AN EVALUATION OF FACTORS INFLUENCING VIDEO CONFERENCING TECHNOLOGY ADOPTION IN THE KENYAN BANKING SECTOR

BY

JOHN GATHAIRU MWAGANU

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Supervisor: Dr. J.M. Njihia

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Declaration

I do hereby declare that this research project as is my original work and has not been presented for any other university award.

Signed: _______________
Date: ____/_____/_______

John Gathairu Mwaganu

This Project has been submitted in partial fulfillment for the Master of Business Administration in Management Information Systems of the University of Nairobi with my approval as the University supervisor.

Signed: _______________
Date: ____/_____/_______

Dr J .M Njihia
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Abstract

The improvement in the quality of the video and audio equipments and high-speed broadband infrastructure has resulted in the growing usage of video conferencing systems. Videoconferencing can provide banks with automated teller machines capable of providing video interactive services such as mortgages and loans as well as provide customers with 24-hour access to all banking services, even in remote locations.
Questionnaires were directed towards senior managers, sections heads and ICT staff of 30 banks in Kenya. Descriptive analysis as well as factor analysis was employed for evaluation. Output of key factors include were ICT literacy, shareholders interests, alternatives to videoconferencing, infrastructure, top management support and training.

The advantages of videoconferencing way outweigh those of the alternatives such as faxes, telex, internet, and mobile phones. With the cost of infrastructure also coming down drastically therefore making the cost of implementation for this technology come down only makes investment in this technology worthwhile.
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CHAPTER ONE

1.0 Introduction

This study evaluates the potential of adopting videoconferencing technology in the Kenyan banking sector. According to (Gehris, 1998), Videoconferencing is a full-motion, two-way, video/audio system that permits two or more people in different locations to communicate with each other. It allows geographically disparate parties to see and hear one another across campus or around the globe usually through satellite or telephone communication systems (Fetterman, 1996).

Some applications of video conferencing technology include long distance education, where videoconferencing makes it possible for teachers to host classes for students located in many different locations. The lecture is delivered via the videoconferencing system, this greatly expands the number of students that the teachers can be able to reach, and expands the learning opportunities available for the students. It enhances long-distance medical consultation which is rapidly gaining popularity. Doctors are able to consult with patients without any geographical restrictions. This not only benefits the doctors by reducing their need to travel, it also helps the patients by providing them with access to top specialists.

The benefits gained by adopting videoconferencing technology in O’Rourke (2007) include reduction in travelling costs, increase in productivity since people are within their workstations, and provision of an intermediate step between a phone call and a face-to-face visit and involvement of multiple sites simultaneously. The primary objective is to protect their cost advantages and provision of a competitive edge (Roztocki & Weistroffer, 2004).

1.1 Videoconferencing in the banking sector

Videoconferencing technology has been implemented in the banking sector of developed countries particularly in America. The main reason for adopting the technology is to seek for the retention of existing customers and to have an increase in new customers. Videoconferencing technology can enable banks to expand their services while saving on costs. According to Rose (2006) the video-tellers are open after the branch closes, enabling the company to offer extended
day services and provide longer banking hours without keeping the whole branch open. Likewise, Norton (2006) explains that one bank, the Charlotte Company, the investment banking unit holds videoconferencing strategy session every morning. According to Wilson (2006) Cleveland Banking Company saves $200,000 a month in travel expenses by holding team meetings over video systems rather than in person.

Staff Training in banking sector is one of the key elements that determines the banks performance. As the banks experience growth, there is expansion in terms of the branch network and an increase of staff as well. Constant training is necessary so that the customers can be served efficiently and effectively. This therefore demonstrates a need to strike a balance between the expansion of the bank and the strength and competence of the staff.

There is need for constant staff training and many consultative meetings so that the bank may keep their standards as well as improve the customer’s experience in their service which is a key factor that customers look forward to when they are looking for a bank. This therefore presents a gap since most of the issues may come on an on-demand basis and it’s a challenge to the bank. For example the on demand-training where a new staff at a distance branch has to travel all the way for training at the head-quarters, on demand loan approval where a decision needs to be reached quickly on if a loan is to be approved or not and the only person to approve is out of office, probably travelled overseas for a company meeting. As such Videoconferencing would come in handy to resolve these issues and many more and this would greatly improve the effectiveness, efficiency and experience that customer’s are looking for. This will directly translate to retention of existing customers and attraction of new customers.

1.2 A Brief Background of the Banking Industry in Kenya

The banking industry in Kenya is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act and the various prudential guidelines issued by the Central Bank of Kenya (CBK). The banking sector was liberalized in 1995 and exchange controls lifted. The CBK, which falls under the Minister for Finance’s ambit, is responsible for formulating and implementing monetary policy and fostering the liquidity, solvency and proper functioning of the financial system. The CBK publishes information on Kenya’s commercial banks and non-banking financial institutions, interest rates and other publications and guidelines (Central Bank of Kenya, 2009:2)
The banks have come together under the Kenya Bankers Association (KBA), which serves as a lobby for the banks’ interests and also addresses issues affecting its members. There are forty-six banks and non-bank financial institutions, fifteen microfinance institutions, and forty-eight foreign exchange bureaus. Thirty-five of the banks, most of which are small to medium-sized, are locally owned. The industry is dominated by a few large banks, most of which are foreign-owned, though some are partially locally owned. Ten of the major banks are listed on the Nairobi Stock Exchange. The commercial banks and non-banking financial institutions offer corporate and retail banking services, but a small number, mainly comprising the larger banks, offer other services including investment banking.

The banking industry is facing a competitive environment among the many banks operating in Kenya, exemplary customer service is one of the distinguishing characteristics that banks can exploit to establish a competitive edge. Since most banks offer comparable products and services, they continually search for a competitive advantage that will attract new customers and help them retain existing ones. Banks therefore, must endeavor to develop innovative programs and initiatives to maintain superior customer service levels while remaining profitable (Mullei and Masai, 2006: 7).

Videoconferencing technology can be an effective tool that provides solutions to the problem in the banking industry and enhancing customer services. This would translate to better services that will lead to customer retention and attraction of new customers.

1.3 Problem Statement

According to Bills (2006) videoconferencing allows you to provide longer banking hours without keeping the whole bank open. Banks are also turning to videoconferencing technology to improve service and internal communication. Most of the initial uses are for meetings with employees in disparate sites but soon will be more widely used to communicate with customers. Videoconferencing technology an existing and old technology has not been widely adopted in the banking sector, and yet banks have gone to newer technologies that have brought a big revolution in the banking industry. Key issues in banks are speed, security, reliability, and ease of access. There has been success in achievement of the key issues due to the adoption of the newer
technologies but greater achievements can be realized by adoption of videoconferencing technology.

There is inadequate evidence of strategic investment in videoconferencing by local banking industry in Kenya. Automation has revolutionized and revitalized banking services. ATM, electronic money transfers and mobile-phone money transactions are some of the latest developments which have eased business for both the bankers and their esteemed clients spread all over the world. Banks are among key industries which make huge contributions in the country through offering financial services to individuals and corporate investors. Therefore this study seeks to answer the question, what factors and challenges influence the adoption of videoconferencing technology in Kenyan banks?

1.4 Research Objectives

1. To determine the factors that influence the adoption of videoconferencing technology in Kenyan banks.

2. To assess the level of awareness of videoconferencing technology.

3. To identify the alternatives that may be used in place of videoconferencing in the Kenyan banks.

4. To identify the challenges that affect videoconferencing adoption.

1.5 Justification of the study

The study would be of benefit to the following:

Policy Makers: Decision makers at various levels of management will gain value added information due to the video-conferencing implementation process as a key enabler of organizational performance.

Academics: Academics and business researchers will be able to borrow from the findings of this research to support literary citations as well as develop themes for further research. Specifically, the study hopes to make theoretical, practical and methodological contributions. The findings will contribute to professional extension of existing knowledge in video-
conferencing technology by helping to understand the current challenges for implementing strategy and their effects on service delivery in various organizations in general.

Business People: Business persons, for instance entrepreneurs can use the findings from this research to aid them in implementing this technology. The findings will also enable the business people to understand how video-conferencing technology contributes to a firm’s performance.

CHAPTER TWO: LITERATURE REVIEW

2.1 Videoconferencing Technology and applications

In this chapter we shall explore studies that have been carried out in regard to the Videoconferencing technology. Bridle (2005) categorizes videoconferencing into point-to-point where by only two locations are connected at any one time, and also multi-point videoconferencing where by more than two locations are connected simultaneously.

Likewise Honeyman (1997) highlights some of the requirements for good videoconferencing technology to be extreme central processing unit (CPU) and input/output performance demands. Further he states that the powerful features that must be available are ciphers, encryption of message as it’s transmitted over the internet, session keys, a unique code that is assigned for a given conversation, and also a good interface to ensure learning for end users is made easy.

Some of the hardware requirements for videoconferencing technology are a computer with fast processing speed and memory, the technology requires computers of high capacity since they are heavy applications and consumes a lot of computer resources. Main Camera, the video source is a single main camera that captures live movement occurring at one end so that it may be sent to the other end in near real-time. The quality of main camera is a big determinant of the quality of video to be relayed over the internet.

Video Display: A videoconferencing solution must include the ability to display the remote video that is being relayed and received. Audio components such as microphone and speakers; In cases where we are to lose the video or experience poor video quality in a
conference session but the audio remains intact, we are still able to accomplish many of our communication goals and objectives. Network connections, this may involve use of technology such as ISDN (Integrated services digital network) which is a set of communications standards for simultaneous digital transmissions of voice, video and data and other network services over the traditional circuits of the public switched telephone network.

Videoconferencing technology has been applied in several areas such as in education and distance learning. Greenberg (2004) sought to answer the following questions in regard to videoconferencing in education; is interactive videoconferencing as effective as the traditional classroom for delivering instruction? What are the unique capabilities the technology brings to the table for student interaction, and for collaboration among dispersed groups of students and educators. Some important conclusions according are; for delivering instruction, videoconferencing likely is neither more nor less effective than its counterpart, the “traditional” classroom, Interactivity is king; videoconferencing supports far greater interaction than is otherwise possible from many asynchronous technologies and effective videoconferencing-based instruction must be designed to take advantage of this capability (Greenberg, 2004).

Marshall McLuhan (1964) argued that videoconferencing has enabled realization of the global village we daily see the world becoming smaller and smaller and communication being easier and less expensive. As a result, videoconferencing is being applied in business where it enhances people to meet and work with others over a distance. This brings about several benefits such as reduction of travel cost, speeding up in the decision making process and creation of a new medium for facilitation of interviews.

Telecommuting / home office is another application area where videoconferencing saves on resources by allowing staff to work out of homes. This as well reduces travel expenses. Others apply it in a legal environment where testifying witnesses will ‘appear’ in court without having to travel to court rooms. This offers significant cost savings and improved security since it reduces the need for high-security prisoner transport. Others apply it in telemedicine where a patient in a remote location can easily meet-up with any specialist in the world.

Adolph (2007) concluded that, the implications for developing countries like Kenya in the success of videoconferencing technology in general is tightly linked to the deployment of Next Generation Networks (NGN) infrastructure and the higher bandwidth required for high
performance services. Applications in education, medicine and business promise great benefits for developing countries, but depend on the availability and reliability of more powerful networks.

2.2 Videoconference Technology evaluation.

There have been many people who have championed the use of videoconferencing. Connolly (2009) an advocate of videoconferencing and web conferencing predicted the death of face to face meetings. Likewise the Boston Consulting Group and the Climate Group estimated that IT-optimized workplaces in the U.S. (which includes "smart buildings," substituting virtual meetings for business travel, and allowing employees to work remotely) could eliminate nearly 500 million metric tons of greenhouse gas emissions a year and save up to $170 billion. Globally, the World Wildlife Fund estimates that by the year 2030, telecommuting and virtual meetings could cut nearly 1 billion tons of emissions annually.

According to Sewiy (2007), the majority of businesses that will invest in video conferencing technology experience cost savings. The more it is used the faster the break-even point will be achieved. Therefore its vital owners and managers encourage and champion its usefulness to ensure early acceptance of the technology. The effective use of the technology is to complement other business tools not to be used instead of them. For example, there will always be a place for face-to-face meetings or use of the telephone. However, it is the extent to which these other business tools are used relative to video conferencing that will determine pay-back time. Likewise according to Wainhouse research, the main factors driving the adoption of videoconference and telepresence are: Economic Pressures, the increasing need of efficiency, cutting costs, and communication with customers, partners and suppliers around the world. Globalization, not only are enterprises today managing trade across borders and outsourcing certain business functions, they also have dispersed management teams and skill sets, which lead to increased challenges for corporate culture and communication. With business flowing in all directions, enterprises have become globally integrated, stateless multinationals.

Business Continuity is also another factor of concern, with threats such as global contagion, energy crises, and terrorism are on the rise, and business needs to be sure it can maintain operations. Better Equipment, technological advances in the industry have led to a
better user experience with CD quality audio and HD quality video, as well as increased collaboration with dual streams, integration, and bridges and gatekeepers. Meanwhile prices have remained relatively flat and users benefit from a better price per performance.

Unified Communications, integration between large unified communications players and video has driven awareness of conferencing and collaboration. Climate Change, social pressures and corporate responsibility policies are driving the need to reduce travel to lower carbon emissions. As government mandates and rewards for travel reduction grow, organizations will increasingly turn to video conferencing.

Gorman (2007) argued that videoconferencing can vastly improve the productivity of your business. Money is saved when people don't need to travel, but also an enormous amount of time is saved. By the time someone drives to the airport, goes through security, waits for their flight, picks up their baggage at the other end, drives to a hotel etc, half a day or more of productive time is lost. With videoconferencing, as soon as the meeting is over you can go back into your office and get on with your work, not spend another half a day traveling.

However, as good as a technology might be, not all people would champion for its adoption due to one reason or another. Gorman (2007) indicated that the price may be the biggest drawback for some people, though there are very cheap options if you do not require the more advanced features. Usually, a business that makes good use of the more advanced features often finds that the money they save flying clients or employees around the country or world more than makes up for the cost of the service provider. As fuel becomes more of an issue around the world, the price becomes less of a disadvantage and more of an advantage. In agreement with this, Roensch (2008) stated that many organizations have to allocate a staff to run a video conference network without considering the needs of each remote site. Videoconferencing requires at least two locations, each with its full system of, network, conference or meeting room and operating instructions. Each location, therefore, normally should have a skilled operator of video systems to assist users in getting a conference started and keeping it running. Few organizations are willing to expend the funds to ensure each endpoint is staffed with a skilled technician and so this skill deficit can cause conference failures in some locations.
In conclusion, even though there are challenges in videoconferencing technology, the benefits appear to outweigh the challenges and this needs to given some more considerations by researcher’s than it is currently being given.

2.3 Perspectives on Videoconferencing in business

Davis (2005) discussed the success of business being driven largely by the quality of decision making and the skill at which team’s can execute those decisions. Both decision making and decision execution are dependent on the quality of communications. (In most business situations, fast execution will trump lengthy strategic planning every time). Better communications leads to better decisions and better results implementing those decisions. Taking off where the telephone and email have left off, the rich media conferencing and collaboration are the next-generation tools for improving enterprise communication capabilities. Jessie (2006) stated that the enterprises that fail to use modern communications technologies such as videoconferencing, which do not leverage the knowledge base of workers, and limit the potential for collaboration, run the very real risk of falling behind their competition.

Today’s electronic meeting tools, and videoconferencing in particular, give people the choice to NOT be there, yet to remain in touch and productive while balancing the work vs. lifestyle equation. In the not-too-distant future, we expect videoconferencing to be the foundation for new ways of reaching customers, creating the ability to connect and sell anywhere, anytime. Fidel (2008) further states that Conferencing and collaboration solutions have finally joined the ranks of the telephone and email as core business tools that global enterprises need to compete in today’s global marketplace.

Abbey (2000) indicated that videoconferencing can be used for employee training, group work or to introduce a new product, service or procedure. Corporate meetings are probably the most traditional and commonly thought of use for video conferencing. In addition Roztocki & Weistroffer (2004) concluded that videoconferencing greatly enhances a business ability to sell products, train employees, coordinate workgroups, provide technical support and customer service, and conduct corporate meetings. But more so many firms in emerging economies invest in information technology primarily with the objective of protecting their cost advantages.
A new advance in communication technologies has already begun to have an impact on education at schools, colleges, and universities. Where experts are dispersed around the globe, and most university teaching budgets limit such invitations to those opportunities and occasioned by the expert's coincidental proximity to the institution. But despite these geographic and financial obstacles, this is made possible by use of videoconferencing technology, O'Sullivan (2000),

2.4 Technology in the banking sector

Bills (2006) stated that videoconferencing technology can improve service and internal communication. Even though systems to deliver real-time video streams have been available for years, quality issues and pricing has kept it on the list of technologies not quite ready for real-world projects. But with better equipment and the growing availability of broadband Internet services, a handful of banks have decided to set up the videoconferencing systems.

Most of the initial uses are for meetings of employees in disparate sites, but at least one company has a video remote-teller system, and executives predict that videoconferencing will soon be more widely used to communicate with customers. Likewise the President of the Sovereign Bancorp Inc. of Philadelphia indicated that they installed two video-teller stations at its Harvard Square branch in Cambridge Mass. The two-way screens in the branch’s automated teller machine vestibule enable customers to do transactions with live tellers in the basement, using pneumatic tubes to deliver cash, deposit slips, and other documents. The video tellers are open after the branch closes, enabling the company to offer extended-day services, much like other branches offer at drive-through windows, allowing them to provide longer banking hours without keeping the whole branch open. She also said that you can do a lot at an ATM, but you can do more with a video teller.

Bank of America Corp., for instance, has 400 video-conferencing systems that assist in day to day operations, Bright (2006). Likewise Shirley Norton (2006), a spokeswoman for the Charlotte Company, stated that the investment banking unit, holds a videoconference strategy session every morning and further to that Wilson (2007), a spokeswoman for the Cleveland banking company, indicated that it saves $200,000 a month in travel expense by holding team meetings over the video systems rather than in person. Vineyard National Bancorp of Rancho Cucamonga, California has Internet video equipment at all of its eleven full-service branches and
three loan production offices, this is according to Dieter (2003), a senior vice president and the chief information officer at Vineyard.

2.5 Benefits of videoconferencing technology

Weinstein (2005) divide the benefits into two categories, namely hard and soft benefits. These are discussed in separate sections below.

2.5.1 Soft Benefits

These benefits are difficult and sometimes impossible to quantify with precision. They include:

Faster Decision Making and Shorter Time to Market: The team-oriented structure of modern organizations means that many decisions require insight and approval from many different sources. Electronic meeting tools enable dispersed teams to collaborate easily, solving problems and speeding coordination.

Productivity / Efficiency Videoconferencing and visual collaboration tools are moving away from the scheduled environment of the departmental conference room to the ad-hoc, unscheduled work style of the desktop.

Higher Impact and Focus Videoconferencing can help an organization inject higher impact into their meetings and conference calls, especially when compared to an audio-only meeting. Higher impact during meetings translates into shorter, more effective meetings with minimal workflow disruption.

Competitive Advantage For example, a firm that recruits by videoconference rather than flying recruiters or candidates around the country can interview more people, from more locations, in less time, and with less cost and disruption to executive schedules, thereby making better hiring decisions. Using advanced collaboration tools enables companies to better support remote workers and build better dispersed teams, thereby giving more employees more choices on where they want to work.
Enhanced Quality of Life / Decreased Stress Today’s business executive returns from a business trip to be greeted by mountains of e-mail, piles of faxes, and long queues of voice mail. As a viable alternative to business travel, videoconferencing can reduce employee stress and enhance their quality of life. Travel avoidance also allows the employee to steer clear of the security-related delays associated with air travel today.

Increased Reach. Some businesses simply require a personal touch between company and client. Videoconferencing allows organizations to expand their global reach without having to overburden their employees with excessive business travel. Typical examples include legal and distance education where subject matter experts use two-way video solutions to interface closely with remote participants and colleagues.

2.5.2 Hard Benefits

Weinstein (2005) stated that the hard benefits are those for which both the costs and the benefits are clearly understood and easily quantifiable. The most obvious hard benefit from conferencing and collaboration solutions is travel reduction, eliminating costs associated with airfare, hotels, meals, taxis and car service, etc. Therefore, realizing travel cost savings has been the traditional way to justify videoconferencing. This approach resonated with many CFOs (chief financial officer) and program managers because the mathematics allowed an organization to generate a hard savings figure and a very specific ROI (return on investment) for videoconferencing.

“When executives understand the real costs associated with a 1½ day trip to attend a 1½ hour meeting, they will appreciate how today audio-video-web conferencing solutions can help them save money, reduce wear and tear and stress in their business and personal lives, and boost personal productivity. Multiply this benefit by the number of executives traveling to a meeting, and the total hard and soft savings can be very significant”, Robinson (2007).

2.6 Conclusion

Today’s electronic meeting tools, and videoconferencing in particular, give people the choice to NOT be there, yet to remain in touch and productive while balancing the work vs.
lifestyle equation. In the not-too-distant future, we expect videoconferencing to be the foundation for new ways of reaching customers, creating the ability to connect and sell anywhere, anytime.

Weinstein (2005) argued that conferencing and collaboration solutions have finally joined the ranks of the telephone and email as core business tools that global enterprises need to compete with in today’s global marketplace.

Even though there are challenges in videoconferencing technology, the benefits appear to outweigh the challenges and therefore providing a need for the technology to be given a serious consideration by researchers than it is currently being given.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter will discuss the research design, methodology applied, target population, sampling procedure, data collection and data analysis technique was used. The discussion in this chapter will also include study limitations and ethical issues related to the study at hand.

3.2 Research design

Kothari (2004: 31) defines research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure. The research design adopted is quantitative research through a
descriptive survey in Kenyan banking sector. A survey can lead to generalizable results and this is more appropriate for the research question.

3.3 Population and sampling


Sampling is the process of selecting a number of cases or elements for a study in such a way that the individuals selected represent the large group from which they were selected. Snowball sampling was employed in this study since most of the managers were too busy while others were inaccessible. Samples were drawn from senior managers, section heads and ICT staff in about 30 banks.

According to Hulley & Steven (1998), sample size would be calculated as

\[ s = \frac{(P-c)^2}{Z} \]

Where:

- \( Z \) = Z value (e.g. 1.96 for 95% confidence level)
- \( p \) = percentage picking a choice, expressed as decimal
  (.5 used for sample size needed)
- \( c \) = confidence interval, expressed as decimal
  (e.g., .04 = ±15)

\[ P=45 \text{ banks} \times 3 \text{ staff each} = 135 \text{ therefore } p=135 \]

\[ \text{Sample size} = \frac{(145-15)}{1.96^2} \]

\[ \text{Sample size}= 31: \text{These are the number of managers, sections and ICT staff who will be included in the survey.} \]
3.5 Data collection

The study utilized the questionnaire method as the research instrument; therefore data is primarily collected by use of questionnaires. The questionnaire will be used because it is widely used in case studies and evaluations with descriptive or exploratory purposes (MANCOSA, 2009: 93)

Questionnaires are commonly used to obtain information about the population. Construction of the questionnaire relies on the researcher’s inside information and studies done on service delivery in banking sector. It also incorporates various research studies videoconferencing and its impact on customer service delivery.

The questionnaire was constructed by defining a list of questions and arranging them into several sections. Section A constituted demographic data, Section B awareness, Section C skills, Section D attitude, Section E business impact, Section F challenges and Section G alternatives to videoconferencing systems.

3.6 Data analysis technique

After data collection, all responses were coded, processed and analyzed in accordance with the objectives of the study. Data analysis was conducted using factor analysis method to search for patterns of relationships that exist among data groups for objective 1, descriptive analysis for objective 2 and both factor analysis and descriptive for objective 3. According to Darlington (2006), factor analysis aims to discover simple patterns in the pattern of relationships among the variables. In particular, it seeks to discover if the observed variables can be explained largely or entirely in terms of a much smaller number of variables called factors.
CHAPTER FOUR: DATA ANALYSIS, FINDINGS, AND DISCUSSIONS

4.1 Data analysis

This is an analysis of the questionnaires that we distributed in the various banks in Kenya. Questionnaires were hand-delivered while others were sent via email. Most of the respondent’s hand-wrote the answers while others typed and sent bank the questionnaires.

After data collections, the data was first cleaned to make sure that data are correct, make sure that missing values (e.g. not answered questions in a survey) are clearly identified as missing data. The next step was to gain knowledge of the data, making lists of data and produce
descriptive statistics, e.g. means, minima, maxima for each variable and produce graphics, e.g. pie charts that show the distribution.

Next was to calculate coefficients that measure the strength and the structure of a relations using Pearson’s R for interval data, calculate coefficients that describe the percentage of variance explained. The final step is to interpret the results from the analyzed data.

4.2 Findings

*Figure 1* below indicates level of education of the respondents, postgraduate at 39%, undergraduate level at 55% and the remaining 4% at a diploma level. Given that the majority has a minimum of undergraduate degree level; it can thus be assumed that the decision makers at this level are well knowledgeable on the implications of such a technology.

![Figure 1: Respondents by level of education](image)

*Figure 2* below shows the different designation levels of the respondents. 48% being section heads, 26% being Managers and the remaining 26% from ICT staff. This therefore implies that the decision to implement will mostly be from a management point of view and this therefore demands lobbying for support from the others for it to succeed.
Figure 3 below shows the banks representativeness within the region. 61.3% being that the banks are in every province. This therefore would imply that banks with a wider spread would be more in need of the technology than others because of the challenges that they have and what the technology has to offer to them.

**Figure 2: Designation of respondents**

**Figure 3: Banks spread**

4.2.1 Objective: Assessment of awareness of videoconferencing

94% of the respondents understand the meaning of the term videoconferencing and further understand its purpose and moreover 48% of the respondents are aware of banks that use videoconferencing but only for top management meetings. Given that there is high level of awareness, it would require lobbying for support and demonstration of the benefits to gain by all parties to implement the technology.

77% of the respondents felt that it’s time the banking sector tried out videoconferencing technology not only for top management meetings but also on other uses such as training, video-
teller’s etc. Emails and telephones are currently being used for communication and collaboration within and without the banking sector.

75% of the respondents felt that the banking staff have a positive attitude towards the adoption of videoconferencing systems and in connection to this 80% of the felt that there will be acceptance of videoconferencing systems but only if awareness is created. With a positive attitude it would be easier to deploy the systems since the users are being co-operative. The high level of awareness has made it easier for users to have a positive attitude since they know the benefits.

44% would generally resist the technology adoption since the introduction of the videoconferencing system would eliminate some benefits such as travelling allowances, the prestige of travelling to abroad among others.

![Figure 4: attitude towards adoption](image)

4.2.2 Objective: Alternatives to videoconferencing

About 80% of the respondent felt that landline telephone services, faxes, telex services and mobile banking services can’t be a replacement for videoconferencing technology whereas 95% of the respondent felt that internet services can be used in-place of videoconferencing systems since it can enhance robust means of collaboration and communication. There are many applications that do offer video calls such as Skype, Google talk etc. As such for meetings, this would suffice but unfortunately for a wider group this wouldn’t suffice. It would also be difficult to do video teller with this therefore not achieving all the benefits that a videoconferencing system would.
93% of the respondents felt there will be improvement in quality and throughput of work due to presence of professional consultants, less time spent on organizing for a videoconferencing meeting compared to a physical meetings, reduced travelling time giving the staff more time to work, and also faster decision making, however others felt it will only provide more convenience but not the quality of work.

71% of the respondents felt that adaptation of videoconferencing systems will boost the level of customer service and loyalty compared to those who were neutral at 6.5%, strongly agree at 19.4% and those who disagreed at 3.2%. This therefore would mean that the alternatives cannot be a replacement of the technology.

![Figure 5: boost of level of confidence and loyalty by technology](image)

### 4.2.3 Objective: Challenges hindering implementation of videoconferencing systems

58% indicated that the banking staffs have the necessary skills to run an efficient videoconferencing session within the bank, whereas 42% think they do not have the necessary skills.

![Figure 1: Skills to run a videoconference system](image)
In respect to the lack of the necessary skills to run videoconferencing systems 98% of the banks do have plans to improve the ICT skills of its staff. Training will enhance the users to use the systems optimally plus have a broader understanding of the benefits of ICT systems. This would eliminate both the resistance to adoption and challenges in terms of the usage of the technology.

The high cost of equipments is a major challenge towards implementation of videoconferencing systems as 80% of the respondents suggested. This is as well made difficult if the technology benefits are not well understood by the stakeholders who would then be a hindrance towards technology adoption.

Lack of funds as a challenge towards adoption of the technology took 51% of the share. 48% as lack of goodwill from top management can also be a hindering factor. Management being the decision makers needs to thoroughly understand the cost-benefit analysis of this technology so that they can facilitate the availability of funds. They could even raise money using such means as initial public offer (IPO).

74% felt that poor electronic networks and infrastructure connectivity is a major challenge. Kenya being a developing country the cost of internet connectivity plus other infrastructures is still high and thus raising costs of setting up such systems. But with the arrival of the under-sea fiber optic cable the cost of interconnectivity is expected to go down with time.

4.2.3 Objective: Factors that influence videoconferencing adoption

According to DeCoste (1998), factor analysis is a collection of methods used to examine how underlying constructs influence the responses on a number of measured variables. There are basically two types of factor analysis: exploratory and confirmatory.

Exploratory factor analysis (EFA) attempts to discover the nature of the constructs from a set of responses while confirmatory factor analysis (CFA) tests whether a specified set of
constructs is influencing responses in a predicted way. For this study type of study exploratory factor analysis was used.

Rotation is a method used to simplify interpretation of a factor analysis. Extraction method used is Principal Component Analysis while the rotation method is Varimax with Kaiser Normalization. When trying to interpret the first factor, we can see that all variables that influence adoption in one way or another (value greater than .4) are highly correlated with this factor.

<table>
<thead>
<tr>
<th>Rotated Component Matrix</th>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>Cost of equipments</td>
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<td>Use mobile banking as an</td>
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<td>.039</td>
<td>-.026</td>
<td>-.018</td>
<td>.040</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
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<td>Retrenchment of illiterate staff</td>
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<td>.012</td>
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<td>Use faxes and telex as an</td>
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<td></td>
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<td>-.074</td>
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<td>Lack of funds</td>
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<td>.076</td>
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<td>Hire expensive consultants</td>
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<td>.071</td>
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<tr>
<td>Implementation in manageable</td>
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<td></td>
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<td>Staff ICT training</td>
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<td>.564</td>
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<td>Poor networks and infrastructure</td>
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<td>.561</td>
<td>.115</td>
<td>.033</td>
<td>-.116</td>
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<tr>
<td>Alteranatives meeting all business aspects</td>
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<td>.215</td>
<td>.076</td>
<td>.129</td>
<td>.763</td>
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<td>Coerce stakeholders to embrace technology</td>
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<td>-.149</td>
<td>-.087</td>
<td>.174</td>
<td>.640</td>
<td>.407</td>
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<td>low level of staff ICT literacy</td>
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<td>-.016</td>
<td>-.125</td>
<td>-.036</td>
<td>-.065</td>
<td>.916</td>
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<tr>
<td>Lack of goodwill from top management</td>
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<td>.003</td>
<td>-.022</td>
<td>-.139</td>
<td>-.036</td>
<td>.058</td>
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</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 10 iterations.

<table>
<thead>
<tr>
<th>Component Transformation Matrix</th>
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<tbody>
<tr>
<td>Compo</td>
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</table>

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

The following factors are as a result of the analyzed variables using Statistical Package for the Social Sciences (SPSS).
Factor 1
- Use of mobile banking as an alternative.
- Retrenchment of illiterate staff.
- Use of faxes and telex as an alternative.
- Resistance by staff.

Factor 2
- Resistance from customers and shareholders
- Cost of equipments
- Lack of funds

Factor 3
- Use of mobile phones as an alternative.
- Use of landlines as an alternative.

Factor 4
- Implementation in manageable phases
- Staff ICT training
- Poor networks and infrastructure

Factor 5
- Use of mobile phones as an alternative.
- Use of internet as an alternative.
- Alternatives meeting all business aspects.

Factor 6
- Lobbying for support from top management.
- Coerce stakeholders to embrace the technology.

Factor 7
- Resistance by staff
- Coerce stakeholders to embrace the technology.
- Low level of staff ICT literacy.

Factor 8
- Lack of good will from top management.
- Poor networks and infrastructure.

4.2.5 Factors discussion
From the outcome of factors we could generally categorize the factor 1 as *ICT literacy level*. If the staffs are ICT illiterate, they will tend to resist any new technology as it may render them jobless. Therefore they may push for alternatives such as mobile banking or use of faxes and telex which are readily available and which they better understand. According to O’Connor (2007) ICT literacy is using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society. Therefore organizations should embark towards increasing the ICT literacy level of staff by trainings and workshops in trends of upcoming technologies. Lack of funds would make it difficult to adopt the technology. Even though this would be a major factor, if the benefits of the technology are clearly spelt out there is support from top management and stakeholders, then they can embark on other ways to raise funds to adopt the technology.

Factor 2 can be summarized as *Shareholders interests*. Shareholders needs include that of maximizing profits while reducing on cost. If the technology cost-benefit analysis is not well understood by the shareholders then an approval will not be given to implement the system. Gaining support from powerful stakeholders can help you to win more support as well as resources and this makes it more likely that your will be successful. By communicating with stakeholders early and often, you can ensure that they know what you are doing and fully understand the benefits of your project and this means they can support you actively when necessary. This would automatically eliminate the resistance that would come from this particular group.

Factor 3 is summarized as *alternatives to videoconferencing*. There has been a heavy use of mobile phones and landlines as an alternative to videoconferencing. Most of the banks have customer care lines which are available 24/7 and also emergency numbers where customers can call in case of emergencies. This they accomplish by taking the services directly to customers. But as seen on the analysis, the highest number of respondents does not feel it can achieve the benefits that videoconferencing systems can. Rose (2008) indicated that videoconferencing systems allows for video tellers which are open after the branch closes enabling the company to offer extended-day services and longer business hours without keeping the whole branch open.
As much as much as the alternatives have assisted in the past, and because of the dynamism in the market, they can no longer be an alternative to this technology.

Factor 4 is summarized as *infrastructure*. As the cost of equipments has been a major hindrance towards the technology adoption due to the high cost of infrastructure such as the equipments, LAN and WAN connections of high speeds making it difficult to adopt the technology. Adolph (2007) concluded that the implications for developing countries in the success of videoconferencing technology is generally tight linked to the deployment of the next generation networks infrastructure and the higher bandwidth required for high performance services. It would therefore be ideal to implement the project in manageable phases as it would be cost effective for the banks. This would also ensure that training is done for that particular implementation. Retrenchment of ICT illiterate staff would be highly rejected by the since this would create an unnecessary pressure on the bank ethics. It could even lead to litigation among other actions that may be taken up by the staff members or even the unions. The solution to this would be to undertake trainings.

Factor 5 is closely interlinked with factor 3. Even though internet would provide a better alternative to videoconferencing than mobile banking, faxes and telex services it would not be a complete replacement of the technology. Skype, Google talk, yahoo messengers are some of collaborative tools that utilize internet to provide videoconferencing.

Factor 6 can be summarized as *top management support*. This would include functional managers as well as top managers. Gaining support from top management is the key to any system implementation. As these are the key decision makers within an organisation. Functional managers have formal authority and are ultimately responsible for the project; overseeing the project, acting as a liaison between the upper management team. Therefore a thorough understanding of the cost benefit analysis of the technology by the management would be ideal as these are the people to convince the other stakeholder of the need to move in the new technology.

Factor 7 can be summarized as *training*. ICT training to staff members will make it easy for the management to convince them into accepting a new technology that will come in to enhance their work rather than make them jobless. According to Sewiy (2007) the majority of
businesses that will invest in videoconferencing technology will experience cost savings it is therefore vital for the owners and managers to encourage and champion its usefulness to ensure early acceptance of the technology. Further Gorman (2007) argued that effective videoconferencing use can vastly improve business productivity. Training will therefore assist in increasing the efficiency.

Factor 8 is closely tied to factor 6 and factor 4 which are top management support and infrastructure respectively. A solution on the factors discussed above would be a solution to factor 8.

4.2.6 Conclusion

The study was an evaluation of the factors that influence videoconferencing adoption in Kenyan banking sector. Six distinct factors come out namely, ICT literacy, shareholders interests, alternatives to videoconferencing, infrastructure, top management support and training.

According to O’Connor (2007) ICT literacy is using digital technology, communications tools, and/or networks to access, manage, integrate, evaluate, and create information in order to function in a knowledge society. This therefore means as we are getting into the digital age, technology use is not an option for firms that need to be dynamic as the world is transforming. People are becoming more dependent on ICT everyday. Management has the responsibilities of protecting shareholders interests in their decision making. Its therefore very important for top management to educate and demonstrate to their shareholders on the cost-benefits of adopting such a technology. However, use of internet-based collaborative tools such as Skype, Google talk e.t.c. should also be adopted since it will help in minimizing the heavy costs of running videoconferencing particularly in cases where only to individuals are communicating.

Kenya is experiencing a big transformation in the digital world especially after the arrival of the under-sea fiber optic cable. This has increased the internet speeds drastically. Even though the internet cost hasn’t gone down as fast as had been predicted, it will surely go down as internet service providers recover their costs. This therefore implies that the cost of infrastructure of setting up and running a videoconferencing system will go down with time.
Even though most of the staffs are aware of what videoconferencing is and its purpose, more training in ICT is necessary so as to ensure staff members are well equipped and prepared for the transformations that technology is bringing in organizations. It’s worth mentioning that videoconferencing brings an entirely different perspective of doing things in a business. In respect to customers where there is provision of video-teller systems, and also in organizations where there are issues of travel reductions amongst others as mentioned under literature review. This therefore means that, the alternatives we have at hand like faxes, telex, mobile phones and internet cannot provide as many benefits as videoconferencing system would.

Therefore, it’s time the banking sector gives this technology as serious consideration. Costs can no longer be an excuse since the cost of this technology has come down tremendously and the benefits are on the increase. A spokeswoman for the Cleveland banking company in the America indicated that it saves $200,000 a month in travel expense by holding team meetings over the video systems rather than in person. With such savings, things can only get better for the firm as shareholders interests are guarded, top management and staff are well compensated and there is increase in customer loyalty and efficiency.

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS
5.1 Summary

The aim of this research was to evaluate the adoption of videoconferencing in banking sector in Kenya. This chapter contains a summary of the results as presented in the previous chapter and give conclusions and recommendations based on the findings of the study, finally the study will provide suggestions for further research.

There is a very high level of awareness of what videoconferencing systems is all about and the benefits it can bring to the banking sector. It’s therefore time for the technology to be tried out. There was almost an equal balance between the banking staff needing to upgrade their ICT skills and not however, with the unique characteristics characterized by videoconferencing systems, it would therefore be worthwhile for the users to be trained on how to use the systems optimally.

Employees attitude towards the technology would not be a hindering factor as a majority of the do welcome the idea due to the impact the technology is bringing such as the quality of work, efficiency of work, faster decision making, reduced travelling etc. A lot of training is therefore necessary to ensure that members of staff are well equipped. Videoconferencing systems will provide a competitive edge to the banks and this is expected to boost customer loyalty and service.

The high cost of equipments, lack of funds, poor networks and infrastructure connectivity are the major challenges towards adoption of the technology. However this can be overcome by lobbying for support from top management and rolling out the implementation program in manageable phases.

In conclusion, the alternatives of faxes, mobile phones, landlines, internet services etc cannot provide all the business aspects brought about by videoconferencing technology. The advantages of videoconferencing way outweigh those of the alternatives. This therefore needs to be considered as a worthwhile investment.
5.2 Conclusions

The banking industry is a competitive environment and therefore exemplary customer service is one of the distinguishing characteristics that banks can exploit to establish a competitive edge. With the benefits realized by automation banking services such as ATM, electronic money transfers and mobile-phone money transactions, adoption of videoconferencing technology will provide even more benefits that otherwise would not have been realized using other forms of technology.

According to Adolph (2007) the implications for developing countries like Kenya in the success of videoconferencing technology in general is tightly linked to the deployment of Next Generation Networks (NGN) infrastructure and the higher bandwidth required for high performance services. With the arrival of the fiber optic cable that provides a high bandwidth, we are now reaching that time that Adolph spoke about. The technology therefore needs to be given a serious consideration as it is now implementable.

5.3 Recommendations

From the findings, there is a very high level of appreciation of videoconferencing in the banking sector. It’s therefore recommended that the technology be embraced in the banking sector.

ICT training and capacity building on banking personnel. Investment in videoconferencing in the banking sector will not be successful and complete without an elaborate training program for banking staff. Bank managers will require to roll-out an ICT training program alongside the infrastructural equipments which will enable full benefits of videoconferencing technology to be realized.

As the adoption of the technology goes on, the shareholders interests should also be in considerations. The best way would be to adopt the technology in manageable phases.

5.4 Limitations of the study
There are two limitations that need to be acknowledged and addressed regarding the present study. The first one is the sampling method used. The study used snowballing technique used which have some limitations that would have affected this study. It’s heavily reliant on the skill of the individual conducting the actual sampling, and that individual’s ability to vertically network and find an appropriate sample. By targeting only a few select people, it is not always indicative of the actual trends within the result group. It would therefore be better to conduct the survey using another approach.

The second one is the lack of demonstration of the benefits accrued by use of financial figures such as return on investments (ROI). This way it would be easier to demonstrate the benefits of this technology using financial terms. This would increase the weight of the research conducted.

5.5 Suggestions for further study

In addition to the conclusions that the scope of this study has allowed me to draw, my findings have also yielded several recommendations for further research on this topic. This study only focused on evaluating the adoption of videoconferencing but for it to be implemented a deeper study on the cost-effectiveness of this study is important to be carried out.

There is need to further research on the implementation challenges of videoconferencing systems in the banking sector as this would provide more insights on the worthiness of its implementation on the banking sector.
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http://www.ribbit.net/business_value_it.html