ADOPTION AND INTEGRATION OF INFORMATION AND COMMUNICATION TECHNOLOGY, AND PEFORMANCE OF DEPOSIT TAKING SACCO'S IN NAIROBI CITY COUNTY

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DECLARATION

This research proposal is my original work and it has not been presented for any course in any University. Therefore, all rights are reserved to me and illegal retrieval of information without permission from me is prohibited.

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DEDICATION

This project paper is dedicated to the Creator, the Almighty GOD-NGAI WA KIRINYAGA, who gave me the physical and mental strength to undertake and accomplish this project in the prescribed period of time.

I equally dedicate this project work to my Mum-Mrs. Grace Wachira, my dad Mr. Samuel Wachira,my brother Jackson Muiruri, sister Loise Wairimu ,Niece Stacie Wanjiru, nephew Samuel Wachira,The high priest Wanjau kiringa and his wife Muthoni and my ever strong grand pa, for their un shakable support they have shown me in this course.

More equally, i want to dedicate this project paper to the University of Nairobi-main Campus for taking us through this fantastic course.

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ABSTRACT

The objective of the study was to establish the relationship between adoption and integration of Information and Communication Technology (ICT), and performance of deposit taking Sacco's in Nairobi County. The study adopted a descriptive cross-sectional research design which included survey and fact finding of different kinds and data collection using questionnaires the target population comprised of the top 40 deposit taking Sacco's in Nairobi County out of these 31 deposit taking Sacco's responded, representing a response rate of 78%. The study was administered using primary data that was gathered by the use of questionnaires. The Quantitative data collected was analyzed through computerized software specifically SPSS (Statistical Package for Social Science) version 22 and presented through tables and descriptive statistics as such percentages, means, standard deviations and frequencies. The relationship between adoption and performance of deposit taking Sacco's, integration and performance, and the interaction term i.e. the product of adoption and integration were all done through the use of regression, regression ANOVA and regression co efficient. The results found that, there was a strong positive relationship between adoption and performance, while there was a positive but weak relationship between integration and performance, when the interaction term was used the relationship was not only positive but was much stronger than when the variables are on their own, this implied that the interaction term enhanced the performance of deposit taking Sacco's. Wang (2007) deduced that integration is not just a moderator but it's a variable that on its own has a huge impact on performance. This study has contributed to existing knowledge by empirically confirming that adoption and integration enhances firm's performance. The study also brings out an increased understanding that the combinative effect of the study variables (interaction term) is greater than the individual effects. Organizations can enhance their performance by adopting and integrating more the ICT with the business functions.

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ABBREVIATIONS AND ACRONYMS

B2B	-	Business to Business
B2C	-	Business to Consumers
BOSA	-	Back Office Sacco Activity
CBK	-	Central Bank of Kenya
CD-ROM	-	Compact Disk Read only Memory
CRM	-	Customer Relationship Management
E-BUSINESS	-	Electronic Business
EDI	-	Electronic Data Interchange
ERP	-	Enterprise Resource Planning
FOSA	-	Front Office Sacco Activity
ICT	-	Information and Communication Technology
ICPAK	-	Institute of Certified Public Accountants of Kenya
IFAC	-	International Federation of Accountancy
IFRS	-	International Financial Reporting Standards
IMF	-	International Monetary Fund
I.S	-	Information Systems
SACCO	-	Savings and Credit Co-operative
SAP	-	Structural Adjustment Programme
SASRA	-	Societies of Sacco Regulatory Authority
SCM	-	Supply Chain Management

TAM	-	Technology Acceptance Theory
WB	-	World Bank
WOCCU	-	World Council of Credit Unions

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Organizations all over the world are turning to the use of Information and Communication Technology (ICT) in an attempt to boost efficiency, effectiveness and economy. Similarly ICT has become a vital components to survival, streamlining activities, attaining speed to respond to the market demands, to boost profitability and productivity levels besides playing a big role in attaining an edge over competitors (Kiveu 2013). It is on such arguments that Sacco's cannot afford to be left behind in the acquisition, adoption and integration of ICT in their business activities, it becomes actually hard for Medium enterprises to compete with big companies in the World and in Kenya if they are not using ICT in their processes.

Erick (1993), developed the productivity paradox and argued that at times investment in ICT may not earn the desired benefits, this argument mostly holds at the national level as opposed to the firm's level, this is because most of the benefits of ICT accrue to the firm in the long run as opposed to the short run, the paradox should not be used to hinder the value of adoption and integration of ICT in the financial sector in Kenya at large. Sacco's are now seen to contribute greatly in economic growth of developing countries like Kenya (Makumbi et al. 2012). According to James (2000) the share of Sacco's in employment tends to be higher in developing countries, which are typically more focused on provision of financial services to the low and medium income earners. As such, policy provisions remain fundamental in propelling these enterprises towards self-sustenance and realization of their full potentials in contributing towards economic growth. The concept of Sacco's is not yet globalized fully as is the case with the other firms such as manufacturing and processing, but it's good to note that their activities are making a mile stone .

The primary purpose of the SACCO is to encourage savings among members from which they can borrow at affordable terms decided by them collectively or through the elected

directors. Other financial services SACCOs offer include; ATM, Mobile money transfer and custody of valuable documents; as a result these institutions should report their performance status so that they can contribute fully to the growth and development of the nation. The main reason for this project work is to:-look at the level of adoption and integration of ICT on the SACCO's and the impact on their performance in the Kenyan context specifically in Nairobi CBD area, the project work also attempts analyse the way ICT has influenced productivity, market expansion, the benefits accruing to the SACCO's.

1.1.1 Information and Communication Technology Adoption

O'Brien (1999), Information and Technology Communication is an extended synonym for IT, but it's more general and consists of IT as well as telephony, broadcast media, audio and video processing and transmission and network based control and monitoring functions, it supports the wide business operations to satisfy customer needs. Wang (2007) notes that ICT adoption is the usage of any ICT related software and hardware for the well-being of a business processes, an individual, or a nation. ICT adoption is the application and usage of ICT component which includes but not limited to infrastructure acquisition, software acquisition, internet connection, website usage, software application Rapi and Muhammad (2008).

A number of factors come into play for any given firm to adopt the use of ICT; some of the factors noted include organization factors such as type, nature, size, IT skills and knowledge, financial status. The Manager of the firm also has a stake in adoption in terms of knowledge that he/she has in ICT, the support and attitude he/she has towards ICT. Adoption factors which range from relative advantages, compatibility, observability and complexity. Competitive environment in terms of business environment, suppliers, competitors and customers. And finally Governmental factors in terms of national policy on ICT, taxes on ICT products, Labour, trade, regulation and prices of ICT products (Kiveu 2013).

The main factors considered in adoption and integration of ICT in terms of Internet and email include organization factors in terms of culture of organization which is argued to

be technological oriented, the need to make business process flexible, availability of skills to implement the technology, the management of the organization also needs to be technological oriented. The main reason to adopt technology use is the need for the medium enterprises to improve competitiveness (Modimogale and Kroeze 2011) Adoption can also be said to hedge on the availability of resources in terms of time, money and expertise, but also on the desire to attain competitive advantage, reduce costs also plays a major influence. The size of medium enterprises works against them when it comes to the adoption and integration of ICT (Harindranath et al. 2012) There are two major classes of factors are key for adoption;-necessary factors and sufficient factors, these factors as per the Authors are interrelated and include;-technological factors such as relative advantage, complexity, cost, compatibility and image, organizational factors such as size, quality of Information System(IS)/Information Technology(IT), specialization, top management support and information intensity, individual factors such as managers innovativeness and managers IS/IT knowledge and Environmental factors such as government role ,public policy, competitive pressure, buyers pressure (Hazbo et al. 2008).

Goling et al. (2012), focused on digital divide and the rate of adoption of ICT among rural and urban medium enterprises in Jamaica, they deduced that the notable factors that were common to all included; adoption attributes such as (relative advantage, complexity, compatibility, trialability and observability), organization factors such as size and industry, managerial characteristics such as age and attitude. Notable benefits of ICT adoption and integration includes an increase in net profit margins as it was put by a group of interviewed managers, 51% of them said that profit margins increased as a result of using ICT. The researchers were also keen to note that ICT enhances inter and intra communication of trade enterprises, this is realized due to the communication and collaborative ICT tools used in the operations of medium enterpises that enhances effectiveness in the flow of information (Gabriel 2013).

Kiveu (2013), notes that some of the benefits from the use of advanced ICT includes increase in productivity and gains in efficiency, apart from operational efficiency and

improved communication with the stakeholders such as suppliers and customers, others include improved customer service, keeping up with competitors, enhancing working in collaborative ventures, increased staff satisfaction, the need to respond to the demands of customers that is customers want it. Harindranath (2012) notes that additional benefits of using ICT are error reduction, service quality improvement, customer satisfaction and integration in the supply chain.

Sadowski et al. (2002) indicated that ICT can also aid to reduce transaction costs and increase the speed and reliability of transactions for both business-to-business (B2B) and business-to consumer (B2C) transactions. In addition, ICT is an effective tool for improving external communications and quality of services for established and new customers, Schubert and leimstoll (2007) deduced that adoption and Integration of the internet in the tourism industry is expected to offer new management and business opportunities in four main areas: competitive advantage, productivity and performance, new management methods and new business development.

Given the arguments put forward by the various researchers on the benefits that come along with ICT adoption it can be said that adoption is of great potential to and SACCO's.

1.1.2 ICT Integration

Integration refers to the wholeness by which different components of a system are combined together to form a system (Wang 2007), on the other hand Anita and Smriti (2013) defined integration as the process of incorporating different elements of a system in a manner that allows them to function together as a unit. Earle (2002) defines it as the process of using any ICT to enhance productivity of any business Enterprise, individual or Nation, it is more of a process than a product.

Jo et al. (2009) defines Integration as the use of technology in communication, data processing and data storage to enable any business entity or organisation to have an edge over its competitors and for it to be successful, structural actions by the organisation must be taken. Agwin (2004) indicates that integration in any organization can be hampered by factors such as but not limited to lack of competent

skills, lack of time and space, lack of resources. Integration also implies that business processes ranging from manufacturing to retailing is combined together with customers, suppliers and other business stake holders, integration can have many dimensions such as internal and external integration of business processes, upstream and downstream integration of information between the entity and its customers and suppliers (Maria and Heidi 2006).In Consideration of what the various scholars have put forward on ICT integration with business processes, then it can be said that integration of ICT is a good idea.

1.1.3 Deposit taking Sacco's Performance

SACCO stands for Savings and Credit Cooperative which is a special type of co-operative offering financial services with major focus on mobilization of funds and provision of affordable credit to its members who are both the owners and user SASRA (2015). Performance is a measure of the change of the financial state of an organization, or the financial outcomes that results from management decisions and the execution of those decisions by members of the organization (Pandey 2008). Performance can be looked at from two perspectives, that is; Quantatively and qualitatively. In quantative terms the performance of a firm is looked at in monetary terms while qualitatively the outcomes cannot be expressed in monetary terms. Under Quantative parameters such as profitability of the firm are analyzed, profitability of a business enterprise is measured through various measures mostly gross profit, net profit, cash conversion cycle, earnings per share, return on capital employed, return on assets and return on equity. Qualitative performance largely refers to three aspects of a firm which includes customer focused performance (customer satisfaction and product or service satisfaction), Human resource performance (employee satisfaction) and Organization effectiveness (time to market, level of innovation, production and supply chain flexibility) (Sadowski et al 2011).

Profit-seeking enterprises and individuals are constantly seeking new and improved products, processes, and organizational structures that will reduce their costs of production, better satisfy customer demands, and yield greater profits. Sometimes this search occurs through formal research and development programs; sometimes it occurs through more trial and error efforts. This can largely be achieved through adoption and

integration of ICT to the business processes (Ashenas and Francos 2000). Firm performance provides necessary information for monitoring and control, improvement, maximization of effectiveness of improvement effort, reward and discipline and as a lever towards alignment of organizational goals and objectives. Profits, growth, balance scorecards, economic value added and customer satisfaction are some of the frameworks that several scholars have proposed as effective in undertaking firm performance. (Sadowski et al. 2011).

1.1.3 The Savings and Credit Co-operative Societies (Sacco's) in Kenya

SACCO's firms do offer payment services and products that enable both household and Enterprises to participate in the wide economy, by availing channels of investments such a savings, advancement of loans and risk management they enable nationals to participate in the national building by availing means of breaking the vicious cycle of poverty and for the national growth and development (Tidd and Hull 2003).

The Sacco industry is part of the cooperative sector in Kenya, which has impacted on lives of many disadvantaged Kenyans over the years. The sector may be categorized into financial and non-financial cooperatives. Non-financial cooperatives deal with the marketing of members' produce and services such as dairy, livestock coffee, tea, handicrafts and many more similar cooperatives. On the other hand financial cooperatives comprise Sacco's, housing and investment cooperatives (SASRA 2015).

The Sacco sub sector can be described as two-tiered given the range of financial services to members and regulatory regime. The traditional Savings and Credit Cooperative Societies (Sacco's), described in law as Non-Deposit taking Sacco's provide a limited range of savings and credit products, are registered and supervised under the Cooperative Services Act, CAP 490. The deposit taking Sacco's besides the basic savings and credit products, also provide basic 'banking' services (demand deposits, payments services and channels such as quasi banking services commonly known as automated teller machines, Front Office Services Activity (FOSA) and are licensed and supervised under the Sacco Societies Act of, 2008. The general trend is that Sacco's start as non-deposit taking

Sacco's business and grow to deposit taking Sacco business to expand the range of financial services to members (SASRA 2015).

Sacco's are regulated by the Sacco Societies Act, the co-operative societies Act and the Sacco Society regulations (SASRA 2015). By January 23rd 2015 184 Sacco's were registered as deposit taking institutions. The Sacco sub sector comprises both Deposit Taking and non-Deposit Taking Sacco's. Deposit Taking Sacco's are licensed and regulated by SASRA while non-Deposit Taking Sacco's are supervised by the Commissioner for Co-operatives. SASRA licenses Sacco's that have been duly registered under the Cooperative Societies Act CAP 490.The total Sacco sub sector assets stand at Kshs. 493 billion and total membership for the sector is 3 million persons as at December 2014. Total deposits for the sector stand at Kshs.413 billion and Loans to members are at Kshs. 421 billion. According to WOCCU (2014), there were 62,945 SACCO's in 100 countries around the world in 2014 which collectively served 188 million members and over saw US $1.5 trillion in assets. Kenya today has 6,750 registered SACCO's which continue to play a key role in the development of our economy through the provision of financial access to many citizens who remain un-bank.

Currently this sub-sector has mobilized domestic savings to a tune of Kshs 400 billion, that is 33% of the national savings and in fact, it is currently the leading source of the co-operative credit for socio-economic development in Kenya and contributes immensely to the mobilization of savings. As a result, co-operatives are now playing an important role in the achievement of Kenya Vision 2030 and Millennium development Goals. Before 1990, most organizations including the financial institutions were under the government where there was control in terms of operations and rules of entry, thus enjoying monopoly of trade. Between 1989 and 1992, the Kenyan government was compelled by the International Monetary Fund (IMF) and the World Bank (WB) through the Structural Adjustment Programme (SAP) to introduce liberalization which opened the economy. All organizations, whether large, medium, small or micro enterprises including SACCOs began to feel the effects of this. Most of the banks reviewed their conditions and as a result, increased their minimum operating deposits for their account holders. This drove off most of the customers who were unable to operate bank accounts. This created an

opportunity for SACCO's to open Front Office Services Activity (FOSA), the banking arm of SACCO's, which contribute immensely to the profitability of SACCO's (SASRA 2015).

1.2 Research Problem

ICT adoption and integration are very vital in enhancing the overall performance of a firm in quantitative and qualitative terms as noted by empirical studies. Adoption is the uptake of ICT while integration is the intertwining of ICT to business processes, performance is the overall effects of entity operations in both qualitative and quantitative terms, in this context it has been noted that ICT is not a separate component from the business but part of the business, thus while adoption is an issue to Sacco's, integration is a major issue as well which may adversely affect performance (Jo 2009).

While ICT adoption in the deposit taking Sacco's context has been realized to some extent, it has only been done at a much lower level that is basic adoption and small office automation and it has also been noted that even after adoption of ICT these enterprises are not performing to the expectations. Therefore there is a need to carry out a study on adoption and integration to deduce the level of adoption and the impact these two concepts have on the overall performance of the Sacco's.

Most of the empirical studies done locally and international have focused mainly on ICT adoption as key to Performance thus sidelining integration of ICT to business processes as not being vital to boosting Performance, while in essence both Adoption and Integration are key in enhancing enterprise performance. Kiveu (2013) notes that even though adoption of ICT has taken place in Kenya, among the medium enterprises the uptake has only being on a small scale to only cover office automation, websites, internet and emails. Wanjohi (2010) notes that several challenges have made medium enterprises from adopting fully and these factors include high cost of ICT adoption and integration, inadequate business skills. Wachira et al. (2014), notes that the level of awareness in Kenya, the levels of innovations, existing infrastructure, integration of the cooperative processes and the perception amongst the stakeholders are the main issues as long as adoption and integration is concerned in Kenyan deposit taking SACCO's, in spite of

intensive descriptive study on impacts of ICT adoption revealing that it leads to improved performance of an enterprise in terms of efficiency, effectiveness, economy, improved return and improved productivity in workers as noted by Chowdhury (2006), integration is also seen to contribute a lot to a firm in terms of overall organization performance that is an improvement in efficiency and effectiveness, improved quality, improved relationship with customers and suppliers, improved internal and external collaborations, improved communication patterns, increased demand for coordination of joint activities (Maria and Heidi 2006).

Wang (2007), notes that both adoption and integration are key to flexibility and efficiency of any given firm, thus they are very vital for overall performance of an entity but this is yet to be proved in Kenya especially among the deposit taking Sacco's, despite the wide measures taken to popularize the ICT adoption by the Government and other relevant stakeholders in the country, the adoption and integration is still an issue among the Sacco's, while adoption is good to firms given the accruing benefits, without integration with the business processes, performance may not be fully realized. This study therefore seeks to fill this gap through the use of this research question: What is the relationship of ICT adoption and integration on the performance of deposit taking Sacco's in Nairobi CBD?

1.3 Objectives of the Study

The major objective of this study was to establish the relationship between ICT Adoption and Integration on the performance of medium tier banks and deposit taking Sacco's in Nairobi CBD.

Specific objectives included:

i. To establish the level of ICT adoption among deposit taking Sacco's in Nairobi Region.
ii. To establish the level of ICT integration among deposit taking Sacco's in Nairobi Region.
iii. To establish the relationship between ICT adoption, and performance of deposit taking Sacco's in Nairobi Region.

iv. To establish the relationship between ICT integration, and performance of deposit taking Sacco's in Nairobi Region.

v. To establish the relationship between ICT adoption, integration and interaction term and performance of deposit taking Sacco's in Nairobi Region

1.4 Value of the Study

This study will prove to be important to the deposit taking Sacco's in Nairobi and in the country at large, and other Organizations in the nation, researchers, policy makers in the field of Deposit taking and Non-deposit taking Sacco's, ICT, the consultants and the public.

The study will add more knowledge on the concept of adoption and integration and performance of deposit taking Sacco's as well as providing more empirical findings; this has given more material which is of value to other researchers, scholars and students. This study is going be used as a basis for further research and in academics in the area of ICT adoption, integration and impact they have on performance of these enterprises.

The study will be beneficial to the deposit taking Sacco's in the nation by providing insight to the management on the importance of ICT adoption and integration and performance of these Sacco's. Since many Sacco's in the Kenyan context are still not keen on this concept of adoption and integration, and how the two concepts translate to overall performance of firms in the global perspective this study will in turn act as a major motivator to the deposit taking Sacco's can go ahead and adopt ICT and integrate it to the business processes.

The study will be useful to policy makers in the nation in the area of ICT and deposit taking Sacco's since ICT has been identified as one of the pillars to propel the Nation towards achievement of Vision 2030.The study has therefore encouraged the policy makers to put more emphasis on the issue of adoption and integration of ICT to business processes. This is because many are the times in the developing world such as ours that vital element for growth and development of the economy such as policies on ICT are not

well formulated for ease of operation, and when well-crafted the implementation bit is not well executed.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section covers the review of literature in regards to theoretical framework and empirical studies that have been carried out in the area of ICT adoption, integration and performance in the deposit taking Sacco's sector. The study looks at the drivers of ICT adoption and integration and how this affects performance.

2.2 ICT Adoption and Organisation Performance

ICT adoption can be looked at in two ways; the Perceived Usefulness that is the degree to which a person believes that using a particular system would enhance his or her job performance. And the Perceived Ease of Use that is the degree to which a person believes that using a particular system would be free of effort (Gibbs et al. 2007). ICT adoption among Medium enterprises may vary between various contexts, Zappala and Gray (2006), presented different stage models of ICT adoption. The model suggested that ICT adoption among medium enterprises may take three broad approaches namely: supply-side, demand-side and social network approach. In another related study (DTI 2001) Cisco developed an adoption ladder which states that any entity will start to Adopt the smallest form of ICT then moving up slowly to the most advanced form, this is to mean the entity will start with application of emails, website, e-commerce, e-business, networked organization and finally digital ecosystems.

Adoption of ICT can be hampered by a number of factors as noted by various scholars; Jennifer (2012), identifies two major categories of obstacle to adoption of internet among Malaysian Medium enterprises that is internal barrier's (owner/operator characteristics, cost and investment, firm size and internet access) and external barriers (social, economic, legal and regulatory, political and technological). Rapi and Muhammed (2008) noted that lack of internal capabilities (manager characteristics, firm characteristics, cost return on investment), external barriers (legal and regulatory, social cultural, political,

economic, technological, infrastructure), high cost lack of information on suitable ICT solution and implementation.

Formunyuuy and Neneh (2012), identified ICT skills, ICT infrastructure, Pre transaction barriers, and internet penetration as major obstacles to E-commerce adoption. Perception has also major factor that affects adoption of ICT and that perception differs from one country to another (Lazaro and Geoffrey 2013). Grandon and Pearson (2004) found that the perceptions of senior managers as to the strategic value of e-commerce related primarily to improving managerial decision making. Wymer and Regan (2005) emphasized cost as the overarching determining factor for ICT adoption.

To ensure uptake of ICT in firms several measures have been suggested by various scholars; Rapi and Muhammed (2008) to solve the challenges governments should provide products and services at low cost, provision of free professional advice and low cost consulting. According to Terngu et al. (2012), having an ICT enabling policy, ICT training and availing credit to various stakeholders will boost adoption. Rayed et al. (2012) notes that various incentives can be developed to boost the adoption of E-commerce among retail businesses, these included ;- development of a strong ICT infrastructure, government support and assistance for e-commerce, educational programs and building the awareness of e-commerce, trustworthy and secure online payment options, and provision of sample e-commerce software for training.

It is noted that adoption will surely boost the various parameters of performance of any given firm, pavic et al. (2007), argues that Medium enterprises have the opportunity to achieve a competitive advantage from advances in ICT through profitability, innovation, marketing, efficiency gains, better quality and customer responsiveness. However, their study of e-business adoption and use by United Kingdom SMEs points to an inability to make effective strategic use of the technology. In particular they identify owner's attitudes and lack of relevant knowledge and skills as problematic issues. Abramovsky and Griffith (2006), notes that ICT usage have resulted in two-front benefits; efficiency improvements, essentially driven by better information flows translating into better material management, which resulted into the implementation of technologies such as

electronic data interchange (EDI) and effectiveness improvements, driven by better information flows which resulted into re-engineering of the entire supply chain.

Clemons (1993) and Malone et al. (1987), suggest that a primary benefit of the electronic exchange of information between organizations is the reduction in transaction costs. Clemons et al. (1993), argues that information technology has the ability to lower coordination cost without increasing the associated transactions risk, leading to more outsourcing and fewer vertically integrated firms.

2.3 ICT Integration and Organisation Performance

ICT integration is broadly defined as a process of using any ICT (Including information resources on the web, multimedia programs in CD-ROMs, or other tools) to enhance performance of medium enterprises (Williams 2003). It is more of a process rather than a product, and therefore a simple placement of hardware and/or software will not make integration naturally follow (Earle 2002). According to Wang (2007), ICT integration is both an organizational and information issue, where different actors, structures, processes, objectives and transactions are inter-dependence

For effective integration to take place the business processes must be redesigned, aligned and managed (Larsen and Bjørn-Andersen 2001; Champy 2002). Grudén and Strannegard (2003), however suggests four functionality sets, which together cover most reasons for integrating business processes, that is connectivity, business process automation, visibility, and decision support. McKeen and Smith (2002) argue for four levels of integration, that is data level integration, application level integration, process level integration, and inter-organizational level integration. The levels of integration are not mutually exclusive. For instance, to achieve application level integration, data level integration is a prerequisite. Similarly, process level integration can only be achieved when application level integration already is established.

The ICT Integration activities need to address all relevant functional areas of the business (Homburg and Bucerius 2005). Haspeslagh and Jemison (1991) argue that the key

dimensions in business integration are the needs for strategic interdependence and organizational autonomy. Information integration is very vital for holding the entity together however it only involves backward coordination of the entity with the customers and suppliers in terms of provision of information (Frohich and Westbrook 2001). Information integration is closely related to sharing of information and knowledge between the entity and its suppliers and customers for the purposes of demand information, forecasting and replenishment (Wang 2007).

ICT Integration is also very vital for organization planning and control (Bowersox et al. 1999). The benefits of ICT Integration includes overall organization performance in terms of efficiency and effectiveness, improved quality, improved relationship with customers and suppliers, improved internal and external collaborations, improved communication patterns, increased demand for coordination of joint activities and new organizations and societal structures through the entities ability to store, transmit and process information in a speedy manner (Maria and Heidi 2006). Integration also changes the ways in which production, coordination activities, and data processing are carried out (Champy 2002). ICT also reshapes business practices in ways of gathering and analyzing information, developing strategic visions, finding the best approach for process redesign, and allowing collaborative teamwork (Zavatta 2008).

2.4 ICT Adoption, Integration and Organisation Performance

Wang (2007), states that there is a relationship between these three variables such that a firm that widely adopts ICT and integrates it to business process will more likely realize high performance than a firm that does not. Adoption alone is not enough to realize performance of a firm in both monetary and non-monetary terms, a firm that just adopts ICT but does not integrate may not realize holistic performance, thus for a firm to attain competitive advantage it must not only adopt must also integrate (Earle 2002). However Grandon and Pearson (2004), notes that adoption of ICT will lead to an improved performance, and in the same way integration will lead to performance as well, a firm that adopts ICT will cut costs, improve efficiency, boosts profitability and have

efficiency, while if it integrates it will have all the accruing benefits but with greater efficiency.

Chowdhury (2006), in the examination of investments in ICT-Capital and Economic performance of Medium enterprises in East Africa and the main concern was impact of ICT on performance of Medium enterprises, focus was on three main areas that is internal rate of return, Labour productivity and market expansion. Conclusion was that ICT adoption was positively correlated to Market expansion and negatively correlated to internal rate of return, Labour productivity.

2.5 Theoretical Review

The theoretical framework of a project research relate to the philosophical basis on which the research takes and will form the link between the theoretical aspects and the practical components of the investigation being undertaken. The theoretical framework therefore "has the implication of every decision being made in the research." (Maria and Heidi 2006).

Several theories have been put forward in regard to ICT adoption and integration, this study will be however guided by three major theories; the technology Acceptance theory by Fred Davis, the Delone and MC lean the IS Success Theory and Theory of Cost Reduction.

2.5.1 The Technology Acceptance Theory

This theory was put forward by Fred Davis and according to Davis (1986), perceived usefulness and perceived ease of use determines the individual's intention to use a system with intention to use serving as a mediator of actual system use. The author defines Perceived usefulness as the degree to which a person believes that using a particular system would enhance his or her job performance while Perceived ease-of-use as the degree to which a person believes that using a particular system would be free from effort. Empirical work by the author to test the reliability of his theory deduced that for adoption to be fully successful must perceive that the technology will indeed increase current performance and be used with much greater ease (Davis 1989). Segars and

Grover (1993) re-examined Adams et al. (1992) replication of the Davis work. They were critical of the measurement model used, and postulated a different model based on three constructs: usefulness, effectiveness, and ease-of-use. They deduced that perceived performance and ease of use were vital for usage of a new technology.

The theory is relevant to this study because ICT adoption and Integration are termed as key components for improving the overall performance of any given firm, in this perspective the TAM uses parameters such as increasing the speed of work, job performance, effectiveness, increased productivity and making work easier that will be realized if a given technology is adopted, this must be coupled ease of use of the technology for it to be a success.

2.5.2 The DELONE and MC LEAN the IS Success Model Theory

This theory re- classified the Information system success traditional approach an created a multi dimension model of analyzing the success of any Information system, the multi dimension measures included the information, system, service quality, use, user satisfaction and benefits. According to this theory, every system must have desirable features that is information, system and service quality, these are the things that may affect the use and the user satisfaction, after using the system benefits will accrue to the user however the benefits are in net terms that is both positive and negative (Delone and MC lean 1992,2002,2003).

The relevance of the theory to this study is manifested in the fact that the theory takes a comprehensive and an inter dimensional approach to ICT adoption and integration, such that, the ICT part is properly integrated to the overall business component for success in terms of benefits to be achieved by the entity. The theory will therefore be used to deduce whether ICT adoption and integration in the Kenyan context has led to increased overall benefits to deposit taking Sacco's, to the extent that ICT is not a separate entity to the organization and so it must be aligned with the business strategy for overall success in terms of effectiveness, efficiency, profitability, customer services to be realized.

2.5.3 The Cost Reduction Theory

Miller and Merton (1986), noted that Cost reduction refers to a dynamic exercise, an all-out effort to reduce cost from whatever level they are. The author also continues to note that nothing can be assumed to be standard, nor accepted as ideal. Each item of cost is examined, every operation is screened and every procedure is analyzed to identify the ways and means of reducing costs. Further, cost reduction is not a one-off exercise. Cost therefore can be termed as an attitude, a habit, or a philosophy. The approach for reduced cost must originate from the conviction of the need for it. Genuine cost reduction is essentially a function of cost consciousness on the part of persons involved and a cost reduction plan imposed upon without proper understanding among the employee will die a natural death without yielding any permanent contribution. Described equity swamps as an efficiency delivery method for multination's investors. Juhakam (2003) describes the theory of cost reduction as a driver for financial innovation. There are many examples of this such as reduction from improvement in payments, processing or reduction resulting from new ways to deliver financial services electronically to customers however, regulatory restriction and requirements are also a cost and some innovations are aimed at avoiding or reducing cost.

The relevance of this theory to this study is that, it has been argued that firms in the environment cannot keep increasing prices so as to boost organization performance in terms of profitability but they must look for other alternative means to scale down costs so as to increase profitability, in this perspective then ICT adoption and integration comes in as a perfect means to lower overall costs by eliminating in-efficiency in firms which shall be evaluated by this study whether it's the case in Kenyan context.

2.6 Empirical Review

Kiveu (2013) revealed that in Thika municipality in terms of adoption of ICT mobile phones accounted for 68%, followed by computer and fixed phones. The researcher was able to deduce that ICT was adopted for basic applications and office automation. The researcher also noted that adoption of sophisticated ICT was very low in the Municipality accounting for just 28%.this research was undertaken in Kenya-Thika town using a cross sectional survey of 75 Medium enterprises through a stratified random sampling.

Makumbi et al. (2012) concluded that ICT not only enhances efficiency but along with the notable benefits comes with security issues, their study was aimed to identify the major threats and how organization can hedge against such risks. The major security threats included viruses and system users, the researcher also deduced that Medium enterprises were attempting to secure their IT assets even though the efforts were un coordinated, the security roles were un assigned and many Medium enterprises do not have a security budget.

Chowdhury (2006), in the assessment of investments in ICT-Capital and Economic performance of Medium enterprises in East Africa, where concentration was on the work on two major states in East Africa;-Kenya and Tanzania, the study had three main areas of focus that is internal rate of return, Labour productivity and market expansion. It was deduced that ICT adoption was positively correlated to Market expansion and negatively correlated to internal rate of return, Labour productivity. Wegene and Olden (2012) in an attempt to find out the difficulties encountered in Adoption of ICT among medium financial enterprises in Addis Ababa concluded that the economic, cultural and political factors play a major role in the rate of diffusion of ICT in Addis Ababa. Consequently the said enterprises that had adopted ICT were benefiting in terms of cost reduction, efficiency, customer satisfaction and convenience and significant rise in profits.

On the rate of dissemination and deployment of ICT among medium enterprises, the level of awareness of ICT and the related technologies among owners and managers, it was found that the level of awareness of ICT was very high while mobile phones were the most used devices and the accessibility of internet was the major challenge. Recommendation was to urge the relevant ministry to create awareness through seminars and workshops (Gabriel et al. 2013). Modimogale and Kroeze (2011), discussed the role of ICT among Medium enterprises especially in handling competition, it was revealed that the use of traditional tools in operations is a big challenge among Medium enterprises in an attempt to create sustainable competitive advantage, thus the adoption of ICT was the solution irrespective of size. The major obstacle of adoption of ICT among Medium enterprises included lack of necessary skills and knowledge about strategic use of ICT.

Goling et al. (2012), focused on digital divide on the rate of adoption of ICT among rural and urban Medium enterprises in Jamaica, it was deduced that, the factors upholding digital divide included; adoption attributes such as (relative advantage, complexity, compatibility, trialability and observability), organization factors such as size and industry, managerial characteristics such as age and attitude. Maria (2013) used an Econometric model to test whether ICT access and innovation increases outsourcing in Medium enterprises, the prediction of this model were tested using a LOGIT Model which enabled conclusion to be made that the level of innovation influences the probability of outsourcing among the Medium enterprises but there exists a negative correlation between ICT adoption and access.

In south east England and Thames valley region, 400 Medium enterprises were studied and the main focus was on adoption and pattern of Medium enterprises when it comes to ICT, focus was keen on the drivers of ICT as well as challenges, it was found that, the attitude of adoption was favorable but massive failure to recognize the strategic advantage of ICT. It was also deduced that massive ignorance of European Union, national and regional wide policy on ICT on Medium enterprises (Rabindranath et al. 2012).

Earle (2002) deduced that ICT integration is not just an acquisition of hardware and software but it's a holistic process that involves merging ICT with Business process to lead to overall efficiency, effectiveness, economy of the entity. Wang (2007) revealed that integration of ICT with business process is key to enhancing performance in totality for any given entity.

2.7 Summary of Literature Review and Gap

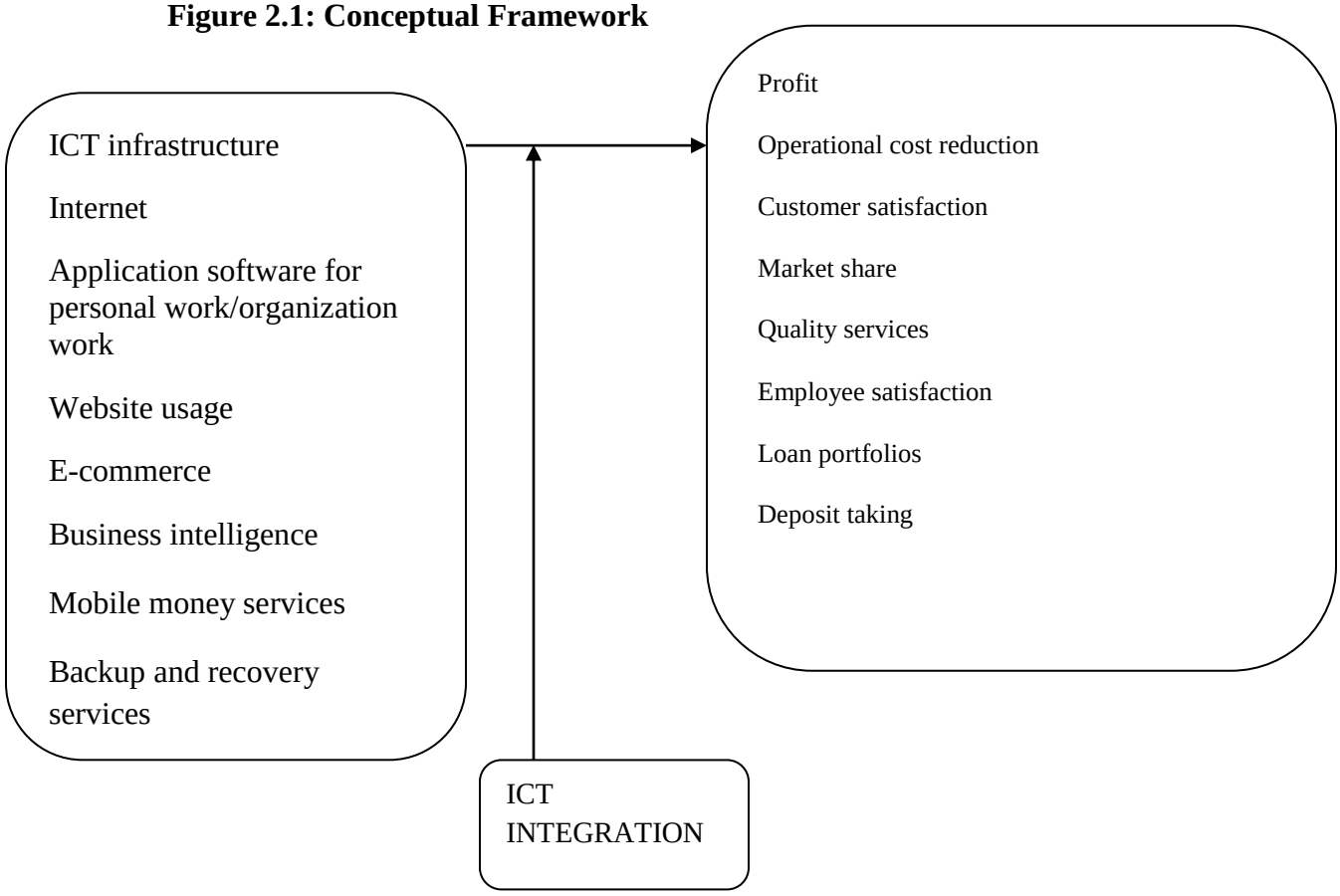
In the literature review, empirical studies have shown that adoption and integration of ICT to business will lead to an improvement in performance, even though most of the literature put forward have focused on adoption of ICT, nevertheless integration of ICT cannot be ignored since if a firm just adopts ICT but does not fully integrate it with the business operations it may not realize the holistic benefits of performance.

Adoption of ICT is good for improving performance of a firm but ICT cannot function on it is for a firm to realize a competitive advantage in the environment, therefore the intertwining of the ICT to the business function and the entire organization and its stakeholders such as customers, suppliers, government and other regulatory bodies is vital for attaining overall performance of the firm, this research will therefore seek to establish what is the relationship of ICT adoption, integration and performance of deposit taking Sacco's in the Kenyan Context with area of interest being Nairobi CBD area.

2.8 Conceptual Framework

The study shall be guided by the following conceptual model, and from the literature review ICT adoption has been seen to boost many aspects of performance even without Integration, but with integration, totality of performance is realized thus making integration an intervening variable in this study.

Figure 2.1: Conceptual Framework



CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter focuses on a detailed description of the research will be implemented to find answers to the research questions. This chapter outlines the research design, population, sample design, data collection methods and finally the data analysis.

3.2 Research Design

The study utilized a descriptive cross section research design, which involved a description of phenomena associated with a population, estimates of the proportion of a population that has these characteristics and discovery of associations among different variables. The design helped to determine whether or not the variables are independent and the strength of the relationship. Cross-sectional surveys are carried out once and represent a snapshot of the populations for which they gather data (Cooper and Schindler 2008).

This research design was perceived to be good for the study since it enabled the researcher to discover how ICT adoption, Integration influences organization performance among the deposit taking SACCO's, and in case of a relationship, the strength of the relationship was determined.

3.3 Population and Sampling

Target Population is defined as a set of people, services, elements and events, group of things or households that are being investigated (Cooper and Schindler 2008).The population for this study consisted of all the 40 deposit taking Sacco's in Nairobi area. (SASRA, 2015). No sampling was done for this study due to the small population size, thus it was a census.

3.4 Data Collection

Primary data was used for this study; information was gathered directly from the respondents through the use of structured questionnaires. The questionnaires largely utilize likert's scale. The organizations were the unit of study and therefore the target respondents were the organizations ICT Manager or the equivalent and the Operations manager or the equivalent. ICT Manager or the equivalent responded to the section on ICT adoption and Integration while the Operations manager or the equivalent responded to the section on Organization Performance and Organization data section. The questionnaire was divided into sections, the first section gathered data about the organization, the second section covered ICT adoption, the third section covered integration, and forth section covered organization performance. The data collection instruments were administered using the "drop and Pick later" pick method.

3.5 Data Analysis

The quantitative data that was collected was processed by editing to eliminate errors, coding and finally entry to the computer system, data processing was done by the use of descriptive statistics specifically using regression analysis and presented through percentages, means, standard Deviation and frequencies. The information was further presented and displayed in tables. The analysis was done with the aid of computer software such as the Statistical package for social science (SPSS).

Table 1: Data Analysis

Objective	Data collection means	Measurement
Level of ICT Adoption	Questionnaire	Descriptive statistics
Level of ICT Integration	Questionnaire	Descriptive statistics
Relationship between ICT Adoption and Performance	Questionnaire	Regression
Relationship between Integration and performance	Questionnaire	Regression
Relationship between adoption, Integration and interaction term and performance	Questionnaire	Regression

3.5.1 Analytical Model

The correlation and coefficient of determination between the independent variable and the dependent variable was determined using the following general linear equation;

$Y=a+b_1X_1+ b_2X_2+CX_1X_2+e$

Where;-

Y was the dependent variable (Performance of Deposit taking Sacco's)

a-was the constant/y intercept

b-was the slope or the gradient

X_1-was the independent variable (ICT adoption)

X_2-was the Moderating Variable (ICT Integration)

CX_1X_2-the Interaction Term

e -was the Error term

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter describes the actual findings according to the feedback from the respondents and links them to the objectives of the study. Questionnaires were used to seek the respondents' perceptions of the various attributes defining the adoption of ICT, integration of ICT to the business function and the impact of these attributes towards the overall organisation performance. In total 40 questionnaires were distributed and out of these 31 questionnaires were filled up and returned indicating a response rate of approximately 78% and according to Cooper and Schindler,(2008) a response rate of above 60% is deemed to be good. The various tables that were formed in processing the information and the results obtained from the calculations undertaken are included in this chapter.

4.2 Descriptive Statistics

This section presents the descriptive statistics of the variables of the study, the study had three variables with ICT adoption as the independent variable, integration of ICT with the business functions as the moderating variable and organization performance as the dependent variable, this study means and frequencies and standard deviation were used. Descriptive statistics is a set of brief descriptive coefficients that summarizes a given data set, which can either be a representation of the entire population or a sample. The measures used to describe the data set are measures of central tendency and measures of variability or dispersion. (Cooper and Schindler, 2008).

4.2.1. The Age of the Organisation

The respondents were asked to indicate the range within which the age of the organization fell. The results are indicated in Table 4.2.

Table 4.2: Distribution of Organisations by age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 5 years	1	3.2	3.2	3.2
	5 years to 10 years	1	3.2	3.2	6.5
	10 years to 15 years	4	12.9	12.9	19.4
	above 15 years	25	80.6	80.6	100.0
	Total	31	100.0	100.0	

The study was conducted in Nairobi County in the financial sector specifically focusing on the deposit taking Sacco's, majority of the deposit taking Sacco's (25) indicated that they have been in existence for a period of more than 15 years representing 80.6%,4 Sacco's representing 12.9% have been in existence for a period between 10 to 15 years while 1 Sacco representing 3.2 % had been in existence for period between 5 to 10 years, another 1 Sacco representing 3.2% had been in existence for a period of less than 5 years. This is therefore an indicator that most of the Sacco's are fully established to be in a position to adopt and integrate ICT to boost their performance.

4.2.2. The number of Employees in the Organisation

The data collecting instrument required the respondents to indicate the number of employees they had by ticking the appropriate category. The results are tabulated in Table 4.3.

Table 4.3 ;The number of Employees in the Organisation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 50	18	58.1	58.1	58.1
	50 to 100	12	38.7	38.7	96.8
	above 100	1	3.2	3.2	100.0
	Total	31	100.0	100.0	

From Table 4.3 the majority of deposit taking Sacco's (18) indicated that they had less than 50 employees representing 58.1%, 12 Sacco's had between 50 to 100 employees representing 38.7% while just one Sacco had employees above 100 representing 3.2%.

4.2.3 Value of Assets owned by the Organization

The questionnaire required the respondents to indicate how they rate their organization in assets base terms by ticking the appropriate category. The results are tabulated in Table 4.4 .

Table 4.4 Classification of Firms by Value of Assets owned

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not exceeding kshs 100M	4	12.9	12.9	12.9
	Between kshs 101 M and kshs 500M	7	22.6	22.6	35.5
	Between kshs 501 M and kshs 800 M	11	35.5	35.5	71.0
	Above kshs 800M	9	29.0	29.0	100.0
	Total	31	100.0	100.0	

From Table 4.4 the majority of deposit taking Sacco's (11) indicated that they had assets base of between Kshs 501M and 800M representing 35.5%, 9 Sacco's had assets base worth above kshs 800M representing 29% while seven Sacco's had assets totaling between Kshs 101m and Kshs 500M representing 22.6%, four Sacco's representing 12.9% had an assets base not exceeding Kshs 100M.

4.2.4 ICT Adoption

In this section, the researcher sought the respondents' perception regarding the various aspects defining ICT adoption. The respondents were expected to indicate to what extent they agreed to the various statements that defined ICT adoption variable. Responses were captured in a five point likerts scale (5= Very Large extent, 4= Large extent, 3= Moderate extent, 2= Little Extent,1= Not at all) and the general level of acceptance was determined by calculating the means and standard deviation for the various statements as per the responses and tabulated in ascending order of means. The results were as presented in table 4.5.

Table 4.5 Means and Standard Deviation for measure of ICT adoption

	N	Mean	Std. Deviation	Ranking as per means
Big data and Data Analytics	30	2.633	1.2452	9
Use of E-commerce	30	3.167	1.1472	8
Business Intelligence	31	3.194	1.2495	7
Mobile Money Services	31	4.000	1.0328	6
Use of Application software for Personal work	31	4.000	1.0954	6
Use of Website	31	4.226	.8835	5
ICT Infrastructures e.g. Desktops,laptops,ATM	31	4.484	.6256	4

Mechanism on backup and recovery	31	4.581	.7199	3
Use of Internet	30	4.600	.6747	2
Use of Application software for Organisation work	30	4.700	.4661	1
Grand Mean	28	3.959	0.914	

From Table 4.5, majority of deposit taking Sacco's indicated that they had not largely adopted the use of Big Data and Data analytics as the mean was 2.633 which was below the overall mean of 3.959 and standard deviation was 1.2452 meaning that big data and data analytics aspect was still an issue that needs urgent attention among the Sacco's, similarly the adoption of E-commerce and business intelligence was low as the mean was 3.167 and 3.194 respectively which was below the grand mean of 3.959, there was a huge deviation for the two forms of adoption with E-commerce standard deviation at 1.1472 and for business intelligence at 1.2495 against the overall standard deviation of 0.914.However majority of the Sacco's had adopted the use of mobile money services, ICT infrastructures, the use of software application for organization work and for personal work, the use of internet and websites, these application had proved to be the most vital for Deposit taking Sacco's operations and service delivery as their means were above the overall mean.

4.2.5. ICT Integration

In this section, the researcher sought the respondents' perception regarding the various aspects defining ICT adoption. The respondents were expected to indicate to what extent they agreed to the various statements that defined ICT Integration variable. Responses were captured in a five point likerts scale (5= Very Large extent, 4= Large extent, 3= Moderate extent, 2= Little Extent,1= Not at all) and the general level of acceptance was determined by calculating the means and standard deviation for the various statements as per the responses and tabulated in ascending order of means. The results were as presented in table 4.6.

Table 4.6 Means and Standard Deviations for measure of ICT Integration

	N	Mean	Std. Deviation	Ranking as per means
Supply Chain Management	31	2.774	.9560	5
Customer Relationship Management	31	3.290	1.1013	4
Enterprise Resource Planning	31	3.548	1.2066	3
Shared Databases	31	4.097	1.0756	2
Communication Networks	31	4.290	.8638	1
Grand Mean	31	3.599	1.041	

From Table 4.6 most of the deposit taking Sacco's had not integrated with their suppliers through the Supply chain management application as the mean was 2.774 which was below the grand mean of 3.599 and the standard deviation was 0.956 meaning that they were having some challenges in their supply chain channel, similarly Sacco's had not smoothened the link with their customer's even though efforts towards that were present as the integration application-Customer Relationship Management had a mean of 3.290 which was slightly below the grand mean 3.599 and the standard deviation was 1.1013,further the use of Enterprise Resource Planning(ERP) was almost at average as the mean was 3.548 as compared to the overall mean of 3.599 implying that Sacco's are making efforts towards integration of business functions. To a large extent Sacco's have integrated their databases and communication networks to facilitate operations in terms of data and information sharing among their various departments.

4.2.6. Organisation Performance

In this section, the researcher sought the respondents' perception regarding the various aspects defining Organisation Performance. The respondents were expected to indicate to

what extent they agreed to the various statements that defined Orgnisation Performance variable. Responses were captured in a five point likerts scale (5= Very good, 4= Good, 3= Average, 2= Poor,1= very poor) and the general level of acceptance was determined by calculating the means and standard deviation for the various statements as per the responses and tabulated in ascending order of means. The results were as presented in table 4.7.

Table 4.7 Means and Standard Deviations for measure of Organisation Performance

	N	Mean	Std. Deviation	Ranking as per means
Market Share	31	3.516	.7690	9
New Customer Accounts	31	3.774	.9205	8
Employee Satisfaction	31	3.903	.7897	7
Operational Costs Reduction	31	4.032	.8360	6
Customer Satisfaction	31	4.097	.6509	5
Profit	31	4.194	.7492	4
Quality Services	31	4.194	.6542	4
Customer Deposits	31	4.194	.8725	4
Loan Portfolio	31	4.226	.7169	3
Deposit Taking	31	4.258	.7732	2
Time to Serve Customers	31	4.419	.6720	1
Grand Mean	31	4.073	.764	

In terms of growth and expansion, the deposit taking Sacco are not doing so well as the mean of market share and new customer accounts was 3.516 and 3.774 respectively which was below the overall mean of 4.07 meaning that the deposit taking Sacco's are not doing enough to market themselves to the public as the preferred destination for

savings and investments. However in terms of efficiency most of the Sacco's were doing well, in this variable three parameters of measurements were used that is overall cost of operation reduction, time to serve customers and quality of services ,the three had means of 4.032,4.097 and 4.419 respectively, with the exception of operation cost reduction that was slightly below the grand mean the rest were way above the overall mean, in terms of employee satisfaction most of the Sacco's employees were not satisfied with the way they were being handled at their work places as the mean was 3.903 which was below the overall mean of 4.073,on the other hand most of the Sacco's indicated that their customers were satisfied with the services they were getting as the mean was 4.097 which was slightly above the grand mean of 4.073.In terms of customer deposit taking, most of the Sacco's were doing well as the mean was 4.19 which was above the overall mean of 4.073 and the standard deviation was 0.8725.Loan portfolio was growing for most Sacco's with the mean at 4.226 and standard deviation at 0.7169,deposit taking for Sacco's was doing fine as the mean was 4.258 which was way above the grand mean of 4.073 and the standard deviation was 0.7732.In terms of overall goal of Sacco's existence i.e. profitability most of the Sacco's were doing well as the mean was 4.19 which was above the overall mean of 4.073 and the standard deviation was 0.749.

4.3 The relationship between ICT adoption and Performance

To establish the relationship between ICT adoption, and performance of deposit taking Sacco's in Nairobi region, a regression model was used where Organisation Performance was the dependent variable with ICT adoption being the Independent variable.

Table 4.8: The Relationship between ICT adoption and Performance table

Model Summary for adoption

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.723[a]	.523	.507	.40536

a. Predictors: (Constant), ICT_ADOPTION

From Table 4.1. R was 0.723 meaning that there was a positive relationship between ICT adoption, and Organization performance while R squared was 0.523 meaning that 52.3% of Organisation performance variations can be attributed to ICT Integration changes while 47.7% is due to other Factors. This implies that the regression model ICT Integration did not have some good explanatory powers as only 52.3% of the variations could not be explained.

Table 4.9:Analysis of Variance (ANOVA) in Regression Model for ICT Adoption

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.225	2	2.613	15.353	.000[b]
	Residual	4.765	28	.170		
	Total	9.990	30			

a. Dependent Variable: ORGANISATION_PERFORMANCE

b. Predictors: (Constant), ICT_ADOPTION

From Table 4.9 the results show that the model had an F ratio of 15.353 which was significant at 5% level of significance, therefore the overall regression model is statistically significant and can be used for prediction purposes at 5 % significance level, this further indicate that the independent variable used in this study (ICT adoption) are statistically significant in predicting the overall performance of deposit taking Sacco's.

4.3.1 The relationship between ICT Integration and Performance

To establish the relationship between ICT integration and performance of deposit taking Sacco's in Nairobi region, a regression model was used where Organisation Performance was the dependent variable with ICT integration being the moderating variable.

Table 4.10 Model Summary of Integration

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.425[a]	.180	.152	.53143

Predictors: (Constant), ICT_INTEGRATION

From Table 4.10.R was 0.425 meaning that there was a positive relationship between ICT adoption, and Organization performance while R squared was 0.18 meaning that 18% of Organisation performance variations can be attributed to ICT Integration changes while 82% is due to other Factors. This implies that the regression model ICT Integration did not have some good explanatory powers as only 18% of the variations could not be explained, in this regard therefore it's clear that most of the Deposit taking Sacco's are not so keen in integrating most of their business function.

Table 4.11 Analysis of Variance (ANOVA) in Regression Model for ICT Integration

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.800	1	1.800	6.375	.017[b]
	Residual	8.190	29	.282		
	Total	9.990	30			

a. Dependent Variable: ORGANISATION_PERFOMANCE

b. Predictors: (Constant), ICT_INTEGRATION

From Table 4.11 the results show that the model had an F ratio of 6.375 and the p value was 0.017< 0.05, therefore the overall regression model for ICT Integration is statistically significant and can be used for prediction purposes at 5 % significance level, this further indicate that the moderator variable used in this study (ICT Integration) is statistically significant in predicting the overall performance of deposit taking Sacco's.

4.4 The relationship between ICT adoption, integration, Interaction term and Performance

To establish the relationship between ICT adoption, and performance of deposit taking Sacco's in Nairobi region, a regression model was used where Organisation Performance was the dependent variable with ICT adoption being the Independent variable, integration being the moderating variable and the product of adoption and integration being the interaction term. (Baron and Kenny, 1986)

Table 4.12 The relationship between adoption, integration, interaction term and performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.770[a]	.593	.548	.38797

a. Predictors: (Constant), Interaction Term, ICT_ADOPTION, ICT_INTEGRATION

From Table 4.12.R was 0.77 meaning that there was a positive relationship between ICT adoption, integration, interaction term and Organization performance while R squared was 0.593 meaning that 59.3% of Organisation performance variations can be attributed to ICT adoption, integration and a combination of the two variable changes while 40.7% is due to other Factors. This implies that the regression model ICT Integration have some good explanatory powers as 40.7% of the variations could not be explained, in this regard therefore it's clear that most of the deposit taking Sacco's should be keen in intertwining ICT with most of their business function.

Table 4.13 Analysis of Variance (ANOVA) in Regression Model for adoption, integration and interaction term

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.926	3	1.975	13.125	.000[b]
	Residual	4.064	27	.151		
	Total	9.990	30			

a. Dependent Variable: ORGANISATION_PERFOMANCE

b. Predictors: (Constant), Interaction Term, ICT_ADOPTION, ICT_INTEGRATION

From Table 4.13 the results show that the model had an F ratio of 13.125 and the p value was 0.000< 0.05, implying that the F ration was also statistically significant, therefore the overall regression model for ICT adoption and Integration is statistically significant and can be used for prediction purposes at 5 % significance level, this further indicate that the variables used in this study (ICT adoption, Integration and the interaction term) are statistically significant in predicting the overall performance of deposit taking Sacco's.

Table 4.14 Coefficients for the model

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-3.448	2.154		-1.601	.0121
	ICT_INTEGRATION	1.388	.650	1.850	2.133	.042
	ICT_ADOPTION	1.840	.527	1.750	3.494	.002
	Interaction Term	-.328	.152	-2.595	-2.158	.040

a. Dependent Variable: ORGANISATION_PERFOMANCE

From Table 4.14 above the model will therefore be;

Performance=-3.448(Constant) +1.840(ICT Adoption) +1.388 (ICT Integration) -0.328(Interaction term) and thus beta was also statistically significant for ICT adoption (β=.1.840, t= 3.494 and p=0.002< 5%) and also for Integration (β=1.388, t=2.133, and p=0.042< 5%),when the two variables were multiplied to form an interaction term,β=-3.28,t=-2.158 and p=0.040<5% which was also statistically significant.

The Standardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large effect on the criterion variable. The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable. At 5% level of significance and 95% level of confidence system (ICT Adoption), had a co efficient value of 1.840 level; ICT Integration had a co efficient of 1.388 while the combination of the two was at -0.328, thus we conclude that for this study ICT adoption and integration when their applications are used separately have a big impact on Organization Performance than when they are intertwined, this can be attributed to the initial cost of intertwining the forms of ICT which will erode the returns that were being enjoyed by the organization before, secondly this can be explained by the fact totality of benefits after integration can be realized by the organization mostly in the long run after the

applications have been installed as opposed to the short run, thirdly this can be attributed to the attitude of employees towards integration of business function with ICT application as many could be rendered jobless in the near future, some will be forced to upgrade their skills so as to run the application's and they could be unwilling to do so.

4.4 Discussion of Findings

A positive coefficient was established between ICT Adoption, and overall Organisation Performance, this implies a unit increase in ICT adoption and will lead to 1.840 unit increase in overall deposit taking Sacco's performance and this is consistent with a study that was carried by Kiveu (2013) who deduced that firms that adopt ICT end up boost their overall performance in terms of increased profitability, efficiency, cost of operations, customer satisfaction. Another study by Hazbo et al (2008) also found out that ICT adoption boosts returns and cuts down costs of operation by a big margin thus bringing about overall efficiency and effectiveness.

ICT Integration with business function is also seen to have a positive impact on organization performance, thus a unit increase in ICT Integration will lead to 1.388 unit increase in overall deposit taking Sacco's performance, this is consistent with a study that was carried out by Wang (2007) that showed that integration of ICT with business functions usually boosts profits, cuts costs and brings about overall efficiency in a firm. Another study by Schowdhory (2006) deduced that integration was key in enhancing overall productivity of the firm, thus a firm becomes more efficient, effective in overall goal and economical.

However when the two variables are combined together to result into an interaction term, they yield a strong positive relationship (R) at 0.77, but the coefficient is negative at -0.328 meaning that the more an organization continues to intertwine adoption and integration the overall performance of the organization will reduce, this can be attributed to the initial cost of intertwining the various forms of ICT which will erode the returns that were being enjoyed by the organization before. Secondly this can be explained by the fact; totality of benefits after integration can be realized by the organization mostly in the long run after the applications have been installed as opposed to the short run. Thirdly this can be attributed to the attitude of employees towards integration of business

function with ICT application as many could be rendered jobless in the near future, some will be forced to upgrade their skills so as to run the application's and they could be unwilling to do so.

The study also wanted to examine the level of ICT adoption among the deposit taking Sacco's as one of its objectives, from the analysis it was found that most of the deposit taking Sacco's had invested a lot in most of the ICT adoption applications, in this regard therefore, it was seen that a lot of deposit taking Sacco's had adopted the use of application software's for organization work as well as for personal work, the use of internet and websites to conduct most of their information and communication tasks, similarly majority of the deposit taking Sacco's had adopted the use of back up application and data recovery mechanisms and transactions via the mobile money services, as well as the use of ICT infrastructures such as desktops and laptops, all these were seen as vital to enhance customer service delivery, on the other hand the use of business intelligence, big data and data analytics as well as application of E-commerce was low. In overall terms the adoption of ICT application was seen to be very high as it was revealed by the mean which stood at 3.959.

The other objective of the research work was to see the level of ICT integration among the deposit taking Sacco's in Nairobi region, in this regard it was found out that most of the deposit taking Sacco's had not integrated most of the business function with the integration application, a lot of Sacco's were seen to have integrated their databases and communication network and this can be attributed to the fact that there is the need to share data in the organization and to streamline the communication channels for ease of operation's, however there was evidence that most of the deposit taking Sacco's were making good progress towards integration with their customers, suppliers and overall integration of business functions for effective utilization of resources. Overall analysis showed that integration was still low among the deposit taking Sacco's in Nairobi region as the mean was small at 3.599.

In general analysis for this study however it was found out that, ICT adoption has a big impact on deposit taking Sacco's overall performance, this is so because the R was 0.723 implying a strong positive relationship i.e. the more the deposit taking Sacco's adopted

the ICT applications the higher the returns. On the other hand Integration was seen to have a minimal impact on performance as R was 0.425 implying a positive relationship but not strong per say, this shows that once deposit taking Sacco's integrate the performance will improve but at a low rate. However the interaction of the two variables yielded an enhanced relationship with the overall performance of deposit taking Sacco's as R was 0.77 implying that when an organization intertwines both ICT adoption and Integration, the returns will be more, this implies that the interaction term enhances the power of the model.

CHAPTER 5

SUMMARY, CONCLUSSIONS AND RECOMMEDATIONS

5.1 Introduction

This chapter presents the summary of findings, conclusions, recommendations and limitations of the study and suggestions for future research.

5.2 Summary of Findings

The study was conducted among the deposit taking Sacco's in Nairobi County, and the main objectives of the study was to determine the level of ICT adoption, ICT integration and how the two variables of the study has impacted on the overall performance of the organization. The data was collected through the use of questionnaires and analyzed through the use of data analysis software SPSS version 22, statistically the data was analyzed through descriptive statistics and the underlying relationship was done through the use of regression model, regression ANOVA and regression co efficient.

The first objective of the study was to find out the level of ICT adoption among the deposit taking Sacco's in Nairobi region, this was done using a five point likert scale the descriptive statistics such as the means, standard deviation and frequencies were used for the analysis, from the results of the study it was found out that the level of ICT adoption among the deposit taking Sacco's was very high as it was depicted by the mean of 3.959 with all the ten except three of the ICT adoption applications under study having a mean above the grand mean. The level of ICT adoption was found to be quite high due to the fact the sector-financial sector is a highly competitive one and all efforts are geared towards service delivery, this has therefore made most of the Sacco's to adopt ICT as this plays a big role in ensuring quality work delivered.

The second objective of the study was to examine the level of ICT integration among the deposit taking Sacco's in Nairobi region, this was done using a five point likert scale the descriptive statistics such as the means, standard deviation and frequencies were used for the analysis, from the results of the study it was found out that the level of ICT integration among the deposit taking Sacco's was low as it was depicted by the mean of 3.599 with all the five except two of the ICT integration applications under study having

a mean below the grand mean. The level of Integration was found to be very low among the Sacco's with only communication networks and database sharing being the only major integration applications in place, this is so as communication and information sharing in daily operations is key, the other applications have not been fully integrated and this could be due to cost factor for example ERP is an expensive system, the other reason is that most of the Sacco's may have not realized the needs and benefits of integration.

The third objective of the study sort to find out the relationship between ICT adoption and performance of deposit taking Sacco's in Nairobi region, this was done using regression model, regression ANOVA and regression co efficient, from the results of the study, the relationship was found to be positive and strong at 0.723(R), and the overall regression model was found to be statistically significant at 5% as F ratio was 15.353 and P-value=0.000<0.05.The strong R was due to the fact most of the Sacco's had adopted a lot of ICT applications which they felt are necessary to bring about efficiency and effectiveness in their operations as they try to boost service delivery among their customers.

The fourth objective of the study sort to find out the relationship between ICT integration and performance of deposit taking Sacco's in Nairobi region, this was done using regression model, regression ANOVA and regression co efficient, from the results of the study, the relationship was found to be positive at 0.425 (R), and the overall regression model was found to be statistically significant at 5% as F ratio was 6.375 and P-value=0.017<0.05.The main reason for a weak but positive relationship between integration and performance is due to the fact that most deposit taking Saco's have not fully integrated their operations with the major integration applications such as SCM,ERP,CRM but efforts are underway among many Sacco's thus the R is expected to be much stronger in future.

The fifth objective of the study sort to find out the relationship between ICT adoption, integration and interaction term and performance of deposit taking Sacco's in Nairobi region, in this objective the Baron and Kenny approach in testing for interaction effect was applied besides the use of regression model, regression ANOVA and regression co

efficient , from the results of the study, the relationship was found to be positive and strong at 0.77(R), and the overall regression model was found to be statistically significant at 5% as F ratio was 13.125 and P-value=0.000<0.05.The main reason for the strong relation is due to the fact that adoption and integration of ICT with business functions plays a huge role and its necessary for boosting the Company's overall performance.

5.3 Conclusion

ICT adoption was measured in the study using application such as internet usage, website usage, use of application software's for organization work and persona work, ICT infrastructure's, backup and recovery mechanisms, big data and data analytics, use of E-commerce, business intelligence and mobile money services. The result based on regression co efficient indicated that an increase in adoption leads to 1.840 increase in deposit taking Sacco's performance, similarly it was found out that the level of ICT adoption among deposit taking Sacco's was high and this could be attributed to a number of reasons such as the need for swift response to the changes in the financial sector environment that calls for flexibility in operations, a reduction in time to serve customers, customer satisfaction, quality services, effectiveness and economy in operations, in this perspective therefore the most effective tool to help deposit taking Sacco's in responding to the environmental changes was ICT and thus many Sacco's have therefore adopted a lot of ICT applications that they feel will play a great role in fitting in the environment.

ICT integration was measured in the study using application such as CRM, SCM, database sharing, ERP, communication networks, it was found out that an increase in integration leads to 1.388 increase in overall performance of deposit taking Sacco's, however integration among deposit taking Sacco's level of integration was found to be low and this could be attributed to a number of reasons such as most of the Sacco's had not yet learnt the importance of integrating ICT with the business functions for ease of operations, second could be the cost factor, to integrate business functions with ICT is expensive and thus most of the Sacco's were not ready to commit that huge amount of cash to capital expenditure for integration purposes, further more cost of integrating does

not only include acquisition only it will also come along with training of staff which will push the cost aspect higher.

Erick (1993), however in his productivity paradox argument states that ICT adoption and integration yield returns mostly in the long run as opposed to the short run and thus Sacco's should consider the cost factor as they go ICT way, Wang (2007) notes that ICT integration to business function is vital and thus it should not be seen just as a moderator as it impacts on organization performance directly, this sentiments were echoed by Jo et al (2009) in that integration brings about totality in performance to an organization.

By virtue of organisation having embraced ICT adoption and integration it was clear from this study that the impact on overall performance was huge as the grand mean for performance was 0.4073 with core parameters such as profitability, reduction in cost of operation. Quality services, customer deposits, customer satisfaction, loan portfolio, deposit taking and improved time to serve customers all recording a mean above average.

However when the two are intertwined for the well-being of the organisation to develop an interaction term, the co-efficient was -0.328 this seems to imply that the more the deposit taking Sacco's are engaging in integration activities the lower the level of performance but that is not the issue because the -0.328 was just a coefficient of the model, in reality the R for the model was 0.77 higher than the R for adoption which was 0.723 and 0.425 for integration this can be concluded that the more the deposit taking Sacco integrates ICT with business functions the more the payoffs in terms of Performance, in this perspective it can be concluded that interaction term helps to explain both aspects of adoption and integration better, however the negative coefficient can be explained to mean that the initial cost of intertwining the forms of ICT will be high and this will erode the returns that were being enjoyed by the organization before, secondly this can be explained by the fact totality of benefits after integration can be realized by the organization mostly in the long run after the applications have been installed as opposed to the short run, thirdly it can be attributed to the attitude of employees towards integration of business function with ICT application as many could be rendered jobless

in the near future, some will be forced to upgrade their skills so as to run the application's and they could be unwilling to do so.

5.4 Recommendations

From the study findings, the following recommendations are proposed; first the deposit taking Sacco's should strive to adopt a lot of ICT in their operations especially application's such as the use of E-commerce, business Intelligence, big data and data analytics as these will help them to better serve their customers, cut costs of operation, boosts profits and satisfy their customers more.

Similarly the deposit taking Sacco's should strive to integrate ICT with the business functions especially the use of applications such as supply chain management, customer relationship management, enterprise resource planning that were seen not to have been well integrated with the operations of the Sacco's, the adoption of the said application will boost the relationships with their suppliers, customers and even proper manage the resources at their disposal thus ensure smooth operations an aspect that will further boosts performance.

The government through the deposit taking Sacco's regulator-SASRA should also strive to encourage the deposit taking Sacco's to adopt and integrate ICT with business functions due to the underlying long term benefits that come along with the use of ICT such as efficiency, effectiveness and economy.

In general analysis therefore it can be concluded that ICT adoption and integration is a core aspect in the operations of deposit taking Sacco's, this is so because a benefits of were registered by the Sacco's as it was seen in the study analysis, more so Sacco's do play a major role in the economy growth and development and the earlier they put their operations in order the better it is for them and for the Nation as efforts are geared towards the attainment of vision 2030.

5.5 Limitations of the Study

The study had one big limitation. The study did not attain 100% response rate because the deposit taking Sacco's sector which was the context considered involved some parameters of performance which some respondents felt that such information was too

sensitive to share, in this perspective only a few were willing to respond to some questions that were very critical in the study.

The study only used quantitative data to come up with findings, results and conclusions, thus to develop deductions qualitative data was not used, this vital aspect of qualitative data being absent leaves a gap to develop comprehensive conclusions.

Despite the above limitations, the equality of the study was not compromised; the study has made an immense contribution to the existing body of knowledge, especially in the area of ICT adoption and integration which has not been fully exploited.

5.6 Suggestion for Further Research

This study only considered the level of ICT adoption, integration and the impact the two variables have o overall performance of deposit taking Sacco's, thus other studies can be done in the other segments of Sacco's industry such as among the non-deposit taking Sacco's, farmers Sacco's, public vehicle Sacco's.

Other areas of study can be the factors for adoption and integration of ICT among the deposit taking Sacco's, where the various factors that influence adoption and integration shall be studied in depth.

Another area of study would be the challenges that are faced by deposit taking Sacco's while attempting to adopt and integrate ICT with the business functions.

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APPENDICES

APPENDIX 1: QUESTIONNAIRE

SECTION ONE: ORGANISATION DATA

1) Name of the Organization

……

2) For how long has the Organization been in existence?

() less than 5 years

() 5 years to 10 years

() 10 years to 15 years

() above 15 years

3) How many employees are in the organization?

() less than 50

() 50 to 100

() above 100

6) How would you rate your organization in terms of Assets base?

() not exceeding ksh 100M

() between Ksh 101M and Ksh 500M

() between Ksh 501M and 800M

() Above 800M

SECTION B: ICT ADOPTION

To what extent has your organization adopted the following forms of ICT?

Please respond to the following statements by ticking in the appropriate box corresponding to each statement (1 - Not at all, 2 – Little extent, 3-moderate extent, 4-large extent and 5-very large extent).

Variables	Very large extent	large extent	Moderate extent	Little extent	Not at all
1)ICT infrastructure e.g. desktops,laptops,ATM machines					
2) Use of Internet					
3) Use of Application software for personal work					
4) Use of Application Software for organization work					
5) Use of Website					
6) Use of e-commerce					
7) Business intelligence (e.g. data mining and online application processing)					
8) Big data and data analytics applications(e.g. dash boards)					
9) Mechanisms on					

Variables	Very large extent	large extent	Moderate extent	Little extent	Not at all
Backup and recovery					
11) mobile money services					

ICT INTEGRATION

To what extent do you use the following forms of ICT systems?

Please respond to the following statements by ticking in the appropriate box corresponding to each statement (1 - Not at all, 2 – Little extent, 3-moderate extent, 4-large extent and 5-very large extent).

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Variables	Very large extent	large extent	Moderate extent	Little extent	Not at all
1) Shared databases					
2) Communication networks					
3) Customer Relationship Management					
4) Supply Chain Management					
5) Enterprise Resource Planning					

SECTION C: ORGANISATION PERFORMANCE

How have the organization performed on the following performance parameters in the past one year?

Please respond to the following statements by ticking in the appropriate box corresponding to each statement.

(1 – Very poor, 2 – Poor, 3-Average, 4-Good and 5-Very good).

	Very good	Good	Average	Poor	Very poor
1) Profit					
2)Operational costs reduction					
3) Time to serve customers					
4) Customer satisfaction					
5)Employee satisfaction					
6) Market share					
7)Quality Services					
8)Loan portfolio's					
9)Deposit taking					
10)New					

customer accounts					
11)Customer deposits					

APPENDIX 2: LIST OF SACCO'S

1. AFYA SACCO SOCIETY LTD
2. AIRPORT SACCO SOCIETY LTD
3. ARDHI SACCO SOCIETY LTD
4. ASILI SACCO SOCIETY LTD
5. CHAI SACCO SOCIETY LTD
6. CHUNA SACCO SOCIETY LTD
7. COMOCO SACCO SOCIETY LTD
8. ELIMU SACCO SOCIETY LTD
9. HARAMBEE SACCO SOCIETY LTD
10. HAZINA SACCO SOCIETY LTD
11. JAMII SACCO SOCIETY LTD
12. KENPIPE SACCO SOCIETY LTD
13. KENVERSITY SACCO SOCIETY LTD
14. KENYA BANKERS SACCO SOCIETY LTD
15. KENYA POLICE SACCO SOCIETY LTD
16. KINGDOM SACCO SOCIETY LTD
17. MAGEREZA SACCO SOCIETY LTD
18. MAISHA BORA SACCO SOCIETY LTD
19. MILIKI SACCO SOCIETY LTD.
20. MWALIMU NATIONAL SACCO SOCIETY LTD
21. MWITO SACCO SOCIETY LTD
22. NACICO SACCO SOCIETY LTD
23. NAFAKA SACCO SOCIETY LTD
24. NAKU SACCO SOCIETY LTD
25. NASSEFU SACCO SOCIETY LTD
26. NATION SACCO SOCIET Y LTD
27. NEST SACCO SOCIETY LTD
28. SAFARICOM SACCO SOCIETY LTD
29. SHERIA SACCO SOCIETY LTD
30. SHIRIKA SACCO SOCIETY LIMITED

31. STIMA SACCO SOCIETY LTD
32. TRANSCOM SACCO SOCIETY LTD
33. UFANISI SACCO SOCIETY LTD
34. UFUNDI SACCO SOCIETY LTD
35. UKRISTO NA UFANISI WA ANGLICANA SACCO SOCIETY LTD
36. UKULIMA SACCO SOCIETY LTD
37. UNITED NATION SACCO SOCIETY
38. WANA-ANGA SACCO SOCIETY LTD
39. WANANDEGE SACCO SOCIETY LTD
40. WAUMINI SACCO SOCIETY LTD

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