A SURVEY OF THE STATE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY IMPLEMENTATION IN RETIREMENT BENEFITS ADMINISTRATION IN KENYA

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DECLARATION

This project is my original work and has not been submitted for a degree programme in any other university.

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DEDICATION

I dedicate this project to my beloved wife, Ghariba and our little boy, Abdulaziz.

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ABBREVIATIONS

BPR: Business Process Reengineering

CBIS: Computer Based Information Systems

CT: Communications Technology

CRM: Customer Relationship Management

E-business: Electronic Business

ESS: Employee Self Service System

HR: Human Resources

HRMS: Human Resource Management Systems

ICT: Information and Communication Technology

IS: Information Systems

ISP: Internet Service Providers

IT: Information Technology

LDC: Least Developed Countries

MIS: Management Information Systems

NSSF: National Social Security Fund

OECD: Organization for Economic Co-operation and Development

PC: Personal Computers

PDA: Personal Digital Assistant

RBA: Retirement Benefits Authority

SLA: Software License Agreement

RBS: Retirement Benefits Schemes

UNESCO: United Nations Educational, Scientific and Cultural Organization

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ABSTRACT

The need for computer based information systems in retirement benefits schemes are now increasingly inevitable given that, the number of transactions are high and the number of customers is increasing rapidly. In such cases the manual methods of record maintenance and pension administration would be very difficult and complicated, causing retirement benefits schemes a lot of inefficiencies and vulnerability to security breaches. However with the increased introduction of computer based information systems, retirement benefits administrators now vary in their implementation of computer based information systems. This implies that depending on the extent of implementation the benefits and challenges of information systems will vary among the administrators. The implementation of information systems has led to increased competition among administrators it has also led to the need of businesses to understand the need for information systems security in order to have integrity and value of information; hence the need for the study on the extent of Information and Communication Technology (ICT) within retirement benefits administrators.

To address the objectives in this study, data were collected from 201 retirement benefits administrators using questionnaires and analyses were done using various statistical tools. The sample was obtained from the retirement benefits authority through stratified sampling on the basis of self-administered and external administrators. Out of these 201 retirement benefits administrators, 157 responded to the questionnaires.

The findings of the study show that the majority of the retirement benefits administrators in Kenya appreciate the need for ICT and have implemented Information Technology (IT) with varying degrees. Information Technology supports most of the benefits work and procedures including maintenance of member records, contributions and pension administration. The study also shows that the implementation of ICT brings in numerous benefits among the retirement benefits administrators. Benefits from ICT implementation that were highly ranked included: Maintaining and updating records for contributing members, maintenance of accurate and up-to-date Information, maintenance of more scheme, computation of member benefits in the event of termination and faster response

to customer demands. Finally the study identified the main challenges of implementing information systems in retirement benefits administrators in Kenya. These challenges were divided into two categories. The physical challenges and the Logical challenges. Physical challenges are the challenges that are non-application related they are mainly administrative based. Logical challenges are application software based they relate to the challenges posed on the Computer Based Information System. Since data is a key corporate asset and in some cases considered a strategic resource. The researcher recommends that security of information systems should be paramount in any firm wishing to benefit profoundly from ICT and there by improve its competitive position.

CHAPTER ONE
INTRODUCTION

1.1 Background

The application of Information and Communications Technology (ICT) has played a major role in the transformation of service industry over the past 30 years and is likely to have even greater effects in coming years. Looking to the future we can speculate on a number of possible scenarios that might develop as information technologies continue to evolve and as innovative applications of ICT are created. As with most predictions about the future, these scenarios can only be considered speculation. From their focus on information technology many futurists believe this technology holds some important and powerful potential to cause changes (Kraemer, et al., 1995). Developing countries are not left behind in this revolution. For instance the prospects for accelerated growth and development offered by electronic commerce are leading most developing countries to turn their attention towards ICT and an assorted array of related policy areas. Laudon and Laudon (2003) note that, Information systems have taken on a vital role in the competitive global marketplace because of powerful worldwide changes in the business environment. Leading industrial countries are transforming from industrial-based to knowledge-and information-based economies. Knowledge and information work now account for 60 percent of the American gross national product, and nearly 55 percent of the U.S. labor force (Ward and Peppard, 2002).

The New Zealand society for ICT (2000), has defined ICT as the term used to describe the items of equipment (hardware) and computer programs (software) that allow us to access, retrieve, store, organize, manipulate, and present information by electronic means. Personal computers, scanners, and digital cameras fit into the hardware category, database storage programs and multimedia programs all fit into the software category. ICT is now recognized by technologists and economists alike to be drivers of economic growth, productivity, competitiveness, and democracy. The widespread deployment and utilization of ICT by developing countries can improve intellectual capital, workforce

skills, productivity, market access and social structures, and enable them to become more competitive, both regionally and globally (Westby, et al., 2003). The increasing role of ICT as a driver of economic growth, productivity, competitiveness and democracy is expected even more with its revolution.

There has been a revolution in computing and communications in the past few decades, and all indications are that technological progress and use of information technology will continue at a rapid pace. These advances present many significant opportunities but also pose major challenges. Today, innovations in Information Technology (IT) are having a wide-range of effects across numerous domains of society, and policy makers, although currently lacking sufficient understanding and analysis of the consequences of their decisions, are acting on issues involving economic productivity, intellectual property rights, privacy protection, and affordability of and access to information, among other concerns. Choices made now will have long-lasting consequences, and attention must be paid not only to their technological merit, but also to their social and economic impacts (David, 2000).

Economic, social and political reforms, deregulation, technological developments, innovations and globalization are creating new relationships, new institutions and new ways of doing business. All these are made possible through the use of various converging technologies in the name of ICT (Mayingu, 2004). ICT has been implemented on many business processes and may result in organizations to operate on totally different paradigms. In this respect the companies, which have adopted and implemented ICT have an edge over others. IT often results in new workflow design and influences business processes (Turban, et al., 2004). This may lead to better performance.

Firms offering service as do benefits administrators are expected to increasingly adopt and implement ICT. Retirement benefits administration is a service industry where the administration maintains records related to employee benefits mainly for the purposes of processing their payments when the employee leaves the company through retirement, death, termination or resignation. At one end of the spectrum are large corporate and

public sector retirement benefit schemes; whilst at the other are numerous small companies, which offer their workforces a defined contribution or other pension arrangements. The smaller pension funds prefer to outsource the administration of their schemes to registered retirement benefits administrators whereas the large schemes prefer to carry out administration internally.

ICT has great potentials and these can be implemented to aid the administration of retirement benefits schemes. According to Laudon and Laudon (2003), Internet technology has created new efficient and cost-effective tools for employee communication and coordination. Managers can use email, chat, and instant messaging to communicate with employees that are in many different locations. Companies can use intranets to publish employee bulletins, policy manuals, directories, and other human resources documents.

ICT has been applied in a number of business processes including those in the service industry. ICT provides a synergetic effect which companies' exploit to achieve competitive edge and strategic advantages. Hammer and Champy (1993) believe that ICT is usually implemented due to pressure from the industry. There is more increased use of information and information systems in recent times. The extent of ICT implementation increases with time due to the improvement in the value of information (Laudon and Laudon, 2003).

The improvement in storage capacity and processor speed coupled with the reduction in cost of computing resources meant that organizations could now afford to store more information. These lead to new technologies being identified, which increased the competitive strategies in organizations. It's these changing development trends in information that have seen the implementation of ICT in benefits administration. The improvement in networks and the growth of the Internet have provided for new and cheaper platforms to carry out retirement benefits administration. Sharing of information is also more pronounced and information systems give more confidence in data security

and recovery in case of database or information system failure (Laudon and Laudon, 2003).

ICT implementation results in different results in different companies. Positive results in ICT implementation are not only guaranteed by investments in ICT, numerous other factors mainly the level of system usage plays a role in ICT implementation.

Kohne (2005) identified numerous potentials of ICT and business usage in benefits administration in insurance firms. He observed that ICT could contribute decisively to improving business processes, particularly by reaching new customers and tightening relations with existing customers. ICT can also be used in all steps of value creation. Further, availability and analysis of customer data in electronic data warehouse and data mining applications makes it easier to create products suited to the needs of particular groups of individuals.

ICT can be used in benefits administration in numerous ways. The organizations can send their benefits plan and use the Internet as a media of communication to its scheme members. The government has tried to reinforce the administration of benefits to recipients by bringing in the retirement benefits scheme regulations and later on the retirement benefits act, which was gazetted in 2000. This also saw the registration of a number of retirement benefits administrators legalized to offer retirement benefits administration services to different schemes. Individuals who are working for small organizations can now join and start contributing to schemes of their choice.

1.1.1 Retirement Benefits and ICT

The Retirement Benefits Authority (RBA) act (2000) requires that all the retirement benefits schemes be registered with the authority. It also required that the schemes appoint a number of service providers among the service providers are the benefits administrators. According to the act benefits administrators are required to keep, maintain and update all records of contributing members, deferred pensioners and current pensioners. They are also meant to compute member benefits in the event of termination. The administrators are also required to complete all documentation required in the event

of a member leaving the scheme including statement of benefits entitlement such as refund of contributions, deferred pension, transfer value and early retirement pension. It is also upon the administrator to advise members who leave service or retire regarding their benefit options. The administrators are also meant to monitor and coordinate additional voluntary contributions, which members may wish to make. They are also meant to advance notice of retirement listings – 12 months before retirement date and facilitate any communications with the RBA, Commissioner of income tax and other regulatory authorities.

What the retirement benefits authority act requires of retirement benefits scheme administrators, call for prudent information management. This can only be achieved efficiently through effective ICT Implementation, which some retirement benefits administrators have.

Several benefits administration work in Kenya had been mainly carried out manually for a long time. A few firms have implemented ICT with solutions being off the shelf products, while others have used office productivity software like Ms Excel. The demands by the RBA put more pressure on the retirement benefits administrators in Kenya to embrace ICT.

1.1.2 Retirement Benefits in Kenya

The Kenyan benefits industry is vast and commands a large amount of money as observed by Odundo (2004). Odundo noted that the entire Kenyan retirement benefits industry holds an accumulated total market value of assets US $ 1.8 billion which translates to 20% of the GDP. Odundo further notes that this figure, rates far below that of the USA, the Netherlands, and United Kingdom but compares well with a country such as Japan, and exceeds those of Germany, Italy and Sweden.

The benefits administration in Kenya is composed of 1396 benefits schemes with registered benefits administrators being 44 providing administrative services to schemes that have outsourced this service to them. There are other schemes mainly the large schemes which prefer to do their administration internally. These ones are 160 in number

and carry out administration internally usually within their respective human resources (HR) divisions, benefits sections.

The nature of benefits administration requires that a customer have access to his benefits information when he requires it. Initially this was not easy and employees had to call the benefits administrators or make a request in writing. This could take a minimum of two weeks to get a response, in the absence of information system. At the moment the time period is shorter with some administrators providing information via the phone. The greatest challenge here is that this response is not documented and technically can be termed as unofficial.

To get around this problem the Internet could provide a good solution. Customers can log in the respective sites and get their information online, with an option of printing the document; this will reflect official communication from the service provider. Unfortunately, the Internet services are still remote in Kenya and no benefits applications can be accessed online at the moment. In a study of understanding digital technology's evolution, David (2000) notes that the Internet technology has opened the door to an entirely new class of organization-wide data processing applications as well as enormously enhanced the potential for collective and cooperative forms of work organization. This applies to the retirement benefits administrators in Kenya.

1.1.3 ICT in Retirement Benefits Administration

Organizations have to change with the changes in ICT for them to remain competitive. Frindlen (1994) believes that complex social organizations that do not evolve to adapt to changing societal expectations would not survive. The benefits administrators are not an exception. ICT provides a perfect platform to fully address the RBA requirements. Most of the benefits administration services call for information management to be of paramount importance so that they respond quickly to both regulatory and personal needs of clients.

The success of ICT will depend on the quality of data being captured, the securities in place and the user friendliness of the systems. The success of computerization will also depend on the budgetary and management support that the implementation enjoys. Since ICT is relatively a dynamic discipline, its possible that ICT practices that were successful two years ago are now redundant. Developments and implementation of most custom Information systems are now being overtaken by the growth and increased implementation of web enabled applications. The challenges of ICT implementation will depend on the infrastructure in place, the culture of the organization, the management support that the ICT project enjoys, user perception or resistance and the choice of hardware or software tools. The determinants of ICT implementation will vary between operations and organizations and therefore challenges will differ as thus.

Benefits administrators store information on numerous numbers of schemes, with the resulting high number of members and large volumes of data. This puts even more pressure and need for data protection and its accuracy. The number of schemes has been rising steadily a noted by Odundo (2004) occupational staff pension schemes, are many in number and growing.

The increasing number of Schemes implies more volumes of data. Data relating to benefits is very sensitive which is seen in the monetary worthiness of individual members who has been contributing to the scheme via monthly deductions through the payroll. Family details of a member and next of kin need also be maintained securely since those nominated ultimately become the beneficiaries in case of death of a member. To meet these challenges ICT becomes of paramount importance to any firm seeking efficiency. Simple data management processes like data entry have proved to be a great source of misinformation if not administered well. The NSSF in Kenya for example has a colossal suspense account due to poor record keeping. "The fund is presently unable to identify the members accounts into which these suspense accounts would be posted and as a result it is not possible to confirm that pensioners funds totaling KShs.7.3 billion held in the suspense accounts are secure and will eventually benefit the relevant contributors" stated

the report of the Auditor General (Corporations), tabled in Parliament (Daily Nation, 12th March 2003).

The rising costs in benefits administration is of major concern to most organizations. The Ascentis software (2004) reported that benefits have become the second largest expense after payroll for most organizations in the United States, with an average projected cost of around $7,000 per employee in 2004. As employee benefits costs spiral, effective benefits management becomes imperative to an organization's bottom line. Organizations have the unique responsibility of overseeing the detection and prevention of cost leakages – especially in the arena of benefits management. It is becoming increasingly important that human resources departments have the right tools to manage employee benefits and therefore contain unnecessary cost leakages.

Information on benefits is to be maintained for a long time sometimes way after the retirement of a member for purposes of retirement monthly pension or widow orphan pension. According to the 2005/6 Government of Kenya proposed budget, there is compulsory preservation of an employer's portion of accumulated contributions or benefits. This means that where a retirement scheme member leaves employment before reaching retirement age, payment of the employer's portion of accumulated contributions or benefit will be deferred to retirement age unless the member is leaving with less than three years of service or retiring early on ill-health grounds. Therefore the preservation of information and access to it becomes even more paramount.

In the study of ICT diffusion to business (2003) the OECD in Norway noted that ICT investment and use, could be a strong driver for labor productivity and multifactor productivity at firm level. Complementary factors including the regulatory environment, the availability of appropriate skills, the capability for organizational change, as well as the strength of accompanying innovations in ICT applications, all have major effects on the ability of enterprises to seize the benefits of private and public investments in ICT. The role of ICT as an enabler of change across traditional segments of society and its

institutions also introduces some new challenges in terms of developing and implementing appropriate policies and implementation mechanisms.

Mayingu (2004) studied the state of public pension administration in Tanzania and his research showed that automation of business operations generally tends to improve processing speed, accuracy and reduced cost per transaction. It also enables organizations to systematically identify, acquire, store, analyze, distribute and re-use information and knowledge from all sources in order to enhance organizational productivity and competitiveness. Automation of businesses, now takes a combination of various equipment completely integrated at both hardware and software level.

The challenges of ICT cause organizations to shy away from its implementation, this implies that organizations will not fully exploit the potentials of ICT meaning that their benefits will be limited due to the reduced extent of implementation. Turban, et al., (2004) who studied the levels of IT expenditure and learning, observed that organizations started by limited implementation of IT and grew rapidly to maturity. When the investments in IT were low the returns were also low given that only a limited number of processes are automated. However organizations are encouraged to invest more in IT due to the synergy created by ICT. This gradual implementation means that organizations implement systems in stages carefully viewing the challenges and associated benefits. Firms will thus tend to invest and implement more ICT in the event of realizing benefits, on the other hand firms will be reluctant to implement ICT due to the challenges faced. In view of the anticipated benefits from ICT its important for the retirement benefits administrators to understand the challenges and seek solutions so as to implement ICT.

1.2 Statement of the Problem

The demand for quick, efficient and secure service delivery to clients has made the administration of social security schemes and governments adopt new business models that embrace the use of ICT (Mayingu, 2004). Consequently retirement benefits administrators implement ICT in pursuance of efficiency and quality service delivery. Increased reliance on computer based information systems (CBIS) has made more firms

implement information systems this increases the divergent extent of ICT implementation and therefore gives varying benefits and challenges from the implementation.

Computer based information systems are context specific. They are specific in terms of the sector in which the information systems are used, their application and possible threats to these systems. Information systems in the retirement benefits administration are different from information systems in other sectors in terms of focus. Thus while the focus in educational institutions is needed hardware and software to be implemented for video conferencing and e-learning, that of retirement benefits administration is maintaining and updating of records among contributing members and administer pensions. Generalization across both sectors is not possible. Hence the extent of ICT implementation, the benefits and challenges in the education sector may not help in understanding the same within the retirement benefits sector.

Different economies and companies will have varying degrees of ICT implementation and the extent of integrating ICT into organizations Information Systems in Organizations differs from one to another. Where as some organizations may implement the basic ICT, others may have more complex ICT implementations. According to Mayingu (2004), a typical organization will have mainframes, workstations, handheld devices, Personal Digital Assistance (PDA), mobile phone, smart cards, self-service kiosks, Web-TV, video devices all integrated in one infrastructure. This hardware is used to support Enterprise Resource Planning Software, Customer Relationship Management (CRM), browser based linkages, normal legacy back office systems and Extranets. However, this infrastructure is not to be found in every organization implying the varying degrees of computerization.

ICT implementation is considered paramount due to the vast benefits it brings with it. Cash et. al (1998) notes that the increasing use of information systems is often viewed as inevitable. Firms must invest in and adapt to the use of IT in order to remain viable. To make full use of the opportunities that IT presents, managers need close partnerships with technical experts. However bridging this gap is not easy since many managers are not

aware of the new options that IT provides and the ways in which it can support strategy. Benefits administration calls for the data maintenance and management over long time durations, making ICT to be the only cost effective support solution. Seen (1996) suggests that its virtually impossible for information systems to be effective if they are developed independent of the objectives, values and goals of the business they support. Administrators over the years have been carrying out there tasks manually but have not explored the techniques brought about by ICT. The lack of web base applications in benefits administration implies that most of the administrators are unaware of the potential ICT has to offer for them. Thus the benefits expected on ICT by benefits administrators are expected to vary, since not all firms will have the same level of ICT implementation. The varying levels of implementation imply that different administrators will enjoy different benefits depending on the extent of ICT. The firms with greater implementation of ICT are expected to obtain more benefits as observed by (Turban, et al., 2004).

Studies carried out in the past have not focused on the in Retirement Benefits Schemes. Gachau (2003) who studied the E-learning readiness factors, observed that e-learning can create a competitive edge among learning institutions and offer better learning environments to the students. However the focus was different and since the extent of ICT implementation in the education sector differs from that of retirement benefits sector. In view of the aforementioned facts and the fact that not all organizations have the same level of implementation, and that benefits and challenges are expected to vary with respect to systems four questions arise with respect to benefits administration.

1. What is the extent of ICT implementation in benefits administration?
2. What are the benefits of ICT implementation in benefits administration?
3. What are the challenges of ICT implementation in benefits administration?
4. What is the relationship between benefits and challenges of ICT implementation on the extent of ICT implementation?

To the best knowledge of the researcher these questions have not been addressed in Kenya.

1.3 Objectives of the Study

1. To determine the extent of ICT implementation in benefits administration.
2. To establish the benefits derived from ICT implementation in benefits administration.
3. To establish the challenges faced in application of ICT in benefits administration.
4. To determine the relationship between benefits and challenges of ICT implementation on the extent of ICT implementation.

1.4 Importance of the Study

The study will be beneficial to the following groups:

Industry

The study will help to shed light to firms in the service industry on the extent of ICT implementation, its benefits and the challenges it faces. This will provide knowledge that could be used in making decisions with respect to ICT implementation as applied in retirement benefits scheme administration.

Academics

The study is expected to stimulate interest in ICT application and its challenges. The research will lay a basis for further research on ICT implementation. Specifically the research will lay a basis for further research on implications of ICT implementation in retirement benefits administration, which could be extended to other areas of ICT implementation.

The Government

The regulatory body RBA represents the government in this sector. The authority will be informed on the extent of ICT application in benefits administration and can therefore gauge the level of expected services. The RBA will also be able to appreciate the benefits and challenges faced in the implementation of ICT and may provide a framework on supporting policies for ICT implementation.

ICT Consultants

The ICT consultants shape the trends in the industry and would be able to recommend on different ICT implementations depending on the volume of data, and offer advise on the relationship between the challenges and benefits of ICT and the extent of implementation.

1.5 Scope of the Study

The study concerns ICT implementation in retirement benefits administration. The study tries to establish the extent of ICT implementation in retirement benefits administration. Further the study seeks to establish the benefits that are likely to be realized by benefits administrators on implementing ICT. The study also seeks to analyze the challenges of ICT implementation. Due to the wide scope of the challenges the study classified the challenges as either administrative and physical or logical.

The respondents comprised of both the Internal benefits administrators who do administration for their schemes internally and external administrators who do scheme administration for other schemes externally.

The study is structured along five chapters as follows: Chapter 1 is an introductory chapter and provides a background to the study, states the research problem, objectives, importance and scope of the study. Chapter 2 is devoted to a review of literature relevant to the study. First, consideration is given to implementation of ICT in retirement benefits administration. Next, the benefits likely to be achieved are elaborated and finally the challenges in implementing ICT are elaborated on. Chapter 3 covers research methodology. It discusses the research design, the population of the study, the sampling planned sample size, the data collection method and finally, the data analysis techniques. Chapter 4 provides an analysis of the data collected and the interpretations. Chapter 5 gives a summary of the research findings, conclusions, recommendations made, limitations of the study and recommendations for future research.

CHAPTER TWO
LITERATURE REVIEW

2.1 Retirement Benefits Administration

Organizations provide numerous benefits to it employees such benefits may include medical, insurance, transport mileage and the retirement benefits among many others. The retirement benefits are usually paid out to employees once they cease to be employees mainly through retirement, termination or resignation.

This is the work of benefits administration that is performed by the benefits administrator. Benefits administration entails administering the records in order to facilitate smooth payments on termination of service.

An "Administrator" according to the RBA act (2000) means a person appointed by trustees to manage the administrative affairs of a scheme. Administration commences from establishment of a scheme to winding up of a scheme. Thus administration is the most important and integral part of the management of a retirement benefits scheme.

Benefit administration as per the RBA act (2000) entails, maintaining and updating individual membership records. It also involves preparing all forms requiring completion by members such as application and nomination forms. Administration also maintains, records of contributions of members and timely forwarding of the same to the investment manager. The administrator also does the calculation and payment of benefits.

The RBA act (2000) also defines the role of benefits administration as maintaining the records of transfer of assets and maintenance of records of transfers, of members in or out of the scheme. It also maintains records of exits and payments of withdrawals and records of any payments made to the employer. Administrators also have a duty to processing of tax payments e.g. on benefit payments, and produce tax reports when necessary.

2.2 Application of ICT in Retirement Benefits Administration

In its study on information revolution the Asian Development Bank (1990) considers ICT as the set of activities that is facilitated by electronic means that is the processing, transmission and display of information. ICT is at the convergence of three specialized domains, namely information technology, data and information, and socioeconomic issues aimed at fusing the capabilities and functionality of each specialized domain into a holistic yet fluid domain that works to develop a customized information system for each user. Information technology or informatics was defined as the aggregation of information-related fields, such as computer hardware and software, telecommunications networks and equipment, and information technology-based industries. These technologies are applied in all economic sectors, publishing, broadcasting, libraries, data banks, and other information services industries.

In the application of ICT to different industries benefits administration are not excluded. In today's world of intense competition, the key to sustainable competitive advantage lies in delivering high quality service that will in turn result in satisfied customers. Consequently firms are implementing ICT with a focus on achieving a competitive edge (Malhotra,2003).

Competitive advantage is achieved by implementing ICT and the extent of ICT implementation will determine the competitive position of the firm. According to Mayingu (2004) , a firm is said to have implemented ICT if it has in place an information system that coordinates the day-to-day transactions, such a system would be expected to serve more than one user thus facilitating more sharing of information and requiring networks in place to link all the clients. The information system should run on hardware platform with the basic configurations of a PC. Since the system will be multi-user it must have a database in place to store the information and data. Some firms have the Internet connectivity whereas others do not. The existence of networks means that firms will use the email as a communication tool and this can be termed official. In some firms, IT departments in the name of support desks exist to ensure that they support the IT installations.

One aspect of competitive advantage is the reduction in transaction processing time. ICT could be of help in speeding member services especially as the administrative tasks tend to be repetitive. This is expected as 60%-80% of an HR staff time is tied to repetitive administrative tasks. Much of this time is spent answering employee and manager questions and gathering information for reports (Society for Human Resources Management, 2003). Wasting time and effort is a common complaint amongst pension scheme managers, members, and administrators all waste some time and effort during their working day. Searching for information is a prime example, as is identifying whom they are talking to and a manager collating statistics for performance and disclosure reports may not make the best use of their valuable time (Kohne, 2005). In an industry where client service is the differentiator above all others, the emphasis is on schemes to provide the best possible service and IT is essential if this objective is to be met.

Consequently the need for striving for customer satisfaction lies in its ability to result in economic success. Customer satisfaction is considered a prerequisite for customer retention and loyalty, and obviously helps in realizing economic goals like profitability, market share and return on investment. Throughout the occupational pensions movement, scheme managers are under increasing pressure to improve the efficiency of their scheme administration. The ultimate goal is to improve member service and communication whilst at the same time reducing the cost base (Kohne, 2005).

Service improvement implies customer satisfaction. Customer satisfaction in a competitive market will be achieved through constantly embracing change by the firm including the changes brought by ICT. Hammer and Champy (1993) note that organizations conducted business in a certain way for many years. When rapid and strong changes occurred, they find themselves unable to cope with the new conditions. They summarize the major pressures as:

Customers: Customers today know what they want, what they are willing to pay and how to get products and services on their own terms.

Competition: Competition is continuous with respect to price, quality, selection, service and promptness of delivery. Removal of trade barriers, international cooperation and technological innovations cause competition to intensify.

Change: Change will continue to occur. Markets, products, services, technology, the business environment and people keep changing frequently in an unpredictable manner.

ICT is the main agent of change and its internalization in the company will determine how positively a firm will change; successful implementation of ICT will see most of the processes automated. Bentley (1986) argues that, the overall extent of technology is to diffuse the management functions. Empowered workers can use information technology to solve problems in innovative ways, plan their work, and monitor/control their own performance. According to Senn (1996), businesses put a lot of emphasis in ICT projects. A fundamental principle in the development of information systems is that applications are a business tool. They should be developed on the basis of their ability to improve business performance. However such a rational means more than just profit and loss. Business performance includes the benefits to employees, customers and other people with whom the firm interacts.

The pension industry has implemented ICT with varying degrees. Marquez (2003) who studied pension funds in the UK sees the potentials of ICT mainly through the Internet. Marquez (2003) notes that, in UK the local authority pension funds in particular are beginning to see the use of Internet-based technology within pension administration, but the rate of adoption by schemes is disappointingly slow. This technology represents not only the potential for a new way of communication with members, but also provides potential efficiency savings within the scheme administration in several ways:

(1) Enquiries to the department are reduced if members can retrieve the information they require for themselves on a 24 hours / 7 days a week basis

(2) Members can initiate processes themselves, for example requesting retirement quotes or information packs, or even changing bank account details on-line at any time and from anywhere.

(3) Information provided by members does not need to be re-keyed into another computer system: the workflow processes take care of that.

(4) Pension scheme web sites provide a communication forum for members, increasing the sense of 'belonging'.

2.3 Benefits of ICT Implementation in RBS Administration

The widespread adoption of information systems can be attributed to the changes in the value of information. Laudon and Laudon (2003) note that, information has evolved in importance from early 1950's when it was associated with the bureaucracy of designing manufacturing and distributing a product or service. During this years information was considered a "paper dragon" that could strangle the firm to death and prevent it from doing its real work. In this stage of information evolution organizations were seen to be afraid of information. However these conceptions have been changing and information has been evolving in importance over time.

Laudon and Laudon (2003) further note that, by the 1970's information was considered as a tool for management and systems like management information systems were already in place. From the mid 1980's information increased in its importance and started to be considered as the most strategic resource. This implied that the more information a firm had the better it was placed to command a strategic advantage over other players in the industry. These trend changes increased the organizations desire to have more information.

Subsequently with more information firms are able to give better services. Marquez (2003) notes that embracing IT will improve service delivery and reduce costs. In his research on ICT and pension provision in public sector in the Republic of Tanzania, Mayingu (2004) noted that, automation of business operations generally tend to improve Processing speed, accuracy, reduced cost per transaction. Secondly automation also

enables organizations to systematically identify, acquire, store, analyze, distribute and re-use information and knowledge from all sources in order to enhance organizational productivity and competitiveness. Automation of businesses now takes a combination of various equipments completely integrated at both hardware and software level.

Marquez (2003) argues that ICT facilitates global connectivity, resulting in new ways of creating and delivering products and services on a global scale. New business models and market configurations enabled by ICT, including business process outsourcing, value chain integration and disinter mediation, provide developing countries with access to new markets and new sources of competitive advantage from which to drive income growth.

2.3.1 Cost Reduction

The automation of business processes can reduce costs significantly. Cost reduction can affect the whole value chain. According to the Ascentis software research (2004) in US, insurance and benefits administration firms-business applications allow reduction of 30% of the costs in distribution, 30% in administration, 10% in damage regulation and 5% in damage payments. Many of the issues in these three areas can be effectively controlled through the automation of all or part of the benefits management process using an information system such as Human Resources Management System (HRMS) with Employee Self-Service (ESS) system. The Ascentis research (2004) shows that costs can be reduced in the following ways:

(1) **Agency and commission costs:** When dealing directly with the customer, the insurance firm can save costs for running agencies and for paying commissions to agents. Automatic premium calculation modules allow individual contract design. Electronic signatures may even enable customers to conclude contracts through the Internet without implying any paperwork. Due to cost cuts in the automated contracting process, benefits plans concluded through the Internet can be offered at a reduced rate.

(2) **Paperwork costs**: Processing claims via Internet can save paperwork. The amount of paperwork generated in traditional benefits management is staggering - both for the

employer and the employee. For instance, if a 500-employee company offers 4 versions of 10 benefit plans to its employees, the HR department must generate, collate, track and follow up on 20,000 documents. This is before anyone has even enrolled in a plan.

Through online open enrollment via an ESS solution, employees have the opportunity to compare and contrast plans without wading through pages and pages of documentation. Employees are more likely to sign up for programs in a timely fashion if they can easily understand and navigate the array of plans and options that are being offered. Automating the process also allows the HR department to easily track and see exactly who has enrolled in what plan during open enrollment or at new hire, and at what stage they are in of the enrollment process. HR Office offers a tracking system that will automatically send appropriate emails to remind employees what steps they need to take to complete enrollment.

(3) **Personnel costs**: The automation of processes may result in reduced staff numbers. Manual processing of employee requests and inquiries adds about 50% to the resource requirement of the HR department. With HR Office, the general ratio of HR personnel to employees is 1 to 157, without it, the ratio is 1 to 99. This implies with automation the company requires less HR staff to serve more customers. For many organizations that have multiple sites, HR personnel can find themselves spending considerable amounts of time and money traveling to different locations to explain and manage benefits programs. This is a drain on resources and can quickly be eliminated through the automation of all HR processes and through tools such as online comparisons.

From the preceding discussion, it can be concluded that firms not applying e-business comprehensively will face increasing cost pressure. Business models have to be reviewed and reconstructed.

2.3.2 Processing Speed

According to the Ascentis research (2004), the integrated design of HR Office ensures that when an individual is terminated from HR, payroll and benefits are also terminated. In schemes that do administration in house the benefits systems can be integrated with the payroll applications so that in the event of a withdrawal the human resources system gets duly advised. An interface is thus necessary between the two systems. For systems that are run by other companies through outsourcing online information may be sent to update the relevant human resources systems. By automating the communication process, whether between the benefits provider and the employee or between the HR department and the line manager, the role of the "middleman" in the HR department is eliminated, freeing that person's time for more valuable projects. Additionally the employee again benefits from greater privacy and confidentiality.

2.3.3 Accuracy

The HR Office in the Ascentis research (2004) has a reporting wizard, which allows benefits reconciliation report to be run. This report calculates what an organization's benefits costs should be, and easily identifies discrepancies between the company's records and the carrier's invoices, accurate census information and better benefit plans. An additional benefit of integrating data from HR and payroll comes up when the organization is shopping for benefits. To shop most efficiently for benefits, the organization has to understand exactly how many people it is shopping for.

Ascentis research (2004) further reports that, manual census reports can be surprisingly inaccurate when compared to actual HR records. Online enrollment eliminates yet another burdensome paperwork issue – illegible handwritten enrollment forms. Despite the best of efforts, small yet costly mistakes are made as benefit carriers enter data from handwritten, photocopied and faxed enrollment forms. When an employee fills out forms online, their benefit information can be electronically transmitted to the carrier. There is no middleman who has to spend time re-keying data and possibly making mistakes that will ultimately result in wasted time and effort for both employees and employers to correct. Human error can be largely eliminated from the initial processes of entering a

scheme and applying for benefits. The improved privacy and security of an automated process is reassuring for employees and benefit providers alike.

2.3.4 Productivity and Competitiveness

Addressing the first two areas - managing paper and improving on accuracy, the Ascentis research (2004) goes a long way towards addressing the third area of improving efficiency and company morale. As an employee, it is very important that your personal information be correct and up-to-date so your benefits claims can be processed uncontested. The ability to instantly and confidentially access your attendance summaries and what benefits you are enrolled in, is fundamental to employee satisfaction. And offering employees the opportunity to have a far greater understanding and control over their benefits programs. As a line manager, easy access to accurate reports and information such as attendance records, appraisals and other information, makes for a much more efficient management process. So does getting automatic alerts such as when reviews are due - and being automatically provided with the tools to accomplish the task.

The modern HR professional is a highly trained individual with expertise in many areas such as recruiting, employee satisfaction, retention, training, and education. All of these matters are crucial to the ongoing health of any organization. However, most of these professionals frequently spend up to 70% of their working day answering simple employee questions and solving problems related to benefits instead of concentrating their efforts on more strategic issues. Good employees are highly sought after and are one of the most valuable assets thus taking care of them is important. Offering them advantages such as self-service, speedy response, and accurate and always available information will differentiate your organization from other potential employers, ultimately improving employee opinion of the organization as a whole (Ascentis research, 2004).

Marquez (2003) argues that the opportunities offered by ICT application in insurance companies can also be beneficial to customers. Electronic business can improve customer service in many ways: information is available all day long on the Internet, the pool of

information may be deeper, information can be gathered anonymously, response times may be shorter, and claims management can become more transparent and quicker. For your company to maintain a competitive edge in today's market, your corporate HR department must be granted this opportunity.

Software and technology still holds the key to increased productivity and efficiency – it can save employee's time, help them work smarter, and require less peoplepower (Marquez, 2003).

2.3.5 Decision Making

Another reason why ICT is implemented in businesses relates to decision-making. According to Mayingu (2004) Impact of ICT on organization occurs through efforts being made to respond to Changes. These changes require agility and flexibility to ICT, the focus being on learning organization. Changes to organization structure occurs through:

(1) Changes in decision flows within the organization. With the employees being empowered decisions do not need to wait for top management but the users can use the system to guide them in their decisions.

(2) The move towards less physical operations to tactical and strategic functions. Strategic functions in formation can be seen in the increased volume of data stores, data warehouses and the data mining process undertaken on these data stores. The increased information leads to more strategic decisions through data mining and data warehousing.

Better decisions will be made with more information at hand from an organizational database. Since 1970's organizations have mostly focused their investment in new computer systems that automate business processes. In this way organizations gained competitive advantage through systems that offered more efficient and cost effective services to the customer. Throughout this period organizations accumulated growing amounts of data stored in their operational databases. However in recent times, where

such systems are commonplace, organizations are focusing on ways to use operational data to support decision making as a means of regaining competitive advantage (Begg and Connolly, 2002).

Making use of the networks to share information can also make decisions among groups. Mayingu (2004) notes that, the growth in networks and availability of stable information systems on a 24/7 basis implies that geographical barriers can be overridden, to even further deliver fast and quality decisions. Impact on decision-making and support system occurs through improved accuracy, greater control and efficiency in decision-making process, MIS, shorter time frame and quality decision-making, data being tailored by relevance to the activities of the organization.

Benefits administrators are thus likely to have their structures greatly influenced by ICT. Timely decisions are also likely to be achieved from up to date information that's coupled with easier access.

When automation is introduced, true connectivity can be achieved between all areas of an organization and its providers in all areas of HR. Once all HR information is available online, the fragile and error-prone paper trail that currently serves to tie the separate but interconnected parts of the organization together, can be eradicated.

From the studies above ICT has been observed to positively improving service to enable the service provider provide quality service at cost effective rates.

2.3.6 Storage of Information

Keeping member records for 100 years may not be impossible in this industry, taking into consideration the period when one is employed and starts to contribute, goes into retirement and say additional years retaining the records of last payments were made, which may also be statutory. Keeping the records longer also helps when one undertakes the actuarial exercise. The question is what media is to be used for storage and the conversion from one technology to the other (Kohne, 2005).

The need for longer storage of data in Kenya is now almost a necessity to any retirement benefits administrator. According to the 2005/2006 ministry of finance budget employers contribution will be held by the employer until the member reaches the age of 55years.

The solution to the media problem and storage of Information lies on ICT. By using databases information can be securely stored and easily retrieved over a long period of time.

2.4 ICT Challenges in Benefits Administration

ICT is a relatively technical area that requires some level of readiness for it to successfully achieve. As per the National ICT Policy (1994) the government of Kenya recognizes that the availability of a modern infrastructure, capable of delivering ICT services is a critical component and enabler of economic growth, regional integration, social development and international competitiveness. ICT are now recognized as a cross cutting means to promote sustainable human development and solve real life problems. The sector has the potential to accelerate the economic and social development, decrease poverty and foster knowledge and trade.

Mayingu (2004) notes, the recent dramatic information technology evolution has brought major modifications in the way information is handled with new techniques and new tools. These challenges may include ethical, legal and educational ones. Just like any other change, ICT is not readily accepted. In studying the obstacles to ICT in LDC, Mayingu (2004) notes ICT adoption faces a number of obstacles such as

(1) Non availability of power
(2) Literacy among the potential users
(3) Technical expertise to support ICT
(4) Infrastructure
(5) Poor telecommunication
(6) Lack of computers

Government budgets tend to be tight, especially in developing countries, this can create problems for rational ICT development and hamper the ability to react quickly to new requirements or to buy the latest technology. In order to get value for money, ICT policies should require the specifications of systems developed or purchased to be reconfirmed by third-party experts before an order is placed (Mayingu, 2004).

ICT is faced by a number of challenges, Firstly there is a general lack of computers and telecommunications. The lack of computer and telecommunications infrastructure is a key problem in many developing countries as was noted by the report on ICT and Poverty by UNESCO (2004). National ICT policies therefore need to be very strong in this regard. A master infrastructure development plan can be supported by detailed policies for administrative sectors, geographic areas, types of service, types of educational institute, etc. Government involvement remains essential in the construction of the infrastructure in the foreseeable future in rural areas and remote locations. At present, only large cities are sufficiently attractive for private developers such as mobile phone and Internet service providers.

Secondly, poor purchasing power among many people makes the computers to be very expensive for them. The ICT and Poverty report by UNESCO (2004), notes that ICT-related goods and services are made available on suppliers' terms and low per capita purchasing power does not allow markets to mature. The fact that low-cost computers - although technologically feasible - are not available is largely due to the rapid development of and trade in ICT components that are almost entirely supply-driven, taking into account the needs of only a minority of potential users. Basic information technology, such as personal computers, their peripherals and software are available in major cities of developing countries. However, low purchasing power keeps the number of vendors down. Government ICT policies can help the development of ICT markets by reducing red tape, reducing import taxes, and creating a favorable entrepreneurial environment.

Thirdly, government monopolies on Telecommunication are another challenge to ICT implementation. According to ICT and Poverty report by UNESCO (2004), Telecommunications sectors in developing countries in the Asian and Pacific region are typically characterized by government monopolies. However, a fair degree of liberalization has been granted in several domestic telecommunications markets, and private ISPs have become commonplace.

Fourthly, a key constraint for the effective application of ICT in developing countries is the shortage of human resources. Apart from a lack of qualified ICT-system personnel, there is often high turnover of such personnel, which can seriously hamper systems development and daily operations. In general, the ICT skills of other related personnel are not very developed. These problems can lead to delayed and uncoordinated ICT development and contribute to inadequate data security. ICT policies need to address human resource development needs in a broad educational context (ICT and Poverty report by UNESCO, 2004).

Fifthly, changes in ICT happen every day and at certain stages this confuses the scheme administrators as to which technology or solutions to adopt. At some stage scheme administrators are required to upgrade their systems at a given date otherwise the support of the software application versions they are using will no longer be supported by the vendors. Change management for the upgrades is another headache (Markus and Keil, 1994). One of the greatest drivers of change today is the Internet. The Internet is changing the way in which data and information are collected and disseminated and how services are provided to clients. Thus, new systems should be developed with either immediate or future Internet connectivity in mind.

2.5 ICT Challenges and Benefits of ICT on the Extent of Implementation

Implementation of ICT in numerous organizations results in different effects. Markus and Keil (1994) wondered why some information systems that companies have invested millions of dollars in developing have never used or avoided by the very people who are intended to use them. They pointed out that technically successful, but unused or underused systems cost U.S. businesses millions of dollars each year. Their question, "If

you build it will they come?" highlights important disconnects in current understanding of the IT productivity paradox. Even the best-designed information systems are not used if they are not aligned with the system users' motivations and commitment. The best-designed systems are those that adhere to good technical design principles, that is, they are technically successful. Design problems occur regardless of user participation in system design, and even when platform, interface, and training problems are not the root cause for system non-use. Since the effective utilization required for the system to improve business performance is not built in, these systems never achieve their potential for improving organizational performance despite their technical soundness and attention to human factors.

Therefore monetary investment in IT will not necessarily translate in more use of systems, however the internalization of the systems in the company's process will determine the extent of its implementation and hence its success. Firms as observed by Markus and Keil (1994), will naturally become discouraged in investing in ICT if the little they have invested does not show any returns. The opposite is however true since firms which have invested a little amount in ICT but obtain positive results are encouraged to invest more in ICT. Thus firms, which have fewer challenges in ICT, will tend to invest more in ICT than firms with more challenges. The failure to obtain results from ICT is attributed to the challenges faced in ICT since these challenges deter the full realization of benefits from ICT.

According to Carr (2003) the business performance of IT derives not from IT investments alone but depends on whether and how IT is used. In his research on systems usage Malhotra (2003) states that the causal links between IT and productivity depicted in macro-economic, firm level, and country-level research ultimately depends upon system-level use by motivated and committed users. Business performance of IT systems depends upon their effective usage. Given the current emphasis on doing more with less, managers should also recognize that a firm's direct investments in IT may not correlate with the business performance. IT Studies of corporate IT spending shows that greater IT expenditures rarely translate into stellar firm-level business performance. A comparison

of IT expenditures and financial performance of 7,500 U.S. companies by Malhotra (2003) revealed that the top business performers had some of the lowest IT investments. The 25 top performers spent just 0.8% of their revenues on IT, in contrast to an overall average of 3.7%. The highest IT spenders typically under performed by up to 50% compared with their best-in-class peers. This reveals that investment in IT alone does not guarantee returns and firms must combine ICT with other managerial aspects to achieve synergy.

Poor planning and management cause most failures in ICT application development. Management of ICT projects is often made more difficult by overly hierarchical organization structures that are not conducive to innovative ideas (Malhotra, 2003). This can create a problem if the management remains unaware of the benefits that could be achieved through the application of ICT. National policies should emphasize the importance of involving senior executives in ICT development and making them accountable for their organization's ICT-related performance.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Research Design

The study was a census survey aimed at surveying the extent of ICT implementation in benefits administration and to establish the benefits derived from ICT implementation in benefits administration. The study also aimed at establishing the challenges faced in application of ICT in benefits administration and to determine the relationship between benefits and challenges of ICT implementation on the extent of ICT implementation.

3.2 Population

The research project targeted all the registered benefits administrators and the self-administered schemes. According to the RBA survey the registered benefits schemes totaled 1396 as at 2004. Of these 157 are self-administered schemes and external scheme administrators are 44 in number who administer 1239 schemes. The population was 201 consisting of 157 who do self-administration and 44 who carry out external administration.

3.3 Sample size and sampling techniques

The population was divided into two strata. The first strata were composed of the self-administered schemes and the second strata were the retirement benefits schemes administrators. Questionnaires were sent to the entire population in each stratum. The respondents were benefits managers since they have the knowledge sought.

3.4 Data collection techniques

The nature of data was by use of a questionnaire that was divided into four sections. Section A of the questionnaire was used to collect the demographic factors among the benefits administrators.

Section B of the questionnaire was used to establish the extent of ICT implementation in benefits administration in Kenya.

Section C of the questionnaire was used data to determine the benefits derived from ICT Implementation in administration of benefits schemes in Kenya.

Section D of the questionnaire was used data to determine the challenges faced in application of ICT towards benefits administration. The challenges were further classified as either being Physical and Administrative challenges or Logical challenges.

The drop and pick method was used to distribute the questionnaires, others were also sent on email. A covering letter was sent with the questionnaire stressing on confidentiality so as to encourage response.

3.5 Data analysis technique and presentation

In section A data collected was analyzed through the use of descriptive statistics such as frequency tables, proportions, percentages and measures of relative position. The purpose of this analysis was to establish the relationship between the demographic factors and the extent of ICT implementation in retirement benefits administration.

In section B, C and D, data collected was analyzed through the use of descriptive statistics and factor analysis. The general objective was to summarize a large set of variables by creating a smaller number of variates or factors that are defined in the terms of the original variables. This small number of variates is derived such that the maximum amount of information available in the original variables is retained in the smaller number of factors. The findings in respect to sections B,C and D were subjected to this analysis in view of the numbers of variables. The purpose of this analysis in section B was to establish the extent of ICT implementation in retirement benefits administration. In section C the purpose of the analysis was to establish the most common benefits and in section D the purpose of the analysis was to establish the most common challenges from the respondents point of view that are encountered by the retirement benefits administrators in the implementation of ICT. The analyses of the questionnaire were used to deduce the relationship between benefits and challenges of ICT implementation and the extent of ICT implementation.

CHAPTER FOUR

DATA ANALYSIS AND FINDINGS

4.1 Introduction

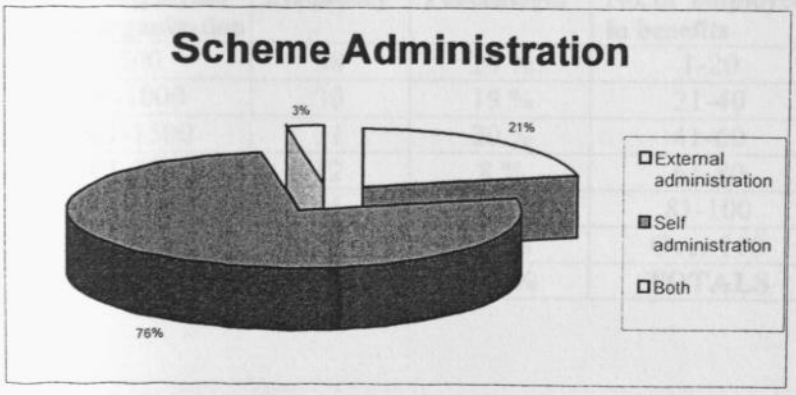
This chapter presents the results of the analysis and findings of the study. A total of 201 questionnaires were distributed among the self-administered schemes and external retirement benefits administrators as shown in the Table 4.1. Questionnaires were distributed to the sample population of which 157 were successfully completed and returned. The 157 successfully completed and returned questionnaire, represent an overall response rate of 76%.

Table 4.1: Retirement Benefits Schemes Administration

Administration Type	No. of issued Questionnaires	No.of returned Questionnaires	Percentage response rate	Percentage of the population
External administration	44	40	90 %	22%
Self administration	157	113	71 %	78%
TOTALS	**201**	**157**	**76%**	**100%**

Retirement benefits administration is mainly carried out internally at 78% while those that do administration for other schemes are 22%, there are other administrators who do both self and external administration this form 3% of the industry. The distribution of the administrators is displayed in Figure 4.1.1

Figure 4.1.1: Retirement Benefits Schemes Administration



4.2 Demographic Characteristics

The demographic characteristics of the sample which included; number of employees in the organization, number of employees who work in retirement benefits administration, the number of retirement benefits schemes administered, the total member number of people in the schemes administered, computer literacy, methods of processing used, the level of computer based information system and information systems assessment are summarized in this section. This demographical information provides an invaluable basis for understanding the general characteristics of retirement benefits administrators and will aid in determining whether or not the demographic factors affect ICT implementation in retirement benefits administration.

4.2.1 Number of Employees in the Organization

The respondents were analyzed in terms of the number of employees employed for the administration of benefits. From the table 4.2.1 the number of employees is on average more than 50% of the retirement a benefits administrator. Where as 28% of the respondents have between 21-40 employees in the retirement benefits administration, most of the companies have between 1-500 employees. This shows that the number of employees working in retirement benefits administration is low among most of the respondents but the scheme membership numbers are high. This implies that on average one employee in retirement benefits administration maintains data for at least 200 employees.

Table 4.2.1: Number of Employees in the Organization and Benefits Section

No. of employees In the organization	Frequency	Percentages	No. of employees in benefits	Frequency	Percentage
1-500	38	24 %	1-20	80	51 %
501-1000	30	19 %	21-40	44	28 %
1001-1500	31	20 %	41-60	20	13 %
1501-2000	12	8 %	61-80	10	6 %
2001-2500	25	16 %	81-100	3	2 %
Above 2500	21	13 %	Over 100	-	-
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100 %**

The sample population of firms was well covered with firms having different number of employees. This implies that both the large firms with high numbers of employees and the firms with low number of employees were well represented.

4.2.2 Number of Schemes Administered and Number of Members

From the results in Table 4.2.2 most firms administer between 1-20 schemes. This number implies that 57% of benefits administrators run less than 20 schemes; this is contributed by the fact that most schemes run their administration internally.

Table 4.2.2 Number of Schemes Administered and Member Numbers

No. of schemes Administered	Frequency	Percentages	No. of members in the scheme	Frequency	Percentage
1-20	90	57 %	1-1000	60	38 %
21-40	33	21 %	1001-2000	34	22 %
41-60	11	7 %	2001-3000	20	13 %
61-80	9	6 %	3001-4000	10	7 %
81-100	6	4%	4001-5000	15	9 %
Above 100	8	5 %	Over 5000	18	11 %
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100 %**

The frequency of administrators decreases with the number of schemes increasing. From the results in Table 4.2.2, 5% of the administrators run over 100 schemes. This implies that only a small fraction of the administrators have the larger share of scheme administration. From the Table 4.2.2 most schemes have membership numbers between 1-1000.

4.3 Analysis of IT Resources in the Organization

The analysis of IT resources in the firms is summarized in this section. The analysis indicates the general characteristics of the organization in relation to computer based information systems in retirement benefits administration and will facilitate in the establishment of the extent of ICT in retirement benefits administration.

4.3.1 Computer Based Information Systems and Networks

From the results in Table 4.3.1 a majority of 73% of the benefits administrators have computer based information systems, however only 62% of these applications are networked. This implies that there are still a number of benefits administrators who either use stand-alone systems or office productivity software their retirement benefits administrative tasks. From the results we can thus infer that although many administrators use information systems only a limited number are networked.

Table 4.3.1: Computer Based Information Systems (CBIS) and Networks

	Use of CBIS for benefits Administration		**Networking in the CBIS**	
	Response	Percentage response	Response	Percentage response
Yes	114	73%	98	62%
No	43	27%	59	38%
TOTALS	**157**	**100%**	**157**	**100%**

4.3.2 Level of CBIS Utilization and Methods of Processing

As per the results tabulated in Table 4.3.2 most of the respondents, 47% felt that the level of computer information system usage is quite high. 27% of the respondents felt that CBIS usage was average while a 15% of the respondents felt that CBIS usage is Low in their firm.

Table 4.3.2 Level of CBIS Utilization and Methods of Processing

	Levels of CBIS usage		**Methods of data processing used**		
	Response	Percentage response		Response	Percentage response
High	75	47%	Online but not real time	98	62%
Medium	43	27%	Real time online	-	-
Low	25	15%	Batch	59	38%
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100%**

This implies a high extent of ICT implementation among benefits administrators. 62% of the respondents use online methods of processing but not real time. Whereas 38% use batch processing running monthly files to facilitate the retirement benefits administrative task, none uses real time and online processing.

4.3.3 Existence of ICT Department and ICT Budget

The results in Table 4.3.3 show that 85% of the respondents indicated that they have an IT department.

Table 4.3.3: Existence of ICT Department and ICT budget

Existence of IT Department	Frequency	Percentage Response	IT Department Budget	Frequency	Percentage Response
Yes	134	85%	Yes	124	79%
No	23	15%	No	33	21%
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100%**

From the results it is clear that the need for computing experts on-site to manage the computer based information systems has taken a firm direction among the retirement benefits administrators. Most administrators do have an independent budget for IT at 79% however this is much smaller compared to the existence of IT departments. This in turn implies that some IT departments though independent are budgeted alongside other departments.

4.3.4 Database Connectivity and web Hosting Information

From the results obtained in Table 4.3.4 only 13% of the firms availed information through the web. This implies that web technology is nascent among the retirement benefits administrators. From Table 4.3.4 database are highly appreciated among the retirement benefits scheme administrators.

Table 4.3.4: Database Connectivity and web Hosting Information

Hosting of benefits Information on website	Frequency	Percentage Response	Database connection	Frequency	Percentage Response
Yes	20	13%	Yes	94	60%
No	117	74%	No	36	23%
No response	20	13%	No response	27	17%
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100%**

From the Table 4.3.4, 60% of the respondents connect to a database, this implies the appreciation on the sharing of information among the retirement benefits administrators. However there is still a percentage 23% who do not connect to a database and may be using stand-alone systems.

4.3.5 Access to Retirement Benefits Information

Access to retirement benefits information as observed in Table 4.3.5 is mainly by the benefits administrators themselves and scheme members do not have a direct access.

Table 4.3.5: Access to Retirement Benefits Information

	Response	Percentage Response
Benefits Administrators	123	78%
Scheme members	-	-
No response	34	22%
TOTALS	**157**	**100%**

78% of the respondents asserted that only benefits administrators are allowed access to retirement benefits information. Sharing of information is thus higher among the administrators with the members only having access to this information via the administrators.

4.3.6 Computer Literacy Levels Among Staff

The response on computer literacy among the different levels of employees are as captured in the Table 4.3.6.

Table 4.3.6: Rating of Computer Literacy Levels Among Staff

Rating of Computer Literacy Levels among staff	Poor	Below Average	Average	Above Average	Excellent
Executive Director/CEO	15	16	57	43	26
Top Management	12	29	58	34	24
Middle Management	18	25	51	50	13
Lower Management	21	40	33	60	3
Other Staff	81	25	30	13	8

The results from the respondents are expressed in percentage terms in Table 4.3.7. The results in Table 4.3.7 indicate that 36% of the respondents rated their CEO computer literacy level as average. 37% of the respondents stated their top management computer literacy level as above average. 32% of the respondents rated their middle management computer literacy level as average and above average. The lower management employees were rated at 38% above the average computer literacy level. However, other staffs were rated as 52% poor in computer literacy.

Table 4.3.7: Percentage Rating of Computer Literacy Levels Among Staff

	RESPONSES IN PERCENTAGES				
	Poor	Below Average	Average	Above Average	Excellent
Executive Director/CEO	10%	10%	36%	27%	17%
Top Management	8%	18%	37%	22%	15%
Middle Management	11%	16%	32%	32%	8%
Lower Management	13%	25%	21%	38%	2%
Other Staff	52%	16%	19%	8%	5%

From the results in Table 4.3.7 we can conclude that the company literacy levels are centered within the management and majority of the other staff tend to be neglected.

4.3.7 Information systems Code of Ethics

As indicated in Table 4.3.8 most of the respondents 47% do not have a code of ethics for their information systems. Only 33% of the respondents have a code of ethics for their systems.

Table 4.3.8 Information Systems Code of Ethics

	Code of Ethics	
	Response	**Percentage Response**
Yes	52	33%
No	74	47%
No response	31	20%
TOTALS	**157**	**100%**

4.3.8 Assessment of IS and Frequency of Assessment

From Table 4.3.9 a majority of the respondents 66% indicated that their information systems are assessed. This implies that 34% of the firms do not have any assessment on their information systems or even if they do they are not aware implying no importance is placed on the assessment.

Table 4.3.9 Assessment of Information Systems and Their Frequency

Assessment	**Response**	**Percentage**	**Frequency of Assessment**	**Response**	**Percentage**
Yes	104	66%	Quarterly	16	10%
No	25	16%	Semi Annually	22	14%
No response	28	18%	Annually	38	24%
			No Response	81	52%
TOTALS	**157**	**100%**	**TOTALS**	**157**	**100%**

From table 4.3.9 the frequency of responses vary however 52% of the respondents did not respond to this question. This implies that there is a high possibility that a majority of the respondents systems are not assessed at all. This is because the ones who responded to the assessment were 16% Quarterly, 14% Semi annually and 24% annually. The fact that 52% did not respond shows that the information systems are not assessed or the assessment is not important and that's why the respondents are not aware.

4.4 Analysis on the Extent of ICT Implementation in Retirement Benefits

Descriptive statistics and factor analysis were used to analyze the extent of ICT implementation in retirement benefits administration. Factor analysis seeks to resolve a larger set of measured variables in terms of relatively few categories, known as factors.

Table 4.4.1 Components/Factors on the Extent of ICT Implementation

		Descriptive Statistics	
	FACTORS	**Mean**	**Std. Deviation**
1	Maintaining and updating records for contributing members	4.35	0.81
2	Maintenance of accurate and up-to-date Information	4.31	0.81
3	Computation of member benefits in the event of termination	4.42	0.78
4	Documentation of benefits statements of contribution	4.36	0.82
5	Advice on Retirement benefits options for members	4.32	0.74
6	Monitoring and coordinating AVC	4.67	0.64
7	Advising retirees at least 6months before they retiree	4.52	0.73
8	Prompt payment of benefits	4.71	0.58
9	Payment of monthly pension	4.68	0.59
10	Sending tax return forms to the members	4.73	0.56
11	Preparation of annual accounts	4.75	0.56
12	Generation of Actuarial reports	4.66	0.64
13	Adhoc reporting	4.63	0.66
14	Implementing pension increments when due	4.67	0.57
15	Stopping pensions for over aged Orphans	4.75	0.43
16	Reconciliation of contributions with the payroll	4.87	0.34
17	Obtaining fund value statements	4.75	0.43

From the Table 4.4.1 a scale of 1-5 was used to measure the extent of ICT implementation in retirement benefits administration, where 1 meant Not at all, 2 meant

very little, 3 moderate, 4 quite a lot and 5 to a great extent. By using the mean for each statement it was observed that at the scale of 4 most of the respondents agreed with the majority of the statements. Other factors with a small standard deviation of less than 0.5 meant that most of the respondent had a close converging response to the following statements. These included;

a. Reconciliation of contributions with the payroll (4.87)
b. Preparation of annual accounts (4.75)
c. Obtaining fund value statements (4.75)
d. Stopping pensions for over aged Orphans (4.75)
e. Sending tax return forms to the members (4.73)
f. Prompt payment of benefits (4.71)

This implies that a majority of the respondent used ICT for the retirement benefits administration functions.

4.4.1 Correlation Matrix for Identifying the Extent of ICT Implementation

Each respondent indicated the level of extent of ICT implementation.

Table 4.4.2: Correlation Matrix for Identifying the Extent of ICT Implementation

Correlations																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	1	0.868	0.791	0.747	0.732	0.826	0.410	0.349	0.487	0.496	0.564	0.548	0.798	0.902	0.753	0.655	0.762
2	0.868	1	0.836	0.824	0.734	0.912	0.632	0.637	0.679	0.450	0.493	0.650	0.857	0.813	0.683	0.618	0.760
3	0.791	0.836	1	0.787	0.730	0.901	0.745	0.579	0.761	0.671	0.628	0.751	0.961	0.894	0.839	0.719	0.843
4	0.747	0.824	0.787	1	0.819	0.881	0.725	0.661	0.610	0.466	0.593	0.726	0.793	0.698	0.647	0.475	0.739
5	0.732	0.734	0.730	0.819	1	0.764	0.525	0.314	0.656	0.633	0.507	0.499	0.703	0.666	0.749	0.421	0.654
6	0.826	0.912	0.901	0.881	0.764	1	0.729	0.646	0.706	0.545	0.605	0.777	0.903	0.812	0.755	0.599	0.822
7	0.410	0.632	0.745	0.725	0.525	0.729	1	0.723	0.784	0.528	0.460	0.735	0.737	0.488	0.516	0.454	0.625
8	0.349	0.637	0.579	0.661	0.314	0.646	0.723	1	0.588	0.055	0.314	0.596	0.627	0.401	0.302	0.306	0.474
9	0.487	0.679	0.761	0.610	0.656	0.706	0.784	0.588	1	0.642	0.246	0.518	0.793	0.562	0.707	0.500	0.590
10	0.496	0.450	0.671	0.466	0.633	0.545	0.528	0.055	0.642	1	0.386	0.472	0.623	0.586	0.792	0.562	0.541
11	0.564	0.493	0.628	0.593	0.507	0.605	0.460	0.314	0.246	0.386	1	0.631	0.575	0.639	0.634	0.417	0.632
12	0.548	0.650	0.751	0.726	0.499	0.777	0.735	0.596	0.518	0.472	0.631	1	0.722	0.621	0.579	0.641	0.786
13	0.798	0.857	0.961	0.793	0.703	0.903	0.737	0.627	0.793	0.623	0.575	0.722	1	0.898	0.837	0.696	0.840
14	0.902	0.813	0.894	0.698	0.666	0.812	0.488	0.401	0.562	0.586	0.639	0.621	0.898	1	0.847	0.714	0.833
15	0.753	0.683	0.839	0.647	0.749	0.755	0.516	0.302	0.707	0.792	0.634	0.579	0.837	0.847	1	0.613	0.733
16	0.655	0.618	0.719	0.475	0.421	0.599	0.454	0.306	0.500	0.562	0.417	0.641	0.696	0.714	0.613	1	0.640
17	0.762	0.760	0.843	0.739	0.654	0.822	0.625	0.474	0.590	0.541	0.632	0.786	0.840	0.833	0.733	0.640	1

The extraction method was the primary component analysis. The correlation matrix reveals that the following groups of variables are highly correlated.

- 1,2,3,4,5,6,13,14,15,16,17
- 7,8,9,12

4.4.2 Total Variance for Identifying the Extent of ICT Implementation

Table 4.4.3 shows all the factors extracted from the analysis along with their Eigen values, the percent of variance attributed to each factor and the cumulative variance of the factor and the previous factors. The first three factors were the only ones with Eigen values greater that 1. The first factor maintaining and updating data records for contributing members, accounts for 68.29% of the variance, the second factors on payment on termination, accounts for 8.45% of the variance and the third factor, Pension payments, accounts for 6.07% of the variance. This shows that, the three functions have the highest extent of ICT implementation among the respondents.

Table 4.4.3: Total Variance Explained on the Extent of ICT Implementation

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.610	68.293	68.293	11.610	68.293	68.293	6.192	36.421	36.421
2	1.438	8.458	76.750	1.438	8.458	76.750	4.216	24.799	61.220
3	1.032	6.072	82.822	1.032	6.072	82.822	3.672	21.602	82.822
4	0.797	4.688	87.511						
5	0.711	4.180	91.690						
6	0.388	2.282	93.972						
7	0.258	1.518	95.490						
8	0.169	0.993	96.483						
9	0.154	0.908	97.392						
10	0.130	0.768	98.159						
11	0.091	0.537	98.696						
12	0.069	0.408	99.105						
13	0.053	0.311	99.416						
14	0.037	0.217	99.633						
15	0.024	0.140	99.774						
16	0.021	0.125	99.898						
17	0.017	0.102	100.000						

Extraction Method: Principal Component Analysis

4.4.3 Component Matrix for Identifying the Extent of ICT Implementation

Once the factors have been extracted, it is possible to calculate the loadings of the importance on each factor. The higher the absolute value of the loading the more the importance is attached to the factor. Table 4.4.4 shows only 3 factors have been extracted. The gaps on the table represent loadings that are less than 0.5, gaps have been used to make reading the table easier.

Table 4.4.4: Component Matrix on the Extent of ICT Implementation

	Component		
	1	2	3
Maintaining and updating records of contributing members	0.847		
Maintenance of accurate and up-to-date Information	0.897		
Computation of member benefits in case of termination	0.965		
Documentation of benefits statements of contribution	0.874		
Advice on Retirement benefits options for members	0.800		
Monitoring and coordinating AVC	0.948		
Advising retirees at least 6months before they retiree	0.767		
Prompt payment of benefits in the event of a termination		0.732	
Payment of monthly pension			0.539
Sending tax return forms to the members			0.508
Preparation of annual accounts	0.665		
Generation of Actuarial reports	0.802		
Adhoc reporting	0.961		
Implementing pension increments when due	0.893		
Stopping pensions for over aged Orphans	0.861		
Reconciliation of contributions with the payroll	0.718		
Obtaining fund value statements	0.883		

Extraction Method: Principal Component Analysis 3 components extracted

4.5 Benefits of ICT Implementation in RBS Administration

In this section an analysis of the benefits of ICT implementation from the respondents is carried out.

4.5.1 Analysis on the Benefits Derived From ICT Implementation

From the table 4.5.1 a scale of 1-5 was used where 1 meant agree strongly, 2 meant agree somewhat, 3 neutral, 4 disagree somewhat and 5 disagree strongly. This scale was used to measure the benefits derived from ICT implementation in retirement benefits

administration. By using the mean for each statement it was observed that at the scale of 1 most of the respondents agreed strongly with the majority of the statements. The standard deviation shows how close the diversion of the respondent's were. The highest standard deviation was 2.01 on the reduced number of queries from members this indicated that the responses were varied with some strongly agreeing on the reduction of queries while others felt that the number of queries has not yet reduced. This therefore implies that although the extent of implementation of ICT is high among the administrators. The implementation produces a varying effect on the service to the members. This can be attributed to the type of systems implemented and the performance of the system.

Table 4.5.1: Components/factors on the Benefits Derived From ICT Implementation

	Descriptive Statistics	
FACTORS	**Mean**	**Std. Deviation**
ICT enables the maintenance of more scheme	1.144	0.353
Faster response to customer demands	1.212	0.410
High Levels of accuracy attained	1.119	0.325
Reduced number of queries from members	1.602	2.013
Time spent to serve one customer is greatly reduced	1.534	0.636
Reduced cost of serving customers	1.576	0.733
Benefits administration costs in overall have greatly reduced	1.220	0.416
Faster response to regulatory government needs	1.254	0.437
Maintenance of up-to-date data	1.178	0.384
Faster Processing of Retirement benefits information	1.051	0.221
Sharing of Information across geographic location	1.161	0.369
Easier use and manipulation of information	1.314	0.636
Faster recovery of information in case of failure	1.195	0.476
Less Office space utilization	1.186	0.470
Better workflow Management	1.254	0.587
Easier Maintenance of Soft Copy Documents	1.288	0.525
Efficient data transmission	1.712	0.775
Integrity of data	1.475	0.803
Confidentiality of Information	1.466	0.712
Availability of information	1.915	0.883
Higher Security of Information	1.237	0.518

4.5.2 Correlation Matrix on the Benefits of ICT Implementation

Each respondent indicated the level of extent of ICT implementation. The results are shown in Table 4.5.2. The extraction method was the primary component analysis. The correlation matrix reveals that the following groups of variables are highly correlated.

- 1,3,11
- 4,6,17,18,19,20
- 15,16

Table 4.5.2: Correlation Matrix for Identifying the Benefits of ICT Implementation

	1	2	3	4	5	6	7	8	9	10	11
1	1	0.671	0.875	0.214	0.300	0.309	0.406	0.752	0.446	0.627	0.931
2	0.671	1	0.638	0.478	0.502	0.503	0.549	0.867	0.693	0.306	0.721
3	0.875	0.638	1	0.200	0.346	0.214	0.260	0.720	0.397	0.475	0.808
4	0.214	0.478	0.200	1	0.735	0.804	0.586	0.487	0.701	0.063	0.155
5	0.300	0.502	0.346	0.735	1	0.769	0.425	0.500	0.546	0.101	0.250
6	0.309	0.503	0.214	0.804	0.769	1	0.724	0.494	0.717	0.174	0.258
7	0.406	0.549	0.260	0.586	0.425	0.724	1	0.535	0.687	0.381	0.380
8	0.752	0.867	0.720	0.487	0.500	0.494	0.535	1	0.653	0.340	0.762
9	0.446	0.693	0.397	0.701	0.546	0.717	0.687	0.653	1	0.142	0.429
10	0.627	0.306	0.475	0.063	0.101	0.174	0.381	0.340	0.142	1	0.696
11	0.931	0.721	0.808	0.155	0.250	0.258	0.380	0.762	0.429	0.696	1
12	0.560	0.717	0.532	0.709	0.632	0.575	0.548	0.680	0.689	0.438	0.580
13	0.490	0.629	0.394	0.679	0.539	0.696	0.627	0.578	0.848	0.329	0.488
14	0.698	0.514	0.504	0.324	0.269	0.474	0.615	0.528	0.499	0.779	0.741
15	0.764	0.777	0.796	0.518	0.589	0.484	0.474	0.755	0.666	0.339	0.674
16	0.662	0.742	0.681	0.520	0.624	0.482	0.488	0.800	0.559	0.229	0.544
17	0.172	0.547	0.161	0.762	0.748	0.735	0.411	0.490	0.598	-0.011	0.196
18	0.314	0.721	0.270	0.836	0.662	0.744	0.636	0.685	0.764	0.027	0.309
19	0.255	0.511	0.294	0.916	0.731	0.774	0.509	0.507	0.650	0.057	0.214
20	-0.044	0.302	-0.015	0.740	0.742	0.704	0.307	0.309	0.435	-0.234	-0.083
21	0.634	0.729	0.658	0.631	0.626	0.541	0.541	0.700	0.670	0.368	0.580

Table 4.5.2: Correlation Matrix for .....(continued)

	12	13	14	15	16	17	18	19	20	21
1	0.560	0.490	0.698	0.764	0.662	0.172	0.314	0.255	-0.044	0.634
2	0.717	0.629	0.514	0.777	0.742	0.547	0.721	0.511	0.302	0.729
3	0.532	0.394	0.504	0.796	0.681	0.161	0.270	0.294	-0.015	0.658
4	0.709	0.679	0.324	0.518	0.520	0.762	0.836	0.916	0.740	0.631
5	0.632	0.539	0.269	0.589	0.624	0.748	0.662	0.731	0.742	0.626
6	0.575	0.696	0.474	0.484	0.482	0.735	0.744	0.774	0.704	0.541
7	0.548	0.627	0.615	0.474	0.488	0.411	0.636	0.509	0.307	0.541
8	0.680	0.578	0.528	0.755	0.800	0.490	0.685	0.507	0.309	0.700
9	0.689	0.848	0.499	0.666	0.559	0.598	0.764	0.650	0.435	0.670
10	0.438	0.329	0.779	0.339	0.229	-0.011	0.027	0.057	-0.234	0.368
11	0.580	0.488	0.741	0.674	0.544	0.196	0.309	0.214	-0.083	0.580
12	1	0.688	0.558	0.704	0.602	0.645	0.723	0.714	0.400	0.796
13	0.688	1	0.669	0.624	0.540	0.532	0.652	0.607	0.336	0.663
14	0.558	0.669	1	0.485	0.383	0.196	0.305	0.281	-0.033	0.489
15	0.704	0.624	0.485	1	0.842	0.464	0.636	0.560	0.268	0.882
16	0.602	0.540	0.383	0.842	1	0.421	0.644	0.502	0.353	0.778
17	0.645	0.532	0.196	0.464	0.421	1	0.819	0.825	0.848	0.614
18	0.723	0.652	0.305	0.636	0.644	0.819	1	0.841	0.674	0.750
19	0.714	0.607	0.281	0.560	0.502	0.825	0.841	1	0.772	0.694
20	0.400	0.336	-0.033	0.268	0.353	0.848	0.674	0.772	1	0.374
21	0.796	0.663	0.489	0.882	0.778	0.614	0.750	0.694	0.374	1

4.5.3 Total Variance Explained on the Benefits of ICT Implementation

Table 4.5.3 shows all the factors extracted from the analysis along with their Eigen values, the percent of variance attributed to each factor and the cumulative variance of the factor and the previous factors. The first four factors were the only ones with Eigen values greater that 1. The first factor enabling maintenance of more schemes, accounts for 57.34% of the variance, the second factor faster response to customer demands, accounts for 17.97% of the variance the third factor, high levels of accuracy, accounts for 6.73% of the variance and the fourth factor reduction in the number of queries, accounts for 3.72% of the variance. This shows that the four have the highest benefit from ICT implementation among the respondents.

Table 4.5.3: Total Variance Explained on the Benefits of ICT Implementation

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	Percentage of Variance	Cumulative Percentage	Total	% of Variance	Cumulative Percentage	Total	Percentage of Variance	Cumulative %
1	12.043	57.348	57.348	12.043	57.348	57.348	7.814	37.211	37.211
2	3.774	17.971	75.319	3.774	17.971	75.319	6.103	29.062	66.273
3	1.413	6.730	82.049	1.413	6.730	82.049	3.313	15.776	82.049
4	0.783	3.727	85.776						
5	0.556	2.648	88.424						
6	0.535	2.550	90.973						
7	0.392	1.864	92.838						
8	0.307	1.460	94.298						
9	0.246	1.170	95.468						
10	0.205	0.977	96.445						
11	0.132	0.628	97.073						
12	0.110	0.522	97.595						
13	0.104	0.494	98.089						
14	0.091	0.432	98.521						
15	0.084	0.400	98.921						
16	0.058	0.277	99.198						
17	0.046	0.220	99.418						
18	0.045	0.212	99.630						
19	0.032	0.151	99.781						
20	0.028	0.134	99.915						
21	0.018	0.085	100.000						

Extraction Method: Principal Component Analysis

4.5.4 Component Matrix on the Benefits of ICT Implementation

Once the factors have been extracted, it is possible to calculate the loadings of the importance on each factor. The higher the absolute value of the loading the more the importance is attached to the factor. Table 4.5.4 shows only 4 factors have been extracted. The gaps on the table represent loadings that are less than 0.5, gaps have been used to make reading the table easier.

From the analysis on Table 4.5.4 Factor 1 on efficient data maintenance provided the most important benefit since its loadings were high. Factors 2 on Transmission of Information had the second highest loadings and lastly Factor 3 Less office space had the least loading.

Table 4.5.4: Component Matrix on the Benefits of ICT Implementation

	Component		
	1	2	3
ICT enables the maintenance of more scheme		0.649	
Faster response to customer demands	0.852		
High Levels of accuracy attained	0.639	0.577	
Reduced number of queries from members	0.790		
Time spent to serve one customer is greatly reduced	0.760		
Reduced cost of serving customers	0.777		
Administration costs in overall have greatly reduced	0.716		
Faster response to regulatory government needs	0.845		
Maintenance of up-to-date data	0.826		
Faster Processing of Retirement benefits information		0.665	
Sharing of Information across geographic location		0.678	
Easier use and manipulation of information	0.874		
Faster recovery of information in case of failure	0.804		
Less office Space Utilization	0.630		0.524
Better Workflow Management	0.855		
Better Workflow Management	0.799		
Efficient data transmission		-0.536	
Efficient data transmission	0.847		
Confidentiality of Information	0.800		
Availability of information		-0.736	
Higher Security of Information	0.893		

Extraction Method: Principal Component Analysis 3 components extracted

4.6 Challenges of ICT implementation in RBS Administration

In this section an analysis of the challenges of ICT implementation are carried out from the respondents. Descriptive statistics and factor analysis are used in the analysis. The challenges include both the physical and logical challenges, which were sought separately for ease of understanding and analysis.

4.6.1 Analysis on Administrative and Physical Challenges in ICT

From the table 4.6.1 a liker scale of 1-5 where 1 meant Not at all, 2 meant very little, 3 moderate, 4 quite a lot and 5 To a great extent. This scale was used to measure the challenges faced in ICT implementation in retirement benefits administration.

Table 4.6.1: Analysis on the Administrative and Physical Challenges in ICT

	Descriptive Statistics	
FACTORS	**Mean**	**Std. Deviation**
Low Computer Literacy Level	4.643	0.641
Inadequate Hardware	4.312	0.854
Unstable Organizational Networks	4.057	1.307
Inadequate ICT budget support	4.771	0.542
Poor Physical security	4.911	0.286
Constant Changing needs of users	1.611	0.852
Poor response of the ICT staff on end user's requests	3.089	1.748
Inadequate end user involvement	4.713	0.651
Poor end user Interface	4.803	0.571
Lack of Management support	4.548	0.693
Lack of Technical Skills	4.962	0.192
Lack of Objective measure of ICT implementation	3.777	1.608
Poor System Documentation	4.541	0.902
Poor End user Documentation	4.834	0.451
Complexity of IS implementation	3.554	1.587
The Choice of the Change Strategy	4.694	0.551
Lack of IT policy Document	1.561	1.111
Changes in IT	4.796	0.516
Power Failure	4.822	0.384
Poor Project Management	4.930	0.256
Lack of a DRP	4.108	1.588
Clerical/Operator errors	3.439	1.619
Poorly drafted SLA's	3.580	1.657
Poor history of the organization's ICT	4.924	0.385
Vandalism of hardware	4.662	0.636
Poor system Audit	4.847	0.361
End User Resistance	4.459	0.888
Inadequate End user Training	4.631	0.623
Fear of change and rigid org. structure	4.643	0.707

The respondents had a mean of between 1-4 however a majority of the respondents had a mean of 4. The standard deviation shows how close the diversions are from the mean responses. These following factors had very high means, and they included;

1. Lack of Technical Skills (4.962)
2. Poor Project Management (4.93)
3. Poor history of the organization's ICT investment (4.924)
4. Poor Physical security (4.911)

5. Poor system Audit (4.847)

6. Poor End user Documentation (4.834)

7. Power Failure (4.822)

8. Poor end user Interface (4.803)

It's interesting to identify that the lack of IT policy document was considered the least challenge with a mean of 1.561 where us in practice it is this document that shapes the destiny of the implementation.

4.6.2 Correlation Matrix for Identifying Challenges in ICT

Each respondent indicated the level of extent of ICT implementation. The results are shown in table 4.6.2.

Table 4.6.2 Correlation Matrix for Administrative and Physical Challenges in ICT

Correlations	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1	0.767	0.867	0.372	0.315	-0.021	0.034	0.291	-0.106	0.154	0.201	0.694	0.181	0.460
2	0.767	1	0.863	0.586	0.482	-0.511	0.162	0.635	-0.044	0.533	0.307	0.602	0.320	0.568
3	0.867	0.863	1	0.390	0.323	-0.285	0.048	0.464	0.041	0.362	0.162	0.641	0.370	0.495
4	0.372	0.586	0.390	1	0.819	-0.528	0.130	0.831	0.060	0.696	0.654	0.213	0.387	0.789
5	0.315	0.482	0.323	0.819	1	-0.511	0.080	0.826	0.088	0.701	0.637	0.096	0.387	0.830
6	-0.021	-0.511	-0.285	-0.528	-0.511	1	-0.420	-0.722	0.118	-0.907	-0.326	0.147	-0.300	-0.469
7	0.034	0.162	0.048	0.130	0.080	-0.420	1	0.175	-0.316	0.346	0.010	-0.182	-0.076	0.019
8	0.291	0.635	0.464	0.831	0.826	-0.722	0.175	1	0.019	0.848	0.526	0.061	0.441	0.798
9	-0.106	-0.044	0.041	0.060	0.088	0.118	-0.316	0.019	1	-0.065	0.223	0.433	0.545	0.121
10	0.154	0.533	0.362	0.696	0.701	-0.907	0.346	0.848	-0.065	1	0.447	-0.091	0.343	0.662
11	0.201	0.307	0.162	0.654	0.637	-0.326	0.010	0.526	0.223	0.447	1	0.097	0.342	0.740
12	0.694	0.602	0.641	0.213	0.096	0.147	-0.182	0.061	0.433	-0.091	0.097	1	0.327	0.188
13	0.181	0.320	0.370	0.387	0.387	-0.300	-0.076	0.441	0.545	0.343	0.342	0.327	1	0.411
14	0.460	0.568	0.495	0.789	0.830	-0.469	0.019	0.798	0.121	0.662	0.740	0.188	0.411	1
15	0.637	0.605	0.649	0.238	0.110	0.023	-0.113	0.118	0.489	0.043	0.070	0.958	0.420	0.201
16	0.579	0.790	0.692	0.709	0.681	-0.582	0.108	0.809	0.011	0.660	0.615	0.306	0.477	0.776
17	-0.375	-0.679	-0.494	-0.818	-0.850	0.719	-0.125	-0.893	-0.006	-0.818	-0.559	-0.134	-0.407	-0.773
18	0.691	0.611	0.626	0.520	0.615	-0.211	-0.079	0.474	0.058	0.350	0.567	0.401	0.294	0.709
19	0.626	0.679	0.723	0.665	0.672	-0.409	-0.053	0.717	0.043	0.586	0.428	0.309	0.410	0.791
20	0.237	0.365	0.204	0.762	0.790	-0.390	0.000	0.648	0.212	0.543	0.726	0.149	0.470	0.732
21	0.448	0.297	0.358	0.022	-0.092	0.349	-0.184	-0.174	0.533	-0.299	0.014	0.884	0.259	-0.046
22	0.393	0.401	0.397	0.196	0.085	0.087	0.027	0.090	0.427	-0.027	0.054	0.715	0.319	0.092
23	0.323	0.302	0.316	0.013	-0.080	0.174	0.000	-0.095	0.399	-0.189	-0.051	0.696	0.235	-0.068
24	0.175	0.190	0.098	0.469	0.346	-0.130	0.067	0.270	0.135	0.206	0.480	0.190	0.231	0.370
25	0.473	0.715	0.594	0.742	0.785	-0.610	0.062	0.864	0.062	0.713	0.523	0.246	0.522	0.788
26	0.539	0.613	0.630	0.705	0.737	-0.444	-0.009	0.767	0.070	0.644	0.469	0.239	0.393	0.789
27	0.594	0.757	0.723	0.193	0.162	-0.424	0.139	0.351	-0.124	0.329	0.103	0.404	0.312	0.319
28	0.439	0.736	0.538	0.735	0.713	-0.658	0.248	0.796	0.046	0.709	0.523	0.276	0.506	0.648
29	0.397	0.695	0.591	0.773	0.729	-0.657	0.119	0.918	0.047	0.768	0.465	0.166	0.516	0.779

Table 4.6.2 Correlation Matrix……..(continued)

	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1	0.637	0.579	-0.375	0.691	0.626	0.237	0.448	0.393	0.323	0.175	0.473	0.539	0.594	0.439	0.397
2	0.605	0.790	-0.679	0.611	0.679	0.365	0.297	0.401	0.302	0.190	0.715	0.613	0.757	0.736	0.695
3	0.649	0.692	-0.494	0.626	0.723	0.204	0.358	0.397	0.316	0.098	0.594	0.630	0.723	0.538	0.591
4	0.238	0.709	-0.818	0.520	0.665	0.762	0.022	0.196	0.013	0.469	0.742	0.705	0.193	0.735	0.773
5	0.110	0.681	-0.850	0.615	0.672	0.790	-0.092	0.085	-0.080	0.346	0.785	0.737	0.162	0.713	0.729
6	0.023	-0.582	0.719	-0.211	-0.409	-0.390	0.349	0.087	0.174	-0.130	-0.610	-0.444	-0.424	-0.658	-0.657
7	-0.113	0.108	-0.125	-0.079	-0.053	0.000	-0.184	0.027	0.000	0.067	0.062	-0.009	0.139	0.248	0.119
8	0.118	0.809	-0.893	0.474	0.717	0.648	-0.174	0.090	-0.095	0.270	0.864	0.767	0.351	0.796	0.918
9	0.489	0.011	-0.006	0.058	0.043	0.212	0.533	0.427	0.399	0.135	0.062	0.070	-0.124	0.046	0.047
10	0.043	0.660	-0.818	0.350	0.586	0.543	-0.299	-0.027	-0.189	0.206	0.713	0.644	0.329	0.709	0.768
11	0.070	0.615	-0.559	0.567	0.428	0.726	0.014	0.054	-0.051	0.480	0.523	0.469	0.103	0.523	0.465
12	0.958	0.306	-0.134	0.401	0.309	0.149	0.884	0.715	0.696	0.190	0.246	0.239	0.404	0.276	0.166
13	0.420	0.477	-0.407	0.294	0.410	0.470	0.259	0.319	0.235	0.231	0.522	0.393	0.312	0.506	0.516
14	0.201	0.776	-0.773	0.709	0.791	0.732	-0.046	0.092	-0.068	0.370	0.788	0.789	0.319	0.648	0.779
15	1	0.298	-0.155	0.327	0.321	0.128	0.872	0.741	0.687	0.175	0.263	0.250	0.392	0.286	0.234
16	0.298	1	-0.807	0.750	0.771	0.620	-0.006	0.152	0.013	0.313	0.893	0.731	0.642	0.789	0.837
17	-0.155	-0.807	1	-0.650	-0.771	-0.717	0.165	-0.067	0.080	-0.289	-0.873	-0.824	-0.399	-0.828	-0.829
18	0.327	0.750	-0.650	1	0.754	0.571	0.090	0.108	0.012	0.276	0.708	0.727	0.458	0.542	0.520
19	0.321	0.771	-0.771	0.754	1	0.589	-0.042	0.106	-0.058	0.254	0.854	0.912	0.505	0.634	0.826
20	0.128	0.620	-0.717	0.571	0.589	1	-0.044	0.075	-0.070	0.466	0.720	0.646	0.142	0.721	0.640
21	0.872	-0.006	0.165	0.090	-0.042	-0.044	1	0.765	0.778	0.129	-0.097	-0.105	0.096	0.002	-0.120
22	0.741	0.152	-0.067	0.108	0.106	0.075	0.765	1	0.949	0.137	0.108	0.061	0.176	0.194	0.127
23	0.687	0.013	0.080	0.012	-0.058	-0.070	0.778	0.949	1	0.070	-0.056	-0.108	0.171	0.072	-0.063
24	0.175	0.313	-0.289	0.276	0.254	0.466	0.129	0.137	0.070	1	0.313	0.285	0.028	0.309	0.276
25	0.263	0.893	-0.873	0.708	0.854	0.720	-0.097	0.108	-0.056	0.313	1	0.835	0.548	0.832	0.928
26	0.250	0.731	-0.824	0.727	0.912	0.646	-0.105	0.061	-0.108	0.285	0.835	1	0.360	0.688	0.789
27	0.392	0.642	-0.399	0.458	0.505	0.142	0.096	0.176	0.171	0.028	0.548	0.360	1	0.551	0.507
28	0.286	0.789	-0.828	0.542	0.634	0.721	0.002	0.194	0.072	0.309	0.832	0.688	0.551	1	0.790
29	0.234	0.837	-0.829	0.520	0.826	0.640	-0.120	0.127	-0.063	0.276	0.928	0.789	0.507	0.790	1

The extraction method was the primary component analysis. The correlation matrix reveals that the following groups of variables are correlated.

- 1,2,3
- 4,8,10,16,17,28
- 6,10
- 12,15,21
- 22,23

4.6.3 Total Variance Explained on Administrative and Physical Challenges in ICT

Table 4.6.3 shows all the factors extracted from the analysis along with their Eigen values, the percent of variance attributed to each factor and the cumulative variance of the factor and the previous factors.

Table 4.6.3: Total Variance Explained on the Administrative and Physical Challenges

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.676	47.159	47.159	13.676	47.159	47.159
2	5.356	18.467	65.627	5.356	18.467	65.627
3	2.420	8.343	73.970	2.420	8.343	73.970
4	1.749	6.030	80.000	1.749	6.030	80.000
5	1.226	4.228	84.228	1.226	4.228	84.228
6	0.813	2.802	87.030			
7	0.606	2.089	89.120			
8	0.523	1.805	90.924			
9	0.474	1.635	92.560			
10	0.418	1.440	94.000			
11	0.338	1.166	95.166			
12	0.249	0.857	96.023			
13	0.206	0.712	96.735			
14	0.185	0.639	97.373			
15	0.152	0.522	97.896			
16	0.117	0.403	98.299			
17	0.087	0.300	98.599			
18	0.072	0.248	98.848			
19	0.067	0.229	99.077			
20	0.060	0.207	99.283			
21	0.042	0.146	99.429			
22	0.039	0.134	99.563			
23	0.031	0.107	99.670			
24	0.029	0.100	99.771			
25	0.021	0.074	99.844			
26	0.016	0.056	99.900			
27	0.013	0.046	99.946			
28	0.010	0.036	99.982			
29	0.005	0.018	100.000			

Extraction Method: Principal Component Analysis

The first five factors were the only ones with Eigen values greater that 1. The first factor, accounts for 47.15% of the variance, the second factor, accounts for 18.46% of the variance the third factor, accounts for 8.3% of the variance, the forth factor, accounts for

6.0% and the fifth factor poor physical security measures, accounts for 4.2% of the variance.

4.6.4 Component Matrix on Administrative and Physical Challenges in ICT

Once the factors have been extracted, it is possible to calculate the loadings of the importance on each factor.

Table 4.6.4: Component Matrix on the Administrative and Physical challenges in ICT

	Component				
	1	2	3	4	5
Low Computer Literacy Level	0.603				
Inadequate Hardware	0.817				
Unstable Organizational Networks	0.706				
Inadequate ICT budget support	0.840				
Poor Physical security	0.821				
Constant Changing needs of users				-0.514	
Poor response of the ICT staff on end user's request				0.597	
Inadequate end user involvement	0.880				
Poor end user Interface			0.660		
Lack of Management support	0.756				
Lack of Technical Skills	0.624				
Lack of Objective measure of ICT implementation	0.381				
Poor System Documentation	0.542				
Poor End user Documentation	0.866				
Complexity of IS implementation		0.858			
The Choice of the Change Strategy	0.918				
Lack of IT policy Document					-0.907
Changes in IT	0.750				
Power Failure	0.868				
Poor Project Management	0.744				
Lack of a DRP		0.936			
Clerical/Operator errors		0.791			
Poorly drafted SLA's		0.834			
Poor history of the organization's ICT					
Vandalism of hardware	0.938				
Poor system Audit	0.863				
End User Resistance			-0.586		
Inadequate End user Training	0.872				
Fear of change and rigid org. structure	0.903				

Extraction Method: Principal Component Analysis 5 Components Extracted

The higher the absolute value of the loading the more the importance is attached to the factor. Table 4.6.4 shows only 5 factors have been extracted. The gaps on the table

represent loadings that are less than 0.5, gaps have been used to make reading the table easier.

4.7 Logical Challenges in ICT Implementation

In this section an analysis of the logical challenges of ICT implementation is carried out from the respondents. Descriptive statistics and factor analysis are used in the analysis.

4.7.1 Analysis on the Logical Challenges in ICT Implementation

From the table 4.7.1 a liker scale of 1-5 where 1 meant Not at all, 2 meant very little, 3 moderate, 4 quite a lot and 5 To a great extent. This scale was used to measure the logical challenges faced in ICT implementation in retirement benefits administration. The respondents had a mean of between 1-4 however a majority of the respondents had a mean of 4. The standard deviation shows how close the diversion from the respondent's were.

Table 4.7.1: Analysis on the Logical Challenges in ICT Implementation

	Descriptive Statistics	
FACTORS	**Mean**	**Std. Deviation**
The Choice of the Right IT tools	3.599	0.639
Viruses and Worms	4.669	0.634
Sabotage and Fraud by Employees	4.930	0.256
Network Failure	4.809	0.521
Piracy	1.726	0.896
Software bugs	4.885	0.320
Hacking and illegal Access	4.580	0.508
Database Failure	4.790	0.543
Poor Systems Maintenance	2.306	0.896
Wiretapping/Eavesdropping	3.573	1.116
Poor Logical Security Systems	4.624	0.614
Incompatible Hardware/Software	4.815	0.389
Poor System Portability	3.350	1.143
Complexity of the System	3.127	1.275
Poor End User Interface	4.510	0.685
Poor Back ups and Recovery Procedures	4.102	0.709

There were a number of deviations from the mean whose standard deviation was quite high this implied a wide dispersion of responses. These factors had very high means and they included;

1. Sabotage and Fraud by Employees (4.93)
2. Software bugs (4.885)
3. Incompatible Hardware/Software (4.815)
4. Network Failure (4.809)
5. Database Failure (4.79)

It's interesting to identify that piracy of software was considered the least challenge with a mean of 1.726 where us in practice piracy causes a number of other problems that can hinder the implementation of ICT.

4.7.2 Correlation Matrix for Logical Challenges in ICT Implementation

Each respondent indicated the level of the logical challenge in ICT implementation. The results are shown in table 4.7.2.

Table 4.7.2: Correlation Matrix for Logical challenges in ICT Implementation

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	1	0.903	0.689	0.770	-0.764	0.746	0.563	0.789	0.305	0.405	0.953	0.782	-0.008	0.213	0.763	0.728
2	0.903	1	0.724	0.836	-0.849	0.823	0.639	0.857	0.179	0.261	0.896	0.867	0.090	0.370	0.848	0.731
3	0.689	0.724	1	0.861	-0.671	0.763	0.363	0.861	0.289	0.209	0.728	0.577	0.084	0.244	0.607	0.428
4	0.770	0.836	0.861	1	-0.786	0.908	0.470	0.968	0.318	0.256	0.777	0.774	0.113	0.327	0.742	0.574
5	-0.764	-0.849	-0.671	-0.786	1	-0.737	-0.705	-0.817	-0.111	-0.137	-0.771	-0.826	-0.012	-0.312	-0.889	-0.814
6	0.746	0.823	0.763	0.908	-0.737	1	0.451	0.894	0.280	0.239	0.726	0.756	0.111	0.319	0.766	0.561
7	0.563	0.639	0.363	0.470	-0.705	0.451	1	0.491	0.101	0.247	0.579	0.577	0.200	0.459	0.767	0.707
8	0.789	0.857	0.861	0.968	-0.817	0.894	0.491	1	0.317	0.263	0.799	0.815	0.119	0.344	0.754	0.605
9	0.305	0.179	0.289	0.318	-0.111	0.280	0.101	0.317	1	0.362	0.280	0.200	0.652	0.544	0.016	0.304
10	0.405	0.261	0.209	0.256	-0.137	0.239	0.247	0.263	0.362	1	0.363	0.289	0.148	0.129	0.177	0.379
11	0.953	0.896	0.728	0.777	-0.771	0.726	0.579	0.799	0.280	0.363	1	0.780	0.015	0.234	0.763	0.722
12	0.782	0.867	0.577	0.774	-0.826	0.756	0.577	0.815	0.200	0.289	0.780	1	0.146	0.397	0.764	0.742
13	-0.008	0.090	0.084	0.113	-0.012	0.111	0.200	0.119	0.652	0.148	0.015	0.146	1	0.915	-0.025	0.177
14	0.213	0.370	0.244	0.327	-0.312	0.319	0.459	0.344	0.544	0.129	0.234	0.397	0.915	1	0.285	0.390
15	0.763	0.848	0.607	0.742	-0.889	0.766	0.767	0.754	0.016	0.177	0.763	0.764	-0.025	0.285	1	0.750
16	0.728	0.731	0.428	0.574	-0.814	0.561	0.707	0.605	0.304	0.379	0.722	0.742	0.177	0.390	0.750	1

The extraction method was the primary component analysis. The correlation matrix reveals that the following groups of variables are highly correlated.

- 1,2,5,11,12
- 3,4,6,8
- 13,14

4.7.3 Total Variance Explained on Logical Challenges in ICT Implementation

Table 4.7.3 shows all the factors extracted from the analysis along with their Eigen values, the percent of variance attributed to each factor and the cumulative variance of the factor and the previous factors.

Table 4.7.3:Total Variance Explained on Logical Challenges in ICT Implementation

	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
Component	Total	Percentage of Variance	Cumulative Percentage	Total	Percentage of Variance	Cumulative Percentage	Total	Percentage of Variance	Cumulative %
1	9.551	59.692	59.692	9.551	59.692	59.692	6.32	39.498	39.498
2	2.304	14.399	74.091	2.304	14.399	74.091	3.954	24.713	64.212
3	1.218	7.615	81.706	1.218	7.615	81.706	2.458	15.366	79.577
4	1.076	6.727	88.434	1.076	6.727	88.434	1.417	8.856	88.434
5	0.455	2.845	91.278						
6	0.376	2.353	93.631						
7	0.318	1.99	95.621						
8	0.221	1.383	97.004						
9	0.152	0.953	97.957						
10	0.076	0.478	98.435						
11	0.069	0.43	98.865						
12	0.059	0.366	99.231						
13	0.044	0.277	99.508						
14	0.031	0.191	99.699						
15	0.028	0.173	99.872						
16	0.02	0.128	100						

The first four factors were the only ones with Eigen values greater that 1. The first factor the right IT tools, accounts for 59.69% of the variance, the second factor Viruses, accounts for 14.39% of the variance the third factor, hacking, accounts for 7.61% of the variance, and the fourth factor wire tapping accounts for 6.72% of the variance.

4.7.4 Component Matrix on the Logical Challenges of ICT Implementation

Once the factors have been extracted, it is possible to calculate the loadings of the importance on each factor. The higher the absolute value of the loading the more the importance is attached to the factor. Table 4.7.4 shows only 4 factors have been extracted. The gaps on the table represent loadings that are less than 0.5, gaps have been used to make reading the table easier.

Table 4.7.4: Component Matrix on the Logical Challenges of ICT implementation

	Component			
	1	2	3	4
The Choice of the Right IT tools	0.901			
Viruses and Worms	0.948			
Sabotage and Fraud by Employees	0.789			
Network Failure	0.906			
Piracy	-0.902			
Software bugs	0.874			
Hacking and illegal Access			-0.575	
Database Failure	0.924			
Poor Systems Maintenance		0.739		
Wiretapping/Eavesdropping				0.802
Poor Logical Security Systems	0.904			
Incompatible Hardware/Software	0.887			
Poor System Portability		0.950		
Complexity of the System		0.805		
Poor End User Interface	0.877			
Poor Back ups and Recovery Procedures	0.806			

Extraction Method: Principal Component Analysis 4 components extracted

4.8 Benefits and Challenges of ICT and the Extent of ICT Implementation

From the analysis on the extent, challenges and benefits it can be concluded that the extent of implementation is driven by the benefits expected. This explains why the extent of implementation is high as observed in Table 4.3.2 where 47% of the respondents said that there is a high usage of ICT in their firm, 27% responded to medium usage of ICT and only 15% confirmed low usage of ICT. The challenges of ICT are well known by

most of the respondents. From Table 4.3.1, 73% of the respondents use CBIS although the response is high there is still a 23% of the respondents who do not use CBIS. The gap here can be attributed to the challenges that ICT implementation brings with it. Although ICT promises high returns and benefits the challenges and risks are equally high.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter the results are summarized, then conclusions arrived at from the research findings. These are discussed in the light of the objectives of the study and finally, recommendations are made. The study sought to establish the extent of ICT implementation in retirement benefits administration; determine the benefits derived from ICT Implementation in benefits administration; establish the challenges faced in application of ICT towards benefits administration and finally to identify the relationship between benefits and challenges of ICT. The data was collected from a sample of retirement benefits administrators and the data was then analyzed by the use of factor analysis and descriptive statistics such as frequency tables, means, standard deviations..

5.2 Summary and Conclusions

The retirement benefits industry in Kenya is growing rapidly; this can be attributed to the increased number of benefits administrators registered by the RBA since the enactment of the RBA law in 2000. On average one employee administers data for about 200 scheme members. Although the extent of ICT implementation is high it does not cover web technologies. Given the high potential of the Internet it is strongly recommended that the retirement benefits administrators make full use of the facility. Members can be allowed access to their data at least with view profiles and security can be enforced with passwords facilities that the user will maintain.

Also noted in the study is that most of the benefits functions are computerized the most common ones include, maintaining and updating of records for contributing members, maintenance of accurate and up-to-date Information, computation of member benefits in the event of termination, documentation of benefits statements of contributions for individual scheme members and pension administration. The frequency of information assessment varied with most respondents annually reviewing their computer based information systems.

5.2.1 The Extent of ICT Implementation in Retirement Benefits

From the study most of the firms had some form of ICT implementation. It was also noted that most firms do their own internal administration. However firms that did external administration maintained more than one scheme with an average of at least 20 schemes. There are however a small percentage of the external administrators 5% in the industry who maintain much more scheme. The 5% populations of administrators maintain at least 100 schemes. There is a likelihood that these administrators have higher extents of ICT implementation, which justifies their ability to maintain such high number of schemes.

Although 73% of the respondents have CBIS in place only 62% had networks in place this implies that there is still a fraction of administrators who are running stand-alone systems, consequently sharing of information is greatly hampered there by limiting on the benefits obtained from CBIS. It is clear that still in the presence of CBIS the utilization of the systems is much lower at 66%. There is thus a need to encourage the utilization otherwise the systems will not be operating optimumly.

Processing of information in most firms is online though not real time. Due to the nature of the industry real time information is not very critical. Instead efforts should be done to replace the batch processing systems with the real-time systems.

A majority of the firms have a fully fledged IT department however the budget of some of the IT departments are still controlled by other sections of the organization, this implies that the IT department may fail to fully achieve due to this limitation.

Internet today is a very valuable resource however its not exploited among the retirement benefits administrators. Only 20% of the respondents have websites. This is despite the fact that a majority of the administrators connect to a central database. Database connectivity is at 60%. Even with the limited number of websites it's only the benefits administrators who are allowed access to information for members through the Internet.

Computer literacy levels can be said to be average among most cadres of management however subordinate staff are not literate enough. This shows that the management realizes the value of ICT hence the observed literacy levels.
A majority of the firms do not have any Information system policy or code of conduct this is very risky since it puts the security of these systems to question.

5.2.2 Benefits Derived from ICT Implementation

There are numerous benefits that firms can enjoy due the implementation of ICT. However since the firms performances are varied, that is some firms administered more schemes than others it is clear that there is a difference in the effects that ICT provides in different firms. Although there is a general agreement that ICT brings in benefits the extent of the benefits will vary according to the extent of Implementation.

All the benefits functions enjoyed a high average mean from the respondents, which indicates that the industry is aware of the potentials of ICT. Implementation of ICT is agreed to support benefits administrators to maintain more schemes.

The cost of benefits administration is observed to have reduced significantly with the implementation of ICT. The implementation produces a varying effect on the service to the members. This can be attributed to the type of systems implemented and the performance of the system.

Most of the respondents also agreed that high levels of accuracy are attained through ICT. Data maintenance was also agreed to be a major advantage from ICT implementation. Faster processing of retirement benefits information was also a benefit derived from ICT implementation. Sharing of Information across geographic location was also observed as a benefit of ICT. These factors were observed as the major benefits since their means were closest to 1.

5.2.3 Administrative and Physical Challenges in ICT Implementation

According to the respondents the main challenges of ICT implementation were ranked in the following order. The physical and administrative challenges are those challenges, which are non-technical and mainly relate to administrative functions. Lack of Technical Skills which had the highest mean, of (4.962) was the most common challenge. There is thus a gap in training among the employees. This training on literacy level will improve on the levels of ICT implementation and further increase on the benefits derived from ICT, and reduce on the challenges related to ICT implementation among retirement benefits administrators.

Poor project management with a mean of (4.930) is considered to be Second greatest challenge. Firms should there focus on the effective project management so as to deliver effective systems.

Thirdly poor history of the organization's ICT with a mean of (4.924) was considered a challenge. Organizations should thus not be quick to invest in ICT since the failure will influence future projects.

Other challenges include poor physical security, poor system Audit, poor end user documentation, power failure, poor end user interface, changes in IT, inadequate ICT budget support, inadequate end user involvement, the choice of the change strategy, vandalism of hardware, Low computer Literacy Level, Fear of change and rigid org. structure, Inadequate end user Training and lack of management support.

On these challenges the firms can take administrative controls with respect to each challenge. Poorly drafted software license agreements were not observed as challenges yet it contributes to other myriad problems in projects.

5.2.4 Logical Challenges in ICT Implementation

Logical challenges are the challenges that are application based. These relate to the software from the respondents the logical challenges were observed to be the following in the order according to the mean response.

Secondly, Sabotage and Fraud by Employees is considered the highest logical challenge with a mean of (4.930). This means that the employees in the organization pose the greatest threat to the implementation of ICT. Unethical working practices should be discouraged. This can be achieved by considering enforcing a code of ethics which the employees must adhere to.

Thirdly, software bugs are considered to be a challenge at mean of (4.885). Developed programs should therefore be well tested to ensure the installation of applications that have passed both the white box and black box testing.

Other logical challenges included Incompatible hardware/software, network failure, database failure, viruses and worms, poor logical security systems, hacking and illegal access, poor end user interface and poor back ups and recovery procedures.

5.2.5 Benefits and Challenges of ICT and the Extent of ICT Implementation

The extent of ICT implementation is observed to be very high among the administrators. Despite the challenges faced, implementation is still carried out, this is in anticipation of the numerous benefits that ICT promises and competition from other firms that have already implemented ICT. The major challenge of ICT implementation was observed to be the lack of technical skills this is mainly an administrative task. Training is thus essential to counteract this challenge however from the demographic study the IT skills ranked average among management employees where as in other staff it was below average. This means that the average computer literacy is still not sufficient enough to support the implementation of ICT and further training is required not only among managers but also among the other staff.

Another major challenge was in the logical challenge where sabotage by employees was seen as the greatest challenge in ICT implementation. This infers that the company can loose so much from illegal acts and sabotage by employees. The respondents are also agreed that the lack of systems audit is a major challenge administratively. This implies that although the firms are aware of the loophole employees can exploit, little has been done to encourage constant audits. In fact in a majority of the respondents auditing was done only once a year, this is too long a period and it gives a lot of room for fraud from end users and more so systems administrators. Taking this into account the extent of ICT implementation is likely to dwindle if no control measures are undertaken.

Physical security of systems implying easy access to computing resources like the server room was also observed to be a major challenge. The physical security here takes many forms with the most effective ones being biometric controls. However the biometric controls are too expensive for some firms to implement hence influencing the extent of ICT implementation.

5.3 Recommendations

The growing dependence of the organizations on computer based information systems means that the information they hold is a key corporate asset and in some cases considered a strategic resource.

It is therefore important for the firm to be aware of the challenges and benefits of theses systems and how the two factors play on each other. The fact that information systems are faced with numerous forms of vulnerability as covered in this report makes the systems highly prone to risk. On the other hand the benefits that accrue from ICT implementation are enormous and organizations are likely to achieve a competitive advantage from this implementation.

The researcher proposes the following in order to reduce the risks and enhance efficiency in information systems implementation.

The firm should ensure that they have a well-trained workforce. This will improve on the literacy levels in the organization. Technical training will help the firm keep abreast with the ever-changing technologies. There will thus be fewer problems related to migration of application and upgrades. This in turn will reduce on the frequency and number of hours lost due to system failure.

The firm must also consider the issue of IS audits this can either be done externally or internally. The firm should constantly focus on the white box testing especially in internally administered schemes to avoid any form of mischief from the programmers.

Poor project management is another key issue. The success of any project will greatly depend on its management. Through project management the firm will be able to allocate duties and responsibilities accordingly. This in turn will take care of other problems like documentation. Both the end user and technical documentation will be adequately prepared due to this aspect of accountability.

The security of the systems should be enforced adequately at the logical level as well. The firm can consider passwords and assigning roles and privileges to these passwords. The consistency of back ups and constant rehearsal of the recovery procedures will also be beneficial in readiness for a real life situation. Physical access security should also be considered even if the firm cannot afford biometric installations the firm can consider other cheaper options so long as they are effective such may include a security guard or, maintaining a register of entries into the computer server room.

Power surge protectors should be installed to protect the equipment from power failure. End users should be involved in the development of systems early enough to avoid the resistance from end user during the implementation phase. The firm should also have a code of ethics for the ICT staff this document should be availed to all the staff handling information. The document will give a guideline on the confidentiality of data and ethical practices of working.

It is also recommended that piracy of software should be recognized as an offence that will be punished. Prevention of software piracy will further improve on performance of the systems and greatly control viruses and worms. The firms should also have a well-developed disaster recovery plan. This will act as a fall back plan in case of failure of systems.

5.4 Limitations of the study

The study had certain limitations that should be taken into consideration when interpreting the findings.

First the nature of the study required divulging of sensitive information as a result some of the respondents considered it too sensitive and declined to respond to the questionnaire. If more administrators in the sample had responded perhaps the results would have been richer.

Secondly the ones who have responded may not have given the exact position of their ICT implementation since ICT is a strategic resource and some respondents may not want to divulge this information.

Thirdly the study did not incorporate the end user views only the benefits managers or administrators were considered. If end user views were considered perhaps the results would have been richer.

Fourthly the retirement benefits scheme members and pensioners were not interviewed yet these are the actual recipients of the service.

Finally, the time constraint made it impossible to collect more diverse data and increase the sample size. If more diverse data was collected and the sample size increased the results would have been richer.

5.5 Recommendations for Further Research

In the process of carrying out this research, a number of issues were not considered due to the limitations sited above. In addition to this, there are extensions to the study that can be undertaken given different situations. These include:

First to carry out a detailed survey of Information systems security among retirement benefits administrators.

Secondly is to study how scheme members can access their information and even maintain some part of their data securely on the Internet.

Thirdly an analysis on the risks of computer crime to the growth of ICT among benefits administrators.

CHAPTER SIX: REFERENCES AND BIBLIOGRAPHY

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CHAPTER SEVEN: APPENDICES

7.1 Appendix 1: List of Retirement Benefits Administrators

1. ADRA-Kenya Staff Provident Fund
2. Advent Insurance Brokers Ltd.
3. Africa Tea Brokers Ltd
4. African Fund for Endangered Wildlife Kenya Staff Retirement Benefits Scheme
5. African Highlands Provident Fund
6. African Tours and Hotels Limited Staff Retirement Benefits Scheme
7. Alexander Forbes Financial Services Ltd.
8. Alexander Forbes Insurance Brokers Ltd.
9. ALICO Ltd.
10. Amedo Centres Kenya Limited Executive Staff Retirement Benefits Scheme
11. Aon Minet
12. Apollo Insurance Company Ltd.
13. Assured Insurance Brokers Ltd.
14. Barclays Bank of Kenya Limited Pension Fund
15. BASF East Africa Staff Retirement Benefits Scheme
16. BBC Monitoring EA Unit Staff Pension Fund
17. Bisset - Rogers Limited Staff Retirement Benefits Scheme
18. Blue Shield Insurance Company Staff Pension Scheme
19. Bob Morgan Services Staff Retirement Benefits Scheme
20. British American Insurance Company Ltd
21. Bubanks Limited Staff Retirement Benefits Scheme
22. Bunson Travel Staff Provident Fund
23. Caltex Oil (K) Ltd Staff Retirement Benefits Scheme
24. Cannon Assurance (Kenya) Limited Staff Pension Scheme
25. Capital Trustees Ltd.
26. CDC Capital Partners Provident Fund
27. Central Bank of Kenya Staff Pension Scheme
28. Chancery Insurance Brokers
29. Christian Reformed World Relief Committee Staff Retirement Benefits Scheme
30. Clarkson Notcutt Insurance Brokers Staff Retirement Benefits Scheme
31. Colour Packaging Junior Staff Retirement Benefits Scheme
32. Commission for Higher Education Staff Retirement Benefits Scheme
33. Communications Commission of Kenya Staff Retirement Benefits Scheme
34. Compaq Consultants
35. Compassion International Staff Retirement Benefits Scheme
36. Computer Associates Staff Retirement Benefits Scheme
37. Concord Insurance Co. Limited Staff Provident Fund Scheme
38. Consolata Primary Provident Fund
39. Consolidated Insurance Brokers Ltd.
40. Corporate Insurance Company Ltd.
41. Creative Cleaning Services Ltd. Staff Retirement Benefits Scheme
42. Dodhia Packaging Staff Retirement Benefits Scheme
43. Door International Staff Retirement Benefits Scheme
44. East African Storage Co. Ltd Supplemental Staff Retirement Benefits Scheme
45. Electoral Commission of Kenya Staff Retirement Benefits Scheme

46. Equator Nursing Home Staff Retirement Scheme
47. Ernst & Young Staff Pension Scheme
48. Fidelity Shield Insurance Co. Ltd.
49. First American Bank of Kenya Limited Staff Provident Fund
50. Geminia Insurance Co. Ltd.
51. Getrio Insurance Brokers Ltd Staff Retirement Benefits Scheme
52. Goodman Agencies Limited Staff Retirement Benefits Scheme
53. Gulf Air Staff Retirement Benefits Scheme
54. Habib Bank AG Zurich Kenya Staff Provident Fund
55. Harambee Sacco Staff Retirement Benefits Scheme
56. Heritage All Insurance Co. Ltd.
57. Hoechst East Africa Staff Pension Scheme
58. Housing Finance Company (K) Limited Staff Provident Fund
59. ICEA Individual Retirement Benefits Scheme
60. Insurance Company of East Africa Ltd.
61. Intermediate Technology Development Group Staff Retirement Benefits Scheme
62. International Development Research Centre Kenya Provident Fund
63. Joes Insurance Staff Retirement Benefits Scheme
64. Joes Insurance Brokers Ltd.
65. Jubilee Insurance Co. Ltd.
66. Kabage & Mwirigi Insurance Brokers Retirement Benefits Scheme
67. Kaisugu Ltd Staff Provident Fund
68. Kazuri Beads & Pottery Ltd Staff Retirement Benefits Scheme
69. Kencell Communications Ltd. Staff Retirement Benefits Scheme
70. Kenfranka Enterprises Staff Pension Scheme
71. Kenindia Assurance Company Limited Pension Scheme
72. Kentours Sacco Limited Staff Retirement Benefits Scheme
73. Kenversity Sacco Limited Staff Retirement Benefits Scheme
74. Kenya Agricultural Research Institute Staff Retirement Benefits Scheme
75. Kenya Bankers Sacco Staff Retirement Benefits Scheme
76. Kenya Baptist Theological College Staff Retirement Benefits Scheme
77. Kenya Cargo Handling Services Limited Staff Provident Fund
78. Kenya Christian Industrial Training Institute Staff Retirement Benefits Scheme
79. Kenya External Communications Limited Staff Retirement Benefits Scheme
80. Kenya Fluorspar Company Limited Provident fund
81. Kenya Local Government Officers Supperannuation Scheme
82. Kenya Medical Research Institute Staff Retirement Benefits Scheme
83. Kenya Ports Authority Pension Scheme
84. Kenya Post Office Savings Bank Staff Retirement Benefits Scheme
85. Kenya Power and Lighting Ltd.
86. Kenya Railways Corporation Pension Scheme
87. Kenya Reinsurance Corporation Staff Pension Scheme
88. Kenya Revenue Authority Staff Pension Scheme
89. Kenya Society for the Blind Staff Retirement Benefits Scheme
90. Kenya Sugar Research Foundation Staff Retirement Benefits Scheme
91. Kenya Tea Development Authority Staff Provident Fund
92. Kenya Union of Savings and Credit Co-operatives Staff Provident Fund
93. Kenyan Alliance Insurance Co. Ltd
94. Kiesta Industrial Technical Services Provident Fund
95. Kingsland Court Trusts & Benefits Services Ltd. 10285 NAIROBI
96. Kodak (K) Ltd Staff Retirement Benefits Scheme

97. Legal Resources Foundation Staff Retirement Benefits Scheme
98. Liaison Insurance Brokers Ltd.
99. Lion of Kenya Ins. Co. Limited Executive Staff Provident Fund
100. Local Authorities Provident Fund
101. Lutheran World Federation Kenya/Sudan Staff Provident Fund
102. Madison Insurance Co. (K) Ltd.
103. Madison Insurance Personal Pension Plan
104. Mafuko Industries Limited Staff Retirement Benefits Scheme
105. Marshalls E.A. Limited Staff Provident Fund
106. Masaba Hospital Staff Retirement Benefits Scheme
107. MCL Saatchi & Saatchi Staff Retirement Benefits Scheme
108. Mercantile Life & General Assurance Co. Ltd.
109. Methodist Church in Kenya Provident Fund
110. Mhasibu Sacco Limited Staff Retirement Benefits Scheme
111. Monarch Insurance Company Ltd Staff Retirement Benefits Scheme
112. Monsanto Kenya Ltd Staff Retirement Benefits Scheme
113. Nafaka Sacco Society Staff Retirement Benefits Scheme
114. National Cereals & Produce Board Staff Retirement Benefits Scheme
115. National Fund For The Disabled Staff Retirement Benefits Scheme
116. National Industrial Credit Bank Limited Pension Fund
117. New Sudan Council of Churches Staff Provident Fund
118. Office Equipment Company Ltd Staff Retirement Benefits Scheme
119. Old Mutual Life Assurance Co. Ltd.
120. Oxfam Provident Fund
121. Pact Kenya Staff Retirement Benefits Scheme
122. Pan Africa Insurance Co. Limited Staff Retirement Benefits Scheme
123. Parliamentary Service Commission Staff Retirement Benefits Scheme
124. Pelican Insurance Brokers Co. Limited Staff Retirement Benefits Scheme
125. Pentecoastal Assemblies of God - Staff Retirement Benefits Scheme
126. Plan Region of Eastern and Southern Africa (RESA) Staff Pension Fund
127. Postal corporation Of Kenya Staff Pension Scheme
128. Pyrethrum Board of Kenya Staff Retirement Benefits Scheme
129. Redeemed Gospel Church Staff Retirement Benefits Scheme
130. Refugee Consortium of Kenya Staff Retirement Benefits Scheme
131. Retirement Benefits Authority Staff Retirement Benefits Scheme
132. Roberts Insurance Brokers Ltd.
133. Royal Commonwealth Society for the Blind Retirement Benefits Scheme
134. Royal Insurance Company Limited Staff Provident Fund
135. Safaricom Limited Staff Retirement Benefits Scheme
136. Saload Limited Staff Retirement Benefits Scheme
137. Sapon Insurance Brokers Ltd.
138. Sedgwick Kenya Insurance Brokers Ltd.
139. Sen-Tech Staff Retirement Benefits Scheme
140. Severin Staff Provident Fund
141. Sian Agriflora Staff Pension Scheme
142. Skylark Africa Insurance Brokers Ltd.
143. Spanfreight Shipping Ltd Staff Provident Fund
144. Suntra Stocks Limited Staff Retirement Benefits Scheme
145. The Finlay African Agency Provident Fund
146. The Kenya Airways Limited Staff Provident Fund
147. Timsales Limited Staff Retirement Benefits Scheme

148. Tourism Promotion Services Staff Provident Fund
149. Trident Insurance Co. Ltd.
150. Trust Mark Insurance Consultants Ltd.
151. UAP Provincial Co. Ltd.
152. Uniafric Provident (Kenya) Fund
153. Unicover Insurance Brokers Ltd.
154. USAID-Fews Net Project- International Staff Retirement Benefits Scheme
155. UUNET(Kenya) Ltd Staff Retirement Benefits Scheme
156. Waandishi Limited Staff Provident Fund
157. Wrigley Co. (EA) Limited Senior Staff Provident Fund

7.2 APPENDIX 2: Introduction Letter

Athman Salim Mohammed
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Faculty of Commerce
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P.O. Box 30197
Nairobi.

To whom it may concern,

I am a postgraduate student in the faculty of commerce, university of Nairobi, pursuing a Master in Business Administration degree programme. I am undertaking research on the extent of Information and Communication Technology implementation in retirement benefits scheme administrators in Kenya. The research is aimed at establishing the extent of ICT implementation in the retirement benefits administration, the benefits that are likely to b derived and the challenges faced in its implementation.

You have been selected as one of the respondent. I therefore request you to fill in the attached questionnaire. The information from the questionnaire is needed purely for academic purposes and will therefore be treated with utmost confidentiality. In no way will your name or the name of your firm appear in the final report.

A copy of the final report can be made available upon request.

If you require any further information, please do not hesitate to contact me via the above address.

Thank you for your valuable contribution.

Yours Faithfully,

Athman Salim
MBA Student

7.3 APPENDIX 3: QUESTIONAIRE

SECTION A: DEMOGRAPHIC CHARACTERISTICS

The purpose of this section is to document the demographic factors of retirement benefits administrators. Please provide the responses to the questions by filling in the spaces and ticking appropriately.

1) How many employees are there in your organization? _____

2) How many employees work in retirement benefits administration? _____

3) How many retirement benefits schemes do you administer? _____

4) What is the total member number of people in the schemes that you administer?

_____

5) For what Schemes do you do administration for?

Self ☐ Others ☐ Both ☐

6) Do you have a Computer Based Information System for benefits administration?

Yes ☐ No ☐

7) If your answer in (6) above is yes, are your computers networked?

Yes ☐ No ☐

8) If your answer in (7) above is yes, what methods of processing does your organization use.

Online but not real-time ☐ Real-time Online ☐ Batch ☐

Other Specify _____

9) What is the level of computer based information system utilization in your Organization with respect to Retirement Benefits administration.

High [ ] Medium [ ] Low [ ]

10) Under what sections are your Information and Communications Technology functions performed?

Finance Dept ☐ Fully Fledged IT Dept ☐ Outsourced ☐ others specify ☐

11) Do you have a budget for ICT? Yes ☐ No ☐

12) Is your retirement benefits information hosted in a website?

Yes ☐ No ☐

13) Do you connect to a shared database for information retrieval?

Yes ☐ No ☐

14) Who among the following is allowed to access the retirement benefits information?

Retirement Benefits Members ☐ Retirement Benefits Administrators ☐

Both ☐ Others Specify ☐

15) Please answer the following question by marking *(X)* in the box that best describes how you would rate computer literacy within your organization for the following categories of staff. Use a five point scale where 5= excellent and 1=poor.

Categories of Staff	**Poor** 1	**Below Average** 2	**Average** 3	**Above Average** 4	**Excellent** 5
Executive Director/CEO					
Top Management					
Middle Management					
Lower Management					
Other Staff					

16) Does your organization have an information System code of Conduct/Ethics
(Mark *(X)* against only one) Yes ☐ No ☐

17) Are your organization's information Systems assessed?
(Mark *(X)* against only one) Yes [ ] No [ ]

18) If your answer in (18) above is yes, how often are your information Systems assessed? (Mark *(X)* against only one)

Monthly [ ]
Quarterly [ ]
Semi-Annually [ ]
Annually [ ]

Any other please specify.....

SECTION B: EXTENT OF ICT IMPLEMENTATION

The purpose of this section is to collect information on the extent of Information and Communications Technology implementation in Retirement benefits administration in your firm.

1) Please indicate by ticking in the appropriate box, the extent to which ICT is applied in the following activities of Retirement benefits administration in your firm.

1.Not at all 2.Very little 3.Moderate 4. Quite a lot 5.To a great extent

	1	2	3	4	5
1. Maintaining and updating of records for contributing members.					
2. Maintenance of accurate and up-to-date Information.					
3. Computation of member benefits in the event of termination.					
4. Documentation of Benefits Statements of contributions for individual scheme members.					
5. Advice on retirement benefits options for members.					
6.Monitoring and coordinating additional voluntary contributions, which members may wish to make.					
7. Advising retirees at least 6 months before they retire.					
8. Prompt payment of Benefits in the event of a member's termination.					
9. Payment of monthly Pension (Retirees/Widows/Orphans).					
10. Sending tax return forms to the members					
11.Preparations of annual accounts for audit purposes					
12. Generation of actuarial reports					
13. Adhoc reporting					
14. Implementing Pension increments when due					
15. Stopping pensions for over aged orphans					
16. Reconciliation of contributions with the payroll					
17. Obtaining fund value statements for both the individual and the scheme					
Others please specify					

SECTION C: DETERMINING THE BENEFITS OF ICT IMPLEMENTATION

This purpose of this section is to determine the benefits derived from ICT Implementation in administration of retirement benefits schemes.

1) Please indicate by ticking in the appropriate box your level of agreement to each of the following benefits that are realized in regards to ICT Implementation in your firm.

1.Agree Strongly 2. Agree Somewhat 3. Neutral 4.Disagree somewhat 5.Disagree Strongly

	1	2	3	4	5
1. ICT has enabled us to maintain more schemes					
2. Faster response to customer demands.					
3. High levels of accuracy attained					
4. Reduced the number of queries from members					
5. Time spent to serve one customer is greatly reduced					
6. Reduced the costs of serving customers.					
7.Benefits administration costs in overall have greatly reduced					
8. Faster responses to regulatory government needs					
9.ICT implementation has enabled us maintain up-do-date data					
10. Faster processing of retirement benefits information					
11. ICT has facilitated the sharing of information among more people regardless of the geographical locations					
12. Use and manipulation of information is much easier					
13. Faster recovery of information in case of system failure					
14. Less office Space utilization					
15. Better workflow management					
16. Easier maintenance of documents in Softcopies (e.g. Birth Certificates etc)					
17. Efficient transmission of data					
18. Integrity of Information					
19. Confidentiality of Information					
20. Availability of information					

21. Better Security of Information					
Others please specify					

SECTION D: FACTORS POSING CHALLENGES TO ICT IMPLEMENTATION

The purpose of this section is to establish the extent to which the following factors have posed challenges in ICT implementation in retirement benefits administration.

1) Please indicate by ticking in the appropriate boxes the extent of the following Administrative and Physical factors (non-technical) that have posed challenges in ICT implementation in retirement benefits administration in your firm.

1.Not at all 2.Very little 3.Moderate 4. Quite a lot 5. To a great extent

	1	2	3	4	5
1.Low Computer literacy levels					
2.Inadequate hardware					
3. Unstable Organizational networks					
4. Inadequate ICT budget support					
5. Poor physical security systems					
6. Constant changing needs of users					
7. Poor response of the ICT staff on requests made by end users					
8. Inadequate of end user involvement in ICT implementation					
9. Poor user interface					
10. Lack of management support					
11. Lack of Technical skills					
12. Lack of Objective measure of success in ICT implementation					
13. Poor System documentation					
14. Poor End user documentation					
15.Complexity of the IS implementation					
16. The choice of the Change over strategy					
17. Lack of Information Technology Policy document					
18.Changes in Information Technology					

19. Power failure					
20.Poor project Management					
21.Lack of a Disaster recovery plan					
22. Clerical/operator errors					
23.Poorly drafted Software License Agreements					
24.Terrorism and Natural disasters eg Earthquakes, Floods, Tsunami					
25. Poor history of the organization's ICT investments					
26. Vandalism and theft of hardware					
27. Poor Systems auditing					
28. End user resistance and negative attitude					
29.Inadequate end user training					
30.Fear of change and rigid organizational structure					
Others Please specify					

2) Please indicate by ticking in the appropriate boxes the extent of the following Logical factors have posed challenges in ICT implementation in retirement benefits administration in your firm.

1.Not at all 2.Very little 3.Moderate 4. Quite a lot 5. To a great extent

	1	2	3	4	5
1. The choice of the right IT tools					
2.Viruses and Worms					
3. Sabotage and fraud by Employees					
4. Network Failure					
5.Piracy					
6. Software bugs and Programming errors					
7.Hacking and illegal access					

8. Database Failure					
9. Poor Systems maintenance					
10.Wire tapping/Eavesdropping					
11. Poor logical security and access controls to systems					
12. Incompatible Hardware/Software					
13. Poor System Portability					
14. Complexity of the System					
15. Poor end user interface					
16. Poor back ups and recovery procedure					
Others please Specify					