop a conceptual framework in which multiple facets of CRM are linked to new product and company performance. The results provided evidence that CRM has a positive effect on new product performance and further, that this effect is moderated by CRM reward systems but not CRM technology. Also the results showed that new product performance mediates the relationship between CRM and company performance.

Table 4.17: Customer Relationship Management Information System

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
Customer relationship information management system enables the organization to analyze the customer profiles.	3.2%	14.1%	12.7%	44.7%	25.4%	3.75
Customer relationship information management system helps tea factories to identify the most profitable customer and prospects.	3.9%	17.6%	9.2%	33.5%	35.9%	3.8
Customer relationship information management system enables the organization to provide better customer service.	3.2%	21.5%	7.0%	34.5%	33.8%	3.74
Customer relationship information management system has assisted in improving the image of tea factories over time.	6.7%	13.4%	8.8%	51.4%	19.7%	3.64
Customer relationship information management system enables tea factories discover new clients and increase revenues.	7.4%	10.2%	7.7%	47.5%	27.1%	3.77
Customer relationship information management system enables the organization to analyze the customer profiles.	8.1%	19.4%	10.9%	44.0%	17.6%	3.44
Average	5.4%	16.0%	9.4%	42.6%	26.6%	3.69

4.6.5 Relationship between CRM Information and Strategic Decision Making

Table 4.18 shows the correlation results which indicate that there was a positive and significant relationship between customer relationship management information system and strategic decision making. This was evidenced by the p value of 0.000 which is less than that of critical value (0.05)

Table 4.18: Relationship betweenCRM Information and Strategic Decision Making

Variable		StrategicDecisionMaking	CRMInformation
StrategicDecisionMaking	Pearson Correlation	1	
	Sig. (2-tailed)		
CRMInformation	Pearson Correlation	0.438	1
	Sig. (2-tailed)	0.000	

Regression analysis was conducted to empirically determine whether customer relationship management information system was a significant determinant of strategic decision making among tea factories in Kenya. Regression results in Table 4.19 indicate the goodness of fit for the regression between customer relationship management information system and strategic decision making was satisfactory. An R squared of 0.192 indicates that 19.2% of the variations in strategy decision making are explained by the variations in use of customer relationship management information system. This implies that 80.8% of the unexplained variations in strategic decision making is accounted for by the other variables including human resource management information system, supply chain management information system, computerized accounting and financial management information system and executive management information system.

Table 4.19: Model Summary for CRM Information System

Indicator	Coefficient
R	0.438
R Square	0.192
Std. Error of the Estimate	0.64193

The overall model significance was presented in table 4.20. An F statistic of 66.881 indicated that the overall model was significant. The findings imply that CRM information system was statistically significant in explaining strategic decision making among tea factories in Kenya.

Table 4.20: ANOVA for CRM Information System

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.56	1	27.56	66.881	0.000
Residual	116.206	282	0.412		
Total	143.766	283			

The customer relationship management system coefficients are presented in table 4.21. The results show that customer relationship management system contributes significantly to the model since the p-value for the constant and gradient are less than 0.05. The findings imply that one positive unit change in use of customer relationship management systemled to a change in strategy decision making effectiveness at the rate of 0.407. This confirms the positive effect of customer relationship management system on strategic decision making.

The study findings are in agreement with those of Holger *et al.*(2011) who conducted a study on customer relationship management and company performance the mediating role of new product performance, aimed to develop a conceptual framework in which multiple facets of CRM are linked to new product and company performance. The results provided evidence that CRM has a positive effect on new product performance and further, that this effect is moderated by CRM reward systems but not CRM technology. Also the results showed that new product performance mediates the relationship between CRM and company performance.

Table 4.21: Coefficients of CRM Information System

Variable	Beta	Std. Error	t	Sig.
Constant	2.315	0.187	12.346	0.000
CRMInformation	0.407	0.05	8.178	0.000

4.7 Supply Chain Management Information System

4.7.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on supply chain management information system, a coefficient of 0.869 was found as shown in Table 4.21. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen,

Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the supply chain management information system variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.22: Reliability Test for Supply Chain Management Information System

Variable	SCM Information system
Number of items	8
Cronbach's Alpha	0.869

4.7.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.23 showed that the KMO statistic was 0.840 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 1216.71 with 28 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in Table 4.23. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.23: Supply ChainManagement Information System KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.84
Bartlett's Chi- Square	1216.71
Bartlett's df	28
Bartlett's Sig.	0

4.7.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 8 statements on supply chain management information system can be factored into 1 factor. The total variance explained by the extracted factor is 52.48% as shown in Table 4.24. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.24: Supply Chain Management Information System Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.199	52.486	52.486	4.199	52.486	52.486
2	1.498	18.726	71.212			
3	0.562	7.031	78.243			
4	0.52	6.495	84.738			
5	0.424	5.304	90.042			
6	0.332	4.149	94.192			
7	0.298	3.723	97.915			
8	0.167	2.085	100			

Extraction Method: Principal Component Analysis.

4.7.4 Descriptive Analysis

The third objective of the study was to establish the influence of supply chain management information system on strategic decision making among tea factories in Kenya. Table 4.25 shows that 62.7% of the respondents agreed that their supply chain information management system had reduced the time in servicing customer orders, 67.2% agreed that their supply chain information management system had increased financial performance of the organization and 62% agreed that their supply chain information management system had increased customer service levels.

Seventy four point seven percent of the respondents agreed that their supply chain information management system had increased timely deliveries, 75% agreed that their supply chain information management system had reduced supply chain costs and 77.4% agreed that their supply chain information management system has increased flexibility towards the customer demands.

Finally, 62.8% of the respondents agreed that their supply chain information management system had increased inventory control and 70.8% agreed that their supply chain information management system had led to efficient information flow making it easier to make strategic decisions. The mean score for responses for this section was 3.76 which indicates that majority of the respondents agreed that supply chain management information system was a key determinant of strategic decision making among tea factories.

The study findings corroborate with those in Bagchi and Larsen (2002) who asserted that organizational integration encourages partners to become more entrenched members of the network and instills a sense of belonging to the supply chain. It becomes easier to generate trust among partners in an integrated supply chain. Trust promotes collaboration and decision delegation, reduces irrational behavior and "second guessing" among supply chain members thereby reducing the need for safety stocks. The objective of organizational integration is not merely to resolve conflicts should they arise, but rather to recognize and avoid potential conflicts and/or divergence of interest in advance and device governance structure to forestall or avoid it. True organizational integration thus paves the way for individual members of the chain to behave more like a unified entity sharing ideas, skills and culture alike. Supply chain integration may fail to blossom without organizational integration among supply chain partners.

Table 4.25: Supply Chain Management Information System

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
Our supply chain information management system has reduced the time in servicing customer orders.	9.2%	12.0%	16.2%	37.7%	25.0%	3.57
Our supply chain information management system has increased financial performance of the organization.	7.4%	13.0%	12.3%	42.6%	24.6%	3.64
Our supply chain information management system has increased customer service levels.	7.4%	19.4%	11.3%	42.6%	19.4%	3.47
Our supply chain information management system has increased timely deliveries.	5.3%	10.6%	9.5%	40.5%	34.2%	3.88
Our supply chain information management system has reduced supply chain costs.	3.9%	5.3%	15.8%	34.2%	40.8%	4.03
Our supply chain information management system has increased flexibility towards the customer demands.	3.2%	7.0%	12.3%	41.5%	35.9%	4.00
Our supply chain information management system has increased inventory control.	7.0%	18.3%	12.3%	34.2%	28.2%	3.58
Our supply chain information management system has led to efficient information flow making it easier to make strategic decisions.	3.2%	16.5%	9.5%	26.4%	44.4%	3.92
Average	5.8%	12.8%	12.4%	37.5%	31.6%	3.76

4.7.5 Relationship between SCM Information and Strategic Decision Making

Table 4.26 shows the correlation results which indicate that there was a positive and significant relationship between supply chain management information system and strategic decision making. This was evidenced by the p value of 0.000 which is less than that of critical value (0.05)

Table 4.26: Relationship betweens Information and Strategic Decision Making

Variable		Strategic DecisionMaking	SCM Information
Strategic DecisionMaking	Pearson Correlation	1	
	Sig. (2-tailed)		
SCM Information	Pearson Correlation	0.525	1
	Sig. (2-tailed)	0.000	

Regression analysis was conducted to empirically determine whether supply chain management information system was a significant determinant of strategic decision making among tea factories in Kenya. Regression results in Table 4.27 indicate the goodness of fit for the regression between supply chain management information system and strategic decision making was satisfactory. An R squared of 0.275indicates that 27.5% of the variations in strategy decision making are explained by the variations in use of supply chain management information system. This implies that 72.5% of the unexplained variations in strategic decision making is accounted for by the other variables including human resource management information system, customer relationship management information system, computerized accounting and financial management information system and executive management information system.

Table 4.27: Model Summary for SCM Information System

Indicator	Coefficient
R	0.525
R Square	0.275
Std. Error of the Estimate	0.60782

The overall model significance was presented in table 4.28. An F statistic of 107.142 indicated that the overall model was significant. The findings imply that SCM information system was statistically significant in explaining strategic decision making among tea factories in Kenya.

Table 4.28: ANOVA for SCM Information System

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	39.583	1	39.583	107.142	0.000
Residual	104.183	282	0.369		
Total	143.766	283			

The supply chain management system coefficients are presented in table 4.29. The results show that supply chain management system contributes significantly to the model since the p-value for the constant and gradient are less than 0.05. The findings imply that one positive unit change in use of supply chain management systemled to a change in strategy decision making effectiveness at the rate of 0.441. This confirms the positive effect of supply chain management system on strategic decision making.

The study findings corroborate with those in Bagchiand Larsen (2002) who asserted that organizational integration encourages partners to become more entrenched members of the network and instills a sense of belonging to the supply chain. It becomes easier to generate trust among partners in an integrated supply chain. Trust promotes collaboration and decision delegation, reduces irrational behavior and "second guessing" among supply chain members thereby reducing the need for safety stocks. The objective of organizational integration is not merely to resolve conflicts should they arise, but rather to recognize and avoid potential conflicts and/or divergence of interest in advance and device governance structure to forestall or avoid it. True organizational integration thus paves the way for individual members of the chain to behave more like a unified entity sharing ideas, skills and culture alike. Supply chain integration may fail to blossom without organizational integration among supply chain partners.

Table 4.29: Coefficients of SCM Information System

Variable	Beta	Std. Error	t	Sig.
Constant	2.156	0.164	13.122	0.000
SCMInformation	0.441	0.043	10.351	0.000

4.8 Computerized Accounting and Financial Management Information System

4.8.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on computerized accounting and financial management information system, a coefficient of 0.776 was found as shown in Table 4.30. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the computerized accounting and financial management information system variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.30: Reliability Test for Computerized Accounting Management Information System

Variable	Computerized Accounting system
Number of items	10
Cronbach's Alpha	0.776

4.8.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.31 showed that the KMO statistic was 0.785 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 1208.86 with 45 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in Table 4.31. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.31: Computerized Accounting Management Information System KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.785
Bartlett's Chi- Square	1208.86
Bartlett's df	45
Bartlett's Sig.	0

4.8.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and cronbach alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 10 statements on computerized accounting and financial management information system can be factored into 1 factor. The total variance explained by the extracted factor is 36.12% as shown in Table 4.32. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.32: Computerised Accounting Management Information System Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.612	36.124	36.124	3.612	36.124	36.124
2	2.406	24.056	60.18			
3	1.146	11.459	71.638			
4	0.619	6.189	77.828			
5	0.523	5.234	83.061			
6	0.462	4.616	87.677			
7	0.362	3.616	91.293			
8	0.308	3.078	94.371			
9	0.295	2.948	97.319			
10	0.268	2.681	100			

Extraction Method: Principal Component Analysis.

4.8.4 Descriptive Analysis

The fourth objective of the study was to establish whether computerized accounting and financial management information system influence strategic decision making among tea factories in Kenya.

Table 4.33 indicates that 74.6% of the respondents agreed that financial reports were timely generated for decision making, 72.1% agreed that there was improvement in business performance due to computerization of the accounting system and 77.1% agreed that there was accuracy as well as efficiency in accounts records keeping through computerized accounting systems. In addition, 72.9% of the respondents agreed that accounting functions like posting transactions to the ledger and double entry are simplified, 85.6% agreed that arithmetic errors are easily minimized through application of computerized accounting systems and 88.1% agreed that auditing of the financial statement was easy with the use of computerized accounting systems.

Furthermore, 83.1% of the respondents agreed that there was co-ordination and quality performance banking operations through the use of computerized accounting system, 88.7% agreed that computerized accounting system helped to gain inherent advantage while minimizing risks involved in the daily operations and 79.9% agreed that computerization aided quick customer service decision making process as well as accountability in their tea factory.

Finally 85.5% of the respondents agreed that computerized accounting system aided in the examination of banks statements of financial positions to ensure agreement with source documents. The mean score for responses for this section was 4.00 which indicate that majority of the respondents agreed that computerized accounting and financial management information system was a key determinant of strategic decision making among tea factories.

The study findings agree with those in Horngren, Sundem and Stratton (2004) who said the main function of accounting information in it said in the decision-making process, as the understanding of accounting information contributes to better decisions. So, by reporting and collecting accounting information, controllers can influence management's decision-making and lead them towards decisions that are in accordance with the organization's objectives.

The study also agree with those of William (2006) who stated that that the decision maker decides what information inputs he/she considers as relevant for his/her decision. If the proportion of input of accounting information compared to non-accounting information is more than zero, then the accounting data may affect the decision. This proportion or the use of accounting information varies from decision to decision and from the decision maker whose choice may be affected by experience, perceptions and objectives. Further the probability that accounting information is used for decision-making rises if the information provided is relevant for the decision, if the decision maker conceives the accounting information as reliable or if not adequate non-accounting information is available.

Table 4.33: Computerised Accounting Management Information System

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
Financial reports are timely generated for decision making	5.6%	12.3%	7.4%	46.1%	28.5%	3.8
There is improvement in business performance due to computerization of the accounting system.	6.3%	12.0%	9.5%	48.9%	23.2%	3.71
There is accuracy and efficiency in accounts records keeping through computerized accounting systems.	4.2%	11.3%	7.4%	46.1%	31.0%	3.88
Accounting functions like posting transactions to the ledger and double entry are simplified.	3.5%	12.0%	11.6%	43.0%	29.9%	3.84
Arithmetic errors are easily minimized through application of computerized accounting systems.	1.8%	6.3%	6.3%	50.4%	35.2%	4.11
Auditing of the financial statement is ease with the use of computerized accounting systems.	1.4%	5.6%	4.9%	51.1%	37.0%	4.17
There is co-ordination and quality performance banking operations through the use of computerized accounting system.	3.5%	7.0%	6.3%	42.6%	40.5%	4.1
Computerized accounting system help to gain inherent advantage while minimizing risks involved in the daily operations.	0.4%	6.0%	4.9%	46.1%	42.6%	4.25
Computerization aids quick customer service decision making process and accountability in our tea factory	2.8%	10.9%	6.3%	46.8%	33.1%	3.96
Computerized accounting system aids in the examination of banks statements of financial positions to ensure agreement with source documents	1.8%	7.7%	4.9%	45.4%	40.1%	4.14
Average	3.1%	9.1%	7.0%	46.7%	34.1%	4.00

4.8.5 Relationship between Computerized Accounting Management Information and Strategic Decision Making

Table 4.34 shows the correlation results which indicate that there was a positive and significant relationship between computerized accounting and financial management information system and strategic decision making. This was evidenced by the p value of 0.000 which is less than that of critical value (0.05)

Table 4.34: Relationship between Computerised Accounting Management Information and Strategic Decision Making

Variable		Strategic Decision-making	Computerised Accounting
Strategic DecisionMaking	Pearson Correlation	1	
	Sig. (2-tailed)		
Computerised Accounting	Pearson Correlation	0.507	1
	Sig. (2-tailed)	0.000	

Regression analysis was conducted to empirically determine whether computerized accounting and financial management information system was a significant determinant of strategic decision making among tea factories in Kenya. Regression results in Table 4.35 indicate the goodness of fit for the regression between computerized accounting and financial management information system and strategic decision making was satisfactory. An R squared of 0.257 indicates that 25.7% of the variations in strategy decision making are explained by the variations in use of computerized accounting and financial management information system. This implies that 74.3% of the unexplained variations in strategic decision making is accounted for by the other variables including human resource management information system, customer relationship management information system, supply chain management information system and executive management information system.

Table 4.35: Model Summary for Computerised Accounting Management Information System

Indicator	Coefficient
R	0.507
R Square	0.257
Std. Error of the Estimate	0.61549

The overall model significance was presented in table 4.36. An F statistic of 97.504 indicated that the overall model was significant. The findings imply that computerized accounting management information system was statistically significant in explaining strategic decision making among tea factories in Kenya.

Table 4.36: ANOVA for Computerized Accounting Management Information System

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	36.937	1	36.937	97.504	0.000
Residual	106.829	282	0.379		
Total	143.766	283			

The computerized accounting management information system coefficients are presented in table 4.37. The results show that computerized accounting management system contributes significantly to the model since the p-value for the constant and gradient are less than 0.05. The findings imply that one positive unit change in use of computerized accounting management system led to a change in strategy decision making effectiveness at the rate of 0.618. This confirms the positive effect of computerized accounting management system on strategic decision making.

The study findings agree with those in Horngren, Sundem andStratton(2004) who said the main function of accounting information in it said in the decision-making process, as the understanding of accounting information contributes to better decisions. So, by reporting and collecting accounting information, controllers can influence management's decision-making and lead them towards decisions that are in accordance with the organization's objectives.

Table 4.37: Coefficients of Computerised Accounting Management Information System

Variable	Beta	Std. Error	t	Sig.
Constant	1.348	0.253	5.335	0.000
ComputerisedAccounting	0.618	0.063	9.874	0.000

4.9 Executive Management Information System

4.9.1 Reliability Tests

Using Cronbach's Coefficient Alpha test on executive management information system, a coefficient of 0.932 was found as shown in Table 4.38. These results corroborates findings by Saunders Lewis and Thornhill (2009) and Christensen, Johnson and Turner (2011) who stated that scales of 0.7 and above, indicate satisfactory reliability. Based on these recommendations, the statements under the executive management information system variable of this study were concluded to have adequate internal consistency, therefore, reliable for the analysis and generalization on the population.

Table 4.38: Reliability Test for Executive Management Information System

Variable	Executive Management system
Number of items	6
Cronbach's Alpha	0.932

4.9.2 Sampling Adequacy

To examine whether the data collected was adequate and appropriate for inferential statistical tests such as the factor analysis, regression analysis and other statistical tests, two main tests were performed namely; Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity. For a data set to be regarded as adequate and appropriate for statistical analysis, the value of KMO should be greater than 0.5 (Field, 2000).

Findings in Table 4.39 showed that the KMO statistic was 0.868 which was significantly high; that is greater than the critical level of significance of the test which was set at 0.5 (Field, 2000). In addition to the KMO test, the Bartlett's Test of Sphericity was also highly significant (Chi-square = 1740.51 with 15 degree of freedom, at $p < 0.05$). The results of the KMO and Bartlett's Test are summarized in Table 4.39. These results provide an excellent justification for further statistical analysis to be conducted.

Table 4.39: Executive Management Information System KMO Sampling Adequacy and Bartlett's Sphericity Tests

Kaiser-Meyer-Olkin Measure	0.868
Bartlett's Chi- Square	1740.51
Bartlett's df	15
Bartlett's Sig.	0

4.9.3 Factor Analysis

Factor analysis was conducted after successful testing of validity and reliability using KMO coefficient and Cronbach's alpha results. Factor analysis was conducted using Principal Components Method (PCM) approach. The extraction of the factors followed the Kaiser Criterion where an eigen value of 1 or more indicates a unique factor. Total Variance analysis indicates that the 6 statements on executive management information system can be factored into 1 factor. The total variance explained by the extracted factor is 75.21% as shown in Table 4.40. The factor loading and communalities of the variable are shown in Appendix IV.

Table 4.40: Executive Management Information System Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.513	75.219	75.219	4.513	75.219	75.219
2	0.52	8.66	83.879			
3	0.412	6.864	90.742			
4	0.292	4.867	95.609			
5	0.233	3.882	99.491			
6	0.031	0.509	100			

Extraction Method: Principal Component Analysis.

4.9.4 Descriptive Analysis

The fifth and last objective of the study was to establish whether executive management information system affects strategic decision making among tea factories in Kenya. Results on table 4.41 indicates that 85.3% of the respondents agreed that the organization has invested in a management information system which was easy to use, 73.6% agreed that the organization has invested in a management information system which has enabled the minimization of administrative costs and 79.6% agreed that the organizations management information system was compatible with other systems. In addition 77.8% of the respondents agreed that the management information system was flexible enough to support the growth of the firm, 80.2% agreed that the management information system of the firm has been crucial in delivering innovative customer services and 79.3% agreed that the management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity. The mean score for responses for this section was 3.98 which indicate that majority of the respondents agreed that executive management information system was a key determinant of strategic decision making among tea factories.

The study findings are consistent with those of Adeosun, Adeosun and Adetunde (2009) state that the use of ICT enables strategic management, communication, collaboration, information access, decision making, data management and knowledge management in organizations. ICT causes fundamental changes in the nature and application of technology in businesses. ICT can provide powerful strategic and tactical tools for organizations, which, if properly applied and used, could bring great advantages in promoting and strengthening their competitiveness.

Results further agree with those in Hengst andSol (2001) who state that ICT enables organizations to decrease costs and increase capabilities and thus assist to shape inter organizational coordination. The use of ICT can assist to lower coordination cost and increase outsourcing in organizations. ICT is used to exchange information and it provides a medium for learning. Ramsey et al. (2003) further noted that organizations generally stand to gain from ICT in areas such as reduced transaction

costs, information gathering and dissemination, inventory control, and quality control.

Table 4.41: Executive Management Information System

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Likert Mean
The organization has invested in a management information system which is easy to use.	1.4%	9.2%	4.2%	50.4%	34.9%	4.08
The organization has invested in a management information system which has enabled the minimization of administrative costs.	3.2%	17.6%	5.6%	39.1%	34.5%	3.84
The organizations management information system is compatible with other systems.	1.4%	13.0%	6.0%	43.7%	35.9%	4.00
The management information system is flexible enough to support the growth of the firm.	3.9%	11.6%	6.7%	40.8%	37.0%	3.95
The management information system of the firm has been crucial in delivering innovative customer services.	3.2%	10.2%	6.3%	41.5%	38.7%	4.02
The management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity.	1.4%	13.4%	6.0%	42.3%	37.0%	4.00
Average	2.4%	12.5%	5.8%	43.0%	36.3%	3.98

4.9.5 Relationship between Executive Management Information and Strategic Decision Making

Table 4.42 shows the correlation results which indicate that there was a positive and significant relationship between executive management information system and

strategic decision making. This was evidenced by the p value of 0.000 which is less than that of critical value (0.05)

Table 4.42: Relationship between Executive Management Information and Strategic Decision Making

Variable		StrategicDecision Making	ExecutiveManagemeentSystem
StrategicDecisionMaking	Pearson Correlation	1	
	Sig. (2-tailed)		
ExecutiveManagemeentSystem	Pearson Correlation	0.434	1
	Sig. (2-tailed)	0.000	

Regression analysis was conducted to empirically determine whether executive management information system was a significant determinant of strategic decision making among tea factories in Kenya. Regression results in Table 4.43 indicate the goodness of fit for the regression between computerized accounting and financial management information system and strategic decision making was satisfactory. An R squared of 0.188 indicates that 18.8% of the variations in strategy decision making are explained by the variations in use of executive management information system. This implies that 81.2% of the unexplained variations in strategic decision making is accounted for by the other variables including human resource management information system, customer relationship management information system, supply chain management information system and computerized accounting and financial management information system.

Table 4.43: Model Summary for Executive Management Information System

Indicator	Coefficient
R	0.434
R Square	0.188
Std. Error of the Estimate	0.64325

The overall model significance was presented in table 4.44. An F statistic of 65.457 indicated that the overall model was significant. The findings imply that executive

management information system was statistically significant in explaining strategic decision making among tea factories in Kenya.

Table 4.44: ANOVA for Executive Management Information System

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	27.084	1	27.084	65.457	0.000
Residual	116.682	282	0.414		
Total	143.766	283			

The executive management information system coefficients are presented in table 4.45. The results show that executive management system contributes significantly to the model since the p-value for the constant and gradient are less than 0.05. The findings imply that one positive unit change in use of executive management system led to a change in strategy decision making effectiveness at the rate of 0.336. This confirms the positive effect of executive management system on strategic decision making.

Results further agree with those in Hengst and Sol (2001) who state that ICT enables organizations to decrease costs and increase capabilities and thus assist to shape inter organizational coordination. The use of ICT can assist to lower coordination cost and increase outsourcing in organizations. ICT is used to exchange information and it provides a medium for learning. Ramsey et al. (2003) further noted that organizations generally stand to gain from ICT in areas such as reduced transaction costs, information gathering and dissemination, inventory control, and quality control.

Table 4.45: Coefficients of Executive Management Information System

Variable	Beta	Std. Error	t	Sig.
Constant	2.482	0.169	14.66	0.000
Executive Management System	0.336	0.041	8.091	0.000

4.10 Multivariate Regression

A multiple regression analysis was conducted to investigate the joint causal relationship between the independent and dependent variables. Regression results in table 4.46 indicated that the goodness of fit for the regression of independent variables and strategic decision making is satisfactory. An R squared of (0.429) indicated that (42.9%) of the variances in the strategic decision making are explained by the variances in the determinants of strategy decision making.

The regression equation is as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X4 + \beta_5 X_5 + e$$

Where:

Y = Strategic decision making

X_1 = Human resource management information system,

X_2 = Customer relationship management information system

X_3 = Supply chain management information system

X_4 = Computerized accounting and financial management information system

X_5 = Executive management information system

Table 4.46: Model Fit for Strategic Decision Making

Indicator	Coefficient
R	0.655
R Square	0.429
Std. Error of the Estimate	0.54331

ANOVA results were presented in table 4.47. The results indicated that the overall model was significant, that is, the independent variables were good joint explanatory variables/determinants for strategic decision making (F=41.806, P value =0.000).

Table 4.47: ANOVA for Strategic Decision Making

Indicator	Sum of Squares	df	Mean Square	F	Sig.
Regression	61.703	5	12.341	41.806	0.000
Residual	82.063	278	0.295		
Total	143.766	283			

Regression results in table 4.55 indicated that the relationship between strategic decision making and HRM information system was positive and significant (b1=0.424, p value, 0.000). This implies that an increase in the effectiveness of human resource management information system by 1 unit leads to improved strategic decision making by 0.424 units. Results indicated that CRM information system had a positive and significant relationship with strategic decision making (b1=0.133, p value, 0.034). This implies that an increase in customer relationship management information system effectiveness by 1 unit leads to improved strategic decision making by 0.133 units.

The results further indicated that the relationship between strategic decision making and SCM information system was positive and significant (b1= 0.176, p value, 0.006). This implies that an increase in effectiveness of supply chain management information system by 1 unit leads to improved strategic decision making by 0.176 units.

However the results indicated that computerized accounting and financial management information system and executive management information system had a positive and insignificant relationship with strategic decision making among tea factories in Kenya.

Table 4.48: Model Summary and Parameter Estimates

Variable	Beta	Std. Error	t	Sig.
Constant	0.376	0.264	1.426	0.155
HRMInformation	0.424	0.067	6.33	0.000
CRMInformation	0.133	0.062	2.135	0.034
SCMInformation	0.176	0.063	2.787	0.006
ComputerisedAccounting	0.15	0.082	1.837	0.067
ExecutiveManagementSystem	0.017	0.049	0.349	0.728

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of major findings of the study, relevant discussions, conclusions and the necessary recommendations. The study sought to establish the role of management information systems on strategic decision making among tea factories in Kenya. The summary of key findings, conclusions and recommendations is done in line with the objectives of the study based on the output of the descriptive and inferential statistical analysis guided to test the research hypotheses of the study.

5.2 Summary of the Findings

5.2.1 Human Resource Management Information System and Strategic Decision Making

The first objective of the study was to establish the influence of human resource management information system on strategic decision making among tea factories in Kenya. Results indicated that human resource management information system was a key determinant of strategic decision making among tea factories. This was supported by the responses from the respondents who agreed that HRIS had made their HR decision-making more effective, the information generated from HRIS helped the institution decide on employee issues and the information generated from their HRIS helped the institution to make more effective promotion decisions.

In addition the information generated from HRIS helped the institution decide when to hire, make better decisions in choosing better employees, make decision when training and skill development are necessary. All in all the HRIS is effective in meeting strategic goals which has improved in making prompt decisions and has increased coordination between HR department and top administrators. Regression and correlation results indicated that there was a positive and significant relationship

between human resource management information system and strategic decision making.

5.2.2 Customer Relationship Management Information System and Strategic Decision Making

The second objective of the study was to establish whether customer relationship management information system affects strategic decision making among tea factories in Kenya.

Results indicated that customer relationship information management system helped tea factories to identify the most profitable customer and prospects, enabled the organization to provide better customer service, assisted in improving the image of tea factories over time, enabled tea factories discover new clients and increase revenues and customer relationship information management system enabled the organization to analyze the customer profiles. Regression results indicated that customer relationship management information systemwas statistically significant in explaining strategic decision making among tea factories in Kenya.

5.2.3 Supply Chain Management Information System and Strategic Decision Making

The third objective of the study was to establish the influence of supply chain management information system on strategic decision making among tea factories in Kenya.

The study findings indicated that supply chain management information system was a key determinant of strategic decision making among tea factories in Kenya. This was evidenced by the responses from the respondents who agreed that supply chain information management system had reduced the time in servicing customer orders, supply chain information management system had increased financial performance of the organization and supply chain information management system had increased customer service levels.

In addition the respondents agreed that supply chain information management system had increased timely deliveries, reduced supply chain costs and has increased flexibility towards the customer demands. Regression and correlation results indicated that there was a positive and significant relationship between supply chain information management system and strategic decision making.

5.2.4 Computerized Accounting and Financial Management Information System and Strategic Decision Making

The fourth objective of the study was to investigate whether computerized accounting and financial management information system influence strategic decision making among tea factories in Kenya.

The study findings indicated that financial reports were timely generated for decision making, there was improvement in business performance due to computerization of the accounting system and there was accuracy and efficiency in accounts records keeping through computerized accounting systems.

In addition, accounting functions like posting transactions to the ledger and double entry were simplified, arithmetic errors were easily minimized through application of computerized accounting systems and auditing of the financial statement was easy with the use of computerized accounting systems. Regression and correlation results indicated that there was a positive and significant relationship between computerized accounting and financial management information system and strategic decision making.

5.2.5 Executive Management Information System and Strategic Decision Making

The fifth and last objective of the study was to establish whether executive management information system affects strategic decision making among tea factories in Kenya.

Results indicated that the organizations have invested in a management information system which was easy to use, which has enabled the minimization of administrative

costs and the system was compatible with other systems. In addition the respondents agreed that the management information system was flexible enough to support the growth of the firm, the management information system of the firm has been crucial in delivering innovative customer services and the management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity. Regression and correlation results indicated that there was a positive and significant relationship between that executive management information system was a key determinant of strategic decision making among tea factories.

5.3 Conclusions

Based on the objectives and the findings of the study the following conclusions can be made.The intensive usage of management information systems in the tea factories generally increases the efficiency of doing business by creating new products and services, shortening the time to get to market, reducing the costs, decreasing the prices and more efficiently answering on the moves of the competitors and market changes. Therefore the strategic intention of managers of these factories should be a creation of new organizational climate based on the tighter cooperation between the individuals with the aim of achieving the synergic effects in internal entrepreneurial activities.

Human resource management information system was found to have an effect on strategy decision making in tea factories. It can therefore be concluded that through use of HRIS the human resource department was easy to recruit and ease its operational activities since there was smooth flow of information. The study also concludes that through the use of HRIS the strategic HR tasks, the degree of the support depended on the type of organization. Larger firms/companies experienced a great deal of HRIS support in most of the strategic HR tasks namely communication, human resource development and workplace learning, career management, business process reengineering, and decision-making.

The results indicated that customer relationship management information system highly influenced strategic decision making since this helped the factories to get

feedback from the customers hence able to make proper decisions to enhance customer satisfaction. It was found to have a positive relationship with strategic decision making which implied that the higher the customers were managed the higher the loyalty and higher satisfaction.

The results demonstrated that a higher level of information technology utilization will lead to a higher level of supply chain integration and firm performance through information systems integration. The results of this study further provide the empirical support that information systems integration acts as a bridge between the effective use of IT and the high level of coordination within the supply chain. It can be concluded that only information technologies used for integration purposes will provide sustainable competitive advantage for the organizations within the supply chain. Effective relationships with customers and suppliers will directly lead to a higher level of supply chain integration and in turn lead to a higher level of operational performance for both firms and suppliers. Moreover, relationships with trading partners will directly and indirectly influence firm performance through firm's and suppliers' operational performance. This is a very valuable finding since partner relationships have received little attention by top management.

The computerized accounting and financial management system was found to have an effect on strategic decision making in tea factories. The study therefore concludes that integration of accounting information systems with sub-information systems applied in the company helped to integrate and coordinate between the tasks, functions and different sections of the company, which increased the effectiveness of activities. Provision of accounting information systems integrated with other sub-systems helped the firms to get the needs of the beneficiaries of various information, and thus contributing to reduce the time and effort.

The study findings led to the conclusion that executive management system was positively and significantly related with strategic decision making among the tea factories in Kenya. Following the study results, it was possible to conclude that information technology was highly emphasized in the tea factories. It was concluded that the factories have invested in a management information system which was easy

to use and that the factories have invested in a management information system which has enabled the minimization of administrative costs. Results led to the conclusion that the management information system was flexible enough to supports the growth of the factories and the management information system of the bank has been crucial in delivering innovative customer products and services.

5.4 Recommendations

Based on the study's conclusions, the researcher made the following recommendations: Tea factories in Kenya should conduct user training which ensures that there is adequate user skills and awareness of the human resource management information systems in use; human resource managers of tea factories should select and recruit adequate staff through the help of the human resource management information systems. The study recommends that the management should ensure that the integration and specific module of information system (IS) is working as expected during the implementation of human resource management information systems through effective piloting and ensure that adequate risk assessment and budgetary allocations are undertaken in order to avoid cost overruns during the implementation of human resource management information systems.

The study recommends that tea factories should emphasize customer relationship by investing in a customer relationship management system. Specifically, tea factories should invest in a robust Information technology system as this can certainly help companies to create satisfied and loyal customers. This is because customer relationship management is driven by technology rather than a well articulated customer strategy. In addition, it is recommended that factories need to allocate adequate resources for CRM. In this, critical resources such as information and knowledge necessary for addressing customers problem must not be the preserve of a particular unit but organizations must re-align its internal architecture and leverage such resources across the spectrum of the organization to enable people deal with customer issues promptly. It is further recommend that companies must develop a supportive organizational culture, market relationship management internally, intimately understand customer expectations, create and maintain detailed customer

database and organize and reward employees in such a way that the objectives of CRM is achieved. The cultural change results in the transformation of the concept into organizational wide ownership, leading to widespread acceptance across the organization. In this situation it would not be seen as belonging to a particular department. The concept would therefore draw out support from all segments within the organization to enable effective relationship be achieved between the customers and the organization.

The results indicated that supply chain management information systems had an impact on strategic decision making of tea factories. This implies that top management should devote much study to technology investment strategies because investing in the wrong technologies can become a competitive disadvantage. Top management should pay much attention, resources, and effort to invest in technologies that have value toward external integration, thus improving supply chain integration. As a firm is continuously competing not only with other firms but also with other value chains, investing in technologies geared toward external integration will improve the entire supply chain. The competitive advantages from improving supply chain integration include enhancing information flow and improving operational performance (e.g., cost leadership, product quality, delivery speed, process flexibility, and technology innovation) because logistics activities are much more transparent.

The study recommends the need to develop accounting information systems to produce information in the company where the criteria are based International Accounting Standards (IAS) and International Financial Reporting(IFRS), which earns accounting information systems output in the company more credibility and justice not only in the local level but globally. Adoption of corporate for accounting information systems as an essential element of the company and to consider the outputs of these systems area important source from the company's resources ,which supports control procedures and provides confidence in the various reports that provides, which makes it imperative to the company to exploit it for efficiency and effectiveness.

It is recommended that investment in Information technology be emphasized in the firms as it has an effect on the overall achievement of competitive advantage through strategic decision making. Therefore the organization is urged to invest in management information systems which are easy to use and which facilitate minimization of administration and operational costs. In addition, the companies should invest in management information systems that are compatible with other systems as well as the one that support the growth of the firms.

5.5 Recommended Areas for Further Research

A replica of this study can be carried out with a further scope to include other firms such as manufacturing firms and see whether the findings hold true. Future studies should apply different research instruments like interview guide, focus group discussions to involve respondents in discussions in order to generate detailed information which would help in bringing out better strategies for decision making in firms in Kenya.

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APPENDICES

Appendix I: Letter of Introduction

SIMON G. GIKANGA

JKUAT Mombasa CBD,

MOMBASA

Date……

General Manager

Tea Factory Limited

P O BOX ……

Dear Sir,

RE: COLLECTION OF RESEARCH DATA

I wish to introduce myself and inform you that I am carrying out a research which will be of interest to your factory. I am a postgraduate student of the Jomo Kenyatta University of Agriculture & Technology (JKUAT) pursuing a PhD in Business Administration. The study that I wish to conduct is entitled **'Role of management information systems on strategic decision making among tea factories in Kenya'.** Your factory has been chosen to participate in this important study.

Questionnaires and informal interviews will be used to gather the required information. I therefore request you to kindly allow my research assistants to issue questionnaires to some randomly selected employees of the factory.

The provided responses will be handled with utmost confidentiality and ethical standards will be observed. The findings of this study will be used exclusively for academic purposes.

Yours Sincerely

Simon G. Gikang'a

Email: sgikanga@gmailcom

Appendix II: Questionnaire

This questionnaire is meant to gather information regarding the role of management information systems on strategic decision making among tea factories in Kenya

CONFIDENTIALITY CLAUSE:

The responses you provide will be used for academic research purposes and will be strictly confidential.

SECTION 1: BASIC INFORMATION

1) Name of tea factory (Optional)…….

2) Kindly indicate your department

Finance	[ ]	Tasting	[ ]
Production	[ ]	Blending	[ ]
Tea Collection	[ ]	Other (Specify)…….	

3) For how many years have you worked in the tea sector?

Less than 1 Year	[ ]	1 -2 Years	[ ]
3 to 5 years	[ ]	6 to 7 years	[ ]
More than 7 years	[ ]		

SECTION 2: ROLE OF MANAGEMENT INFORMATION SYSTEMS ON STRATEGIC DECISION MAKING

Part A: Strategic Decision Making

The following are statements relating to strategic decision making at the factory. Please insert a tick on your extent of agreement or disagreement with each statement.

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
1	The use of internet communication facilities has enhanced information flow between administrators and employees in our factory					
2	Use of MIS facilities such as emails, sms, for communication has resulted into quick decision making in our factory due to easy information flow					
3	MIS has improved collaboration between top managers, administrators and other employees, customers and suppliers in our factory					
4	Use of MIS for correspondence in our factory has increased participation of all stakeholders in factory activities and operations					
5	Use of MIS has increased transparency and accountability in factories activities and programs					
6	Information systems and communication facilities at our factory are efficient					

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
	for our factory communication needs					
7	Use of MIS facilities has helped in improving the monitoring and evaluation of different departments activities					

Part B: Human resource management information system

This section aims at establishing the influence of human resource management information system in strategic decision making among tea factories in Kenya. Please indicate your agreement or otherwise with the following statements using the following likert scale.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	**2**	**3**	**4**	**5**
1.	Our HRIS has made our HR decision-making more effective.					
2.	The information generated from our HRIS helps our institution decide on employee issues.					
3.	The information generated from our HRIS helps our institution to make more effective promotion decisions.					
4.	The information generated from our HRIS helps our institution decide when to hire.					

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
5.	The information generated from our HRIS helps our institution make better decisions in choosing better employees.					
6.	The information generated from our HRIS helps our institution decide when training and skill development are necessary.					
7.	Overallary our administration thinks that HRIS is effective in meeting strategic goals.					
8.	The information generated from our HRIS has improved the strategic decision making of top administrators.					
9.	The information generated from our HRIS has made HR a more strategic partner in the institution.					
10	The information generated from our HRIS has increased coordination between HR department and top administrators					

Part C: Customer Relationship Management Information System

This section aims to investigate whether customer relationship management information system affects strategic decision making among tea factories in Kenya. Please indicate your agreement or otherwise with the following statements using the following likert scale.

No	Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		1	2	3	4	5
1.	Customer relationship information management system enables the organization to analyze the customer profiles					
2.	Customer relationship information management system helps tea factories to identify the most profitable customer and prospects					
3.	Customer relationship information management system enables the organization to provide better customer service					
4.	Customer relationship information management system has assisted in improving the image of tea factories over time					
5.	Customer relationship information management system enables tea factories discover new clients and increase revenues					
6.	Customer relationship information management system enables the organization to analyze the customer profiles					

Part D: Supply Chain Management Information System

This section aims at establish the influence of supply chain management information system on strategic decision making among tea factories in Kenya. Please indicate your agreement or otherwise with the following statements using the following likert scale.

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
1	Our supply chain information management system has reduced the time in servicing customer orders					
2	Our supply chain information management system has increased financial performance of the organization					
3	Our supply chain information management system has increased customer service levels					
4	Our supply chain information management system has increased timely deliveries					
5	Our supply chain information management system has reduced supply chain costs					
6	Our supply chain information management system has increased flexibility towards the customer demands					
7	Our supply chain information management system has increased inventory control					
8	Our supply chain information management system has led to efficient information flow making it easier to make strategic decisions					

Part E: Computerized Accounting and Financial Management Information System

This section aims at whether computerized accounting and financial management information system influence strategic decision making among tea factories in Kenya Please indicate your agreement or otherwise with the following statements using the following likert scale.

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
1	Financial reports are timely generated for decision making					
2	There is improvement in business performance due to computerization of the accounting system					
3	There is accuracy and efficiency in accounts records keeping through computerized accounting systems					
4	Accounting functions like posting transactions to the ledger and double entry are simplified.					
5	Arithmetic errors are easily minimized through application of computerized accounting systems					
6	Auditing of the financial statement is ease with the use of computerized accounting systems					
7	There is co-ordination and quality performance banking operations through the use of computerized accounting system.					
8	Computerized accounting system help to gain					

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
	inherent advantage while minimizing risks involved in the daily operations.					
9	Computerization aids quick customer service decision making process and accountability in our tea factory					
10	Computerized accounting system aids in the examination of banks statements of financial positions to ensure agreement with source documents					

Part F: Executive Management Information System

This section aims at investigating whether executive information management system affects strategic decision making among tea factories in Kenya. Please indicate your agreement or otherwise with the following statements using the following likert scale.

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
1	The organization has invested in a management information system which is easy to use					
2	The organization has invested in a management information system which has enabled the minimization of administrative costs					
3	The organizations management information system is compatible with other systems					
4	The management					

No	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
		1	2	3	4	5
	information system is flexible enough to support the growth of the firm					
5	The management information system of the firm has been crucial in delivering innovative customer services					
6	The management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity					

Thank you for your participation

- END-

Appendix III: Licensed Tea Factories in Kenya

1	Arroket Factory - Sotik Tea Company Ltd
2	Chagaik Factory - UTK Ltd
3	Changana Factory - JFK Ltd
4	Changoi Tea Factory - WTK Ltd
5	Chebut Tea Factory Co. Ltd
6	Chelal Tea Factory Co. Ltd
7	Chemomi Factory - EPK Ltd
8	Chinga Tea Factory Co. Ltd
9	Chomogonday Factory - JFK Ltd
10	Eastern Produce Kenya Ltd
11	Eberege Tea Factory Co. Ltd
12	Gacharage Tea Factory Co. Ltd
13	Gachege Tea Factory Co. Ltd
14	Gathuthi Tea Factory Co. Ltd
15	Gatitu Tea Factory Co. Ltd
16	Gatunguru Tea Factory Co. Ltd
17	Gianchore Tea Factory Co. Ltd
18	Githambo Tea Factory Co. Ltd
19	Githongo Tea Factory Co. Ltd
20	Gitugi Tea Factory Co. Ltd
21	Igembe Tea Factory Co. Ltd
22	Ikumbi Tea Factory Co. Ltd
23	Imenti Tea Factory Co. Ltd
24	Iriaini Tea Factory Co. Ltd
25	Itumbe Tea Factory Co. Ltd
26	James Finlay (Kenya) Ltd
27	Jamji Factory - UTK Ltd
28	Kagwe Tea Factory Co. Ltd
29	Kaimosi Tea Company Ltd
30	Kaisugu Tea Factory Co. Ltd
31	Kambaa Tea Factory Co. Ltd
32	Kangaita Tea Factory Co. Ltd
33	Kanyenyaini Tea Factory Co. Ltd
34	Kapchebet Tea Factory Ltd
35	Kapcheluch Tea Factory Ltd
36	Kapchorua Tea Company Ltd - WTK Ltd
37	Kapkatet Tea Factory Co. Ltd
38	Kapkoros Tea Factory Co. Ltd
39	Kapsara Tea Factory Co. Ltd

40 Kapset Tea Factory Co. Ltd
41 Kapsumbeiwa Factory - EPK Ltd
42 Kaptumo Tea Factory Co. Ltd
43 Karirana Estates Ltd
44 Kathangariri Tea Factory Co. Ltd
45 Kebirigo Tea Factory Co. Ltd
46 Kepchomo Factory - EPK Ltd
47 Kericho Factory - UTK Ltd
48 Kiamokama Tea Factory Co. Ltd
49 Kibwari Ltd
50 Kiegoi Tea Factory Co. Ltd
51 Kimari Factory - UTK Ltd
52 Kimugu Factory - UTK Ltd
53 Kimunye Tea Factory Co. Ltd
54 Kinoro Tea Factory Co. Ltd
55 Kionyo Tea Factory Co. Ltd
56 Kipchambo Tea Factory
57 Kipkebe Factory/ Kipkebe Ltd
58 Kipkoimet - EPK Ltd
59 Kiptagich Tea Estate Ltd
60 Kiru Tea Factory Co. Ltd
61 Kitumbe Factory - JFK Ltd
62 Kobel Tea Factory Co. Ltd
63 Koros Factory - JFK Ltd
64 Kuri Tea Factory Co. Ltd
65 Kymulot Factory - JFK Ltd
66 Litein Tea Factory Co. Ltd
67 Mabroukie Factory - UTK Ltd
68 Makomboki Tea Factory Co. Ltd
69 MaraMara Instant - JFK Ltd
70 Maramba Tea Factory Ltd
71 Mataara Tea Factory Co. Ltd
72 Mettarora Factory – SotikHighlands Tea Estate Ltd
73 Michimikuru Tea Factory Co. Ltd
74 Mogogosiek Tea Factory Co. Ltd
75 Momul Tea Factory Co. Ltd
76 Mudete Tea Factory Co. Ltd
77 Mungania Tea Factory Co. Ltd
78 Mununga Tea Factory Co. Ltd
79 Nandi Tea Estates - Nandi Hills
80 Ndima Tea Factory Co. Ltd
81 Nduti Tea Factory Co. Ltd
82 Ngere Tea Factory Co. Ltd

83 Ngorongo Tea Factory Co. Ltd
84 Njunu Tea Factory Co. Ltd
85 Nyamache Tea Factory Co. Ltd
86 Nyankoba Tea Factory Co. Ltd
87 Nyansiongo Tea Factory Co. Ltd
88 Nyayo Tea Zones Development. Corporation
89 Ogembo Tea Factory Co. Ltd
90 Ragati Tea Factory Co. Ltd
91 Rianyamwamu Tea
92 Rorok Tea Factory Co. Ltd
93 Rukuriri Tea Factory Co. Ltd
94 Sanganyi Tea Factory Co. Ltd
95 Saosa Factory - JFK Ltd
96 Savani Factory - EPK Ltd
97 Siret Tea Company Ltd Ltd
98 Tagabi Factory - UTK Ltd
99 Tegat Tea Factory Co. Ltd
100 Theta Tea Factory Co. Ltd
101 Thumaita Tea Factory Co. Ltd
102 Tinderet Tea Estate (1989) Ltd - WTK Ltd
103 Tirgaga Tea Factory Co. Ltd
104 Tombe Tea Factory Co. Ltd
105 Toror Tea Factory Co. Ltd
106 Unilever Tea Kenya Ltd
107 Weru Tea Factory Co. Ltd
108 Williamson Tea Kenya Ltd

Appendix IV: Factories that were selected for the study

1. Arroket Factory- Sotik Tea.
2. Chebut Tea Factory Co. Ltd
3. Eberege Tea Factory Co. Ltd
4. Gacharage Tea Factory Co. Ltd
5. Gathuthi Tea Factory Co. Ltd
6. Gatunguru Tea Factory Co.Ltd
7. Githambo Tea Factory Co. Ltd
8. Igembe Tea Factory Co. Ltd
9. Itumbe Tea Factory Co. Ltd
10. Kaimosi Tea Factory Co. Ltd
11. Kambaa Tea Factory Co. Ltd
12. Kapkatet Tea Factory Co. Ltd
13. Kapkoros Tea Factory Co Ltd
14. Kapsara Tea Factory Co. Ltd
15. Kapset Tea Factory Co. Ltd
16. Kaptumo Tea Factory Co Ltd
17. Kepchomo Tea Factory Co. Ltd
18. Kiegoi Tea Factory Co Ltd
19. Kimunye Tea Factory Co. Ltd
20. Kipkoimet – EPK Ltd
21. Litein Tea Factory Ltd
22. Maramba Tea Factory Ltd
23. Mettarora Factory- Sottik Highlands Tea Estate Ltd.
24. Michimikuru Tea Factory Co. Ltd
25. Mogogosiek Tea Factory Co. Ltd
26. Momul Tea Factory Co .Ltd
27. Mudete Tea Factory Co. Ltd
28. Sanganyi Tea Factory Co Ltd
29. Siret Tea Co. Ltd
30. Toror Tea Factory Co. Ltd

Appendix V: Factor Loadings and Communalities

Communalities	Initial	Extraction
Our HRIS has made our HR decision-making more effective.	1	0.75
The information generated from our HRIS helps our institution decide on employee issues.	1	0.706
The information generated from our HRIS helps our institution to make more effective promotion decisions.	1	0.67
The information generated from our HRIS helps our institution decide when to hire.	1	0.696
The information generated from our HRIS helps our institution make better decisions in choosing better employees.	1	0.705
The information generated from our HRIS helps our institution decide when training and skill development are necessary.	1	0.758
Overallary our administration thinks that HRIS is effective in meeting strategic goals.	1	0.656
The information generated from our HRIS has improved the strategic decision making of top administrators.	1	0.701
The information generated from our HRIS has made HR a more strategic partner in the institution.	1	0.727
The information generated from our HRIS has increased coordination between HR department and top administrators	1	0.66
Customer relationship information management system enables the organization to analyze the customer profiles	1	0.685
Customer relationship information management system helps tea factories to identify the most profitable customer and prospects	1	0.759
Customer relationship information management system enables the organization to provide better customer service	1	0.747
Customer relationship information management system has assisted in improving the image of tea factories over time	1	0.807
Customer relationship information management system enables tea factories discover new clients and increase revenues	1	0.766
Customer relationship information management system enables the organization to analyze the customer profiles	1	0.727
Our supply chain information management system has reduced the time in servicing customer orders	1	0.796
Our supply chain information management system has increased financial performance of the organization	1	0.776
Our supply chain information management system has increased customer service levels	1	0.761

Our supply chain information management system has increased timely deliveries	1	0.886
Our supply chain information management system has reduced supply chain costs	1	0.912
Our supply chain information management system has increased flexibility towards the customer demands	1	0.878
Our supply chain information management system has increased inventory control	1	0.852
Our supply chain information management system has led to efficient information flow making it easier to make strategic decisions	1	0.84
Financial reports are timely generated for decision making	1	0.466
There is improvement in business performance due to computerization of the accounting system	1	0.838
There is accuracy and efficiency in accounts records keeping through computerized accounting systems	1	0.879
Accounting functions like posting transactions to the ledger and double entry are simplified.	1	0.884
Arithmetic errors are easily minimized through application of computerized accounting systems	1	0.925
Auditing of the financial statement is ease with the use of computerized accounting systems	1	0.909
There is co-ordination and quality performance banking operations through the use of computerized accounting system.	1	0.869
Computerized accounting system help to gain inherent advantage while minimizing risks involved in the daily operations.	1	0.904
Computerization aids quick customer service decision making process and accountability in our tea factory	1	0.871
Computerized accounting system aids in the examination of banks statements of financial positions to ensure agreement with source documents	1	0.834
The organization has invested in a management information system which is easy to use	1	0.844
The organization has invested in a management information system which has enabled the minimization of administrative costs	1	0.874
The organizations management information system is compatible with other systems	1	0.924
The management information system is flexible enough to support the growth of the firm	1	0.894
The management information system of the firm has been crucial in delivering innovative customer services	1	0.832
The management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity	1	0.907

Factor Loadings

Rotated Component Matrix	Financial Accounting	HRM	SCM	Executive IS	CRM
Our HRIS has made our HR decision-making more effective.	0.074	0.856	0.088	-0.057	-0.025
The information generated from our HRIS helps our institution decide on employee issues.	0.024	0.837	0.062	0.009	-0.044
The information generated from our HRIS helps our institution to make more effective promotion decisions.	0.087	0.812	0.012	-0.007	-0.047
The information generated from our HRIS helps our institution decide when to hire.	0.04	0.832	0.038	0.009	-0.019
The information generated from our HRIS helps our institution make better decisions in choosing better employees.	0.054	0.836	0.013	0.047	-0.036
The information generated from our HRIS helps our institution decide when training and skill development are necessary.	0.01	0.862	0.036	0.074	-0.094
Overallary our administration thinks that HRIS is effective in meeting strategic goals.	0.02	0.8	0.06	0.009	-0.112
The information generated from our HRIS has improved the strategic decision making of top administrators.	0.071	0.831	0.078	0.011	-0.007
The information generated from our HRIS has made HR a more strategic partner in the institution.	0.06	0.843	0.095	-0.001	0.065
The information generated from our HRIS has increased coordination between HR department and top administrators	0.053	0.803	0.023	0.05	0.101
Customer relationship information management system enables the organization to analyze the customer profiles	-0.04	0.032	0.074	-0.065	0.82
Customer relationship information management system helps tea factories to identify the	0.017	-0.011	0.058	-0.042	0.868

Rotated Component Matrix	Financial Accounting	HRM	SCM	Executive IS	CRM
most profitable customer and prospects					
Customer relationship information management system enables the organization to provide better customer service	-0.022	-0.022	0.044	-0.076	0.859
Customer relationship information management system has assisted in improving the image of tea factories over time	-0.004	-0.054	0.046	-0.046	0.894
Customer relationship information management system enables tea factories discover new clients and increase revenues	0.036	-0.076	0.077	0.001	0.868
Customer relationship information management system enables the organization to analyze the customer profiles	0.077	-0.06	0.118	0.06	0.836
Our supply chain information management system has reduced the time in servicing customer orders	0.298	0.067	0.835	-0.046	0.063
Our supply chain information management system has increased financial performance of the organization	0.172	0.088	0.851	-0.081	0.093
Our supply chain information management system has increased customer service levels	0.27	0.056	0.806	0.038	0.184
Our supply chain information management system has increased timely deliveries	0.303	0.078	0.888	-0.008	0.007
Our supply chain information management system has reduced supply chain costs	0.348	0.069	0.885	0.001	0.053
Our supply chain information management system has increased flexibility towards the customer demands	0.385	0.087	0.847	0.021	0.06
Our supply chain information management system has increased inventory control	0.349	0.064	0.85	0.005	0.054
Our supply chain information	0.391	0.053	0.825	0.008	0.061

Rotated Component Matrix	Financial Accounting	HRM	SCM	Executive IS	CRM
management system has led to efficient information flow making it easier to make strategic decisions					
Financial reports are timely generated for decision making	0.576	0.045	0.354	-0.007	0.088
There is improvement in business performance due to computerization of the accounting system	0.882	0.035	0.241	-0.026	-0.002
There is accuracy and efficiency in accounts records keeping through computerized accounting systems	0.903	0.04	0.25	-0.005	0.015
Accounting functions like posting transactions to the ledger and double entry are simplified.	0.892	0.053	0.289	-0.002	0.035
Arithmetic errors are easily minimized through application of computerized accounting systems	0.927	0.059	0.246	0.002	0.025
Auditing of the financial statement is ease with the use of computerized accounting systems	0.925	0.056	0.221	0.019	-0.015
There is co-ordination and quality performance banking operations through the use of computerized accounting system.	0.9	0.067	0.23	0.016	0.003
Computerized accounting system help to gain inherent advantage while minimizing risks involved in the daily operations.	0.918	0.069	0.237	0.002	-0.005
Computerization aids quick customer service decision making process and accountability in our tea factory	0.897	0.091	0.238	0.022	-0.019
Computerized accounting system aids in the examination of banks statements of financial positions to ensure agreement with source documents	0.871	0.069	0.253	0.075	-0.024

Rotated Component Matrix	Financial Accounting	HRM	SCM	Executive IS	CRM
The organization has invested in a management information system which is easy to use	0.022	0.01	-0.024	0.918	-0.022
The organization has invested in a management information system which has enabled the minimization of administrative costs	0.027	0.057	-0.012	0.932	-0.028
The organizations management information system is compatible with other systems	0.029	0.011	-0.017	0.96	-0.035
The management information system is flexible enough to support the growth of the firm	-0.004	0.018	-0.005	0.944	-0.049
The management information system of the firm has been crucial in delivering innovative customer services	-0.045	0.023	0.019	0.911	-0.012
The management information system of tea factories has been crucial in assisting employees to enhance their performance and productivity	0.043	0.012	-0.022	0.95	-0.035

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a Rotation converged in 6 iterations.