International Journal of
Technology and Systems
(IJTS)

THE EFFECT OF ICT ADOPTION ON THE PERFOMANCE OF HEALTH SECTOR IN KENYA: ASURVEY OF HOSPITALS IN NAIROBI COUNTY

Njau Mukuna

IPRJB

International Journal of Technology and Systems
ISSN 2518-881X (Online)
Vol.1, Issue No.2, pp 12 - 29, 2016

www.iprjb.org

THE EFFECT OF ICT ADOPTION ON THE PERFOMANCE OF HEALTH SECTOR IN KENYA: ASURVEY OF HOSPITALS IN NAIROBI COUNTY

Njau Mukuna
UNDER Graduate Student

Catholic University of Eastern Africa

***alicadius@yahoo.com**

Abstract

Purpose: The purpose of the study was to establish the effect of the effect of ICT adoption on the performance of health sector in Kenya: a survey of hospitals in Nairobi County.

Methodology: Therefore, this study attempted to use descriptive research design to report the status quo of the ICT and its effect on performance of hospitals **.**The study targeted a population of all the hospitals in Nairobi County. According to the NHIF website, there are 52 hospitals in Nairobi County As at 1st JAN2011, this comprised the population of the study. The researcher used 20 % of the 52 Hospitals. The sample size was therefore 10 hospitals. The 10 hospitals were selected through random sampling. Three departments (finance and administration, human resource, ICT department) were used for stratification an identification of the respondents. Only three questionnaires was issued to each selected department. This gave rise to 90 respondents

In this study primary data was collected using a structured questionnaire. The data collected was analyzed by use of descriptive statistics. The data analysis was through simple tabulation and presentation of report generated from spreadsheets such as excel. In addition, the Statistical Package for Social Sciences (SPSS) was used to generate the frequencies and percentages that were used for excel tabulations. The data was presented using data tables and charts

Results: The study concluded that adoption and effective use of ICT in hospitals, contributed positively to the performance of such hospitals. It was also possible to conclude that use of adequate computers, phones and internet facilities has contributed positively to the performance of hospitals. The study also concludes that adoption of good record keeping and management system has contributed positively towards the hospital performance. Finally, the study concludes that ensuring an accounting and information management system and use of qualified and trained ICT staff yielded positively to the performance of hospitals using ICT in their operations.

Unique contribution to theory, practice and policy: Following the study results, it was recommended that for hospitals to yield better profits, it is important to adopt the use of ICT in their operations. For instance the management should emphasize on use of adequate computers, phones and internet facilities. The study also recommends the management to adopt good record keeping and management system.The study recommends that the management should ensure accounting and information management system are emphasized in usage and ensure that training is emphasized so as to make use of qualified and trained ICT staff.

Keywords: *cost reduction and profitability*

1.1 INTRODUCTION

Pradhan (2002) attempted to define information technology as "all computing and communication technologies". Organizations such as local governments could not afford to lag behind in adopting information technology.Awe (1997) was of the view that information technology is defined as "technologies that ensure a more accurate and cost effective knowledge to support decision making, reduces mental and physical efforts in solving certain tasks; reduces or eliminates inefficient practices, it rivals the manual system and improves services rendered to customers"

Companies use ICT in their business processes mainly for three purposes: to reduce costs, to better serve the customer, and to support growth (e.g. by increasing their market reach). In essence, all e-business projects in companies explicitly or implicitly address one or several of these objectives. Understanding one's business processes and having a clear vision of how they could be improved (whether it be to save costs or to improve service quality) are therefore critical requirements for firms to effectively use ICT (Koellinger,2006)

The increasing competitive pressure on companies, many of which operate in a global economy, has been a strong driver for ICT adoption. Firms are constantly searching for opportunities to cut costs and ICT holds great promise in this respect as it increases the efficiency of a firm's business processes, both internally and between trading partners in the value chain(Gera and Gu, 2004).

While cutting costs continues to motivate e-business activity, innovative firms have discovered and begun to exploit the potential of ICT for delivering against key business objectives. They have integrated ICT into their production processes and quality management and, most recently, in marketing and customer services. These last sectors are widely considered key to improving competitiveness in the current phase of development economies. Competing in mature markets requires not only optimised cost structures, maximal efficiency, and products or services of excellent quality but also the ability to communicate effectively and cooperate with business partners and potential customers(Rambol Management, 2008).

Guest et al (2003) defined performance as outcomes, end results and achievements (negative or positive) arising out of organizational activities. Guest et al (2003) argued that it is then essential to measure strategic practices in terms of outcomes.Guest et al (2003) advocated for the adoption of a stakeholder's perspective which would ensure that all stakeholders are taken into account when defining outcomes. The need to adopt a stakeholder's approach meant that multiple measures of performance outcome would be a better approach in managing stakeholders' expectations. This point of view was anchored on the popularity of the 'balanced scorecard' concept by Kaplan & Norton (1992), whose intention was to ensure that all the interests of the various stakeholders were taken into account.

The Balanced Score Card (BSC) is a performance management tool that enables a company to translate its vision and strategy into a tangible set of performance measures. However, it is more than a measuring device. The scorecard provides an enterprise view of an organisation's overall performance by integrating financial measures with other key performance indicators around customer perspectives, internal business processes, and organisational growth, learning, and innovation. Kaplan and Norton (1992) describe the innovation of the balanced scorecard as follows: "The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in

long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation (Kaplan and Norton, 2006).

1.2 Problem Statement

Companies use ICT in their business processes mainly for three purposes: to reduce costs, to better serve the customer, and to support growth (e.g. by increasing their market reach). The increasing competitive pressure on companies, many of which operate in a global economy, has been a strong driver for ICT adoption. Firms are constantly searching for opportunities to cut costs and ICT holds great promise in this respect as it increases the efficiency of a firm's business processes, both internally and between trading partners in the value chain.

There have been incidences of missing files in hospitals leading to the delay of treatment for patients. There have also been cases where the hospitals have incurred losses through fraud brought about by poor record keeping. Hospitals have also incurred heavy expenses as a result of documentation and record keeping which could otherwise have been reduced by the adoption of ICT. Training of health officials has not been effective and this may have been as a result of failure to apply ICT in learning.

The study argues that hospitals can take advantage of ICT to reduce some of the performance problems they are facingas far as fraud, poor communication, poor record keeping and lack of training is concerned. This argument is in line with other studies that found that ICT impacts positively on the performance of firms. e.g (Koellinger, 2006; Gera and Gu, 2004; Rambol Management, 2008). In line with these studies, it is revealed that those firms that have adopted ICT perform better than those that don't. However, none of the studies reviewed concentrated on the effect of ICT on performance of hospitals. In addition, the researcher does not know of any study that focuses on effect of ICT and performance in relation to hospitals. The study therefore wishes to bridge this gap by attempting to establish the effect of ICT on the performance of hospitals and a survey of hospitals in Nairobi County will be taken.

1.3: Objectives of the Study

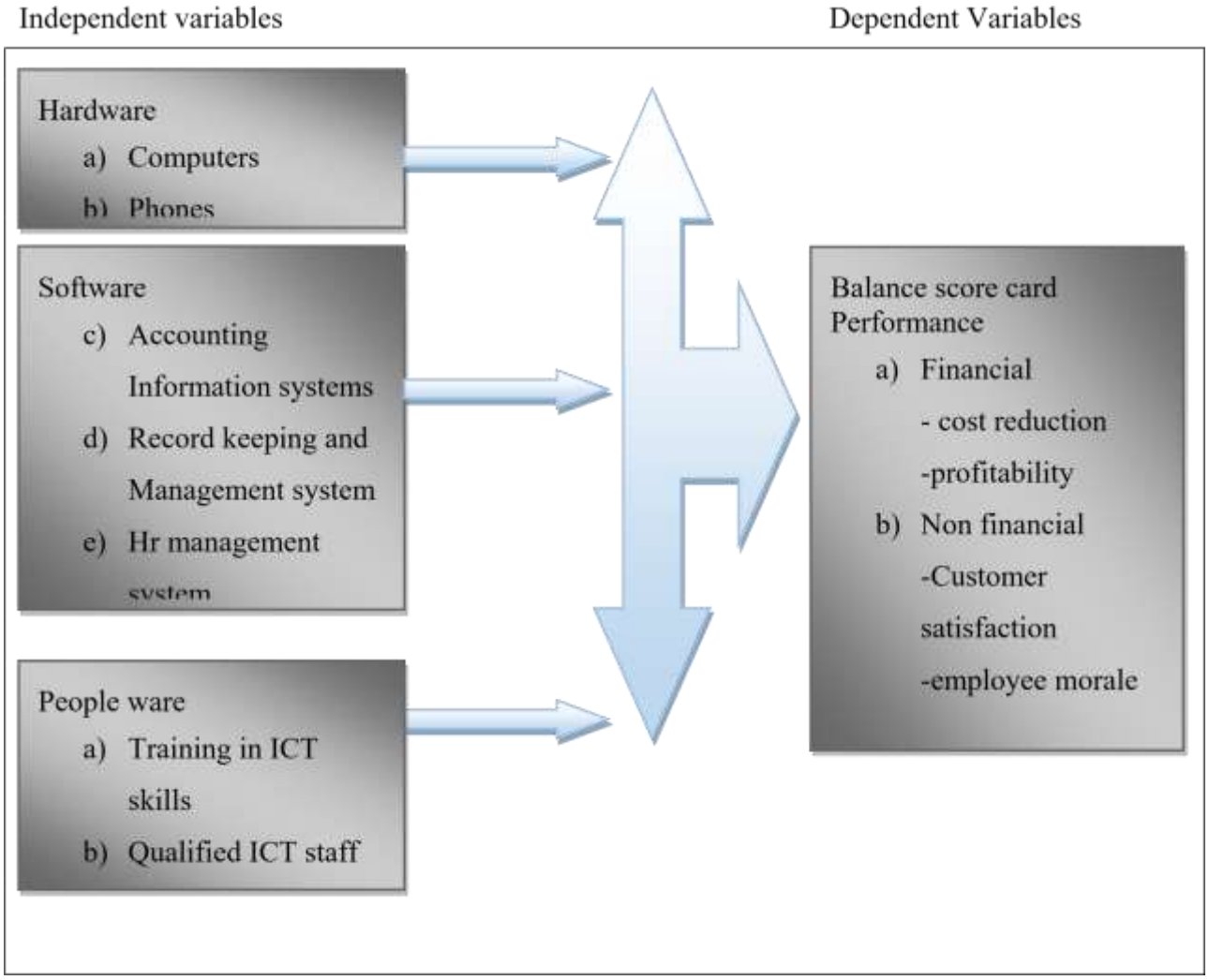
The objectives of the study include;

i) To determine whether adoption of ICT leads to a cost reduction and profitability of hospitals ii) To determine whether adoption of ICT leads to increase in patients' satisfaction in hospitals.

iii) To determine whether adoption of ICT leads to the morale and motivation of nurses and doctors in hospitals iv) To suggest other performance areas that would be improved by adoption of ICT

1.4: Conceptual framework

The conceptual framework consists of dependent and independent variables. The independent variables consist of ICT adoption. The dependent variable is the balance score card performance and it constitutes both the financial and non financial measures.



Researcher (2012).

2.0 LITERATURE REVIEW

2.1. Effect of ICT on the Cost Reduction and Profitability of Firms

Koellinger(2006) conducted a study on the impact of Information and Communication Technologies (ICT) on corporate performance, productivity and employment dynamics. Results fromKoellinger(2006) indicated that the relationship between ICT usage and profitability is more

complex and contingentupon firm and market-specific factors such as the timing of the investment relative tocompeting firms and the reaction of competing firms in the market. Hence, no generalrelationship between ICT usage and profitability can be hypothesized because profitabilitycrucially depends on the respective competitive environment of each individual firm andits ability to limit imitation by rivals.

Ramboll management (2008) conducted a study on ICT and e-Business Impact in the Banking Industry using exploratory, descriptive and explanatory design. The authors argued that companies use ICT in their business processes mainly for three purposes: to reduce costs, to better serve the customer, and to support growth (e.g. by increasing their marketreach).

Ger and Gu(2004) conducted a study on the effect of organizational innovation and informationtechnology on firm performance. Specifically, the authors investigated whether investment in information and communicationtechnology (ICT) combined with organizational changes and worker skills contribute tobetter performance in Canadian firms. They found that Canadian firms have activelyengaged in organizational changes in the areas of production and efficiency practices,human resource management (HRM) practices, and product/service qualityrelatedpractices. These practices along with ICT use are found to be related to better firmperformance. Ger and Gu(2004) found that while ICT is productive on its own, it is more productive infirms that combine high levels of ICT with high levels of organizational change. Therefore, the firms that combine high levels of ICT and high levels of worker skills have better firm performance.

A study by Brynjolfsson and Hitt (1997) explores the relationship betweencomputers and *productivity growth*. The study uses data that included more than 600large US firms over the period 1987 to 1994. The findings show that computers make apositive contribution to output growth. More interestingly, the study concludes that, “as a general purpose technology, the pattern of growth contribution appears to suggest thatcomputers are a part of a larger system of technological and organizational changes thatincreased productivity over time”.

A recent study by Baldwin and Sabourin (2003) that links technology use to plant performance in the food processing sector also finds that plants that were using new computer-driven advanced technologies experienced greater growth in labour productivity and market share. Baldwin and Sabourin (2003) raise an important caveat that must be kept in mindwhen interpreting the results of these studies. They argue that simply purchasing advanced technologies does not necessarily lead to success. Firm performance critically depends on how these technologies are implemented. Successful implementation of these technologies requires a human resource strategy to develop the necessary worker skills. It requires that firms overcome financing problems associated with acquiring new and untried technologies. And, it requires innovation accompanied by the development of best practices in quality control and engineering.

2.2: Effect of ICT on the Satisfaction of Customers

Today's consumers have high expectations. They want instant gratification, whether by downloading the latest music video or completing a transaction online. Business and personal transactions look increasingly alike: the end user wants to connect to your enterprise wherever, whenever, however he wants, and will take his business elsewhere if he's not satisfied with the self-service system that you expect him to use (Riel, Liljander, and Jurriens, 2001).

As consumers become increasingly mobile, it is imperative to interact with them in the manner of their choosing, at the time of their choosing. Consumers are increasingly interested in communicating with companies via new and multiple channels: not just voice, but also email, web chat, SMS and so on. A company's ability to respond to customer requests wherever they are, and via whatever device they are using at the time, will have an increasingly significant impact on how effectively an organization connects with their customers (Sigala, 2003).

Companies that rely on being able to contact customers at home need to address this reality of increasingly mobile consumers. B2B organizations expecting to find customers behind their desks must also develop new interaction models to guarantee being able to contact current and potential customers (Fjermestadand Romano, 2003). Additionally, enterprises cannot afford to miss the opportunity to capture new customers, however they get in touch. Flawless customer service will not only help to retain existing customers, but will also contribute to new business generation; in these technology-savvy times, word about good (and bad) service spreads fast.(Corner and Hinton, 2002).

Once customers understand the value proposition of a company (whether service provider or enterprise), they expect automation to work to process their routine transactions. They want to be able to pay bills, transfer money and execute other routine orders from their cell phones, laptops or on the Web. Again, this requires integration at all levels of the organization's systems, and requires a deep understanding of the business activities and workflows that support the critical interaction point with the customer(Corner and Hinton, 2002)..

A one-dimensional or silo approach to voice and data networks cannot deliver on the high expectations of consumers and business customers. Not delivering on the promise of integrated communications reduces efficiency in the short term, and can lead to competitive disaster in the long term. Customers prize customer service and expect product quality above all else (Sigala, 2003).

2.3 : Effect of ICT on the Satisfaction of Organizational Staff

Existing empirical studies diverge as to the effects of firm investments in ICT on working conditions. Part of this work points to job enrichment, while other research insists on the increased pace of work and stress endured by employees.Some studies underline, in fact, that ICT provides firms with greater organisational flexibility and facilitate the delegation of decision-making to lower levels in the hierarchy (BrynjolfssonandHitt, 2000). The evolution towards more horizontal organisations requires, but also enables, better qualification and versatility of the workforce

(Behagel, Caroli and Walkowiak, 2007). Employees who use ICT should, in theory, be given less repetitive tasks.

ICT and new organisational practices introduced in firms also tend to provide employees with greater autonomy and responsibilities (Caroli, GreenanandGuellec, 2001). Employees have more latitude in organizing their work. These transformations can make their work more enriching in that they are not subject to permanent monitoring by a hierarchical superior and can more easily select their hours and tasks (Gant, Ichniowski and Shaw, 2002).Other studies, on the contrary, insist on the fact that new technologies, and in particular computers, can be used to more precisely codify tasks, automate certain production or management processes and lead to greater work standardization or Taylorism(Spitz-Oener, 2006). In this case, the effect of ICT is to restrict professional competencies (Askenazyand Caroli, 2010).

Moreover, ICT, by giving employees more responsibilities and autonomy, can cause stress and, in this way, reduce the quality of working life. A more independent employee must manage his tasks alone, with even more pressure to meet deadlines. Employeesare also likely to be overworked when it comes to dealing with incidents or unexpected problems at the workplace.Furthermore, working at unusual hours can allows one freedom in the choice of hours but can also have the perverse effect of blurring the boundaries between professional and private life. Moreover, the employee can be reached by his firm at any time *via* cell phone or e-mail. It can be a sign of responsibilities but it will increase the chances of blurring the boundaries between professional and private life. ICT therefore creates new forms of indirect monitoring or control (by being reachable at all times) of employees that can be used in parallel to traditional monitoring by a hierarchical superior (Acemogluand Newman, 2002).

ICT can also lead to modifications in the contractual relations between employee and employer. The diffusion of ICT, by facilitating employee's multitasking, makes contracts more incomplete. Indeed, since ICT makesemployees more autonomous and flexible in working hours, contracts no longer need to specify precisely the employee's hours, the exact nature of his job. This increased contractual incompleteness could lead to opportunistic behaviour by either the employer or the employee and could have negative effects on job satisfaction. Moral hazard should be in favour of the employee if he has significant negotiation leverage (which is the case of the most skilled workers). If the opposite is true, the employer could take advantage of all the gains linked to the use of ICT within the firm. In this case, the employee would not receive any benefits in exchange (regardless of any initial promises).

While studies diverge as to the impact of the use of ICT on working conditions, this is because it is often difficult to distinguish between the inherent effects of ICT and those linkedto new organizational practices that accompany investments in ICT. This problem is easy to discern in the work of Askenazy and Caroli (2010). They have tried to measure the impact of new practices in the organization of work (work flexibility, quality management, job rotation, creation of discussion groups) and the use of ICT on working conditions, particularly mental strains perceived by workers

and the risk of work-related accidents. They show that new ways of working, which often require the use of ICT, lead to deterioration in working conditions and, in particular, to higher risks of accidents. On the other hand, the use of ICT in itself seems to counterbalance these effects by reducing employee isolation and improving safety conditions.
Askenazy and Caroli (2010) therefore conclude that 'the development of ICT may at least partly offset the negative effects of innovative workplace practices on working conditions and health and safety at work'.

3.0 RESEARCH METHODOLOGY

Therefore, this study attempted to use descriptive research design to report the status quo of the ICT and its effect on performance of hospitals The study targeted a population of all the hospitals in Nairobi County. According to the NHIF website, there are 52 hospitals in Nairobi County As at 1st JAN2011, this comprised the population of the study.The researcher used 20 % of the 52 Hospitals. The sample size was therefore 10 hospitals. The 10 hospitals were selected through random sampling. Three departments (finance and administration, human resource, ICT department) were used for stratification an identification of the respondents. Only three questionnaires were issued to each selected department. This gave rise to 90 respondents In this study primary data was collected using a structured questionnaire

The data collected was analyzed by use of descriptive statistics. The data analysis was through simple tabulation and presentation of report generated from spreadsheets such as excel. In addition, the Statistical Package for Social Sciences (SPSS) was used to generate the frequencies and percentages that were used for excel tabulations. The data was presented using data tables and charts

4.0 RESULTS AND DISCUSSIONS

4.1 Adoption of ICT

The study sought to establish the level of adoption of ICT in hospitals. The findings were presented in figure 4.4. From the study findings, a very large majority of 92% agreed with the statement that their hospital has been using adequate computers, phones and internet facilities, while an equal share of 4% of the respondents both strongly agreed and neither agreed nor disagreed respectively with the statement. On the other hand, a very large majority of 94% agreed with the statement that their hospital has adopted record keeping and management system while. However, 4%of the respondents agreed with the statement while 2% neither agreed nor disagreed. Seventy percent (70%) of the respondents agreed with the statement that their hospital has adopted accounting and management system. Fourteen percent (14%) of the respondents however, disagreed with statement while 12% neither agreed nor disagreed. However 4% of the respondents strongly agreed with the statement. Seventy two percent (72%) of the respondents agreed with the statement that their hospital has adopted use of qualified and trained ICT staff. However, 14% disagreed while

12% of the respondents neither agreed nor disagreed and 2% of the respondents strongly agreed with the statement.

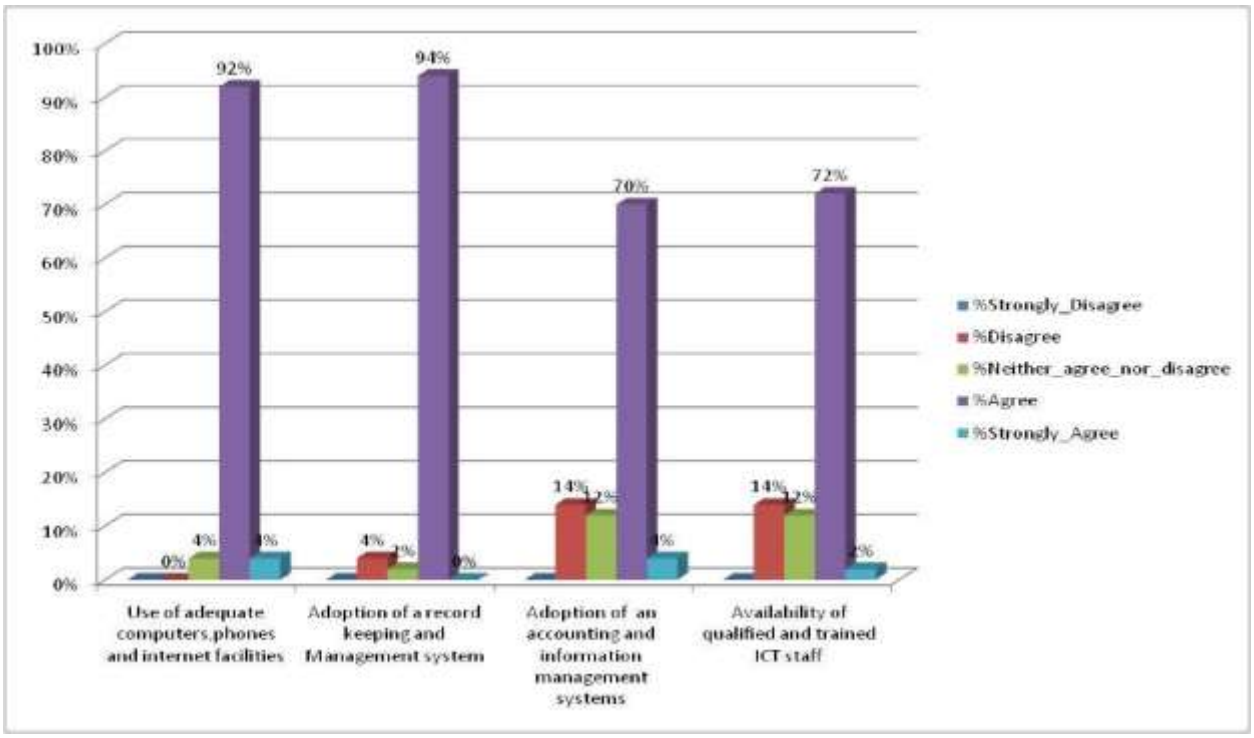


Figure 1 : Adoption of ICT

4.4 The Effect of ICT on cost reduction and profitability of hospitals

4.4.1 Descriptive Statistics

The respondents were asked to indicate the agreement on the statement that the use of ICT has opened new channels of distribution and hence higher sales. The mean score for this statement was 3.54 which canbe rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has opened new channels of distribution and hence higher sales.The respondents were asked to indicate the agreement on the statement that the use of ICT in hospitals has led to low administration costs. The mean score for this statement was 3.60 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the hospitals had adopted use of ICTleading to low administrative costs.The respondents were asked to indicate the agreement on the statement that the use of ICT has led to low training costs. The mean score for this statement was 3.68 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has led to low training costs.The respondents were asked to indicate the agreement on the statement that the use of ICT has led to low financial and management reporting costs. The mean score for this statement was 3.66 which can be rounded off to 4. Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has led to low financial and management reporting costs. Results are presented in table 1.

Table 1: Effect of ICT on Cost Reduction and Profitability of Hospitals

	N	Minimum	Maximum	Mean	Std. Deviation
The use of ICT has opened new channels of distribution and hence higher sales	50	1	5	3.54	.930
The use of ICT has led to low administration costs	50	2	5	3.60	.782
The use of ICT has led to low training costs	50	2	5	3.68	.844
The use of ICT has led to low financial and management reporting costs	50	2	5	3.66	.658

4.4.2 Regression Analysis

The study sought to determine the relationship between cost reduction and profitability in hospitals and adoption of ICT in hospitals. Results in table 4.2 revealed that the coefficient of determination (R squared) was 0.870. This implies that 87% of the variance in cost reduction and profitability is explained by adoption of ICT in hospitals. This shows that the model fit is satisfactory. This also implies that 13% of the variation in cost reduction and profitability is explained by other factors not included in the model.

Table .2: Linear Regression for cost reduction and profitability and Adoption of ICT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.933[a]	.870	.868	.28307

a. Predictors: (Constant), Adoption of ICT

The relationship between adoption of ICT and cost reduction and profitability of hospitals is presented in table 4.3. The results indicate that there is a positive and significant relationship between ICT adoption and cost reduction and profitability of hospitals. The regression coefficient

of 1.479 indicated that an increase in ICT adoption by one unit leads to an increase in cost reduction and profitability by 1.479 units. The relationship is significant since the calculated p value of 0.000 is less than the critical p value of 0.05.

Table .3: Effect of ICT adoption on cost reduction and profitability of hospitals

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.986	.315		-6.307	.000
	AdoptionofICT	1.479	.082	.933	17.947	.000

a. Dependent Variable: EffectsofICToncostreductionandprofitabilityofhospitals

4.5The Effect of ICT on patient satisfaction

4.5.1 Descriptive Statistics

The respondents were asked to indicate the agreement on the statement that the use of ICT has increased customers convenience. The mean score for this statement was 3.62 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased customers convenience. respondents were asked to indicate the agreement on the statement that the use of ICT has increased service quality The mean score for this statement was 3.60 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased service quality.

The respondents were asked to indicate the agreement on the statement that the use of ICT has increased service affordability. The mean score for this statement was 3.56 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased service affordability. Table 4.4 presents the results.

Table 4: Effect of ICT on Patient Satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
The use of ICT has increased customers convenience	50	2	5	3.62	.805
The use of ICT has increased service quality	50	1	5	3.60	.881
The use of ICT has increased service affordability	50	2	5	3.56	.861

4.5.2 RegressionAnalysis

The study sought to determine the relationship between patient satisfaction and adoption of ICT in hospitals. Results in table 4.5 revealed that the coefficient of determination (R squared) was 0.812. This implies that 81.2% of the variance in patient satisfaction is explained by adoption of ICT in hospitals. This shows that the model fit is satisfactory. This also implies that 18.8% of the variation in patient satisfaction is explained by other factors not included in the model.

Table 5: Linear Regression for Patients' Satisfaction and Adoption of ICT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901[a]	.812	.808	.36519

a. Predictors: (Constant), AdoptionofICT

The relationship between adoption of ICT and patient satisfaction in hospitals is presented in table 4.3. The results indicate that there is a positive and significant relationship between ICT adoption and patient satisfaction. The regression coefficient of 1.531 indicated that an increase in ICT adoption by one unit leads to an increase in patient satisfaction by 1.531 units. The relationship is significant since the calculated p value of 0.000 is less than the critical p value of 0.05.

Table 6: Effects of ICT Adoption on Patient Satisfaction Table

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.211	.406		-5.441	.000
	Adoption_of_ICT	1.531	.106	.901	14.402	.000

a. Dependent Variable: EffectsofICTonpatient-satisfaction

4.6The Effect of ICT on morale and motivation of nurses, doctors and other hospital workers

4.6.1 Descriptive

The respondents were asked to indicate the agreement on the statement that the use of ICT has increased staff morale by creating flexibility of working hours. The mean score for this statement was 3.64 which can be rounded off to 4. Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased staff morale by creating flexibility of working hours.

The respondents were asked to indicate the agreement on the statement that the use of ICT has increased staff morale with employees having greater autonomy and responsibilities. The mean score for this statement was 3.86 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased staff morale with employees having greater autonomy and responsibilities.

The respondents were asked to indicate the agreement on the statement that the use of ICT has increased staff morale with employees having more choice in organizing their work. The mean score for this statement was 3.66 which can be rounded off to 4.Four (4) in the likert scale represents agreement. Hence the results imply that the use of ICT has increased staff morale with employees having more choice in organizing their work. Results are presented in table 4.7. **Table 7 Effects Of ICT on Morale and Motivation of Hospital workers, nurses and doctors**

	N	Minimum	Maximum	Mean	Std. Deviation
The use of ICT has increased staff morale by creating flexibility of working hours	50	2	5	3.64	.942
The use of ICT has increased staff morale with employees having greater autonomy and responsibilities	50	1	5	3.86	.881
The use of ICT has increased staff morale with employees having more choice in organizing their work	50	2	5	3.66	.823

4.6.2 Regression Analysis

The study sought to determine the relationship between morale and motivation of hospital workers and adoption of ICT in hospitals. Results in table 4.8 revealed that the coefficient of determination (R squared) was 0.812. This implies that 81.2% of the variance in patient satisfaction is explained by adoption of ICT in hospitals. This shows that the model fit is satisfactory. This also implies that 18.8% of the variation in patient satisfaction is explained by other factors not included in the model.

Table 6:Linear Regression for Morale and Motivation of Hospital workers and Adoption of ICT

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901[a]	.812	.808	.36519

a. Predictors: (Constant), Adoption_of_ICT

The relationship between adoption of ICT and morale and motivation of hospital workers and in hospitals is presented in table 4.8. The results indicate that there is a positive and significant relationship between ICT adoption and patient satisfaction. The regression coefficient of 1.531

indicated that an increase in ICT adoption by one unit leads to an increase in the morale and motivation of hospital workers by 1.531 units. The relationship is significant since the calculated p value of 0.000 is less than the critical p value of 0.05.

Table7: Effects of ICT Adoption on Morale and Motivation of Hospitals workers

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.211	.406		-5.441	.000
	Adoption_of_ICT	1.531	.106	.901	14.402	.000

a. Dependent Variable: Effects_of_ICT_on_morale_and_motivation_of_hospital_workers

CHAPTER FIVE

SUMMARY AND CONCLUSIONS

5.1 Summary of the Findings.

The study sought to establish the effect of adoption of ICT in hospitals on the performance of such hospitals. Various methods were used to arrive at the findings. These methods included descriptive statistics and regression analysis. The findings indicated that the hospitals have adopted the use of ICT system in their operations which has boosted the performance of such hospitals.

The study attempted to determine whether adoption of ICT leads to cost reduction and profitability of hospitals. The findings indicated that there's reduction of cost and increase in profitability of hospitals that have adopted the use of ICT. The finding implies that adoption of ICT in hospitals is significant in managing cost and returns/profits in hospitals.

To determine whether adoption of ICT leads to increase in patients' satisfaction in hospitals, descriptive statistics and regression analysis were conducted. Results indicated that patients' satisfaction was achieved. This observation was arrived at since the hospitals have adopted the use of ICT in their operations. The findings also indicated that most hospitals have adopted the use of ICT in their operations. The findings implied that use of ICT influences positive changes which lead to patients' satisfaction.

Another objective of the study was to determine whether adoption of ICT leads to the morale and motivation of nurses and doctors in hospitals. Results indicated that adoption of ICT enhanced the

morale and motivation of hospital workers. The findings implied that adoption of ICT in hospitals eases and improves the productivity of hospital workers.

5.2 Conclusions

The study concluded that adoption and effective use of ICT in hospitals, contributed positively to the performance of such hospitals.

It was also possible to conclude that use of adequate computers, phones and internet facilities has contributed positively to the performance of hospitals.

The study also concludes that adoption of good record keeping and management system has contributed positively towards the hospital performance.

Finally, the study concludes that ensuring an accounting and information management system and use of qualified and trained ICT staff yielded positively to the performance of hospitals using ICT in their operations.

5.3 Recommendations

Following the study results, it was recommended that for hospitals to yield better profits, it is important to adopt the use of ICT in their operations.
For instance the management should emphasize on use of adequate computers, phones and internet facilities.

The study also recommends the management to adopt good record keeping and management system.

The study recommends that the management should ensure accounting and information management system are emphasized in usage and ensure that training is emphasized so as to make use of qualified and trained ICT staff.

5.4Suggested Areas for Further Studies.

The study recommends that further investigation be done on the other factors that affect the performance of hospitals.

It is also recommended that similar study should be done to investigate the use of ICT in other public organizations such as NSSF, KRA and Kenya Ports Authority. It is also recommended that the study should be replicated to private organizations.

REFERENCES

Acemoglu, D. and A. F. Newman (2002),'The labor market and corporate structure', *European Economic Review*.46 :1733-1756.

Askenazy, P. and E. Caroli (2010), 'Innovative Work Practices, Information Technologies and Working Conditions: Evidence for France', *Industrial relations*.

Awe, J. (1997) Learning Computer Operations and Usage.Jidaw Systems Ltd, Lagos, pp. 1-4

Behaghel, L., E. Caroli and E. Walkowiak (2007), 'Innovation and Skill Upgrading: The Role of External vs. Internal Labour Markets', *PSE Working Papers 2007-04*.

Brynjolfsson, E. and L. M. Hitt (2000), 'Beyond Computation: Information Technology, Organizational Trans-formation and Business Performance', *The Journal of Economic Perspectives*, 14(4), 23-48.

Caroli, E., N. Greenan and D. Guellec(2001), 'Organizational Change and Skill Accumulation', *Industrial and Corporate Change*, 10(2), 481-506.

Corner, I., and Hinton, M. (2002). Customer relationship management systems: implementation risks and relationship dynamics, Qualitative *Market Research: An international Journal*, 5 (4), 239 –251

Feinberg, R., and Kadam, R. (2002). e-CRM web service attributes as determinants of customersatisfaction with retail Web sites, *International Journal of Service Industry Management*, 13 (5),432 – 451

Fjermestad, J., and Romano, N. (2003). Electronic customer relationship management: revisiting the general principles of usability and resistance – an integrative implementation framework, *Business Process Management Journal*, 9 (5), 572 – 591

Gant, J., C. Ichniowski and K. Shaw (2002), 'Social Capital and Organizational Change in HighInvolvement and Traditional Work Organizations', *Journal of Economics and Management Strategy*, 11(2), 289-328.

Gera, S., Gu, W.,(2004). The Effect Of Organizational Innovation And Information Technology On Firm Performance**.***InternationalProductivity Monitor*, No. 9.Fall 2004.

Government of Kenya (1994a).*Kenya's Health Policy Framework*. Nairobi: Government Printer.

Guest, D.E., Michie, J, Conway, N & Sheehan, M. (2003).Human resource management and corporate performance in the UK.*British Journal of Industrial Relations*, 41:291-314.

Kaplan R.S and David P. Norton D.P (2006).*The strategy focused organization. How Balanced Scorecard companies thrive in the new business environment*,Harvard Business School Press, Boston, Mass.

Kaplan, R.S. & Norton, D.P. (1992).*The balanced scorecard: Measures that drive Performance*. Harvard Business Review, 70(1): 71-79.

Kimalu, P. K. (2002). *Debt relief and healthcare in Kenya*. World Institute for Development Economic Research (WIDER) Discussion Paper No. 2002/65. United Nations University

Koellinger P.(2006).Impact of ICT on Corporate Performance, Productivity and Employment Dynamics. Special Report No. 01/2006

Obonyo, B. and W. Owino (1997).“Promoting access to healthcare throughefficiency improvements: priorities and policy options.” IPAR WR. No.08/97. Nairobi: Institute for Policy Analysis and Research.

Odwee, J.A ., F.N. Okurut and A. Adebua (2000). “The determinants of healthcare demand in Uganda.” African Economic Research Consortium (AERC) Report.

Owino, W. and J. Korrir (1997a).”Public health sector efficiency in Kenya: estimation and policy implications.” IPAR Discussion Paper No. 007/ 97. Nairobi: Institute for Policy Analysis and Research

Ramboll management (2008).ICT and e-Business Impact in the Banking Industry.A Sectoral eBusiness Watch study. Final Report Version 4.0

Riel, A.C., Liljander, V., and Jurriens, P. (2001). Exploring customer evaluations of e-services: a portal site”, *International Journal of Service Industry Management*, 12 (4), 359 – 377

Sigala, M. (2003).The Information & Communication Technologies productivity impact on the UK hotel sector.*International Journal of Operations and Production Management*, 23 (10), 1224 – 1245.

Spitz-Oener, A. (2006), ‘Technical change, job tasks, and rising educational demands: Lookingoutside the wage structure’, *Journal of Labor Economics*, 24(2), 235-270.