THE ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) ON ORGANISATIONAL PRODUCTIVITY

CASE STUDY: GENESIS KENYA INVESTMENT MANAGEMENT LTD

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OMOL AARON CHARLES

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DEDICATION

I dedicate this work to my parents Mr. and Mrs. Solomon Oketcho without whom I might not have accomplished much.

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I thank the Almighty God for the gift of life; good health and the strength to enable me complete this work. Nothing would have been possible if not for the love and grace provided abundantly by the Creator.

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LIST OF ABBREVIATIONS

ICT	Information and Communication Technology
NSDE	Nova Scotia Department of Education
CAT	Computerised Axial Tomography
OECD	Organisation for Economic Co-operation and Development
RfiD	Radio Frequency Identification Devices
SMEs	Small and Medium Enterprises
DBMS	Data Base Management System
ERP	Enterprise Resource Planning
SCM	Supply Chain Management
CRM	Customer Relationship Management

ABSTRACT

The study was carried out to determine the role of Information and Communication Technology (ICT) on organisational productivity and the case study was Genesis Kenya Investment Management Ltd. The role of ICT in organisational productivity has not been assessed sufficiently, particularly with regard to the Ugandan context for which the information available is scarce. This study will make a meaningful addition to the wider body of knowledge regarding the extent to which ICT makes a positive contribution in organisations. The study objectives include: to assess the role of the internet in organisational productivity; to examine the role of database management in organisational productivity; and to establish the relationship between ICT and organisational productivity.

Qualitative and quantitative techniques were used for collection, analysis and presentation of the data, with a sample size of 19 employees. Data was obtained mainly through questionnaires and document review. Out of the 19 questionnaires dispatched to Genesis Kenya Investment Management Ltd, 15 were returned fully answered.

According to the findings, the internet and database management have proved to be beneficial to employees in terms of productivity. The findings also point out the fact that ICT and productivity have a clear positive relationship. The researcher therefore concluded that ICT plays a positive role in organisational productivity. It was recommended that managers should ensure company ICT infrastructure is kept up to date; they should select software and hardware requirements based on the needs of the employees and the desired deliverables; and finally management should also ensure that all employees are computer literate.

CHAPTER ONE

1.0 Introduction

Technological innovation has led to the generation of a considerable level of interest amongst academics and practitioners in recent years (Gargallo-Castel and Galve-Górriz, 2012). It has become increasingly obvious in recent decades, that Information and Communication Technologies (ICT) for example computers, e-mail and the Internet and their applications have become some of the major drivers of innovation, growth and social change. In addition to that, as the Organisation for Economic Co-operation and Development (OECD)points out (OECD, 2010 cited in Gargallo-Castel and Galve-Górriz, 2012), in times of crisis there must be a focus on the contribution of ICT to innovation and growth.

This research focussed on assessing the roles of ICT and how they are translated into productivity for the organisation. The researcher, in this chapter, tackled several issues namely the background to the study, the problem statement, the purpose of the study, the objectives of the study, the research questions, the scope of the study, the significance of the study, the justification of the study and the conceptual framework.

1.1 Background to the study

Genesis Kenya Investment Management Limited was established in 1996 with the aim of providing high quality investment management services to institutional investors. Currently, Genesis has Assets under Management in excess of USD 1.2 billion belonging to clients within and outside Kenya. Genesis is licensed in Kenya as a fund manager by the Capital Markets Authority and the Retirement Benefits Authority. In Uganda, it is licensed by the Capital Markets Authority as a Fund Manager and Investment Advisor and is licensed by the Uganda Retirement Benefits Regulatory Authority as a Fund Manager. The firm provides its services to retirement benefits schemes, endowment funds, and insurance companies. It

manages separate client focused equity portfolios. It employs qualitative and quantitative fundamental analysis to make its investments. Genesis Kenya Investment Management is based in Nairobi, Kenya. The firm has been operating as a subsidiary of Genesis Asset Managers, LLP but as of December 20, 2013, Genesis Kenya Investment Management Limited operates as a subsidiary of Centum Investment Company Limited.

Tasman (2009) stated that while ICT is likely to benefit firms of all sizes, they may be important particularly for Small and Medium-sized Enterprises (SMEs). As noted by OECD (2008) and cited by Tasman (2009), ICT and broadband-enabled trade-in services allow SMEs to buy services they previously could not afford, for example, using remote security surveillance rather than hiring a security guard on the premises, ICT services instead of an ICT technician, as well as legal services, accounting, advertising, etc.

From 1995 onwards a striking and sudden increase took place in the growth rate of labour productivity (GDP per hour worked) in the United States: the average growth rate over 1995-2000 increased by a full percentage point compared to the previous period of 5 years (Oulton, 2002). There is now a general consensus that a large part of the productivity improvement can be explained by rapid growth in the stock of information and communications technology (ICT) equipment (Bosworth and Triplett, 2000; Jorgenson and Stiroh, 2000; Oliner and Sichel, 2000; Baily, 2001; DeLong and Summers, 2001 cited in Oulton, 2002). Therefore, it is against this background that the researcher investigated the role of ICT on productivity in Genesis Kenya Investment Management Ltd.

1.2 Problem Statement

Robert Solow's remark in 1987 that "You can see the computer age everywhere but in productivity statistics" no longer holds water if at all it ever did (Crafts, 2001). An ever growing body of accounting and econometric evidence suggests an important role for ICT in

accounting for firm productivity and the empirical estimates suggest a much larger impact of ICT on productivity than was previously thought (Draca, Sadun and Van Reenen, 2006). For over twenty years Information and Communication Technology (ICT) has been a main source of growth in value addition and productivity.

However, different countries, industries and firms show large differences in their capability to exploit the potential of ICT (ICTNET, 2010). In Genesis Kenya Investment Management Ltd, the exploitation of ICT is not at a desirable level currently.

As such there is still room for improvement with regard to use of ICT. Therefore the researcher's intention was to establish the depth of ICT use within Genesis Kenya Investment Management Ltd and how it affects the firm's productivity, as well as any possible areas where this could be improved in order to squeeze out maximum possible performance in terms of productivity for the company.

1.3 Purpose of the study

To establish the role of Information and Communications Technology (ICT) on productivity within Genesis Kenya Investment Management Ltd

1.4 Objectives of the study

i. To assess the role of the internet in organisational productivity
ii. To examine the role of database management in organisational productivity
iii. To establish the relationship between ICT and organisational productivity

1.5 Research Questions

i. What is the role of the internet in achieving organisational productivity?

ii. What effect does database management have on organisational productivity?

iii. What is the relationship between ICT and organisational productivity?

1.6 Scope of the study

1.6.1 Geographical scope

The geographical scope of this study was in Kampala, Uganda with the case study being Genesis Kenya Investment Management Ltd which is located on Mezzanine Floor, Eco Bank Plaza Plot 4, Parliament Avenue.

1.6.2 Subject scope

The content scope of this study dealt with the variables' dimensions. The dimensions of the independent variable, which was ICT, were use of the internet; database management; and the relationship between ICT and productivity. The dimensions of the dependent variable, namely organisational productivity, include output; efficiency; and quality.

1.6.3 Time scope

The study was focused on the information sourced within the company in the range of one year to date. Statistics and trends were captured in such a way as to obtain more accurate findings.

1.7 Significance of the study

i. The findings of the study will bridge the information gap and broaden the knowledge base on the effects ICT on organisational productivity, much to the benefit of the government, corporate entities, as well as other interested parties.

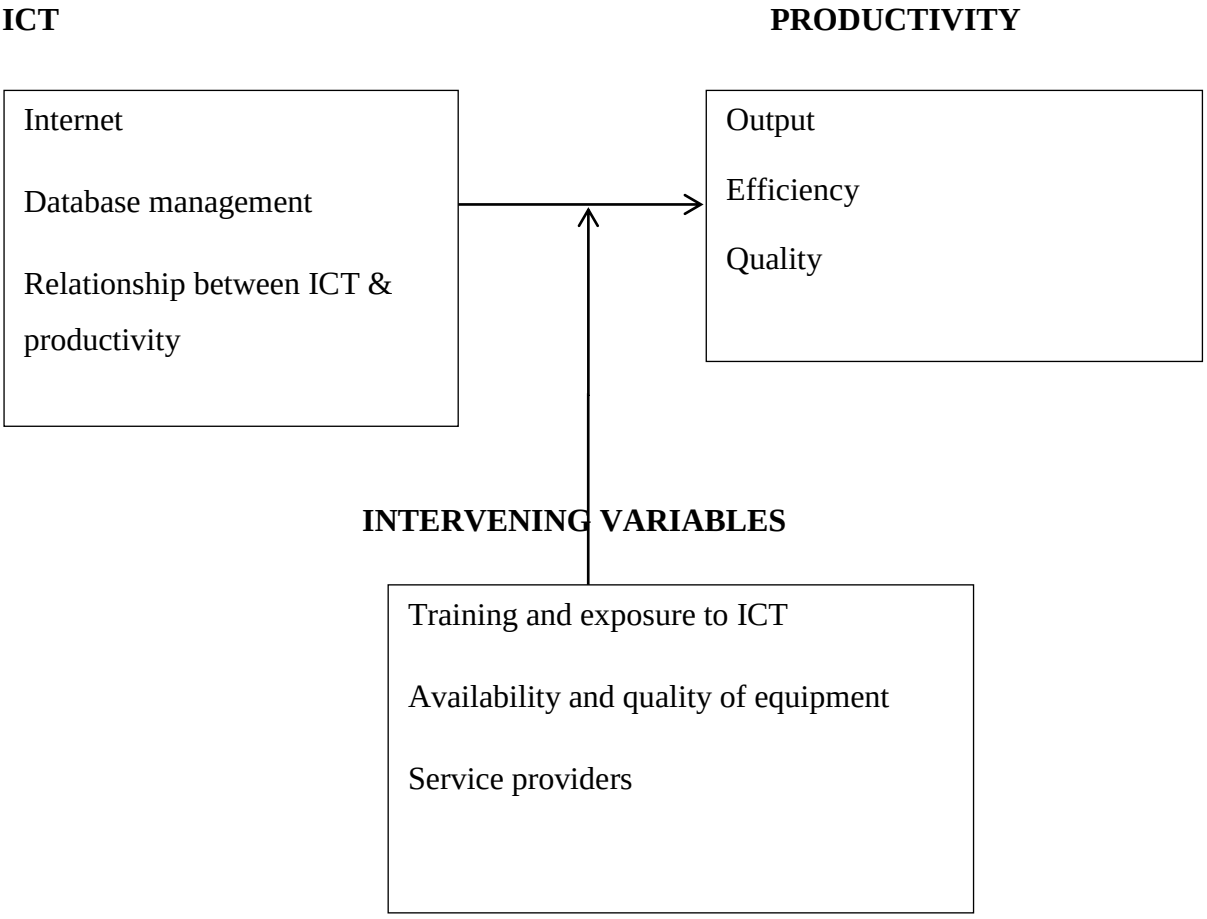
ii. The findings will fortify confidence and faith in the introduction and maintenance of ICT frameworks within organisations as a means to achieving greater efficiency and smoother operations.

iii. The findings will expose certain hindrances or obstacles, still present in terms of integrating ICT within organisations, whose solutions once implemented would be of advantage to organisations both under the government and in the private sector.

1.8 Justification of the study

The study is actually necessary in the sense that it will provide useful information that could potentially be used to bolster productivity of organisations through integration of ICT frameworks, not limited to Fund Managers in Uganda. It could also be useful to organisations in a variety of fields internationally.

1.9 Conceptual Framework



Source: Developed from Gargallo-Castel and Galve-Górriz (2012)

The conceptual frame work above shows the effects of use of the internet, database management and customised software packages impact on performance of organizations. The researcher will control the intervening variables during the study.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter covered previous work done by past researchers in order to capture information with relevance to the study. Areas that are in accordance with the research objectives but have been inadequately explored by previous studies were looked at in this review of literature.

2.1 General review of ICT and Productivity

2.1.1 Overview of ICT

The Nova Scotia Department of Education (NSDE) (2005) defines Information and Communication Technology (ICT) as the tools used to create, store, retrieve, and disseminate information (using a variety of media, among them computer-based media); data and information systems; networks; interactive telecommunications systems; curriculum software; and some forms of assistive technology. ICT also encompasses devices such as calculators, audio and video recordings and broadcasts; still images; and projections. NSCE (2005) adds that technology has the characteristic of changing people's perception of a task, work or a problem and how they tackle it. Generally, technology also contributes to changes in the environment, culture, society and the economy. ICT just happens to be one of the most prevalent and empowering emergent technologies in recent times.

According to Morton (1995), cited in Hughes and Morton (2005), before the 1990s, computers and communications were only economically applicable for explicit quantitative and localised tasks such as preparation of payroll records, engineering design, or the analysis of certain medical tasks such as the interpretation of CAT scans. It is general consensus that the advent of the Internet, plus powerful personal computers, databases and the addition of

smart chips and Radio Frequency Identification devices (RfiD) into products, has drastically changed scope of tasks and processes that can be affected by ICT. The nature of much of the work in organisations has been markedly changed and this applies to both for physical and mental work.

Kamuzora (2006) is of the view that ICT has an overwhelming potential to improve productivity of human resources in both public and private sectors although net returns on ICT capital were noted to be higher in developed countries than in developing countries. This is because ICT has enhanced productivity and competitiveness in various organisational processes including management of human resources.

He went ahead to cite a study released in September 2006, in which Enterprise Europe revealed that in EU production of information and communication technologies contributed 28% of aggregate labour productivity growth in the EU15 between 1995 and 2003. The study analysed the productivity of ICT manufacturing and service sectors and includes comparisons between the EU, US, Japan, South Korea and Taiwan. During the period studied, the ICT manufacturing industry in the EU15 obtained an average annual percentage growth in labour productivity of 18%, compared to 24.8% in the US and 42.7% in Taiwan. Similarly, in ICT services, the EU15 fared relatively better with an annual labour productivity growth rate of 5.1%, outpacing the 4.9% in the US, but well behind Taiwan's 15.8%. In addition according to Hughes and Morton (2005), the rise in labour productivity which took place in the US in the 1990s, was largely attributed to the increment in ICT investment.

Oliner and Sichel (2000) determined that slightly over 20% of U.S. output growth over the 1996-99 period could be attributed to the use of ICT and approximately 10 per cent to the production of ICT components (computer hardware and semiconductors). More so, 37% of labour-productivity growth is linked to capital deepening from the use of ICT. Also,

Jorgenson and Stiroh (2000) calculated even a higher contribution of approximately 43% to total labour-productivity growth.

Van Ark, Inklaar and McGuckin (2003) argue in their study that the recent explosion in ICT investment has led to the growth of labour productivity in the U.S. by more than twofold. Productivity growth in the United States accelerated from a rate of 1.1% between 1990 and 1995, to 2.5% between 1995 and 2000. In comparison, labour productivity growth in most European countries decelerated during the second half of the 1990s. The average growth rate of labour productivity per annum, expressed as value added per person employed, in the European Union (EU) fell from 1.9% to 1.4% over the same period. Their study shows that U.S. productivity has expanded faster than in the EU because of a larger employment share in the ICT producing sector and a higher rate of productivity growth in services industries that utilise ICT intensively. Wholesale, retail trade as well as the financial securities industry are responsible for most of the contrast in aggregate productivity growth between the EU and the U.S.

Okogun, Awoleye and Siyanbola (2012) reveal that investment ICT registered a significant increment from the year 2001 when the telecoms industry in Nigeria was liberalised. The empirical results of their study point towards the direction that ICT investment has had an undeniable impact on the economic growth of Nigeria during the period reviewed, suggesting good return on the investment. The results show that a high proportion (95%) of total change in GDP is accounted for by private investment in ICT, the contribution of ICT to GDP and number of subscribers. Private sector-led ICT investments appear to have contributed a great deal to the country's growth.

2.1.2 Overview of Productivity

Krugman (1994) states that "productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker." Productivity can be defined as the ratio of output volume to input volume. It measures the efficiency with which factor inputs like labour and capital are utilised to produce a certain level of output and is a substantial indicator of the performance of an organisation as well as the growth of the material standard of living of a country.

A study conducted by Arnold and Hussinger (2005) examined the causal relationship between export behaviour and total factor productivity at the firm level, using a representative sample of German manufacturing firms. The productivities of firms were measured using the semi parametric estimation method following Olley and Pakes (1996). They found that those firms that served foreign markets performed above average in terms of productivity.

The Alinaitwe, Widén, Mwakali and Hansson (2007) study of innovation enablers and barriers in relation to productivity within Uganda's building industry shows the effect of factors like level of training in science, engineering and technical education and level of research and development at the national level which positively impact productivity while those like the size of the domestic market and the level of security held back productivity of the industry.

2.2 The role of the internet in organisational productivity

Du Rausas et al. (2011) estimate that two billion people are connected to the Internet and about $8 trillion worth of transactions are made annually through e-commerce. For certain developed economies, approximately two-thirds of all businesses have some sort of internet presence, and one-third of small and medium sized enterprises (SMEs) extensively use

internet related technologies. The Internet has revolutionised almost all aspects of life from work to the way people socialise and interact. In twenty years, the Internet has changed from a network for researchers and to a daily resource for billions of people. The Du Rausas et al. (2011) research for McKinsey Global Institute suggests a direct link between the Internet and economic vitality and the following are their findings regarding how the internet is strongly contributing to wealth:

The Internet can be accessed by most people ranging from businesses, individuals, governments, and entrepreneurs. The internet has led to new possibilities in terms of new business models and entrepreneurship as well as radical innovations for accessing, using, and delivering goods and services for everyone. It has resulted in transformation of industries and governments through innovative approaches and changed the way users interact with the world.

The Internet is big and continues to grow and reach everywhere. The Internet is now used in every country, in every sector, in most companies, and by more than 2billion people and it is still growing. Internet-related consumption and expenditure are larger than agriculture or energy, and it accounts for, on average, 3.4% of GDP in the 13 countries in the study. If Internet consumption and expenditure were a sector, its weight in GDP would be bigger than energy, agriculture, or several other critical industries. The Internet's total contribution to the GDP is bigger than the GDP of Spain or Canada, and it is growing faster than Brazil.

The Internet is still in its infancy, and the weight of the Internet in GDP varies drastically, even among countries at the same stage of development. While the Internet accounts for around 6% of GDP in advanced countries such as Sweden and the United Kingdom, in 9 out of the 13 countries its contribution is below 4%, leaving a lot of room for further Internet development.

The Internet is a critical element of growth and has accounted for 10% of GDP growth over the past 15 years. And its influence is expanding. Over the past five years, the Internet's contribution to GDP growth in these countries doubled to 21%. If we look at all 13 countries in our analysis, the Internet contributed 7% of growth over the past 15 years and 11% over the past five. This is a reflection of small and medium-sized enterprises (SMEs) receiving a performance boost from the Internet.

Nurmilaakso (2009) says the Internet provides worldwide available and instant access to information, independent of place and time and it reduces the information processing and communication costs. Estimates show that the Internet has resulted in cost savings of about $163.5 billion and revenue increases of $522.9 billion in the US, UK, German, and French firms during the period 1988-2001.

Sánchez et al. (2006), as cited by Nurmilaakso (2009), state that Internet usage has had a positive contribution to labour productivity in Spain. Nurmilaakso (2009), citing Teo and Pian (2004), shows that firms see differentiation and growth as more salient benefits of website maintenance than cost savings. Website maintenance is also associated with higher financial performance, implying productivity. Standardised data exchange is also believed to improve information accuracy and allows for faster communication with the trading partners, thus contributing to firm productivity.

Konsbruck (2009) is of the opinion that firms can outsource their manufacturing abroad while relying on the internet and other forms of telecommunications to keep the marketing, Research and Development, as well as distribution staff in close contact with the manufacturing teams, thus enabling a better tuned level of labour distribution among countries. Companies now have greater freedom to locate their economic activities, creating

greater competition among regions in infrastructure, labour, capital, and other resource markets.

The internet also provides inexpensive 24-hour access to almost any kind of price and product information desired by buyers and reduces the informational barriers to efficient market operation. This facilitates real-time transactions and renders intermediaries such as sales clerks, stock brokers and travel agents, whose function is to provide an essential information link between buyers and sellers, redundant. Removal of intermediaries cuts the costs in the production and distribution chains. There are a number of other examples regarding how the internet has been harnessed to benefit the business community.

Technology has greatly advanced playing a major role in improving the standards of service delivery in the financial institution sector (Okiro and Ndungu, 2013). Gone are the days when customers had to queue in the banking halls waiting to pay their utility bills, school fees or carry out any other financial transactions. They are now able to do this at their own convenience by using their ATM cards or over the internet from the comfort of their homes. Additionally due to the tremendous growth of the mobile phone industry most financial institutions have ventured into the untapped opportunity and have partnered with mobile phone network providers to offer banking services to their clients.

Steven (2002), cited by Okiro and Ndungu (2013), defines Internet banking (e-banking) as the use of internet and telecommunication networks to deliver a wide range of value added products and services to bank customers through the use of a system that allows individuals to perform banking activities at home or from their offices or wherever. Some online banks are traditional banks that as well provide online banking, whereas others exist only online and have no physical presence.

Online banking via traditional banks allows customers to carry out all routine transactions, for example account transfers, balance inquiries, bill payments, and stop-payment requests, and quite a number even offer online loan applications. Customers are able to access account information at any time of the day they please, from anywhere they may wish. Internet banking has improved banking efficiency in rendering services to customers.

Financial institutions in Kenya cannot ignore information systems since they play an important role in their operations because customers are conscious of technological advancements and demand higher quality services. Since the introduction of e-banking in Kenya, Kenyan financial institutions have witnessed many changes. Customers now have access to fast, efficient and convenient banking services. Most financial institutions in Kenya are investing large sums on money in information and communication technology (ICT) (Okiro and Ndungu, 2013).

2.3 The role of database management in organisational productivity

A study by ORC International (2012) revealed that over the last few decades, database management systems have come to be an essential component of every corporate ICT structure. The total number of databases together with the scale of data growth means that every organisation globally has incurs certain costs that stem from the establishment and management of a number of data stores. Organisations therefore have the challenge of tracking vast amounts of data so as to efficiently and less expensively cope with huge growth, while keeping ICT budgets within a manageable limit.

According to Westrich (1994), a database refers to software that automates the collection, storage, retrieval, and presentation of computerised data. Robbins (1995) provides a better definition, that a database as a persistent, logically coherent collection of inherently meaningful data, relevant to some aspects of the real world and has to be managed by a

Database Management System. A database management system (DBMS) refers to a collection of programs that enables users to create and maintain a database. He outlines the general functions of databases as follows:

- allow concurrency of data
- control security of firm data
- maintain data integrity
- provide for backup and recovery of data
- control data redundancy
- allow data independence
- provide non-procedural query language
- perform automatic query optimization

Many different individuals interact with a database management system during its useful life:

- Systems analysts
- Database designers
- Database administrators
- Application developers
- End Users

Ramakrishnan et al (2000) state the following as advantages of a DBMS that improve on productivity of an organisation:

- Data independence and efficient access: Database application programs are independent of the details of data representation and storage. The conceptual and external schemas provide independence from physical storage decisions and logical design decisions respectively. Additionally, a DBMS provides efficient storage and

retrieval options, including support for very large files, index structures and query optimisation.

- Reduced time for application development: Since the DBMS performs several important functions required by applications, such as concurrency control and crash recovery, high level query facilities, etc.; only relevant application software is developed quickly. This is also supported by a host of application development tools available from vendors for many database management systems.
- Data integrity and security: The view mechanism and the authorization facilities of a DBMS act as formidable controls to access of information. Unauthorised updates to the data can be easily detected and rejected by the DBMS if users specify the accepted integrity parameters.
- Data administration: Through provision of a common umbrella for a vast collection of data that is shared by several users, a DBMS allows maintenance and data administration tasks. A good database administrator can effectively protect end-users from the job of adjusting the data representation and occasional back-ups, etc.
- Simultaneous access and crash recovery: A DBMS supports the idea of a transaction, and users can write transactions as if their programs were running in isolation against the database. The DBMS executes the actions of transactions to obtain good performance, but arranges them in such a way as to ensure that conflicting operations are not allowed to carry on simultaneously. Furthermore, the DBMS maintains a continuous record of the alterations to the firm's data, and if a system crash occurs, the database can be restored to a previous state. This means, the actions of incomplete transactions are reversed, so that the database state reflects only the actions of completed transactions. Thus, if each complete transaction, executing alone,

maintains the consistency criteria, then the database state after recovery from a crash is consistent.

2.4 The relationship between ICT and productivity

According to Becchetti, Bedoya and Paganetto (2003) the relationship between Information and Communication Technology and productivity has for a long time been an area of debate for several decades. From the 1980s through the early 1990s, empirical research in general did not find significant improvements in productivity connected with investment in ICT (Strassmann, 1990; Lovemann, 1988; Bender, 1986; Franke, 1987; Roach, 1989, cited in Becchetti, Bedoya and Paganetto, 2003). However, in recent times, new data have been made available and new methodologies have been applied. As such, empirical investigations have come up with compelling evidence that ICT is actually has an association with improvements in productivity, both in terms of intermediate measures and in economic growth (Oliner and Sichel, 1994; Lehr-Licthemberg, 1999; Sichel, 1997; Brynjolfsson and Hitt, 1996 cited in Becchetti, Bedoya and Paganetto, 2003).

The effects of ICT on the global business, financial and economic landscape have continued to shape how organisations operate and what directions they take. In fact, how, when and where the IT investment is made may make or break the future of the company, the organization or even the industry. Many a time it is an agreement between business innovations and new or advancing technologies. There are companies where innovation is fundamental to their business or where technology is important to their revenue stream and others which need ICT to reduce the price point and increase service levels (Protegra Inc., 2009).

ICT can be looked at in such a way as to mainly be composed of computers and other hardware; software; as well as telecommunications and networks. Investment in software has positive scale effects of not only increasing labour productivity, but also the demand for highly skilled workers and the overall productive efficiency of a company for a given amount of inputs. Telecommunications investment has scope effects involving positively affecting the creation of new processes or products. It is this combination of effects that increases productive efficiency and utilisation capacity (Becchetti, Bedoya and Paganetto, 2003).

Software contains a number of different tools to carry out a number of functions such as to manage orders such as internal system for re-ordering replacement supplies; invoicing and payment systems; system for managing production, logistics or service operations; suppliers' business systems for suppliers outside the enterprise group or customers' business systems for customers outside the enterprise group (Thi and Martin, 2010). Software has taken the shape of Enterprise Resource Planning (ERP),Supply Chain Management (SCM), and Customer Relationship Management (CRM) systems whose effect on a firm's performance and profitability are positive (Hendricks, Singhal and Stratman, 2005). ERP systems have taken the place of complicated and often manual systems with automation that is standardised and cuts across the different functions in an organisation. Cycle times for orders (the duration between placing an order and delivery of a product or service) can be reduced, the effect being an improvement in output in terms of quality, customer response times and delivery speeds (Cotteleer (2002), McAfee (2002) cited in Hendricks, Singhal and Stratman, (2005)).

In the same way, computerised financial transactions can cut down on cash-to-cash cycle times and the time required to compile and report financial information say quarterly or annually (Mabert et al. (2000, 2003), McAfee (1999), Stratman (2001) cited in Hendricks, Singhal and Stratman, (2005)). This results in reduced operating capital and the headcount of the financial area. Furthermore, ERP systems are of benefit in such a way that that all

company data is collected at once during the initial transaction, centrally stored, and is updated in real time. This makes sure that planning throughout the organisation is based on the same data and the resulting plans are a realistic reflection of the current operating conditions of the company.

The major benefit of SCM systems is better operational and business planning (Hendricks, Singhal and Stratman, 2005). SCM systems allow firms to react as soon as possible to changes in supply and demand by utilising finite-capacity planning algorithms that do not require iterative adjustments to the master schedule and real-time planning capabilities. Increased revenue, increased productivity, operational cost savings, lower inventory, and reduced order-to-fulfilment cycle time are some of the other benefits from SCM system implementations (Nucleus Research (2003) cited in Hendricks, Singhal and Stratman, 2005).

According to Hendricks, Singhal and Stratman (2005) CRM stems from a synthesis of a number of existing principles from areas such as relationship marketing, as well as the issue of customer focused management. CRM systems facilitate the building of long-term relationships with customers through the provision of the necessary infrastructure. Some of the examples of the functionality of CRM systems include the automation of the sales force, data warehousing, data mining, decision support and reporting tools. CRM systems are also beneficial in that they contribute to reduced duplication in data entry and maintenance by providing a centralized organisation-wide database of customer information. This framework has led to replacement of systems maintained by individual sales people; it institutionalises customer relationships, and prevents the loss of organisational customer knowledge when sales people leave the company. Centralised customer data is also valuable to firms that manage a multiplicity of product lines. In a number of cases, a firm's customers will usually overlap across different lines of business, thus providing an opportunity for increasing revenues through cross-selling.

According to Thi and Martin (2010), there are several features that are enjoyed by firms as a result of the telecommunications and networks component of ICT namely intranet, extranet, video-conference, electronic forum, group project and e-commerce (online purchases and online sales). Intranet can be defined as the use of an internal communications network within the organisation using Internet protocol. Group project refers to the presence of a platform allowing a collaborative group's members to efficiently and effectively manage time and data. Extranet means the use of a secure extension of an Intranet that allows external users to access some parts of an organization's Intranet. Video-conference involves the use of a communication network that permits users to see and talk to the caller. Electronic forum involves the use of a tool or service allowing sharing comments and discussions on a common subject or project.

ICT components like Intranet or group project are tools dedicated to internal communication and they can be used to increase collaboration between employees. However, extranet and video conferencing are tools dedicated to external communication and they can be utilised by firms to organize collaborations with partners. Electronic forum can be used both internally and externally. E-commerce refers to any type of business, or commercial transaction that involves the transfer of information across the Internet. It covers a range of different types of businesses, from consumer based retail sites, through auction or music sites, to business exchanges trading goods and services between corporations.

Hagén, Glantz and Nilsson (2008) found that the ICT use of a firm gave a significant effect on the productivity of a firm even though it seems to take a certain period before the entire effect is realised. This effect also proved to be quite stable irrespective of specification of the productivity. This means that the ICT use gave a boost to the productivity whichever way this was measured. The conclusion is that ICT use improves firm productivity.

2.5 Conclusion

This chapter has tackled some of the available literature by previous scholars and researchers in line with the objectives as stated in the first chapter. This chapter has brought out existing information about the topic and has shed more light on the effect of ICT on firm productivity.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter aimed at describing how the researcher would gain access to the information regarding the research topic. The research design which the researcher intended to make use of was covered along with the reasons why they have been selected. The researcher also detailed the study area, the study population, the sample size and techniques, data sources, the data collection methods and research instruments, validity and reliability, measurement of variables, data analysis and presentation, ethical considerations and limitations of the study.

3.1 Research Design

A case study research design was used and it was based on Genesis Kenya Investment Management Ltd. The research approach was both qualitative and quantitative in nature because it allowed the researcher to explore the topic with a greater degree of depth and detail resulting in rich precise data, in addition to being used to quantify the problem in such a way that numerical data and statistics were generated.

3.2 Study Area

The study was conducted in Kampala, Uganda at the premises of Genesis Kenya Investment Management Ltd, which is located on mezzanine floor, Eco Bank Plaza Plot 4, Parliament Avenue. The choice was sufficient because the company, being a Fund Manager, has extensive need for ICT in its operations so it was only fitting that most of the information required for the study would be sourced from the company itself.

3.3 Study Population

The population was comprised of 21 staff (Payroll, March 2015) of Genesis Kenya Investment Management Ltd from which the study sample was determined. Information about the study population was sourced from the company.

3.4 Sample size and techniques

3.4.1 Sample size

Basing on the table provided by Krejcie and Morgan (1970), a sample size of 19 respondents was selected from the study population. This helped to get the information required.

3.4.2 Sampling techniques

The study adopted non-probability sampling techniques such as purposive sampling, in which participants were grouped according to predetermined criteria relevant to the research question; and snowball sampling, in which participants or informants with whom contact had already been made referred the researcher to other people who could potentially participate in or contribute to the study using their social networks.

3.5 Data Sources

Data was collected from the following sources.

3.5.1 Primary data

Information relevant to the study consisting original ideas, contemporary accounts of events, and other data was gathered from the respondents allowing the researcher access to data first hand. It will be collected using questionnaires.

3.5.2 Secondary data collection

The secondary data sources added onto the body of knowledge that the researcher gathered while searching for information on the topic for example textbooks, the internet as well as newspapers.

3.6Data collection methods and research instruments

3.6.1 Questionnaire

The researcher used this instrument to get information from those respondents with busy schedules and little or no time for a meaningful interview such as members of top management. It was also convenient in such a way that data was gathered from people without necessarily meeting them.

3.6.2 Documentary Review

The researcher was able to gain a lot of information from going through different documents as this enabled him access data that may have been overlooked, or ignored or missed by other data collection methods.

3.7 Validity and Reliability

3.7.1 Validity

Validity is can be defined as the extent to which an instrument measures what it purports to measure (Kimberlin and Winterstein, 2008). The researcher ensured content validity of the research instruments by sharing with various supervisors and other experts who would assess, rate and critique the study instruments.

3.7.2 Reliability

Reliability was directed at determining whether the instruments to the study would be able to test for the same results (consistency) over time and if someone else used the same

instruments. The researcher had to pre-test or carry out pilot testing of the instruments to in order identify possible sources of error and to refine the instruments to minimise measurement errors.

3.8 Measurement of Variables

The researcher made use of the Likert scale as the major way of measurement for data collected especially that involving the use of the questionnaires. A series of questions was put forward to the respondents with provisions for answers that would take the form of *STRONGLY AGREE, AGREE, NOT SURE, DISAGREE,* and *STRONGLY DISAGREE*. This was used to represent the degree of agreement among the respondents in terms of the different variables that were measured.

3.9 Data Analysis and Presentation

The researcher carried out data editing in order to check for errors, gaps and misinformation so as produce accurate and wholesome work. The researcher then proceeded to summarise the data such that there could be meaningful classification of data.

The researcher also had to review data obtained from the questionnaires question by question. The researcher utilised SPSS software and Microsoft Excel during the analysis process. This produced tables and charts with which the research findings were presented.

3.10 Ethical Consideration

The researcher ensured not to access information through unscrupulous methods from the organisation by only collecting information after presenting an introduction letter from the university and being authorised to access company information. The researcher also briefed management at the end of the study period so as to officially close the research within the organisation. All information used in the study from external sources was properly cited and

referenced by the researcher. The researcher ensured high levels of transparency and integrity throughout the duration of the study all the way to presentation of the research findings.

3.11 Limitations of the study

i. There was inadequate time to carry out the study. This means the researcher may not have been able to gather more relevant data for the study.

ii. Another limitation to the study was inadequate funding. Thus there was limited facilitation for all the activities required for the study to take place such as travelling to and from the premises of the case study.

iii. Lastly, non-response of staff to some of the questionnaires also presented a limitation to the study. This means that the response rate did not coincide with the sample size of the study.

CHAPTER FOUR

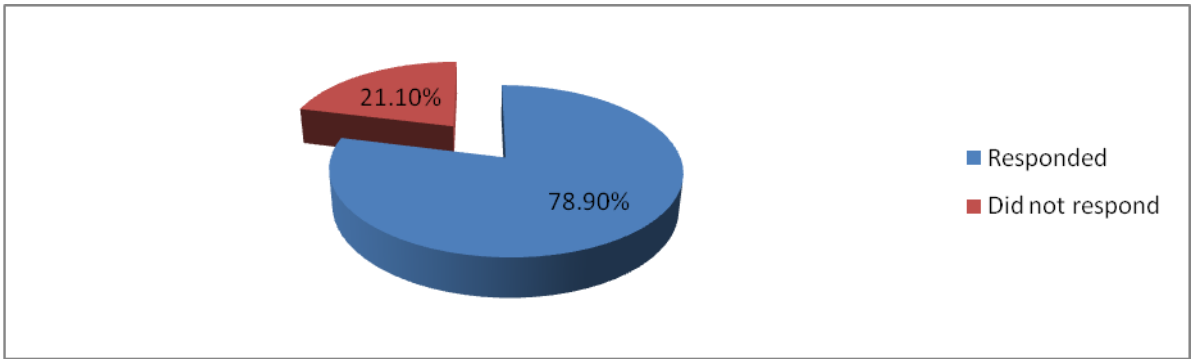
DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.0 Introduction

In this chapter, the researcher discussed the different qualitative and quantitative data collected from the staff of Genesis Kenya Investment Management Ltd. The data was analysed with SPSS software package as well as Microsoft Excel in order to come up with a clear understanding about the role of ICT on Organisational productivity. The research findings were presented according to the objectives. These were: the role of the internet on organisational productivity; the role of database management on organisational productivity; and the relationship between ICT and organisational productivity.

Out of the 19 questionnaires dispatched to Genesis Kenya Investment Management Ltd, 15 were responded to. 4 people did not respond. This translates to a 78.9% response rate against 21.1% that did not respond. The proportion that did not respond can be attributed to some employees that were at the time of the study, too caught up in their work duties to have enough time to participate.

Figure 4.0 showing the response rate



Source: Primary Data 2015

4.1 Background information of respondents

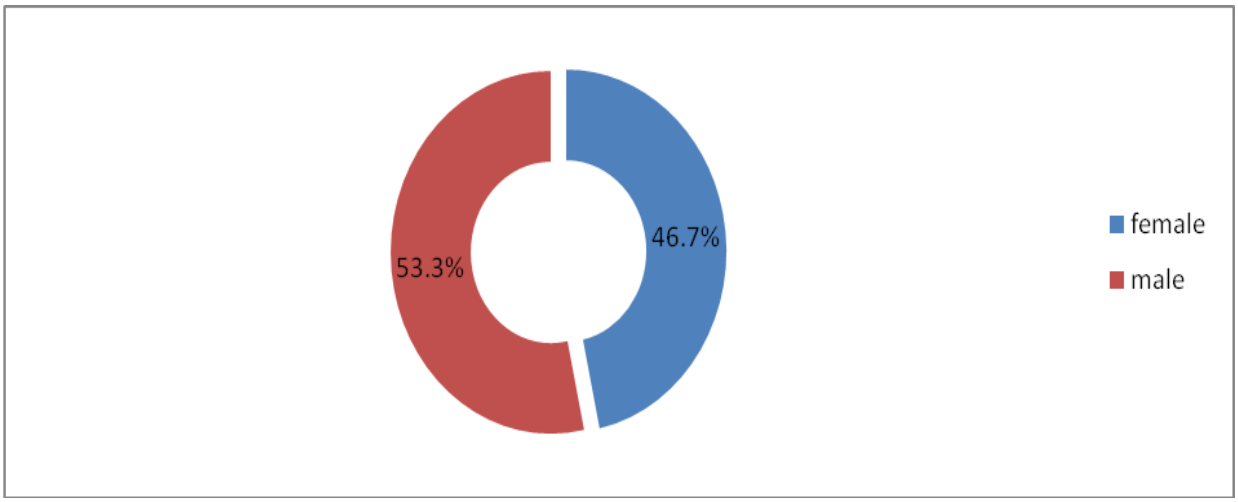
4.1.1 Gender

Table 4.1 showing gender composition of respondents

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	7	46.7	46.7	46.7
	male	8	53.3	53.3	100.0
	Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.1 showing gender composition of respondents



Source: Primary Data 2015

Table 4.1 and figure 4.1 above provide a breakdown of the gender of the respondents. 53.3% of the respondents were female while 53.3% of them were male. There is an almost equal ratio in gender although men are slightly greater in number due to the fact that slightly more men are attracted to the field of fund management.

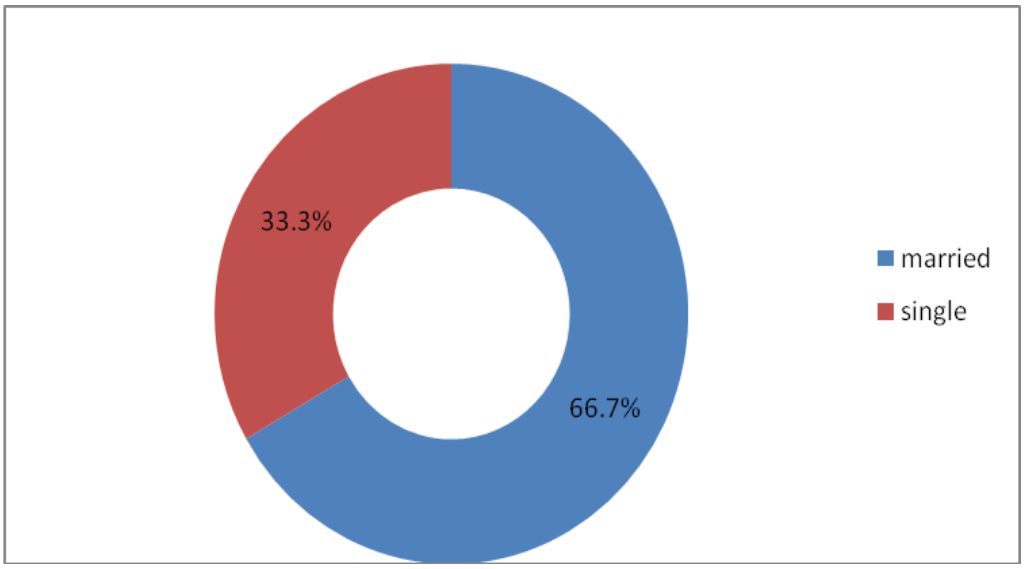
4.1.2 Marital status

Table 4.2 showing marital status of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	married	10	66.7	66.7	66.7
	single	5	33.3	33.3	100.0
	Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.2 showing marital status of respondents



Source: Primary Data 2015

Table 4.2 and Figure 4.2 show the marital status of the respondents. 66.7% of the respondents were married while 33.3% of them are single. This is because majority of the respondents were of marriage age.

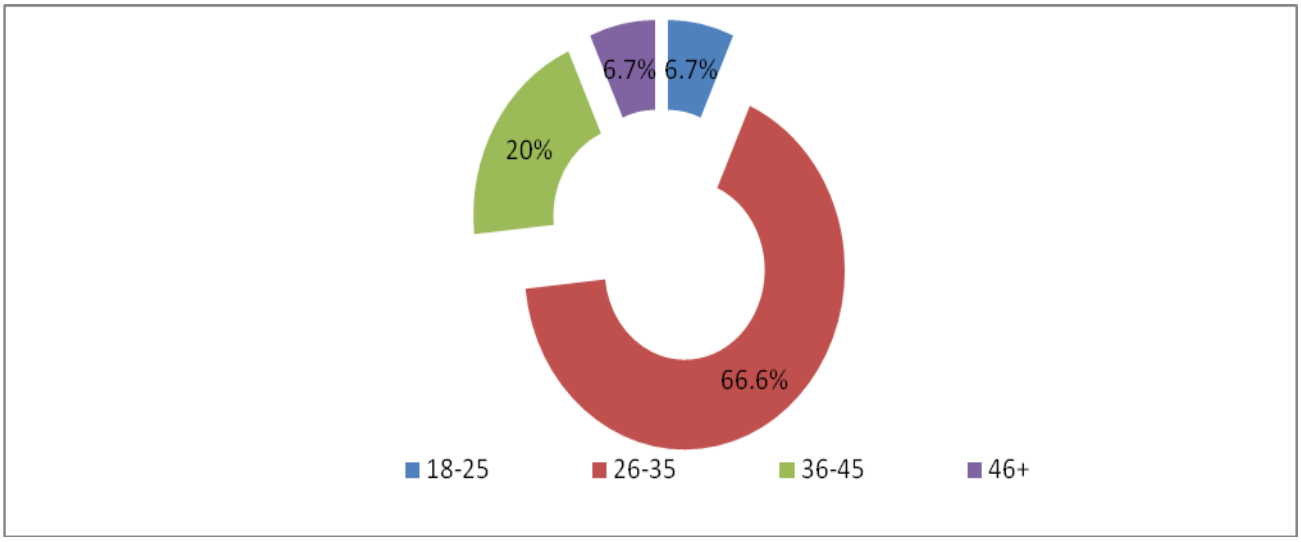
4.1.3 Age composition

Table 4.3 showing the age composition of the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	1	6.7	6.7	6.7
	26-35	10	66.6	66.6	73.3
	36-45	3	20.0	20.0	93.3
	46+	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.3 showing the age composition of the respondents



Source: Primary Data 2015

Table 4.3 and Figure 4.3 show the proportions of the different age brackets of the respondents. 6.7% of the respondents were in the bracket of 18-25 years, 66.6% of respondents fall within the 26-35 year bracket, 20% of respondents are captured within the bracket of 36-45 years and only 6.7% respondent is above 45 years. Majority of respondents are between 26 and 45 years of age because at that stage in life, one would have gained the required competence to work in the company while at the same time remaining within the

most productive age brackets. Those under 25 years of age are few because most people in that bracket are still students and those over 45 years are not as productive as the youngsters.

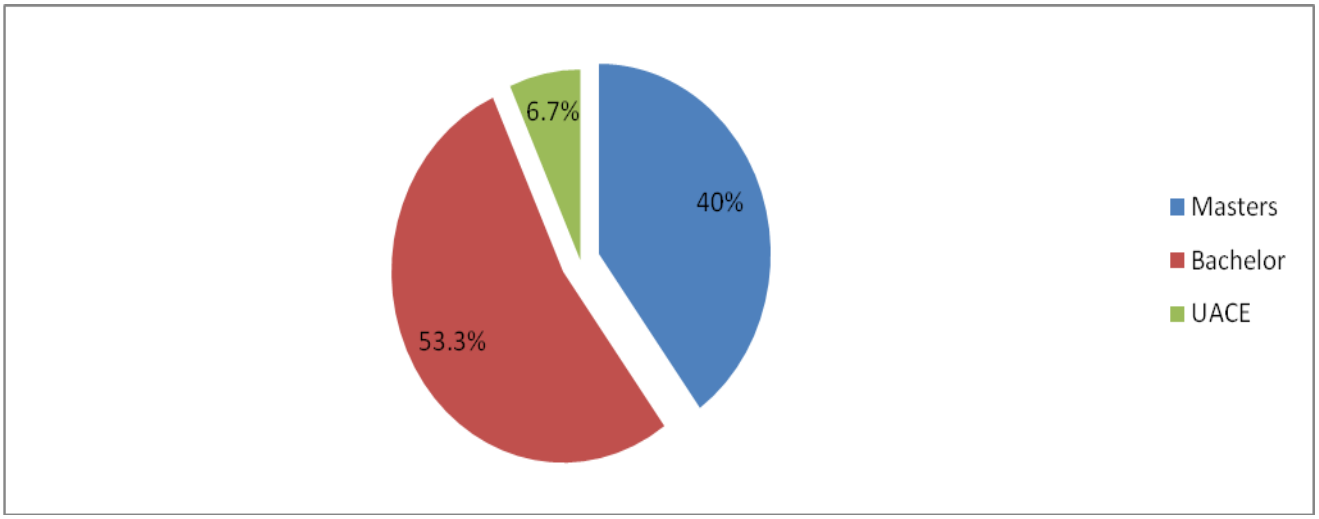
4.1.4 Highest level of education attained

Table 4.4 showing highest level of education attained by the respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Masters	6	40.0	40.0	40.0
	Bachelor	8	53.3	53.3	93.3
	UACE	1	6.7	6.7	100.0
	Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.4 showing highest level of education attained by the respondents



Source: Primary Data 2015

Table 4.4 and Figure 4.4 show the highest education level of the respondents. 40% of the respondents had a Master's degree, 53.3% of them had a Bachelor's degree and 6.7% had an A level certificate. This can be attributed to the fact that the organisation required well

educated staff in order to operate smoothly since work is highly specialised. A number of staff also had professional qualifications such as CPA, ACCA and CFA.

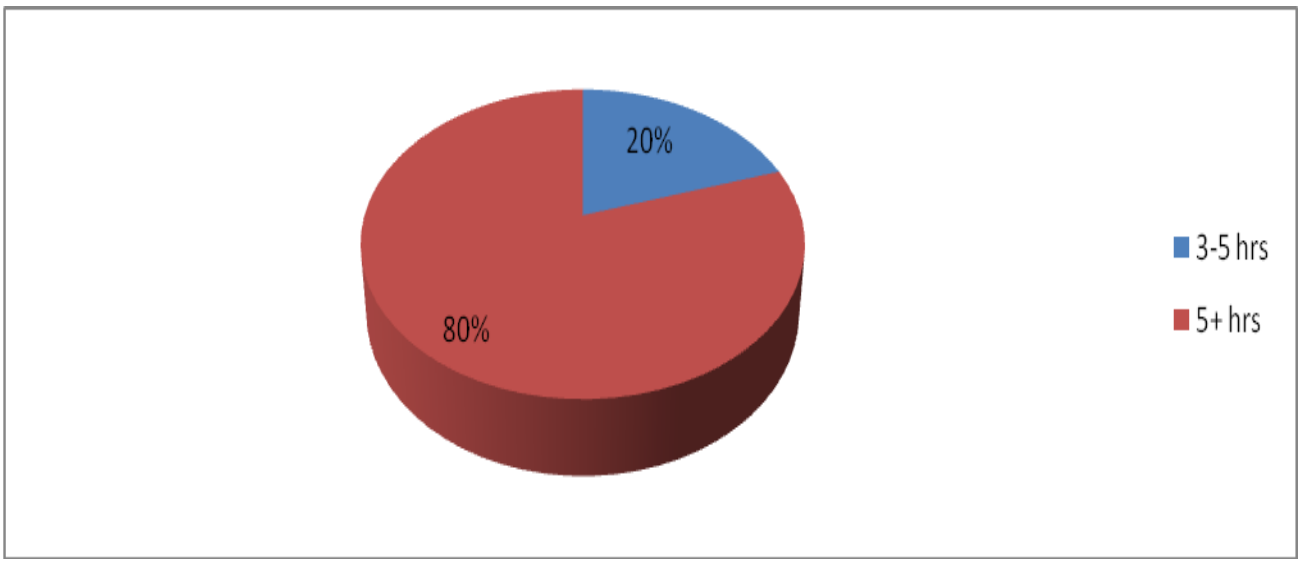
4.1.5 Hours of daily computer use

Table 4.5 showing hours of daily computer use

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3-5 hrs	3	20.0	20.0	20.0
	5+ hrs	12	80.0	80.0	100.0
	Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.5 showing hours of daily computer use



Source: Primary Data 2015

When asked for how long each individual use a computer daily, 20% of respondents spent 3 to 5 hours. The other 80% of respondents spent 5 or more hours using a computer per day. This is because the company requires outputs like reports, forecasts and projections that make it essential to use computers for most of the working day.

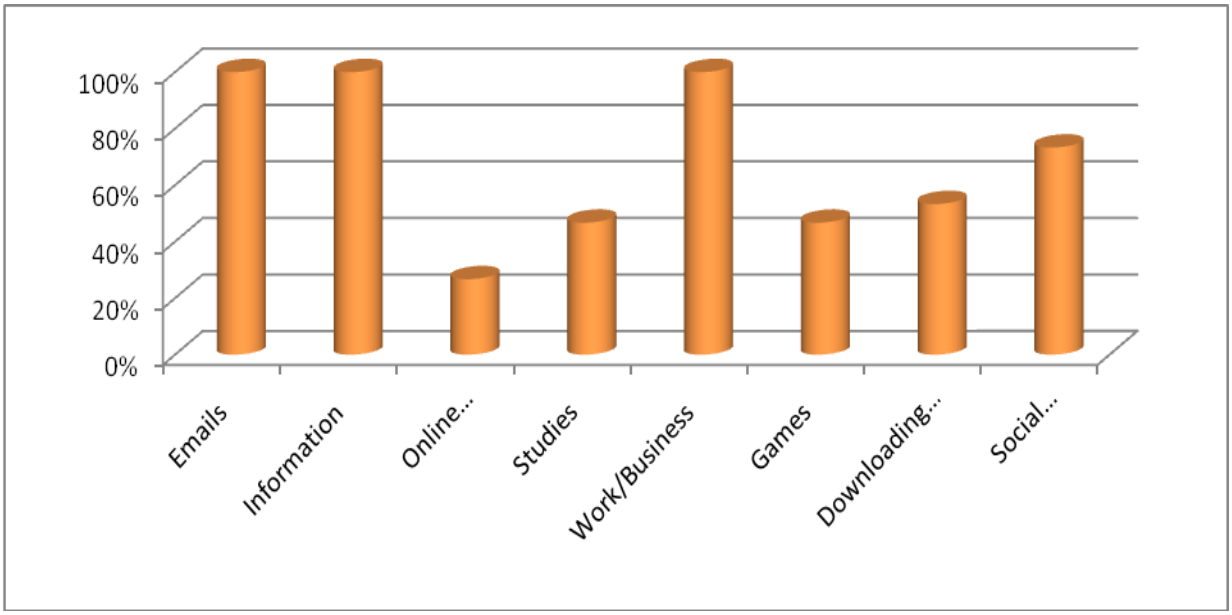
4.1.6 Activities the internet is used for

Table 4.6 showing the activities respondents carry out using the internet

ACTIVITY	FREQUENCY	PERCENTAGE
Emails	15	100%
Information	15	100%
Online Shopping/Auctions	4	26.70%
Studies	7	46.70%
Work/Business	15	100%
Games	7	46.70%
Downloading Music/Films	8	53.30%
Social media/chatting/online communities	11	73.30%

Source: Primary Data 2015

Figure 4.6 showing the activities respondents carry out using the internet



Source: Primary Data 2015

The above table and graph show a breakdown of activities carried out on the internet by the respondents. All the respondents use the internet for emails, information and work/business.

26.7% of respondents use the internet for online shopping, 46.7% of respondents use it for studies, an equal number use it for games, 53.3% use it for download music and films, and 73.3% use it for social media. 100% of the respondents use the internet for emails, information and work/business because it is necessary for them to perform their employment duties. 26.7% of respondents use the internet for online shopping because it is not yet a well-developed area in Uganda and also because most respondents find the internet more relevant for work duties.

4.2. The Role of the Internet on Organisational Productivity

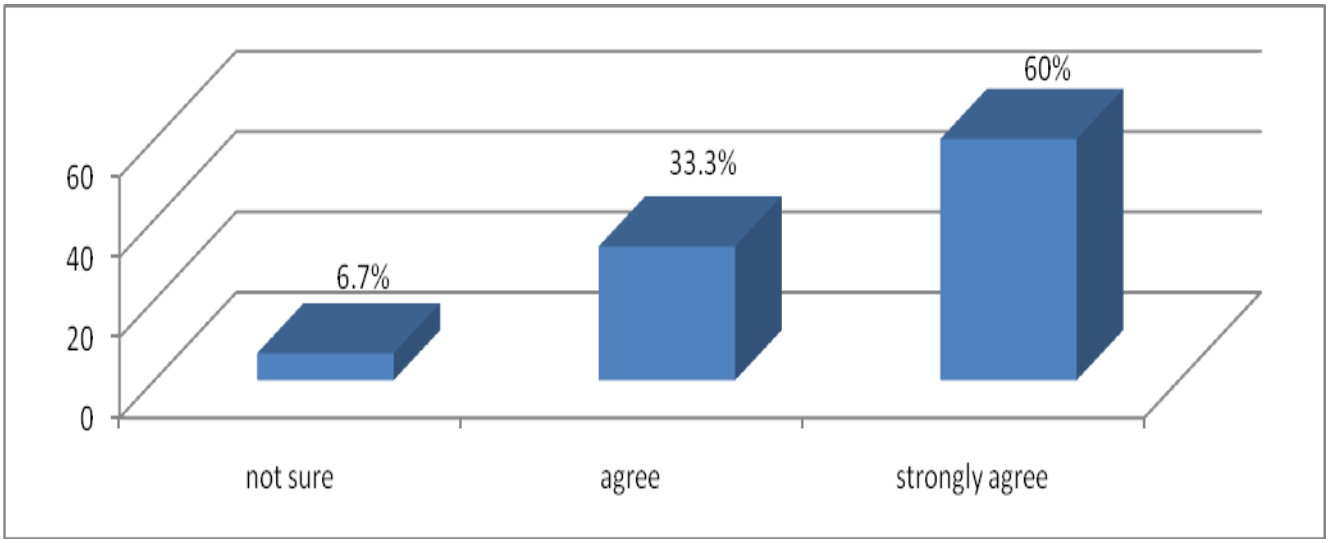
4.2.1 The internet is essential in helping to conduct research which is a core function of your business

Table 4.7 showing response regarding whether the internet is essential in helping to conduct research which is a core function of their business

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	-	-	-	-
disagree	-	-	-	-
not sure	1	6.7	6.7	6.7
agree	5	33.3	33.3	40.0
strongly agree	9	60.0	60.0	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.7 showing response regarding whether the internet is essential in helping to conduct research which is a core function of their business



Source: Primary Data 2015

The study revealed that 6.7% of respondents were not sure, 33.3% of them agreed and 9 strongly agreed. The respondents generally agree with the statement but the percentage that is not sure and those that simply agree can be attributed to some of the support employees that do not find research as vital to their work as the core staff who are more likely to strongly agree. The core employees basically carry out financial and economic analysis which requires current timely information especially when doing research.

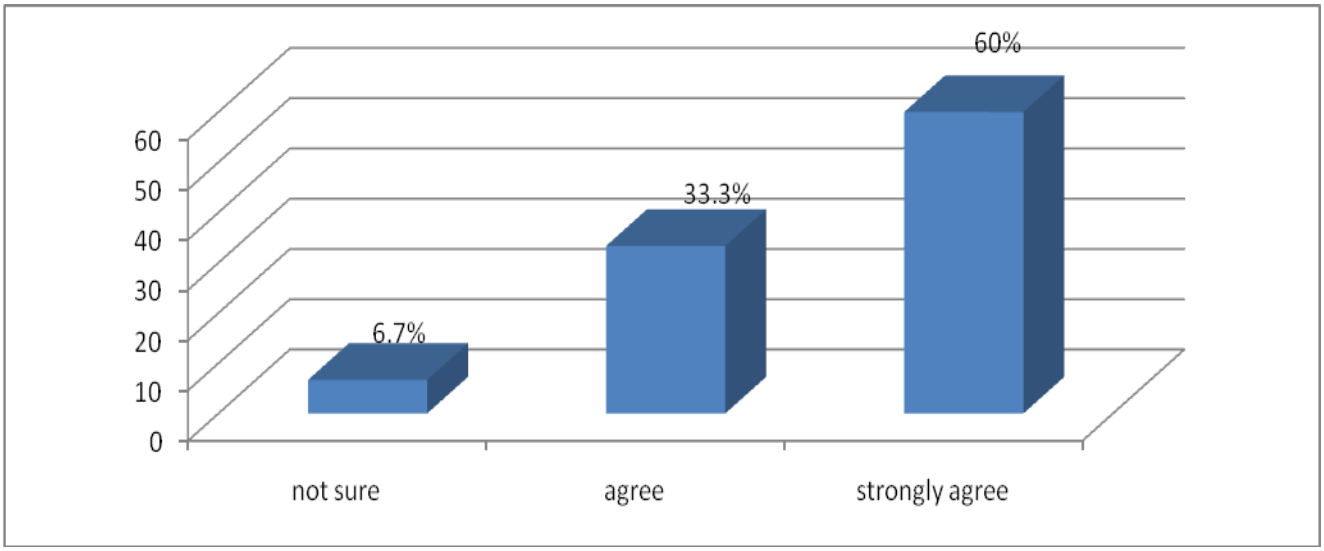
4.2.2 The internet is essential for easy communication

Table 4.8 showing the response regarding whether the internet is essential for easy communication

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	-	-	-	-
disagree	-	-	-	-
not sure	1	6.7	6.7	6.7
agree	5	33.3	33.3	40.0
strongly agree	9	60.0	60.0	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.8 showing the response regarding whether the internet is essential for easy communication



Source: Primary Data 2015

Regarding whether the internet is essential for easy communication, the study found that 6.7% of the respondents were not sure, 33.3% of them agreed and 60% of them strongly agreed. Again this pattern can be attributed to support employees who do not rely on the internet for business communications as heavily the core staff who are more likely to strongly agree. These employees require constant access to communication through a variety of media like emails, telephone conference calls, and video conferencing, among others.

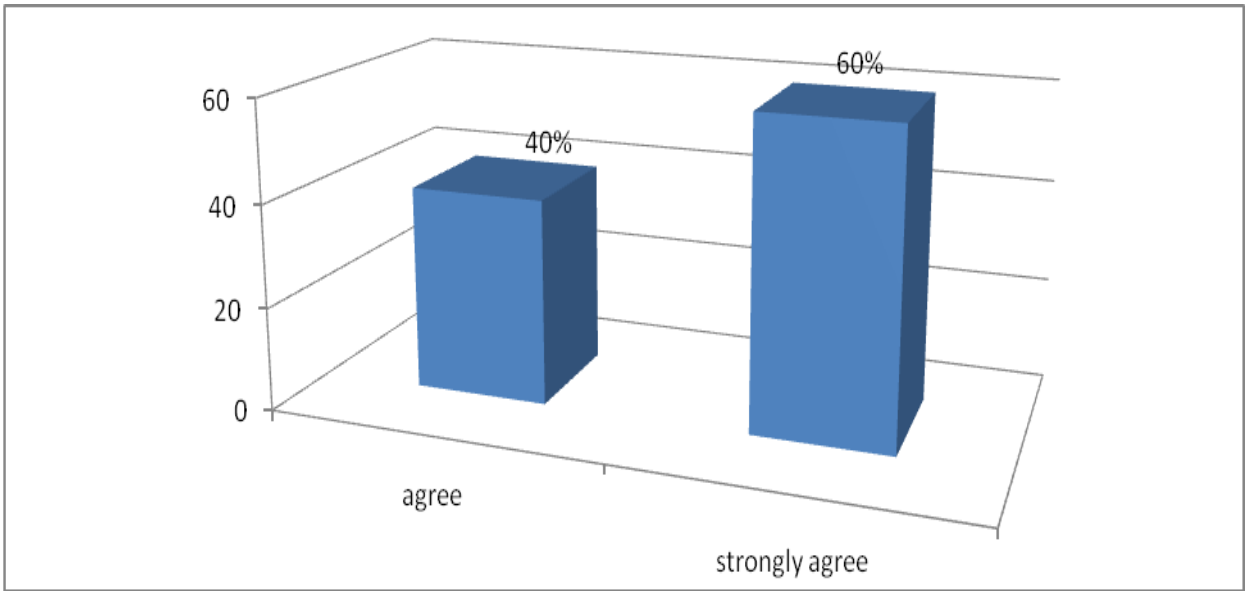
4.2.3 Unstable internet connectivity hampers your ability to perform your employment duties

Table 4.9 showing response regarding whether unstable internet connectivity hampers employees' ability to perform their employment duties

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly agree	-	-	-	-
disagree	-	-	-	-
not sure	-	-	-	-
agree	6	40.0	40.0	40.0
strongly agree	9	60.0	60.0	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.9 showing response regarding whether unstable internet connectivity hampers employees' ability to perform their employment duties



Source: Primary Data 2015

When asked if unstable internet connectivity hampers their ability to perform their employment duties, 40% of respondents agreed while the remaining 60% of respondents strongly agreed. This trend can be attributed to the fact that all employees, whether core or support staff, rely on the internet to some extent in order to do their work. Unstable internet connectivity therefore negatively impacts their ability to produce the required deliverables.

Therefore it is evident from the above results that the internet plays a positive role in organisational productivity. This deduction is in line with Nurmilaakso (2009) who states that the internet provides worldwide available and instant access to information, and it reduces the information processing and communication costs. The internet is therefore a vehicle for productivity.

4.3 The Role of Database Management on Organisational Productivity

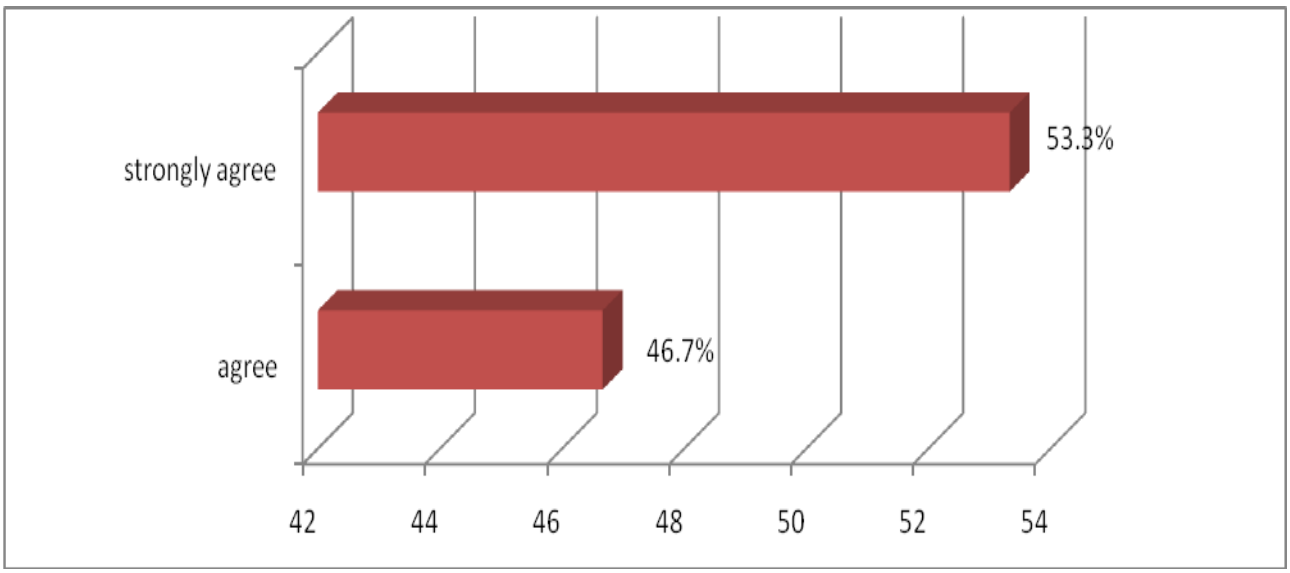
4.3.1 Database management enables you keep track of your clients, their particulars as well as their demands

Table 4.10 showing response regarding whether Database management enables employees keep track of the clients, their particulars as well as their demands

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	-	-	-	-
disagree	-	-	-	-
not sure	-	-	-	-
agree	7	46.7	46.7	46.7
strongly agree	8	53.3	53.3	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.10 showing response regarding whether Database management enables employees keep track of the clients, their particulars as well as their demands



Source: Primary Data 2015

With regard to the above question, the study brought to light the fact that 46.7% of respondents agreed whereas the other 53.3% strongly agreed. This means that all the respondents are supportive of the statement and therefore its accuracy in describing their situation. This is because database management allows employees to store all sorts of information about clients, retrieve it and update it at any time.

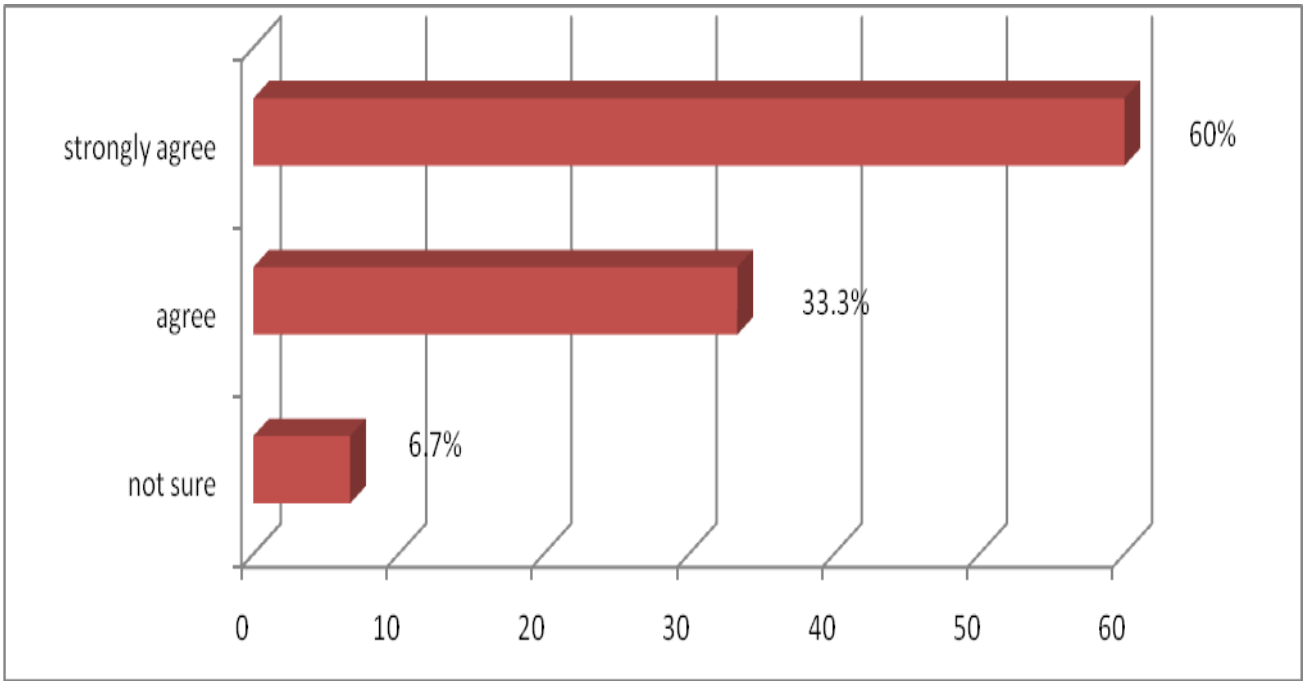
4.3.2 Database management is essential for following and comparing patterns in the market and economy that are likely to impact your business

Table 4.11 showing whether Database management is essential for following and comparing patterns in the market and economy that are likely to impact the business

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	-	-	-	-
disagree	-	-	-	-
not sure	1	6.7	6.7	6.7
Agree	5	33.3	33.3	40.0
strongly agree	9	60.0	60.0	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.11 showing whether Database management is essential for following and comparing patterns in the market and economy that are likely to impact the business



Source: Primary Data 2015

According to the study, 6.7% of respondents were not sure, 33.3% of them agreed and the remaining 60% strongly agreed with the statement that database management is essential for following and comparing patterns in the market and economy that are likely to impact your business. Generally, the respondents were in agreement with the statement. The results can be attributed to the fact that in the course of performing financial and economic analysis information such as macro-economic data, data from global economic developments as well as publically available information about firms is stored, retrieved and updated as and when needed.

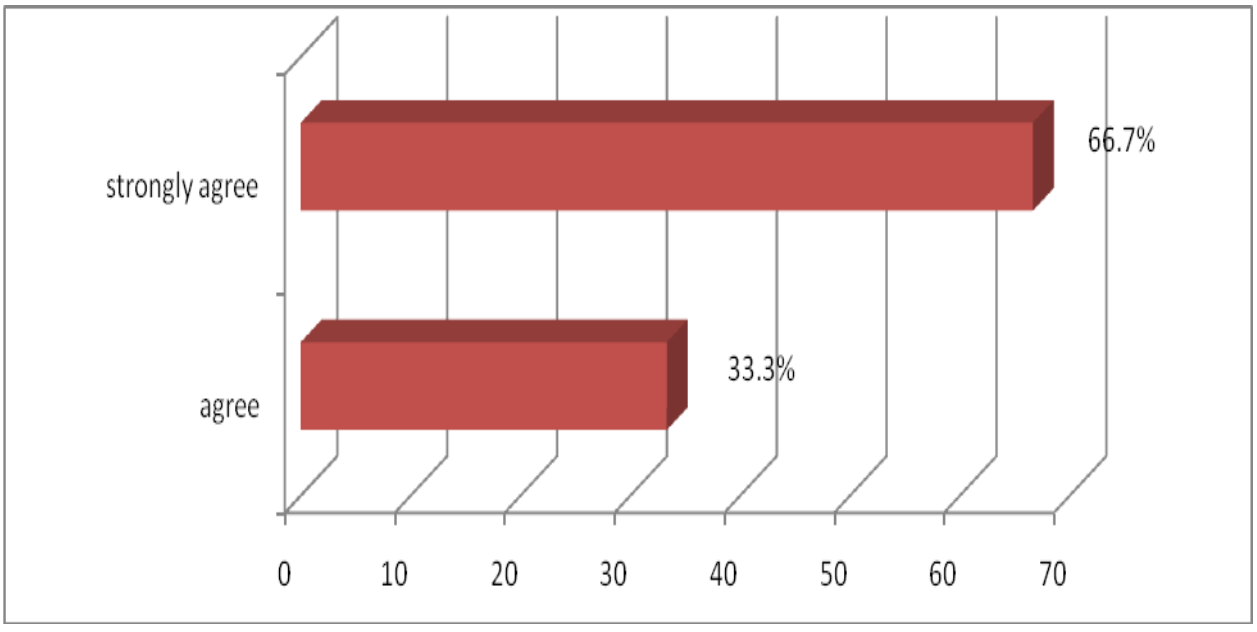
4.3.3 Database management helps you forecast future trends in terms of demands by clients as well as the behaviour of the market

Table 4.12 showing whether Database management helps staff forecast future trends in terms of demands by clients as well as the behaviour of the market

	Frequency	Percent	Valid Percent	Cumulative Percent
strongly disagree	-	-	-	-
disagree	-	-	-	-
not sure	-	-	-	-
agree	5	33.3	33.3	33.3
strongly agree	10	66.7	66.7	100.0
Total	15	100.0	100.0	

Source: Primary Data 2015

Figure 4.12 showing whether Database management helps staff forecast future trends in terms of demands by clients as well as the behaviour of the market



Source: Primary Data 2015

Concerning the above statement, 33.3% of respondents stated that they agreed while 66.7% of respondents strongly agreed. This indicates all the respondents find that the statement provides a correct and fair point of view. The fact that database management allows the firm to compile information about clients as well as other financial and economic data, patterns and forecasts can be generated basing on historical data.

Therefore it can be concluded from the above results that database management plays an important role in organisational productivity. The results concur with Ramakrishnan et al (2000) who state that it is important in data administration whereby it provides a common umbrella for a vast collection of data that is shared by several users. This function enables workers to keep track of clients, their particulars as well as their demands; to follow and compare patterns in the market and economy that are likely to impact the business; and finally it helps them forecast future trends in terms of demands by clients as well as the behaviour of the market.

4.4 Relationship between ICT and Productivity

Table 4.13 showing relationship between ICT and Productivity

		1	2	3	4	5	6
ICT leads to an increase in output	1						
ICT leads to an increase in efficiency	2	.455 .088					
ICT leads to an increase in work quality	3	.659** .008	.699** .004				
Level of output is increased by the use of ICT	4	.536* .039	.232 .405	.349 .202			
Efficiency is realised as a result of employing ICT	5	.564* .029	.375 .169	.564* .029	-.044 .876		
The ability to produce quality work is affected by ICT	6	.815** .000	.533* .041	.815** .000	.409 .130	.487 .066	

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Using Pearson's correlation coefficient, the researcher was able to come up with a statistical description of the relationship between ICT and organisational productivity. This relationship was derived from finding out the correlations between the different aspects of ICT and those of organisational productivity as organised in the questionnaire. The results were as follows:

There was a high positive Pearson's correlation coefficient ($r = 0.659^{**}$, $P > 0.01$) between whether ICT leads to an increase in work quality and whether ICT leads to an increase in output. As more and more output is produced with ICT, workers get to learn how best to use it more efficiently and effectively. It is through this process of learning and adjusting that employees are eventually able to improve the quality of the work they produce.

There was a high positive Pearson's correlation coefficient ($r = 0.699^{**}$, $P > 0.01$) between whether ICT leads to an increase in work quality and whether ICT leads to an increase in efficiency. Efficiency lies in the ability of workers to produce the required deliverables in such a way as to save time, effort and materials. The use of ICT enhances efficiency of workers. It is this efficiency that in turn contributes to enhancing the work quality since savings in time and effort allow workers to be able to pay greater attention to detail.

There was a high positive Pearson's correlation coefficient ($r = 0.815^{**}$, $P > 0.01$) between whether the ability to produce quality work is affected by ICT and whether ICT leads to an increase in output. ICT improves the workers' ability to enhance the nature of their work, hence the increased work quality. High quality of work in turn causes an increase in the demand for the services by the customer base of the organisation and this therefore requires an increase in output. The increase in output is of course facilitated by use of ICT to cope with the greater amount deliverables.

Finally, it was discovered in the study that there was a high positive Pearson's correlation coefficient ($r = 0.815^{**}$, $P > 0.01$) when comparison was made between whether ICT leads to

an increase in work quality and whether the ability to produce quality work is affected by ICT. This is because the use of ICT allows workers to augment the nature of their work for example using different software to produce models, forecasts, designs, charts, graphs, among others in addition to the usual word processing and spread sheets. ICT also proves to be useful in terms of new hardware such a tablet computers that allow employees to work on the move especially by facilitating communication via the internet to ensure users can always send and receive information instantly, wherever they may be.

4.5 Conclusion

The above data provides evidence that there is a positive correlation between ICT and organisational productivity, that is, ICT and organisational productivity have a proportional relationship. This conclusion is in agreement with Becchetti, Bedoya and Paganetto (2003) who state that ICT is actually has an association with improvements in productivity, both in terms of intermediate measures and in economic growth.

CHAPTER FIVE

RESEARCH SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

In this chapter the researcher presented a summary of the research findings, conclusion, and recommendations, in addition to suggested areas for future research studies. The summary of the research was in relation to the general study objective, which is to determine the role of information and communications technology (ICT) on organisational productivity. The case study of course is Genesis Kenya Investment Management Ltd and the research findings are presented according to the objectives.

Conclusions from the study findings were also reached by the researcher in addition to the researcher having offered recommendations on the use of ICT to increase organisational productivity. Finally the researcher suggested areas for future research studies.

5.1. Summary of the findings

5.1.1 The role of the internet on organisational productivity

When asked whether the internet is essential in helping to conduct research which is a core function of the business, the study revealed that 6.7% of respondents were not sure, 33.3% of them agreed and 9 strongly agreed. Regarding whether the internet is essential for easy communication, the study found that 6.7% of the respondents were not sure, 33.3% of them agreed and 60% of them strongly agreed. When asked if unstable internet connectivity hampers their ability to perform their employment duties, 40% of respondents agreed while the remaining 60% of respondents strongly agreed.

5.1.2 The Role of Database Management on Organisational Productivity

Regarding whether database management enables employees keep track of their clients, their particulars as well as their demands, the study brought to light the fact that 46.7% of respondents agreed whereas the other 53.3% strongly agreed. According to the study, 6.7% of respondents were not sure, 33.3% of them agreed and the remaining 60% strongly agreed when asked whether database management is essential for following and comparing patterns in the market and economy that are likely to impact your business. Concerning whether database management helps them forecast future trends in terms of demands by clients as well as the behaviour of the market, 33.3% of respondents stated that they agreed while 66.7% of respondents strongly agreed.

5.1.3 Relationship between ICT and Productivity

There was a high positive Pearson's correlation coefficient ($r = 0.659^{**}$, $P > 0.01$) between whether ICT leads to an increase in work quality and whether ICT leads to an increase in output. There was a high positive Pearson's correlation coefficient ($r = 0.699^{**}$, $P > 0.01$) between whether ICT leads to an increase in work quality and whether ICT leads to an increase in efficiency. There was a high positive Pearson's correlation coefficient ($r = 0.815^{**}$, $P > 0.01$) between whether the ability to produce quality work is affected by ICT and whether ICT leads to an increase in output. Finally, it was discovered in the study that there was a high positive Pearson's correlation coefficient ($r = 0.815^{**}$, $P > 0.01$) when comparison was made between whether ICT leads to an increase in work quality and whether the ability to produce quality work is affected by ICT.

5.2 Conclusions

5.2.1 The role of the internet on organisational productivity

The respondents generally agree that the internet is necessary for research and communication, in addition to unstable connections hampering effective performance of employment duties. These findings point in the direction of the internet playing a positive role in the productivity of an organisation.

5.2.2 The Role of Database Management on organisational productivity

The findings showed that the respondents were generally in agreement that database management is beneficial to them in a number of ways. These include the fact that it enables them keep track of clients, their particulars as well as their demands; it is essential for following and comparing patterns in the market and economy that are likely to impact the business; and finally it helps them forecast future trends in terms of demands by clients as well as the behaviour of the market.

5.2.3 The relationship between ICT and organisational productivity

The findings revealed that the respondents find that ICT has a positive contribution to the different aspects of productivity looked at in this study. These aspects of productivity include the level of output, efficiency and work quality. The respondents generally agree that these three components of productivity are increased or enhanced

According to the findings, the internet and database management have proved to be beneficial to employees in terms of productivity. The findings also point out the fact that ICT and productivity have a clear positive relationship. The researcher therefore concluded that ICT plays a positive role in organisational productivity.

5.3 Recommendations

The researcher made recommendations based on the findings of the study which happen to be in line with the study objectives. These recommendations are intended for the management of Genesis Kenya Investment Management Ltd and any other organisation that is able benefit from taking advantage of them. The recommendations include the following:

i. It is recommended that the company should ensure its ICT infrastructure is kept up to date. This implies that it should stay abreast of new developments in order to reap more benefits.
ii. The company should select software and hardware requirements based on the needs of the employees and the desired deliverables, after a process of careful evaluation.
iii. Management should also ensure that all employees are computer literate. Those that are found to be lacking the required proficiency should undergo basic training in ICT to improve their competence.

5.4 Areas for further studies

i. To assess the extent to which employee remuneration affects organisational productivity
ii. To find out the effect of high levels of education on the productivity of the national labour force
iii. To examine the role of firm productivity on GDP of a country

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APPENDICES

Appendix I: Research Questionnaire

(*To be filled in by staff of Genesis Kenya Investment Management Ltd)*

Dear Sir/ Madam,

I am Charles Aaron Omol, a student of Uganda Martyrs University pursuing Bachelor of Business Administration and Management. I am currently conducting a study on **THE ROLE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT) ON ORGANISATIONAL PRODUCTIVITY.** This study is entirely meant for academic purposes and any information provided will be treated with the highest level of confidentiality and professionalism. I therefore, humbly request you to spare some time and answer the following questions

This questionnaire has two parts 1 and 2. Please answer all questions appropriately.

PART 1 (Please tick the appropriate option)

1. Gender

   a) Male ☐ b) Female ☐

2. Marital status:

a) Single ☐ b) Married ☐ c) Widow(er) ☐ d) Divorced ☐

3. Age bracket

a) 18-25 ☐ b) 26-35 ☐ c) 36-45 ☐ d) 46 and above ☐

4. Highest level of education attained

a) UCE ☐ b) UACE ☐ c) Bachelors ☐ d) Masters ☐ e) PhD ☐

5. How often or how long do you use the computer per day?
   a) up to one hour ☐
   b) 1 - 3 hours ☐
   c) 3 - 5 hours ☐
   d) more than 5 hours ☐

6. What activities do you use the internet for?
   a) Emails ☐
   b) Information ☐
   c) Online Shopping / Auctions ☐
   d) Studies ☐
   e) Work / Business ☐
   f) Games ☐
   g) Downloading Music, Films ☐
   h) Social media/ Chatting / Online Communities ☐

PART 2 (Please tick in the box in the one of the options provided you think is the most appropriate)

1= STRONGLY DISAGREE 2= DISAGREE 3= NOT SURE4= AGREE 5= STRONGLY AGREE

	1	2	3	4	5
1) The role of the Internet on organisational productivity					
1. The internet is essential in helping to conduct research which is a core function of our business					
2. The internet is essential for easy communication					
3. Unstable internet connectivity hampers your ability to perform your employment duties					
2) The role of Database management on organisational productivity					
4. Database management enables you keep track of your clients, their particulars as well as their demands					
5. Database management is essential for following and comparing patterns in the market and economy that are likely to impact your business					

6. Database management helps you to forecast future trends in terms of demands by clients as well as the behaviour of the market					
3) Relationship between ICT & Productivity					
a) ICT					
7. ICT leads to an increase in output					
8. ICT leads to an increase in efficiency					
9. ICT leads to an increase in work quality					
b) Productivity					
10. Level of Output is increased by use of ICT					
11. Efficiency is realised as a result of employing ICT					
12. ICT use affects your ability to produce quality work					

Thank you for your co-operation

Appendix II: Cover Letter

Uganda Martyrs University

making a difference

Office of the Dean
Faculty of Business Administration and Management

Your ref.:
Our ref.:

Nkozi, 3rd March, 2015

To Whom it may Concern

Dear Sir/Madam,

Re: Assistance for Research:

Greetings and best wishes from Uganda Martyrs University.

This is to introduce to you_____who is a student of Uganda Martyrs University. As part of the requirements for the award of the Degree of Bachelor of Business Administration and Management of the University, the student is required to submit a dissertation which involves a field research on a selected case study such as a firm, governmental or non governmental organization, financial or other institutions.

The purpose of this letter is to request you permit and facilitate the student in this survey. Your support will be greatly appreciated.

Thank you in advance.

Yours Sincerely,

Moses Kibrai
Dean

UGANDA MARTYRS UNIVERSITY
OFFICE OF THE DEAN
03 MAR 2015
FACULTY OF BUSINESS ADMINISTRATION & MANAGEMENT
SIGN:.....

Uganda Martyrs University P.O. Box 5498 - Kampala - Uganda
Tel: (+256)038-410603 Fax: (+256) 038-410100 E-mail: bam@umu.ac.ug