



**SERVICE OUTSOURCING AND THE PERFORMANCE OF PUBLIC HEALTH  
SECTOR IN KIAMBU COUNTY**

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**Abstract**

This study's aim was to establish how outsourcing influence the performance in public hospitals located in the Kiambu County. The main objectives guiding the study included the outsourcing of logistics, IT, suppliers and human resource which aim at finding the relationship on the overall performance of public hospitals in Kiambu County. This study was supported by the agency theory, resource-based view theory and transaction cost theory. The study adopted a descriptive research design. This research had a population of 112 public hospitals and a total 88 hospitals were chosen as a sample using the stratified random sampling method. Primary data was gathered from the key respondents within the public hospitals using structured questionnaires. The collected data was analyzed by use of the Statistical Package for Social Sciences (SPSS) version 20.0 with the main analysis tools being frequencies, mean and standard deviation and multivariate linear regression. The independent variables reported R value of 0.834 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.695 means that 69.5 % of the corresponding variation in performance of hospitals can be explained or predicted by (Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing) which indicated that the model fitted the study data. The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ( $\beta = 0.695$ ),  $p=0.000 < 0.05$ . The study recommends optimal outsourcing strategies that fits institutions model to discourage lag and optimize performance.

**Keyword:** Health Sector, HR Outsourcing, IT Outsourcing, Logistics Outsourcing, Performance, Service Outsourcing and Supplier Outsourcing

## **Introduction**

The study aims at establishing the relationship between outsourcing and the performance of public health institutions. Continuous and rapid growth in the current business environment has attributed to organization seeking new and innovative approaches to achieve competitive advantage. Customers are now well informed and knowledgeable, and they demand for highly adaptive and specialized materials and workmanship. This has led firms and industries to monitor and evaluate their activities and implementing reengineering processes to aspects such as transportation so as to meet customer satisfaction (Buogo, 2015). Outsourcing is one strategy that institutions can implement to improve their competitive ability in the industry whereby part of the activities in a firm are acquired from third party providers who are specialized in that area or of production or service provision. One of the strategies that firms can employ to acquire sustainable competitive advantage is outsourcing which is considered to be basically that part of an organization's process, which is sourced from outside suppliers with no regard for the type of relation with these suppliers. While some firms have adopted outsourcing strategies so as to improve cost reduction and improve the efficiency in their business processes, others have used it to gain competitive advantage, expand into other markets, and gain flexibility in decision-making (Mohamed 2019).

Kiambu County is centrally located in the Country and is divided in 12 sub counties. These include, Limuru, Kikuyu, Lari, Gatundu South, Gatundu North, Githunguri, Kiambu, Ruiru, Thika, Juja, Kiambaa, and Kabete. Kiambu County borders Nairobi and Kajiado Counties to the South, Machakos to the East, Murang'a to the North and North East, Nyandarua to the North West and Nakuru to the West. The county is mostly reliant on agriculture and industrialization for revenues and sustaining its economy. Majority of the farmers in Kiambu practice small scale farming mostly of tea and coffee. However, the number of firms who practice large scale tea plantation and coffee as well is adequate service the local. (Thumbi, 2018). Other crops grown in Kiambu include pyrethrum, horticultural products, potatoes, vegetables, peas, beans and maize.

Kiambu county has a total of 112 public hospitals with a reliable health service network comprising of three level-5 hospitals, eleven level-4 hospitals, twenty-four level-3 hospitals, seventy-two level-2 hospitals and two level-1 hospitals distributed in the various sub-counties (County Government of Kiambu, 2019). There are also well established 17 private mission hospitals, 5 nursing homes and 169 private clinics. Omoro (2017), states that patients grapple with the shortage of drugs hence being referred to buy drugs from private chemists. There is need for implementation of various strategies such as outsourcing specifically enhancing supplier capacity to ensure that public hospitals acquire value for money for the massive budget allocations and provide adequate services to the members of the public.

Health care is a fast-growing industry and incurs one of the largest expenditures from procurement of medical supplies, pharmaceuticals and health care services. Hospitals also represent the largest cost component of national health sector expenditures and both medical and nonmedical supplies account for one of the largest costs to hospitals (Rangeria, 2018). Recent studies have shown that

easy access is a key aspect of reforming the public hospitals by ensuring proper management through acquiring skilled personnel to come up and implement the right and necessary tools and strategies so as to boost performance, increase accountability and transparency (Maher, Saadati & Hosseini, 2016; Paltriccia & Tiacci, 2016). A report released by Ministry of health in 2014 revealed that county executive committee (CEC) member are responsible for ensuring smooth running of operations by managing all health services within the country by formulation of policies and proper implementation and plans for efficient procurement services in health services (MoH, 2014).

In their study, Fugener, Schoenfelder & Brunner, (2017) stated that outsourcing of logistics activities is more implemented as a strategic tool in improving management in public hospitals. The various activities include supply chain management, transportation within the warehouse and production, availing raw materials and distribution of finished goods, sterilization and inventory management. Raue and Wieland (2015) opined that logistics outsourcing entails an association within an institution and an external party such as a Logistic Service Provider (LSP), where they have more specialized skills and customization to fit a firm needs while achieving cost reduction compared basic activities in logistics. They also provide training an orientation services to the employees hence improving productivity and the scope of knowledge.

Kiambu County came up and adopted a strategy to be implemented within a five-year period in health services and investment plan to increase generation of revenue for the institution. The objectives of the developed plan were directed towards improving service provision within the hospitals. However, the strategies implemented did not record an improvement, since an uproar over inadequate services in the public hospitals such as overcrowding leading to sharing of bed among patients, reports of expectant mother giving birth on the floor, patients left unattended to over long hours and severe cases leading to death. (Siekhwe 2016). It is therefore against this background; the current study will seek to examine the effect of outsourcing on operational performance in hospitals in Kiambu County

### **Statement of the problem**

According to Aggarwal & Garg (2014), hospitals are the leading spenders in purchasing in Kenya with an annual resource budget that gradually increases with every financial year. Just 63 per cent of Kenyans have access to government health services located within an hour of their homes (International Rescue Committee 2019). The sector faces a critical brain drain which was exacerbated by devolution and the arising conditions at the county level. Currently between 30 to 40 per cent of the estimated 600 doctors who graduate in Kenya annually move to other countries in search of greener pastures after completing internships (Magokha 2017).

Africa Check (2019), state that Kenya's health budget has increased by more than 30% in the last two financial years while that of the county government by 17.8%.Kiambu County Fiscal Strategy Paper (2019), shows that the county was among the top five counties with the highest proportion which allocated 5 billion shillings for the health sector. This massive budget does not guarantee

the provision of better health services as studies below show hence putting a great financial strain on the taxpayers. Machakos County is also among the top five in budget allocation and has been able to implement the free maternity care in the Level 5 hospitals and plans to set up a referral system (Africa Check, 2019). A research carried out on the state of service delivery in health and education facilities in Kenya by Africare International (2014), revealed that 80% of public health facilities have inadequate essential supplies.

Rangeria and Nyangau (2018) from their study on the influence of strategic purchasing on performance of public hospitals in Nairobi county found out that vendor optimization, outsourcing, IT adoption and VMI led to improvement of quality of goods, timely purchases and stock out reduction. Owuor & Noor (2019), determined that logistics outsourcing has a positive effect on the performance of large retail firms in Kenya. There is need for implementation of various strategies such as outsourcing specifically enhancing supplier capacity to ensure that public hospitals acquire value for money. While much research has focused on the procurement process as a major challenge in provision of healthcare services and outsourcing in organizations in Kenya, not much research has been done to study outsourcing and operational performance of public hospitals. Therefore, this study aims at assessing the effect of outsourcing on the operational performance of public hospitals in Kiambu County.

### **Research Objectives**

The general objective of this study was to establish the relationship between service outsourcing and the performance of public health sector in Kiambu County. Specifically, the study sought to

1. To determine the effect of logistics outsourcing on performance of public health sector in Kiambu county.
2. To establish the effect of technology outsourcing on performance of public health sector in Kiambu county.
3. To assess the effect of supplier outsourcing performance of public health sector in Kiambu county.
4. To examine the effect of human resource outsourcing on performance of public health sector in Kiambu county.

### **Theoretical Review**

#### **Agency theory**

This theory is used to develop an understanding of the business relationship between agents and principals. According to Chepwogen and Moronge (2019), various agent and principal problems may arise including conflicting objectives; differences in risk avoidance, trigger ambiguity, and self-interest-based behavior, and limited rationality. The contract between the principal and the agent determines the relationship between the two parties and the principle seeks to establish a contract that can minimize future issues with the agency (Mulama, 2012). In addition, for

businesses involving supply chain partners, contracts seeking to balance incentives and sanctions are usually established to minimize misalignment (Magutu, Chirchir & Mulama, 2013).

Supply base integration enables the execution of tasks within the principal-agent partnership, as the outcome may be either negative or positive for either of the actors, the agent's chosen behavior affects both parties' welfare. The principal-agent relationship is often established because the agent has a greater abundance of skills, abilities, and resources needed to carry out the necessary activities (Kingi 2017). This theory will guide the study to establish the relationship between the outsourced suppliers and the performance of public hospitals in Kiambu County. The theory will be applicable in the study in that the researcher will be able to emphasize on the importance of excellent relationship between the suppliers and the management bodies of public hospitals in ensuring effective performance in hospitals and patients' satisfaction with services offered in those institutions.

### **Resource Based View Theory**

The resource-based view theory promoted by Barney (1991) shows that the possession of resources by a firm is valuable, difficult to imitate, rare, and cannot be substituted. The theory proposes that internal resources are significant and valuable to an organization in developing strategies that will promote a sustainable competitive advantage in its market. (Valmohammad & Ahmadi, 2015). The basis of the resource-based notion is that successful firms can find their future profitability in developing distinctive and specific capacities, which may often be tacit or intangible in nature. In particular, taking into account the approaches used before outsourcing, the RBV approach demonstrates that the decision to outsource is taken on the basis of the capabilities of a company relative to those of its suppliers (Chepwogen & Moronge, 2019). RBV supports the positive aspects of outsourcing of in-house strategic activities and resources of firms, whether they are cost management, launch of new products and services, emphasis on core competencies or labor efficiency, and how they enhance operational performance in various institutions and companies. This view was further divided into two categories that is focus on outsourcing tendency and the relationship between outsourcing decision and operational performance (Ondemo & Nyang'au, 2018).

This theory also notes that an organization may outsource some other operations other than its core competencies. This allows the firm to decide whether producing a product in-house or purchasing it from the market is more effective. In this context, outsourcing is preferred when the organization notes that a feature is not part of its core competencies and that an external supplier will provide the right quality at the right price. The aim is essentially to reduce costs and enhance quality and free up management resources for the core strategic business needs of the company (Kariuki, 2015). Ondemo and Nyang'au (2018), shows that outsourcing cannot be considered as a mere "making or buying" decision, but rather as a business strategy, put in place by top management to promote the efficiency of businesses. The theory will be applicable in this study whereby the researcher will be able to identify how some public hospitals in Kiambu County performs better

than other hospitals in the same county. This will be achieved by understanding the relationship between technology outsourcing and the performance of public hospitals in Kiambu County.

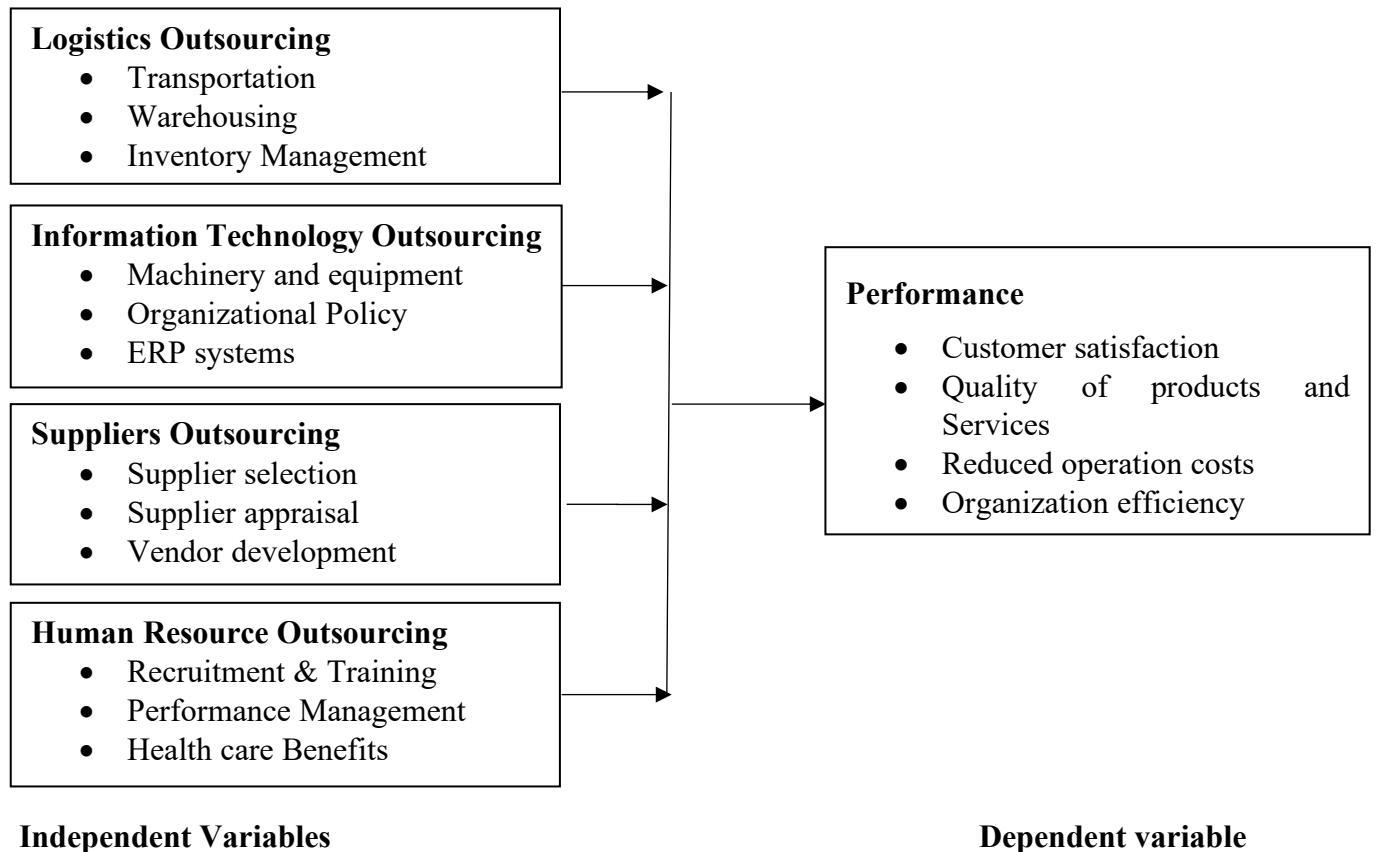
### **Transaction Cost Theory**

TCE is attributed to Oliver Williamson working on works first originated by Ronald Coase (Emmanuel, 2013). The transaction cost economics theory looks at the essence of corporations in life. The theory in addressing this problem implies that organizations exist in order to reduce the transaction costs of individual transactions that may arise in a market between a buyer and a seller (Maami, 2011). According to Greve & Argote (2015), transaction cost theory aims to address the issue of when activities would occur within the market and within the firm. It states that the relative costs of procurement and output associated with the process or service decide whether the process should be outsourced or internalized.

Individual transaction processes are best organized within organization due to limitations of human cognitive capacities, costs associated with individual transactions, as well as failure to take hold of basic assumptions relating to efficient markets such as rational actors, perfect knowledge, homogeneous products, and the absence of liquidity constraints (Kamuri, 2015). The theory also aims to analyze the circumstances when performing a specific process within the organization and circumstances making it appropriate to outsource a similar process outside the organization (Maami, 2011). TCE argues that all functions should be outsourced where the advantages to the business are greater than the transaction costs. Benefits include increased revenues and reduced costs of production. The relevance of the theory to the study is focused on the claim that better outsourcing of procurement results in cost savings, particularly when the outsourced activities would otherwise have been costly to handle in-house. The accurate identification of tasks and processes to be outsourced as illustrated in cost economics theory would result in cost savings thereby increasing the cost efficiency of the Kiambu County public hospitals. This theory helps to show the connection between logistics outsourcing and public hospital performance in Kiambu County.

### **Conceptual Framework**

A conceptual framework is a systematic collection of concepts and ideas taken from specific areas of inquiry and used to form a presentation (Ravich & Riggan, 2012). Various variables from previous studies were incorporated so as to come up with the conceptual framework to be used in this study. The independent variables are logistics outsourcing, technology outsourcing, suppliers outsourcing and human resource outsourcing while the dependent variable is the operational performance of public hospitals in Kiambu County.



**Figure 1: Conceptual Framework**

### Critique of the Literature

Studies conducted in this area have various limitations on their applicability. For example, various studies on the outsourcing of logistics functions (Antoniolli et al. 2015; Green, Whitten & Inman 2011; Tompkins et al, 2013) have limitations in the methodological scope, contextual scope, conceptual scope, theoretical scope and results. Babin, Khan & Stewart (2018), study was limited to small children hospitals in Toronto Canada. The findings were only presented using descriptive statistics hence there was no casual effect relationship. This study will use a large sample size with regression model finding casual effect relationship between outsourcing and operational performance.

In addition, Kariuki (2015) studies on the outsourcing and operational performance of business processes among private hospitals in Nairobi and Anyango (2014), on outsourcing and performance of state-owned companies in different conceptual frameworks were adopted. On the other hand studies by Jawab et al, (2018) on hospital logistics activities and Babin, Khan & Stewart (2018), an IT outsourcing dilemma at sick kids hospital Galal, Mostafa & Elawaldy (2018),

supplier evaluation and selection for logistics outsourcing were all carried out heterogeneous economic settings that may not necessarily reflect the situation in Kenya

### **Research Gaps**

The review of the existing literature on outsourcing has revealed both conceptual and contextual gaps that the current study aims to address. Kariuki (2015) studies of outsourcing of the outsourcing and operational performance of business processes among private hospitals in Nairobi, Chepwogen & Moronge (2019), on the influence of procurement outsourcing practices on performance of manufacturing firms in Nairobi county, Ondemo & Nyang'au (2018), on the effect of procurement outsourcing on performance of state corporations in Kenya, Owuor & Noor (2019) identified both conceptual and qualitative research gaps in the impact of logistics outsourcing on output of major retail companies in the Nairobi City Council. The studies have portrayed the context of other industries and countries which cannot be generalized to public health sector.

### **Research Methodology**

This study adopted a descriptive survey research design to enable collection of detailed information. This research was carried out at public health sector within Kiambu County. According to the website of the county government of Kiambu, there are a total of 110 hospitals in all 12 sub counties in Kiambu. The sampling frame of this study consists of 110 public health sectors in Kiambu county and the respondents are the key informants of the hospitals. The technique to be used in this study will be the stratified random sampling to select a desirable sample size of 10 public hospitals in Kiambu County. This technique provides high precision estimates of the total population parameters and ensures a more representative sample is chosen from a population with fairly similar characteristics. The sample size was arrived at using a formula developed by Yamane. A total of 88 questionnaire will be distributed to the sampled hospitals. This study used structured questionnaires to collect primary data. pilot study was carried out on 9 facilities representing 10% of the sample population and these respondents will not be included in the final analysis. The data was quantitatively and qualitatively analyzed. The research used descriptive statistics using SPSS version 20 for evaluating the qualitative results. Data analyzed must satisfy the hypotheses of linear regression, these hypotheses state that parameters must be linear in nature, the response errors should follow the Gaussian distribution, and errors should have a popular distribution. A multiple regression model was used for the research.

### **Results and Discussion**

A sample of 86 respondents were interviewed using questionnaires that allowed the researcher to drop the questionnaire to the respondents and then collect them at a later date when they had filled the questionnaires. A total of 86 questionnaires were distributed to the hospital. Out of the



population covered, 75 were responsive representing a response rate of 90.9 %. This was above the 50% which is considered adequate in descriptive statistics according to (Dunn 2017).

**Table 1: Response Rate of Respondents**

Response	Frequency	Percentage
Actual Response	75	87
Non-Response	13	13
Total	86	100%

### Pilot Study

The pilot study was conducted on 9 respondents who were not included in the final study. This represented 10% of the sample size. This adheres to Cooper & Schindler (2011), who states that the rule of the thumb suggests that 5-10% of the target sample should constitute the pretest. Cronbach's alpha is the most commonly used coefficient of internal consistency and stability. Cronbach's alpha was used to measure reliability. This was done on the four objectives of the study. The results in Table 2 below indicated that Information Technology outsourcing had the highest reliability at .987 and logistics outsourcing had the least at .893. This implied that these were greater than 0.7 threshold for this study hence the instrument were reliable. The findings of the study agreed Crowther (2016), the reliability is expressed as a coefficient between 0 and 1. The higher the coefficient, the more reliable is the test

**Table 2: Reliability Results**

Variable	No of Items	Respondents	$\alpha$ =Alpha	Comment
Logistics Outsourcing	6	9	0.893	Reliable
Information Technology Outsourcing	6	9	0.987	Reliable
Supplier Outsourcing	6	9	0.974	Reliable
Human Resource Outsourcing	6	9	0.976	Reliable

### Descriptive Statistics

#### Logistics Outsourcing

Results indicated that majority of the respondents (4.4) agreed on the statement that Proper management in motor vehicles maintenance and scheduling aids in faster response towards service provision. The variation of the responses was distributed at 0.658 showing an unevenness in the responses. Further results indicated that (4.01) of the respondents were in agreement that Ambulance outsourcing allows timely movement of patients requiring emergency care to referral hospitals. The responses variation was given at 0.479 a mean of 4.64 of the respondents indicated general agreement on Outsourcing transportation services transfers the risk of operations to the logistics provider. However, the distribution deviation from this statement was 0.51. 4.12 mean

response of the respondents expressed agreement on the statement that e-Waste disposal polices, and strategies should be implemented in the institution to improve efficiency in operations. The distribution was 0.544 Final tabulated Results indicated that majority of the respondents with a mean of 3.59 agreed on the statement that Drugs inventory management. It ensures no stock outs due to proper inventory level scheduling and proper record keeping. The mean response of the statement was 0.856. These findings imply that logistics outsourcing was at the heart of the organization. The findings agree with Owuor & Noor (2019), who conducted a study on the influence logistics outsourcing has on the performance of large retail firms in Nairobi. The finding of the study was that transport outsourcing practices have a positive and significant influence on performance of large retail firms in Nairobi County. The study further established that having transport outsourcing practices that transfers the risks of transportation operations to the logistics provider that protects the organization from penalties.

**Table 3: Logistics Outsourcing**

	Mean	Std. Dev
Proper management in motor vehicles maintenance and scheduling aids in faster response towards service provision	4.4	0.658
Ambulance outsourcing allows timely movement of patients requiring emergency care to referral hospitals	4.01	0.479
Outsourcing transportation services transfers the risk of operations to the logistics provider	4.64	0.51
Waste disposal polices and strategies should be implemented in the institution to improve efficiency in operations	4.12	0.544
Drugs inventory management It ensures no stock outs due to proper inventory level scheduling and proper record keeping	3.59	0.856

### Information Technology Outsourcing

The respondents were required to rate how various statements on Information Technology Outsourcing influenced the performance in the health sector in Kiambu County. Table 4 below illustrates the distribution of responses received. The results indicated that majority of the respondents (4.04) agreed on the hospital IT facilitates the organizations ability to reintegrate the outcomes of outsourced processes back into their internal operations. The distribution variation of the statement was 1.084. Further results indicated that (4.2) of the respondents were in agreement that the use of internet and LANs enables easier communication and fast flow of information to all channels in the institution. The std. deviation of that statement was 1.065 showing a variation between the minimum and maximum of the responses. A tabulated mean of 3.85 of the respondents showed agreement on statement that HMIS integrated in the institution helps in faster decision making and improved management. The variation in response of that statement was 0.854. Up to date medical equipment are needed to facilitate faster processes and improved services to customer's statement generated a mean of 3.59 and a std deviation of 0.931. This shows a general

consensus on the statement. Final Results indicated that majority of the respondents with a mean (4.04) agreed to statement that IT enables better record management and keeping which improves better service provision to patients. These findings show that dynamism in technology and its applicability is core in any institution. It also shows that IT as a facet of operations saves a lot of time and resources thus promoting efficiency. These results mirror Babin, Khan & Stewart (2018), shows that the outsourcing of information technology improved the quality of service and speed on delivery at sick kid's hospitals. Also, there was better access to skilled resources such as software and generic services.

**Table 4: Information Technology Outsourcing**

	Mean	Std. Dev
The hospital IT facilitates the organizations ability to reintegrate the outcomes of outsourced processes back into their internal operations	4.04	1.084
The use of internet and LANs enables easier communication and fast flow of information to all channels in the institution	4.2	1.065
HMIS integrated in the institution helps in faster decision making and improved management	3.85	0.954
Up to date medical equipment are needed to facilitate faster processes and improved services to customers	3.59	0.931
IT enables better record management and keeping which improves better service provision to patients	4.04	0.761

### Supplier Outsourcing

The Responses of supplier selection criteria policies implemented aid in sourcing highly equipped and specialized suppliers posted a mean of 4.44 and a std.dev of 0.702. This showed patterns of agreement in that statement. Majority of the respondent's indicated by a mean of 4.21 indicated that Supplier appraisal enables timely provision of quality goods and services. The std.dev was a resounding 0.501 showing deviations in responses. Further results indicated that a mean of 3.65 in the respondents were in agreement that Well-equipped security firms allows safeguarding of company resources reducing risk of damage and the std.dev was 0.814. Respondents 0.597 agreed Early supplier development improves the quality level of products and services and cost reduction in business operations. The std.dev was 0.597. Final Results indicated that majority of the respondents 4.03 agreed on the statement that Cleaning services increase the sanitation and improves the maintenance of hygiene to the institution's best practice. The std.dev of that statement was 0.677. The above statements show a lean towards the importance of supplier outsourcing in any firm especially firms that require heterogeneous products and services. This notion is corroborated by Lam (2012), who states that outsourcing of suppliers is a process undertaken by firms to foster accurate and adequate selection of vendors and proper negotiation for the best prices for the goods and services to be delivered and maintain a healthy relationship to enhance development and faster business operations.

**Table 5: Supplier Outsourcing**

	Mean	Std. Dev
Supplier selection criteria policies implemented aid in sourcing highly equipped and specialized suppliers	4.44	0.702
Supplier appraisal enables timely provision of quality goods and services	4.21	0.501
Well-equipped security firms allow safeguarding of company resources reducing risk of damage and theft	3.65	0.814
Early supplier development improves the quality level of products and services and cost reduction in business operations	4.09	0.597
Cleaning services increase the sanitation and improves the maintenance of hygiene to the institution's best practice	4.03	0.677

**Human Resource Outsourcing**

The results indicated that majority of the respondents table 6, 4.57 agreed on the statement that Outsourcing training and payroll has led to a higher propensity for organizational innovation. The std. deviation for that response was 0.597 showing a varied reaction. Further results indicated t of the Access to skilled personnel in the various departments improves efficiency in the organization with a mean of 3.56 showing agreement. The std.dev was 0.702. A mean of 4.36 indicate that the respondents agreed that Consultants involved in critical areas in the business operations aid in risk mitigation. The std.dev of that response 0.747 showing a variation. A mean of 4.04 of the respondents expressed agreement on the statement that e-Outsourced compensation and benefits packages are effectively handled with minimized risk of tampering and pilferage. The std dev of the response 0.861 showing a variation Finally, statement on Outsourcing of HR services reduces the workload on Staff hence allowing the organization to focus on strategic decision making indicated a mean of 4 and a varied response of 0.805. The statements on human resource outsourcing mirror those of Barthelemy & Adsit (2013) who noted that outsourcing of human resources management enhances service quality.

**Table 6: Human Resource Outsourcing**

	Mean	Std. Deviation
Outsourcing training and payroll have led to a higher propensity for organizational innovation	4.57	0.597
Access to skilled personnel in the various departments improves efficiency in the organization	3.56	0.702
Consultants involved in critical areas in the business operations aid in risk mitigation	4.36	0.747
Outsourced compensation and benefits packages are effectively handled with minimized risk of tampering and pilferage	4.04	0.861
Outsourcing of HR services reduces the workload on Staff hence allowing the organization to focus on strategic decision making	4	0.805

## Correlation Analysis

The study used a correlation analysis which determined both the significance and degree of association of the variables and also predict the level of variation in the dependent variable caused by the independent variables. The correlation summary shown in Table 7 indicates that the associations between each of the independent variables and the dependent variable were all significant at the 95% confidence level. The correlation analysis to determine the relationship between Outsourcing and on performance in hospitals in Kiambu County, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.505$ ) between logistics outsourcing and performance in hospitals in Kiambu County. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000, <0.05$ ). The positive and strong correlation between logistics outsourcing and performance outline the deficiency in logistics resources found especially in the public sector. This is occasioned by the high cost of fixed logistics assets such as vehicles, machinery etc. Further, the results can be compounded by Ondemo & Nyang'au (2018), who sought to evaluate the impact of procurement outsourcing on the output of state-owned companies in Kenya where the main variables of the analysis were inbound, outbound, logistics, and logistics outsourcing by third parties. The study showed that all the above outsourcing activities have a positive effect on the performance of State Corporation

The correlation analysis to determine the relationship between Information Technology outsourcing and performance in hospitals in Kiambu County, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.616$ ) between Information Technology outsourcing and performance of parastatals. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000, <0.05$ ). The above results seem to be in agreement with IT outsourcing as an important method for obtaining and retaining competitive advantage when implemented as part of a holistic IT organization method (Anyango 2014). The correlation analysis to determine the relationship between supplier outsourcing and performance in hospitals in Kiambu County, Pearson correlation coefficient computed and tested at 5% significance level. The results indicate that there is a positive relationship ( $r=0.689$ ) between supplier outsourcing and performance in hospitals in Kiambu County. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000, <0.05$ ). The correlation results for supplier outsourcing mirrors those of Chepwogen & Moronge (2019), who are of the opinion that the personnel managing the suppliers should be skilled in commercial, technical and interpersonal aspects so as to foster development of long-term relationship. The staff should be skilled in areas such as project management, analytical skills and market knowledge and more importantly effective flow of information and adequate communication for stronger working relationships.

The correlation analysis to determine the relationship between human resource outsourcing and performance in hospitals in Kiambu County, Pearson correlation coefficient computed and tested

at 5% significance level. The results indicate that there is a positive relationship ( $r= 0.647$ ) between human resource outsourcing and performance in hospitals in Kiambu County. In addition, the researcher found the relationship to be statistically significant at 5% level ( $p=0.000, <0.05$ ). Barthelemy & Adsit (2013) are also in agreement to our findings by noting that outsourcing of human resources management enhances service quality. Also, outsourcing has also been used as a tool for making adjustments that would be impossible to execute internally, which allows flexibility, in that, supply can be switched on and off easily (Kavuncubaşı & Yildirim, 2010). It provides an enhanced system of operation and product resources management where the supplier bears the responsibility of delivering the excess capacity. Hence, it is evident that all the independent variables could explain the changes in the performance of public hospitals on the basis of the correlation analysis. Correlation results imply outsourcing as the link to enhanced performance of the health sector. Policy makers should strive to promote efficient outsourcing directives thus promoting sustainable health practices.

**Table 7: Summary of Pearson’s Correlations**

		Logistics Outsourcing	Information Technology Outsourcing	Supplier Outsourcing	Human Resource	Performance
Logistics Outsourcing	Pearson Correlation	1				
	Sig. (2-Tailed)					
	N	75				
Technology Outsourcing	Pearson Correlation	.294*	1			
	Sig. (2-Tailed)	0.01				
	N	75	75			
Supplier Outsourcing	Pearson Correlation	.285*	.381**	1		
	Sig. (2-Tailed)	0.013	0.001			
	N	75	75	75		
Human Resource	Pearson Correlation	.282*	.738**	.498**	1	
	Sig. (2-Tailed)	0.014	0	0		
	N	75	75	75	75	
Performance	Pearson Correlation	.505**	.616**	.689**	.647**	1
	Sig. (2-Tailed)	0	0	0	0	
	N	75	75	75	75	75

## Multiple Regression

The independent variables reported R value of 0.834 indicating that there is perfect relationship between dependent variable and independent variables. R square value of 0.695 means that 69.5 % of the corresponding variation in performance of hospitals can be explained or predicted by (Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing) which indicated that the model fitted the study data.

Adjusted R square in table 8 is called the coefficient of determination which indicates how performance of hospitals varied with variation in effects of factors which includes; Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing.

In order to improve the efficiency of the whole value chain, it is important to transcend the borders of individual entities and merge the whole chain, in order to create a coherent and interconnected structure to maximize the information flow of the chain. The companies that can supply their products quicker and more effectively to consumers would be better able to create a sustainable competitive advantage gained from expertise and innovation in order to develop new products as the key source of economic income (Johannessen, and Olsen, 2010).

The results of regression analysis revealed that there was a significant positive relationship between dependent variable and independent variable at ( $\beta = 0.695$ ),  $p=0.000 < 0.05$ ). The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how human resource, logistics outsourcing, supplier outsourcing, technology outsourcing influence performance of hospitals

F test was conducted to test the effect of all the independent variables on the dependent variable in a simultaneous manner. From a statistical perspective, the F-Test was done to show whether there is a joint effect of independent variable on the dependent variable. The F critical at 5% level of significance was 39.839 Since F calculated which can be noted from the ANOVA is 117.939 which is greater than the F critical (value = 39.839), this shows that the overall model was significant. The significance value is 0.000 which is less than 0.05 thus the model is statistically significance in predicting how human resource, logistics outsourcing, supplier outsourcing, technology outsourcing influence performance of hospitals. The study therefore establishes that; human resource logistics outsourcing, supplier outsourcing, technology outsourcing were all important e outsourcing practices influencing performance of hospitals. These results agree with Okeke-Ezeanyanwu (2017) on the impact of outsourcing on organizational productivity in private and public sectors revealed that the main impact from outsourcing is improved productivity, improving quality and profitability of the firm.

The regression equation above has established that taking all factors into account (E Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing) constant at zero, performance of hospitals will be an index of 2.473.

The study also found that a unit increase in logistics outsourcing will lead to a 0.13 increase in performance of hospitals. The P-value was 0.000 and thus the relationship was significant. Further, this result can be compounded by Ondemo & Nyang'au (2018), who sought to evaluate the impact of procurement outsourcing on the output of state-owned companies in Kenya where the main variables of the analysis were inbound, outbound, logistics, and logistics outsourcing by third parties. The study showed that all the above outsourcing activities have a positive effect on the performance of State Corporation

In addition, the study found that a unit increase in information technology will lead to a 0.113 increase in the performance of hospitals. The P-value was 0.000 and thus the relationship was significant. The above results seem to be in agreement with IT outsourcing as an important method for obtaining and retaining competitive advantage when implemented as part of a holistic IT organization method (Anyango 2014).

The findings presented also shows that taking all other independent variables at zero, a unit increase in supplier outsourcing will lead to a 0.106 increase in performance of hospitals. The P-value was 0.016 which is less 0.05 and thus the relationship was significant. The coefficients result for supplier outsourcing mirrors those of Chepwogen & Moronge (2019), who are of the opinion that the personnel managing the suppliers should be skilled in commercial, technical and interpersonal aspects so as to foster development of long-term relationship. The staff should be skilled in areas such as project management, analytical skills and market knowledge and more importantly effective flow of information and adequate communication for stronger working relationships

Lastly, the study found that a unit increase in human resource outsourcing will lead to a 0.104 increase in the performance of hospitals. The P-value was 0.002 and hence the relationship was significant since the p-value was lower than 0.05. The findings of the study show that, outsourcing contributed most to the performance of hospitals. Barthelemy & Adsit (2013) are also in agreement to our findings by noting that outsourcing of human resources management enhances service quality. Also, outsourcing has also been used as a tool for making adjustments that would be impossible to execute internally, which allows flexibility, in that, supply can be switched on and off easily (Kavuncubaşı & Yildirim, 2010). It provides an enhanced system of operation and product resources management where the supplier bears the responsibility of delivering the excess capacity. Regression results imply outsourcing as the link to enhanced performance of the health sector. Policy makers should strive to promote efficient outsourcing directives thus promoting sustainable health practices.

**Table 8: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834a	0.695	0.677	0.127922



a. Predictors: (Constant), human resource outsourcing, logistics outsourcing, supplier outsourcing, information technology outsourcing

**Table 9: Analysis of Variance**

Model		Sum Squares	of Df	Mean Square	F	Sig.
1	Regression	2.608	4	0.652	39.839	.000b
	Residual	1.145	70	0.016		
	Total	3.753	74			

**Table 10: Beta Coefficient**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.473	0.177		13.977	0.000
	Logistics Outsourcing	0.13	0.035	0.259	3.68	0.000
	Information Technology Outsourcing	0.113	0.046	0.243	2.461	0.016
	Supplier Outsourcing	0.106	0.019	0.434	5.608	0.000
	Human Resource	0.014	0.037	0.178	1.71	0.002

From the regression findings, the optimal model will be

$$Y=2.473+ 0.13X_1 + 0.113X_2 + 0.106X_3 +0.014X_4$$

### Conclusion of the study

Based on the study findings, the study concludes that performance of hospitals can be improved by Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing. First, in regard to Logistics Outsourcing, the regression coefficients of the study show that it has a significant influence of 0.113 on performance of hospitals. This implies that increasing levels of outsourcing logistics by a unit would increase the levels of performance of hospitals by 0.113 this shows that logistics outsourcing has a positive influence on performance of hospitals In addition to the second objective, the study found that a unit increase in information technology will lead to a 0.113 increase in the performance of hospitals. The P-value was 0.000 and thus the relationship was significant. In regard to the third objective, findings presented also shows that taking all other independent variables at zero, a unit increase in supplier outsourcing will lead to a 0.106 increase in performance of hospitals. Lastly, the study found that a unit increase in human resource outsourcing will lead to a 0.104 increase in the performance of hospitals.

Drawing on this research, it can be verified that outsourcing is a vital component in performance and lack of it therefore will halt the performance of hospitals. However, hospitals need to put in place optimum outsourcing priorities especially in labour outsourcing to promote expediency in health delivery. Thus, it is evident that all the independent variables identified in this study were all important procurement practices that influenced the performance of hospitals.

### Recommendations of the study

To ensure that hospitals have better performance they should focus more on optimizing logistics outsourcing to vendors who are both timely and reliable. They should also make sure warehousing as a facet is achieved so that they do not lack necessary goods and services when needed. In relation to information technology outsourcing, it is vital for the hospital to duly select third party vendors whom are heterogeneous in nature. Health services are critical and overreliance on one vendor might lead to heavy casualties especially if one vendor fails. Hospitals should also ensure they have backup of IT facets to foresee future needs.

With regard to the third objective, it would be salutary for hospitals to invest more in firms to foster accurate and adequate selection of vendors and proper negotiation for the best prices for the goods and services to be delivered and maintain a healthy relationship to enhance development and faster business operations concerning human resource outsourcing. The study recommends the procurement division to adopt strategies that promote training, hiring high skilled personnel and retaining the staff so as to increase the level of service delivery of the firm through motivation and recognition

### Areas for further studies

The study is a milestone for further research in the field of performance of hospitals in Africa and particularly in Kenya. The findings demonstrated the important outsourcing practices to performance in hospitals to include; Logistics Outsourcing, Technology Outsourcing, Supplier Outsourcing and Human Resource Outsourcing. Existing literature indicates that as a future avenue of research, there is need to undertake similar research in other institutions and public sector organizations in Kenya and other countries in order to establish whether the explored practices herein can be generalized to affect performance in public institutions.

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