

**Journal of
Human Resource and Leadership
(JHRL)**

**INFLUENCE OF ICT CAPABILITY ON ORGANIZATIONAL
PERFORMANCE IN COMMERCIAL STATE CORPORATIONS
IN KENYA**



INFLUENCE OF ICT CAPABILITY ON ORGANIZATIONAL PERFORMANCE IN COMMERCIAL STATE CORPORATIONS IN KENYA

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Abstract

Purpose: The study sought to determine the influence of ICT capability on organizational performance in commercial state corporations in Kenya

Methodology: This study adopted a census method, and used both qualitative and quantitative methods of data collection. The target population of the study was chief executive officers (policy makers), directors of human resources and deputy directors of human resources of both pure and strategic commercial state corporations in Kenya. A total of 165 questionnaires were administered to chief executive officers (policy makers), directors of human resources and deputy directors of human resources in both pure and strategic commercial state corporations in Kenya. Fifty five interviews were carried out and forty eight of the respondents were interviewed.

Result: The study found that ICT capability has a positive and significant effect on organizational performance of commercial state cooperation

A unique contribution to theory, practice, and policy: The study recommended that organizations should place more emphasis on human centered information management in order to improve the ways in which people use and share information. The study also recommended that there should be IT education services that provide training in system use to employees and offer managers training in how to plan for and manage IT investments and IT research and development services that provide the firm with research on potential future IT projects and investments that could help the firm differentiate itself in the market place.

Key Words: *ICT capability, organizational performance, State Corporation*

1.0 INTRODUCTION

1.1 Background of the study

The government's key objective is to turn Kenya into a global ICT hub and a premier location for business process outsourcing (BPO). This led to the formation of the current ICT board in 2007 (Musimba, 2010). Premeditated gaits have been taken in Kenya, to get the country to lofty technology levels. The Government sees ICT as a driver towards economic and social development of Kenyans (GOK – Ministry of Information 2008), hence National ICT Policy 2006.

Human resource information systems have been put in place to initiate performance based human resource management practices in organizations. Muriithi, Gachunga and Mburugu, (2014) agree that ICT has been used in organizations to add value in transactions by improving the efficiency of transactional services, back office and the production time of staff and in offering choice of delivery channels from face-to-face, online or through telephone.

It adds value in interactions by maximizing the use of ICT technologies such as Internet, Intranet, emails, telephones, teleconferencing and that in sharing of information through building IT systems with technology that enables information to be shared across departments which means citizens or customers can receive a faster and more transparent service. Cox, Farrell, Ng, Burlew and Pacqué-Margolis (2013) cited that Kenya's health sector continues to face challenges in human resources for health (HRH), including an insufficient number of skilled workers and suboptimal distribution of these health workers. In an effort to reverse these trends and improve health service delivery, the Ministry of Medical Services (MOMS) and the Ministry of Public Health and Sanitation (MOPHS) have put in place strategies for addressing the constraints to human resource development and management. Addressing these challenges requires accurate and up to date information on the availability and capacity of Kenya's human resources. A comprehensive human resources information system (HRIS) to support human resources management functions in the public health sector is being implemented by the Ministries of Health. The HRIS, supported by the USAID-funded Capacity Kenya project, is integrated with existing human resources (HR) and other health sector information systems.

Currently, the HRIS is being rolled out to cover sub-national health units and departments (to include counties as part of the new constitution in public, private, and faith-based health facilities (www.capacitykenya.org)). Kenya Nursing Workforce Report; Status of nursing in Kenya (2012), affirms that to inform health sector planning, health managers and policy makers require a robust understanding of workforce dynamics. This includes a better understanding of the nursing workforce supply pipeline and skill-mix required at the facility level. In order to promote health, prevent the spread of disease, and offer quality care, Kenya must ensure that its nursing workforce is well regulated and comprised of licensed professionals that are strategically deployed and equitably distributed at each level of care.

Addressing these complex issues requires timely and accurate data on which to base workforce decisions. Information systems that gather health workforce data to drive and enhance the management of human resources for health are a key component of health systems strengthening. Through data systems such as the Regulatory Human Resources Information System (rHRIS), Kenya Health Workforce Information System (KHWIS), Integrated Personnel Payroll Database

(IPPD), and Human Resource (HR) data systems, Kenya's health professional regulatory agencies and MOH collect health workforce information, specifically regulatory, deployment, payroll, and HR management data respectively (Kenya Nursing Workforce Report; Status of nursing in Kenya, 2012). It therefore follows that in assessing the determinants to the adoption of HRIS in state corporations in Kenya, the researcher should be guided by amongst others; whether or not there is a decrease in the costs of human resources (HR) data storage; improvements in accuracy of stored data; improved service delivery; performance based management; proper and regular training and development initiatives coupled with improved status of the human resource management function (Armstrong & Taylor, 2014).

1.2 Statement of the Problem

A report by inspectorate of state corporations Republic of Kenya, 2011 as cited by Weru (2014) avers that out of the fifty nine ISO (9001: 2008 series) certified state corporations only 10% recorded increased performance in performance evaluation results while the rest 90% exhibited poor performance contract evaluation results for the three contract years which indicates that some ISO certified SCs continue to perform below the expectations and the set target (ROK, 2012). Wachira (2013) posited that the country's labour output lagged behind global standards. Kenya was ranked 106 out of 139 countries in global competitiveness with the labour index and capital productivity being 0.84 and 0.46 respectively out of a global competitiveness benchmark of at least 5.

Resistance to change can affect or delay the adoption and implementation of HRIS, as employees may feel safer with the old paper system. Most organizations really underestimate the cultural impact of technology on their employees (Mohapatra, 2009) as cited by Aggarwal and Kapoor, (2012). Batool (2012) agrees that HR should give the same priority to addressing these changes with employees as they do the training and implementation of software, assessing the level of employee skill and acceptance of technology and arranging training and mentoring programs within staff groups to help stressed employees.

Primarily in prior literatures the main focus in research is the impact of HRIS in organizations in both public and private sectors (Muriithi, Gachunga & Mburugu, 2014; Al-Dmour & Al-Zu'bi, 2014). Little attention has been paid on the issues that surround the adoption and implementation of HRIS in organizations. This is a problem because HR managers and other HR professionals have not recognized ICT capability, HR leadership, information safety and privacy, training and development and strategic management as critical factors in the adoption of HRIS and organizational performance. State corporations would not be able to meet corporate objectives of profit growth, sales growth and high earnings per share (Chumo, 2013). It is therefore the purpose of this study to bridge the gap between the current occurrence and what would be the paramount approach in moving the commercial state corporations in Kenya to the acceptable state. Muriithi, Gachunga and Mburugu (2014), agree that HRIS adoption remains under-researched both in public and private sectors, and therefore, addressing it can provide a valuable contribution to both research and practice.

1.3 Objectives of the study

To determine the influence of ICT capability on organizational performance in commercial state corporations in Kenya

2.0 LITERATURE REVIEW

2.1 Theoretical review

2.1.1 Diffusion for Innovation Theory

Much diffusion research involves technological innovations so Rogers (2003) usually used the word “technology” and “innovation” as synonyms. Technology is a design for instrumental action that reduces the uncertainty in the cause-effect relationships involved in achieving a desired outcome (Laudon & Laudon, 2014). It is composed of two parts: Hardware and software. Since software (as a technological innovation) has a low level of observability, its rate of adoption is quite slow. Chakraborty and Mansor (2013) aver that adoption is a decision of full use of an innovation as the best course of action available and rejection is a decision not to adopt an innovation. Rogers (2003) defines diffusion as the process in which an innovation is communicated thorough certain channels over time among the members of a social system.

As expressed in this definition, innovation, communication channels, time, and social system are the four key components of the diffusion of innovations. An innovation may have been invented a long time ago, but if individuals perceive it as new, then it may still be an innovation for them (Badgi, 2012). The newness characteristic of an adoption is more related to the three steps (knowledge, persuasion, and decision) of the innovation-decision process that will be discussed later. In addition, Rogers claimed there is a lack of diffusion research on technology clusters. Hameed and Counsell (2014) agree that a technology cluster consists of one or more distinguishable elements of technology that are perceived as being closely interrelated”. Uncertainty is an important obstacle to the adoption of innovations. An innovation’s consequences may create uncertainty. Consequences are the changes that occur in an individual or a social system as a result of the adoption or rejection of an innovation (Rogers, 2003).

To reduce the uncertainty of adopting the innovation, individuals should be informed about its advantages and disadvantages to make them aware of all its consequences. Moreover, Rogers claimed that consequences can be classified as desirable versus undesirable (functional or dysfunctional), direct versus indirect (immediate result or result of the immediate result), and anticipated versus unanticipated (recognized and intended or not). Communication Channels; the second element of the diffusion of innovations process is communication channels. Communication as defined by Pietri, (2011) is the process in which participants create and share information with one another in order to reach a mutual understanding and achieve a common goal. This communication occurs through channels between sources. Bamel, Bamel, Sahay, and Thite (2014), agree that the source is an individual or an institution that message originates from. A channel is the means by which a message gets from the source to the receiver.

Rogers (2003) states that diffusion is a specific kind of communication and includes these communication elements: an innovation, two individuals or other units of adoption, and a communication channel. Mass media and interpersonal communication are two communication channels. In interpersonal channels, the communication may have a characteristic of homophily, that is the degree to which two or more individuals who interact are similar in certain attributes, such as beliefs, education, socioeconomic status, and the like,” but the diffusion of innovations requires at least some degree of heterophily, which is “the degree to which two or more individuals who interact are different in certain attributes.” In fact one of the most distinctive

problems in the diffusion of innovations is that the participants are usually quite heterophilous (Rogers, 2003).

Communication channels also can be categorized as localite channels and cosmopolite channels that communicate between an individual of the social system and outside sources. Time; Rogers (2003) cited that the time aspect is ignored in most behavioral research. He argues that including the time dimension in diffusion research illustrates one of its strengths. The innovation-diffusion process, adopter categorization, and rate of adoptions all include a time dimension. Social System; the social system is the last element in the diffusion process. For Rogers (2003), structure is the patterned arrangements of the units in a system. He further claimed that the nature of the social system affects individuals' innovativeness, which is the main criterion for categorizing adopters. Rogers (2003) described the innovation-decision process as "an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation". In light of this study this supports the variable of information quality. Information quality dimensions like accuracy, integrity, consistency, completeness, accessibility, validity, and timeliness enhance the decision making process.

If the output of information systems does not meet these quality criteria then the decision making process writhes. so it is important to have quality information in data warehouses as they consolidate and standardize information from different operational databases so that the information can be used across the enterprise for management analysis and decision making (Yeung & Brockbank, 2015). In the study this ties to the variable information quality to system quality which influences the adoption and implementation of technology in organizations in both the private and public sector. External characteristics of organization refer to system openness (Mukulu, Karanja & Warui, 2015).

2.2 Empirical Review

Determinants of human resource information systems usage in the teachers' service commission's operations in Kenya a study by Warui (2016), established that infrastructure had an inverse effect on usage of HRIS in the operations of TSC in Kenya. Insufficient IT facilities as well as inadequate networked facilities affected adoption of HRIS. However the presence of a system that integrated all employees' information with payroll and financial software was a positive move in usage of HRIS. This was however the case in all public organizations where integrated personal payroll data (IPPD) is used and could not be attributed as an upgrading of usage of existing ICT by TSC.

Empirical results from this study revealed that that scarcity or unavailability of equipment and financial resources for maintaining HRIS were a barrier to sustainability of HRIS. Computers were not enough coupled with frequent system failures due to weak servers that needed upgrading. Based on the findings, internal structure of the organization significantly affected usage of HRIS, in the TSC operations in Kenya. However this relationship was a weak one. Whereas for other variable the moderating variable lowered the R squared value in the case of internal structure of the organization the value increased. It was revealed from the study that creativity was not encouraged at the Teachers Service Commission. Instead there was more emphasis in improving existing operations than exploring new ideas. This was attributed to TSC structure which was based on strict hierarchical control.

3.0 RESEARCH METHODOLOGY

This study adopted a census method, and used both qualitative and quantitative methods of data collection. The target population of the study was chief executive officers (policy makers), directors of human resources and deputy directors of human resources of both pure and strategic commercial state corporations in Kenya. Drop and pick method of administering questionnaires was used to collect quantitative data. Qualitative data was collected and analyzed using thematic analysis and emphasized on pinpointing, examining, and recording patterns or "themes" within data, and quantitative data using statistical tools namely, Statistical Package for Social Sciences (SPSS) version 22.0. A total of 165 questionnaires were administered to chief executive officers (policy makers), directors of human resources and deputy directors of human resources in both pure and strategic commercial state corporations in Kenya. Fifty five interviews were carried out and forty eight of the respondents were interviewed.

4.0 RESULTS

4.1 Descriptive Results

This section contains descriptive analysis for location. A Likert scale with options of strongly disagree, disagree, neutral, agree and strongly agree were presented for answering by respondents. The results were presented in form of percentages, mean and standard deviations

Table 1: ICT Capabilities and Organizational Performance

Statement	SD	D	N	A	SA	Mean	SD
The organization has basic IT infrastructure in place	7.60%	6.70%	0.80%	10.10%	74.80%	4.4	1.26
There is a budget for IT needs in the organization	5.90%	2.50%	31.90%	11.80%	47.90%	3.9	1.2
The organization have adequate skills and competences in IT among its human resources	9.20%	13.40%	25.20%	33.60%	18.50%	3.4	1.2
Software and hardware are standardized to suit organization needs	7.60%	7.60%	10.10%	47.90%	26.90%	3.8	1.15
There adequate training in system use to employees and managers	4.20%	8.40%	17.60%	47.10%	22.70%	3.8	1.03
IT strategy of this organization is linked to its five year strategic plan	6.70%	4.20%	8.40%	36.10%	44.50%	4.1	1.14
The IT system is synchronized to manage administrative costs	3.40%	7.60%	7.60%	64.70%	16.80%	3.8	0.91
There is emphasis on human centered information management to improve the ways in which people use and share information	6.70%	0.00%	22.70%	65.50%	5.00%	3.6	0.86
Average						3.8	1.1

The result revealed that majority of the respondent agreed with the statement that the organization has basic IT infrastructure in place (Mean=4.4). The standard deviation was 1.26 implying that the answers were varied from the mean. The result revealed that majority of the respondent agreed with the statement that the organization have adequate skills and competences in IT among its human resources (Mean=3.9). The standard deviation was 1.2 implying that the answers were varied from the mean. These findings agreed with that of Warui (2016) who argued that insufficient IT facilities as well as inadequate networked facilities affected adoption of HRIS. The result revealed that majority of the respondents were neutral on the statement that the software and hardware are standardized to suit organization needs (Mean=3.4). The standard deviation was 1.2 implying that the answers were varied from the mean. The result revealed that majority of the respondent agreed with the statement that there adequate training in system use to employees and managers (Mean=3.8). The standard deviation was 1.15 implying that the answers were varied from the mean. These findings agreed with that of Warui (2016) who argued that insufficient IT facilities as well as inadequate networked facilities affected adoption of HRIS. However the presence of a system that integrated all employees' information with payroll and financial software was a positive move in usage of HRIS.

The result revealed that majority of the respondent agreed with the statement that IT strategy of this organization is linked to its five year strategic plan (Mean=4.1). The standard deviation was 1.14 implying that the answers were varied from the mean. The result revealed that majority of the respondent agreed with the statement that the IT system is synchronized to manage administrative costs (Mean=3.8). The standard deviation was 0.91 implying that the answers were not varied from the mean. Finally the result revealed that majority of the respondent agreed with the statement that there is emphasis on human centered information management to improve the ways in which people use and share information (Mean=3.6). The standard deviation was 0.86 implying that the answers we varied from the mean. This results concurs with those of Bondarouk and Ruel (2009) who aver that IT strategy, infrastructure, and cost, examines the organization's IT plans and it is important to assess its assignment with the organization's business plans for at least five years

On a five point scale, the average mean of the responses was 3.80 which mean that majority of the respondents indicated that majority of the respondents were agreed about the statement; however the answers were varied as shown by a standard deviation of 1.1.

Table 2: Content analysis

Themes	Frequency	Percentage
Efficient	89	74.8%
Not efficient	19	16.0%
Weak	11	9.2%
Total	119	100%

The respondents were asked to describe the ICT capacity in their organization. Majority of the respondents (74.8%) indicated that their organization has efficient ICT department, 16% indicated that ICT in their organization is not efficient while only 9.2% who indicated that ICT

in their organization was weak. This implies that most commercial state corporations in Kenya have efficient ICT departments.

These findings agreed with that of Warui (2016) who argued that insufficient IT facilities as well as inadequate networked facilities affected adoption of HRIS.

Table 3: Content analysis

Themes	Frequency	Percentage
Enhances performance	72	60.5%
Reduced work force	21	17.6%
Improved HSRS System	26	21.9%
Total	119	100%

The respondents were also asked to describe how ICT capability influenced implementation of HRIS in the organization. Majority of the respondents (60.5%) indicated that availability of ICT in their organization has led to better performance, (17.6%) indicated it reduced work force while (21.9%) of the respondent indicated HRIS system are improved. This implies that adopting Ict capability in the organization influences implementation of HRIS. These findings agreed with that of Warui (2016) who argued that insufficient IT facilities as well as inadequate networked facilities affected adoption of HRIS.

4.2 Correlation Results

Table 4: ICT Capability and Organizational Performance

Variable		Organization performance	Ict capability
Organization performance	Pearson Correlation	1.00	
	Sig. (2-tailed)		
Ict capability	Pearson Correlation	.437**	1.00
	Sig. (2-tailed)	0.00	

The results revealed that ICT capability have a positive and significant association with organization performance ($r= 0.437$, $p=0.000$). These findings were consistent with that of Troshani, Jerram and Gerrard (2011) who found out that HRIS can be used as a source for achieving cost savings and inimitable competitive advantage.

4.3 Regression Results

Regression analysis was done to determine the relationship between Ict capability and Organizational Performance of Commercial state cooperation in Kenya. Results were presented below.

Table 5: Model Fitness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.437a	0.191	0.184	0.67496

Ict capability was found to be satisfactory variable in explaining organizational performance. This is supported by coefficient of determination also known as the R square of 19.1%. This means that Ict capability explain 19.1% of the variations in the dependent variable which is organizational performance. This also implies that 80.9% of the variation in the dependent variable is attributed to other variables not captured in the model. These findings agrees with that of Warui (2016) who concluded that information communication technology have a positive effect on organizational performance.

Table 6: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	12.597	1	12.597	27.65	.000
Residual	53.302	117	0.456		
Total	65.899	118			

Table 6 provides the results on the analysis of the variance (ANOVA). The results indicate that the overall model was statistically significant as supported by a p value of 0.000 which is lesser than the critical p value of 0.05. This was supported by an F statistic of 20.587 which imply that Ict capability is a good predictor of organizational performance. These findings agree with that of Warui (2016) who concluded that information communication technology have a positive effect on organizational performance.

Table 7: Regression of Coefficient

Model	B	Std. Error	T	Sig.
1 (Constant)	1.046	0.464	2.254	0.026
Ict capability	0.618	0.118	5.258	0.000

Regression of coefficients showed that Ict capability and organizational performance were positively and significantly related ($\beta=0.618$, $p=0.000$). These findings agree with that of Warui (2016) who concluded that information communication technology have a positive effect on organizational performance.

$$Y = 1.046 + 0.618X_1$$

Where X_1 is ICT Capability and Y is Organizational Performance

4.4 Hypothesis testing for Ict capability and Organizational Performance

The hypothesis stated that ICT capability does not significantly influence on organizational performance of Commercial state cooperation in Kenya. The results revealed that $F_{cal} (27.65) > F_{critical} (3.94)$ and thus the null hypothesis was rejected. The results further indicated that the $t_{cal} (5.258) > t_{critical} (1.96)$. Therefore the study concluded that ICT capability significantly influence organizational performance of Commercial state cooperation in Kenya. These findings agree with that of Warui (2016) who concluded that information communication technology have a positive effect on organizational performance

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Major Findings

The objective of the study was to establish to the influence of ICT capability on organizational performance in commercial state corporations in Kenya. The results revealed that in most organizations the Information provided by the human resource information system is accurate.

The result also revealed that that the organization has basic IT infrastructure in place. The result revealed that the organization have adequate skills and competences in IT among its human resources. The result also showed that the software and hardware are standardized to suit organization needs. Moreover the result revealed that there adequate training in system use to employees and managers. Therefore, the results from ICT capability indicated an adoption of ICT resulted to an improvement in firm's performance. Correlation results indicated that ICT capability and organization performance have a positive and significant association. Regression results further revealed that ICT capability and performance were positively and significantly related.

5.2 Conclusions

The study concluded that IT strategy of an organization should be linked to yearly strategic plan. The study concluded that the IT system is synchronized to manage administrative costs. The study concluded that that there is emphasis on human centered information management to improve the ways in which people use and share information. The result also concluded the software and hardware are standardized to suit organization needs. Moreover the result concluded that there adequate training in system use to employees and managers.

5.3 Recommendations

The study recommended that organizations should place more emphasis on human centered information management in order to improve the ways in which people use and share information. The study also recommended that there should be IT education services that provide training in system use to employees and offer managers training in how to plan for and manage IT investments and IT research and development services that provide the firm with research on potential future IT projects and investments that could help the firm differentiate itself in the market place.

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