Effect Of System Capability On The Performance Of Level Four Public Hospitals In Kenya

Mwenda Geoffrey Justus[1] , Jesse Maina Kinyua[2] , & Samuel Nduati Kariuki[3]

[1,2,3]Department of Business Studies The University of Embu.

Abstract

In the world of competition, organizations and more specifically public hospitals are rethinking on strategic management capabilities in order to improve performance. For the government of Kenya to achieve the social pillar of Vision 2030, public health facilities should embrace strategic management capabilities. The research objective of the study was to determine the effect of system capability on the performance of level four public hospitals in Kenya and moderating effect of organizational commitment on the relationship between strategic management capabilities and performance. The study was anchored on dynamic capability theory and balanced scorecard model. Positivist paradigm and cross-sectional research design were adopted. The target population of this study was 257 level four public hospitals in Kenya. The sample size of 157 level four public hospitals in Kenya was determined using Israel formula. Systematic sampling technique was used to select the respondents of the study. Respondents of this study included doctors, clinical officers, and nurses. Primary data were collected using questionnaires while secondary data were collected from published records such as customer service delivery charters and human resource records. Data were analyzed using descriptive statistics such as mean scores, standard deviation, percentages, and frequency tables and inferential statistics such as correlation and regression. Graphs, tables, figures, histograms, pie charts were used to present the results. The results indicated that the coefficient for system capability was significant (.150, p<.05) implying that system capability significantly affect the performance of level four public hospitals in Kenya. The results suggested that organizational commitment has a statistically significant moderating influence on the relationship between strategic management capabilities and performance of level four public hospitals in Kenya (F= 21.85, p=0.000<0.05) explaining 45.3% variation in performance of level four public hospitals in Kenya up from 43.0 % before introducing organizational commitment as a moderator. Organizational commitment strengthens the relationship between strategic management capabilities and performance of level four public hospitals in Kenya. The study also recommends that a hospital should establish systems and ensure employees are capacitated to adopt the system. The hospitals should establish an active website and computerized systems for managing patient information.

1. Introduction

In the world of competition, changing consumer needs, the influence of technology and globalization, competitive organizations and more specifically health care organizations are embarking on embracing strategic management capabilities in order to improve their performance. Performance of any organization is conceptualized to be a function of strategic management capabilities (Rajasekar, 2014). With unpredictable business environments, modern competitive organizations are rethinking on formulating, implementing and controlling strategies to achieve established goals of the organization (Hill & Jones, 2010). Jofre (2011) affirms that organizational performance is viewed to be a function of strategic management capabilities that is also facilitated by internal factors such as organizational commitment.

A strategy is of little use to an organization without a means of putting it into action. Strategy implementation is an essential part of the strategic planning process (Hill & Jones, 2010). Pearce and Robinson (2013) describe strategic management as an organizational process that involves the formulation, implementation, and control of strategies based on the established standards. In this regard, strategic management capabilities are viewed to be factors or drivers that can make an organization to achieve its goals more efficiently and effectively in the changing business environment. One of the selected strategic management objective is the system capability.

Mukkuna (2016) contends that system capability is thought to be the ability of the organization to achieve its objectives by embracing information and communication technology (ICT) in its process. The ability of the organization to eliminate wastage, reduce employee movement, eliminate inefficiencies, practices and digitize services is facilitated by the effectiveness of the technology in place. Cultural capabilities are described as fundamental beliefs, values, norms, attitudes and thoughts that shape the behavior of workers in any formal or informal organizations (Musyoka, 2011). Mohammad (2014) regards organizational commitment as the level or degree of dedication or attachment which employees have towards organizational vision and mission.

With an increased demand for quality health care services, public hospitals in developing countries and more specifically in Kenya are rethinking on strategic management capabilities as a strategy of achieving global health care standards (Mohamud, 2014). Performance of any organization is considered to be a function of strategic management capabilities if effectively embraced (Ahmed & Muathe, 2017; Ibrahim & Muathe 2017). Khan and Huda (2016) acknowledge that achieving global health care standards, public health organization have to rethink strategic management capabilities.

2. Background

Public healthcare in Kenya has experienced tremendous developments since independence (WHO, 2015). In 2010, the revised Kenya Constitution devolved the responsibility of public health service delivery for primary and secondary health services to the 47 counties. The ministry of health provides policy support and technical guidance to priority national programs and stays in charge of the national referral hospitals and remains responsible for human resources for health (university teaching hospitals, public universities and medical schools). In 2013, after the elections, the new Constitution came into force and the changes in roles and responsibilities from a national to a County level became a reality (MoH, 2015). The goal of devolution in health is to enhance equity in resource allocation, thereby improving service delivery for the majority of Kenyans, especially those residing in rural areas (KPMG, 2013).

With devolution, County Governments are mandated to implement new strategies and take responsibility to manage their public hospitals (UNIDO, 2010). It is expected that in due time the privatization of the management of public hospitals will be introduced to fill the gaps in some Counties. The six types of health facilities that exist in Kenya are: teaching and referral hospitals, district hospitals, health centers, dispensaries and mobile clinics (KPMG, 2013).

Dispensaries and health centers are the first contact facilities for people seeking medical care. Level four public hospitals are facilities that provide clinical care at the district level and act as referrals center of small health care facilities. Level four hospitals are the second in the chain of public health facilities in Kenya which provide healthcare services to the majority of the Kenyans and finally level six public hospitals which also serve as the teaching and referral hospitals in Kenya (MoH, 2015). Despite the fact that the aim of the public health sector in Kenya is to promote quality service delivery to patients, it is noted that majority (87%) of public hospitals in Kenya have a long way to go before realizing Vision 2030 goals of quality health care service to all Kenyans (World Health Organization, 2018).

Similarly, Ibahim and Muathe (2017) point out that the state of infrastructural facilities and capacity development in the health sector in Kenya is of great concern. The ratio of doctors, clinical officers, and nurses to that of patients is small as compared to developed countries. With inconsistencies in service delivery in public hospitals in Kenya, it is estimated by the Kenya Medical Association (2018) that 27% of the deaths in level four public hospitals are caused by lack of medical equipment, 21% are caused by frequent strikes by medical staff, 19% are caused by lack of advanced technologies to perform complex medical procedures such as heart and brain surgeries and 33% of the deaths are caused by negligence of patients to adhere to drug prescriptions and incompetence of the medical staff.

As indicated by Kenya Medical Association (2018) statistics, public hospitals in Kenya are experiencing challenges which have resulted to mortality rates by 27% which is attributed to lack of medical equipment, 21% of the mortality rates caused by periodical strikes among the medical

staff, 19% of the deaths caused by lack of appropriate technology and 33% of them by negligence of the medical staff. Similarly, Sheikh (2014) Ibrahim and Muathe (2017) contend that public health sector in Kenya is experiencing challenges of capacity development, change implementation and quality service delivery thus the need for this study to address the research gaps in this area. This paper sought to evaluate the effect of the system capability on the performance of level four public hospitals in Kenya.

3. Theoretical literature review

The paper was guided by Dynamic Capability Theory. The dynamic-capabilities theory was established by Teece et al. (1997). The theory is an extension of the resource-based theory of the firm. It examines how firms integrate, build, and reconfigure their internal and external firm-specific competencies into new competencies that match their turbulent environment. The theory assumes that firms with greater dynamic capabilities outperform firms with smaller dynamic capabilities. The aim of the theory is to understand how firms use dynamic capabilities to create and sustain a competitive advantage over other firms by responding to and creating environmental changes. Further, the theory suggests that for organizations to be competitive, unique resources such as technology, assets, processes, and knowledge of employee and information can be utilized to gain sustainable competitiveness (Barney, 1991). This theory is retested in this study on the assumption that public hospitals are likely to perform if they embrace strategic management capabilities such as system capability.

4. Empirical literature review and hypotheses development

Chegenye, Mbithi and Musiegac (2015) established that there exists a significant positive relationship between service quality and the use of technology in a general hospital in Kenya. The study adopted a descriptive case study design and random sampling technique to select 300 respondents. Data were analyzed using descriptive statistics and results indicated that there exists a positive significant relationship between performance management systems and the performance of public hospitals. It was pointed out that the integration of technology in the service delivery systems contributed to 63% cost minimization thus service efficiency and effectiveness.

In addition, a study by Chegenyea, Mbithi and Musiegac (2015) was confined to a single hospital and its findings cannot be generalized in this study. Further, the study did not adopt multiple regression which facilitates statistical measurement of the association between variables. Moreover, Mwangi (2017) established that technology was one of the strategies that enable public hospitals to perform effectively in terms of quality service delivery but failed to test the moderating effect of organizational commitment on the relationship between strategic management capabilities and performance of level four public hospitals in Kenya. From the empirical review, the hypothesis to be tested is;

H$_{01}$: There is no relationship between system capability and performance of level four public hospitals in Kenya.

5. Research design

The study adopted a cross-sectional research design to collect data at a particular point in time for analysis and presentation in a quantitative manner. Fisher (2010) asserts that the design is considered appropriate based on the fact that it enables the researcher to collect the data and analyze it to test the statistical relationship between variables. In addition, it provides the opportunity to test the research hypotheses quantitatively based on the laws of cause and effect (Novikov & Novikov, 2013).

The target population of this study was 257 level four public hospitals in Kenya. Given the fact that the population of the study is finite, Israel (2009) formula was used to arrive at the ideal sample size of 157 level four public hospitals. The respondents comprised doctors, clinical officers, and nurses. Stratified random sampling technique was adopted to select 157 level four public hospitals. The study relied on primary and secondary data. Primary data were collected using structured questionnaires with open and closed-ended questions. Descriptive and inferential statistics were used to analyze the data.

6. Empirical results and discussion

44.9% of the respondents were nurses, 35.5% were clinical officers while 19.6% were doctors. The study thus represents the response of health workers in the various professions. Further, 55.8% of the respondents had a diploma, 18.8% had a higher national diploma, 13.8% had a bachelor's degree, 8.0% had a postgraduate degree while 3.6% had a Certificate. The findings show that the respondents had attained relevant education and thus they are knowledgeable to provide the information sought by the study.

Descriptive statistics

Descriptive statistics of Performance of Level Four Hospitals

This section presents the analysis of the dependent variable which is performance of level four hospitals in Kenya. The respondents were requested to respond to eleven statements rated on a five point Likert scale ranging from: Strongly Agree; Agree; Not sure; Disagree and Strongly disagree. The results in Table 1 shows that 53.6% of the respondents agreed with the statement that patients are attended within the shortest time possible (mean = 3.956, std = 0.927). The findings also show that 71.0% of the respondents agreed that doctors, clinical officers and nurses are always ready to attend patients (mean = 3.891, std = 0.658) while 65% agreed that there are minimal number of strikes in the hospital (mean = 3.652, std = 0.635).

The results also indicate that 73.9% of the respondents were not sure whether there is high number of patient referrals (mean = 2.963, std = 0.571), 50% disagreed with the statement that there are

adequate number of doctors, clinical officers and nurses in the hospital (mean = 1.558, std = 0.582), 60.1% disagreed with the statement that patients can access consultant doctors at any time (mean = 1.710, std = 0.618), 54.3% strongly agreed that patients are served with passion (mean = 4.391, std = 0.858), 58% were not sure if instant feedback is provided to patients (mean = 2.992, std = 0.667), 55.1% were also not sure if there were minimal patient complaints in the hospital (mean = 3.094, std = 0.682), 54.3% agreed that a variety of medical services are provided in the hospital (mean = 3.442, std = 0.672), while 55.1% were not sure if the hospital has invested in the state of the art medical equipment (mean = 2.956, std = 0.671).

Descriptive Statistics for System Capability

The study sought to establish the effect of system capability on the performance of level four public hospitals in Kenya. The respondents were thus requested to respond to ten statements rated on a five point Likert scale ranging from: Strongly Agree; Agree; Not sure; Disagree and Strongly disagree. The results in Table 2 show that 78.0% of the respondents agreed that the hospital has an active website (mean = 3.760, std = 0.560). The results also indicate that 81.2% of the respondents agreed that the hospital has computerized systems of managing patient information (mean = 3.811, std = 0.491), 52.2% of the respondents were not sure if the hospital has computerized procurement systems (mean = 3.449, std = 0.567), 59.4% were not sure if the hospital has computerized financial management systems (mean = 3.449, std = 0.565), 87.7% agreed that the employees of the hospital have the ability to use computers when serving patients (mean = 3.891, std = 0.446) while 50% were not sure if the hospital has invested in modern medical equipment (mean = 3.434, std = 0.578).

The findings also indicate that 80.4% of the respondents agreed that they are trained on how to use medical machines (mean = 3.891, std = 0.522), 58% agreed that patients are issued with computer generated medical reports (mean = 3.558, std = 0.579), 56.5% disagreed with the statement that patients always pay medical fees through cashless means (mean = 2.514, std = 0.642), while 51.4% of the respondents disagreed with the statement that patients can access doctors and nurses for services through phone calls and emails (mean = 1.949, std = 0.786).

Inferential Analysis of system capability and Performance of Level Four Public Hospitals in Kenya

The following hypothesis was therefore tested using simple linear regression model.

H_{01}: There is no relationship between system capability and performance of level four public hospitals in Kenya.

The null hypothesis was tested using the following multiple linear regression model:

$$y = \beta_0 + \beta_1 x_1 + \varepsilon \ \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.$$

Where:

y is the performance of level four public hospitals in Kenya, β_0 is the regression constant, β_1, is coefficients estimated, x_1 is system capability, ε is the error term. The results in table 3 provide the coefficients of the variables used in the study. The regression equation model in this study is as shown in the equation.

$$y = 1.020 + 0.150x$$

The results show that the constant term is 1.020, suggesting that holding the variables under consideration to zero, could result to 1.020 units of returns to level four public hospitals in Kenya. This could be due to other factors not considered in this study. The results in Table 3 indicates that he coefficient for system capability is (.150, p<.05) meaning that holding other independent variables to zero, an increase in system capability variable by 1 unit results to an increase of performance by 0.150 units. The null hypothesis that there is no relationship between system capability and performance of level four public hospitals in Kenya is thus rejected. The findings are in agreement with the findings by Chegenye, Mbithi and Musiegac (2015) which established that there exists a significant positive relationship between service quality and the use of technology in a general hospital in Kenya. The findings also are consistent with the findings by Mwangi (2017) which established that technology was one of the strategies that enable public hospitals to perform effectively in terms of quality service delivery. The results also support the also support views of the dynamic capability theory which asserts that for organizations to be competitive, unique resources such as technology, assets, processes, and knowledge of employee and information can be utilized to gain sustainable competitiveness (Barney, 1991).

7. Summary and conclusion

The results indicated that system capability significantly affect the performance of level four public hospitals in Kenya. The study thus concludes that system capability significantly affect the performance of level four public hospitals in Kenya. Specifically, a hospital that has an active website and computerized systems of managing patient information performs better. Similarly, a hospital that has computerized procurement systems and financial management systems performs better. A hospital that has employees who have the ability to use computers when serving patients, invested in modern medical equipment, trained employees on how to use medical machines and issue patients with computer generated medical reports, have cashless payment systems and where patients can access doctors and nurses for services through phone calls and emails perform better.

The study also recommends that a hospital should establish systems and ensure employees are capacitated to adopt the system. The hospitals should establish an active website and computerized systems for managing patient information. Hospitals should also computerize procurement systems and financial management systems. Employees should also be trained to use the computers and other hospital equipment. Hospitals should also invest in modern medical equipment, issue patients with computer generated medical reports, have cashless payment systems and enable patients to access doctors and nurses for services through phone calls and emails. The hospital should also

recognize employees for the services they provide to patients, have better terms and conditions of work, offer opportunity of career development, ensure continuous improvement of working conditions and security of tenure. The study recommends that government and policy makers should make proper funding in order to enable hospitals to procure modern equipment that will facilitate their functions.

References

Barney, J. (1991), Firm Resources and Sustained Competitive Advantage, Journal of Management. Strategic Management Journal 2 (13) 21- 44.

Bita, A., Kash A. S. D. & Gamm, C. E. J. (2014). Healthcare strategic management and the resource-based view", Journal of Strategy and Management, 7 (3), 251 -264

Chegenyea, Mbithi & Musiegac (2015). The role of performance management system on service delivery, using the case of Kakamega County general hospital in Kenya. International Journal of Sciences: Basic and Applied Research (IJSBAR), 1 (10), 1-17.

Fisher, C. M. (2010). Researching and Writing a Dissertation: An Essential Guide For Business Students. 3rd ed. Harlow: Financial Times Prentice Hall:808.066658 FIS & e-book.

Gaturu, P., Waiganjo, E., Bichang' a, W. & Oigo, D. (2017). Influence of Strategic Control on Organizational Performance of Mission Hospitals in Kenya. International Journal of Innovative Research and Development. 6 (6), 1-17

Hill, J. W. & Jones, G. (2010). Strategic management theory: An integrated approach, 3rd ed. Boston: Houghton-Mifflin.

Israel, G. D. (2009). Determining Sample Size, Institute of Food and Agricultural Sciences. Florida: University of Florida.

Jofre, L.D. (2011). Successfully Implementing Strategic Decisions. Long Range Planning, 18, 91- 97.

Kenya Medical Supplies Agency (2016). A case study of the ongoing transition from an ungainly bureaucracy to a competitive and customer focused medical logistics organization – a study for the World Bank

Khan R, Huda F (2016). The Impact of Strategic Management on the Performance of Health Care Organizations (A Study of Three Selected Tertiary Health Care Center of Karachi, Pakistan). Arabian Journal of Business Management, 1(1), 6-253.

KPMG (2013). The Devolution of Health Services in Kenya

Ministry of Health Report (2015). Retrieved on March 11, 2019

Mohamud, A. M. (2014). The effect of training on employee performance in public sector organizations in Kenya. The case of NHIF Machakos County. International Journal of Current Research, 4(11) 241-378

Mwangi, M. B. (2017). Factors influencing the adoption of ICT strategy in the Kenyan public health sector – a case. study of the Kenyatta national hospital. European Journal of Management and Business economics, 3 (6) 5-16.

Novikov, A.M. & Novikov, D.A. (2013). Research Methodology: From Philosophy of Science to Research Design. CRC Press.

Odera, E. O. (2009). The effects of training on employee performance in the public healthcare facilities in Kenya; a case of Mbagathi district hospital. International Journal of Economics, Commerce, and Management, 3 (11). 1-1.

Rajasekar, D. J (2014). Factors affecting effective strategy implementation in a service industry: A study of electricity distribution companies in the Sultanate of Oman. International Journal of Business and Social Science, 5 (9) 2-11

Sheikh, I. N. S. (2014). Strategic management process and performance of M.P. SHAH hospital in Kenya. MBA Thesis. University of Nairobi

Teece, David; Pisano, Gary; Shuen, Amy (1997). "Dynamic Capabilities and Strategic Management". Strategic Management Journal. 18 (7), 509–533.

UNIDO (2010), Pharmaceutical Sector Profile: Kenya

List of Tables

Table 1: Frequencies, Mean and Standard Deviation for Financial Performance

Statement	Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree	Mean	Std. Dev
Patients are attended within the shortest time possible	27.5% (38)	53.6% (74)	5.8% (8)	13.0% (18)	0.0% (0)	3.956	0.927
Doctors, clinical officers and nurses are always ready to attend patients	11.6% (16)	71.0% (98)	12.3% (17)	5.1% (7)	0.0% (0)	3.891	0.658

There are minimal number of strikes in the hospital	2.9% (4)	65.2% (90)	26.1% (36)	5.8% (8)	0.0% (0)	3.652	0.635
There is high number of patient referrals	1.4% (2)	9.4% (13)	73.9% (102)	14.5 % (20)	0.7% (1)	2.963	0.571
There are adequate number of doctors, clinical officers and nurses in the hospital	0% (0)	1.4% (2)	0.7% (1)	50% (69)	47.8% (66)	1.558	0.582
Patients can access consultant doctors at any time	0% (0)	2.2% (3)	2.2% (3)	60.1 % (83)	35.5% (49)	1.710	0.618
Patients are served with passion	54.3% (75)	38.4% (53)	0.7% (1)	5.1% (7)	1.4% (2)	4.391	0.858
Instant feedback is provided to patients	0.7% (1)	19.6% (27)	58.0% (80)	21.7 % (30)	0% (0)	2.992	0.667
There are minimal patient complaints in the hospital	0% (0)	27.5% (38)	55.1% (76)	16.7 % (23)	0.7% (1)	3.094	0.682
Variety of medical services are provided in the hospital	0% (0)	54.3% (75)	35.5% (49)	10.1 % (14)	0% (0)	3.442	0.672
The hospital has invested in the state of the art medical equipment	0% (0)	20.3% (28)	55.1% (76)	24.6 % (34)	0% (0)	2.956	0.671

Table 2: Frequencies, Means and Standard Deviations for System Capability

Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Dev.
My hospital has an active website	1.4% (2)	78.3% (108)	15.2% (21)	5.1% (7)	0% (0)	3.760	0.560

My hospital has computerized systems of managing patient information	1.4% (2)	81.2% (112)	14.5% (20)	2.9% (4)	0% (0)	3.811	0.491
My hospital has computerized procurement systems	1.4% (2)	44.2% (61)	52.2% (72)	2.2% (3)	0% (0)	3.449	0.567
My hospital has computerized financial management systems	1.4% (2)	36.2% (50)	59.4% (82)	2.9% (4)	0% (0)	3.362	0.565
Employees of my hospital have the ability to use computers when serving patients	2.2% (3)	87.7% (121)	7.2% (10)	2.9% (4)	0% (0)	3.891	0.446
My hospital has invested in modern medical equipment	0.7% (1)	45.7% (63)	50.0% (69)	3.6% (5)	0% (0)	3.434	0.578
I am trained on how to use medical machines	5.8% (8)	80.4% (111)	10.9% (15)	2.9% (4)	0% (0)	3.891	0.522
Patients are issued with computer generated medical reports	0.7% (1)	58% (80)	37.7% (52)	3.6% (5)	0% (0)	3.558	0.579
Patients always pay medical fees through cashless means	0% (0)	8.0% (11)	35.5% (49)	56.5% (78)	0% (0)	2.514	0.642
Patients can access doctors and nurses for services through phone calls and emails	0% (0)	4.3% (6)	15.2% (21)	51.4% (71)	29.0% (40)	1.949	0.786

Table 3: Co efficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.020	.202		5.054	.000

System Capability	.150	.041	.246	3.693	.000

a. Dependent Variable: Performance of Level Four Public Hospitals in Kenya.