

AN ASSESSMENT OF THE INFLUENCE OF INFORMATION SYSTEM, LEADERSHIP AND GOVERNANCE ON SERVICE QUALITY IN PUBLIC HOSPITALS IN KIAMBU COUNTY

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©2018

**International Academic Journal of Human Resource and Business Administration
(IAJHRBA) | ISSN 2518-2374**

Received: 30th November 2018

Accepted: 5th December 2018

Full Length Research

Available Online at:

http://www.iajournals.org/articles/iajhrba_v3_i4_315_331.pdf

Citation: Muya, O. W. & Kimando, L. (2018). An assessment of the influence of information system, leadership and governance on service quality in public hospitals in Kiambu County. *International Academic Journal of Human Resource and Business Administration*, 3(4), 315-331

ABSTRACT

An assessment of the influence of information system, leadership and governance on service quality in public hospitals continues to remain an area that need to be studied. Public hospitals continue to be blamed by the public for their quality of service. The general objective of this study was to assess the influence of information system, leadership and governance on service quality in public hospitals in Kiambu County. The literature review focused on theoretical and empirical foundations on the study topic. These theories were system theory and human capital theory. The study was done in Kiambu County covering all the 12 sub-counties in the County and adopted descriptive survey design. A sample size of 50 respondents across Kiambu County was selected from a target population of 156 to answer questions. Questionnaire were used in data collection and collected data

analyzed with the aid of statistical package for social sciences (SPSS) version 21 and both descriptive and inferential statistics was used to present data summaries using frequency distribution tables, graphs and pie charts. The study generated information that county and national government, hospital administration, general public and scholars found relevant in solving the current level of service in public hospitals with aid of strategic plan implementation. The study found out that information system, leadership and governance influenced service quality in the public hospitals, with information system and leadership and governance affecting the current service quality positively. Based on these findings, there is a need to enhance current information system and leadership and governance for even better results.

Key Words: *information system, leadership, governance, service quality, public hospitals in Kiambu County*

INTRODUCTION

According to Rhode (2010), effective strategy should be deeply understood and shared to all members of the organization, should allow flexibility so that the direction of the organization can be adopted to changing circumstances, the strategy results from the varied input of diverse group of thinkers, the strategy should follow through and deep analysis of both the external environment and the internal capabilities of organization and identifies areas of competitive advantage.

Kiambu County government has formulated and adopted a five year health strategic and investment plan that covers 2014-2019. The strategic objectives of this plan aims at general improvement in the service quality in the public hospitals. However even with the strategic plan in place, there is general outcry over the poor quality of services offered in public hospitals, with cases of patients being left unattended, women giving birth on the floor, overcrowding and patients sharing beds and in some cases resulting to death (Mwijuma, Omido & Akerele, 2013).

Therefore it's essential that the strategy in place be studied to determine its influence on service quality.

The standard of service quality is key to the success of any organization. Successful institutions have realized this and invested heavily on the quality of service. Service quality is an achievement in customer service that meets or exceeds customer expectations whilst remaining economically competitive. Organizations with better service quality have continued to increase on their profitability and remained competitive in the market than those with poor service quality. Better service quality would attract and retain customers and increase customers' experience. Kenyans public hospitals continue to face a number of challenges, key among them being poor quality of services offered, lack of sufficient personnel, health workers strikes, deficient budgetary allocation of funds that leads to inadequate facilities, drugs and equipment (FIDA, 2014). According to FIDA report on the state of public hospitals, resources in public hospitals remain inadequate presenting an impediment to the sustainability of the government policy. As a consequence, the number of preventable maternal deaths in Kenya has increased hindering achievement of Millennium development goal on health. The report site a case in Nyeri county hospital among other cases where an infant died on allegations of having been delivered on the floor due to staff shortage and hospital negligence. Poor infrastructures, few hospitals and health care centers have led to high patient burden at hospitals that are supposed to be only referral hospitals. A great exemplary is Kenyatta national hospital which is primarily referral hospitals. The hospital caters for average of 80,000 in patient and 500,000 outpatient annually (Kenya, 2015).

According to Muchangi (2015), devolution has brought new health facilities and medical equipment to all counties, but health workers are largely dissatisfied as a number of nurses and doctors continue to protest over delayed salaries and promotions and claim health was better managed by National government than the way it's being managed by county government. According to world health organization, Kenya has a critical shortage of health workers since independence. The organization has set a minimum threshold of 23 doctors, nurses and midwives per population of 10000. Kenya's current ratio stands at 13 per 10000 far below the world health organization standard, an issue that negatively affects service quality in Kenyans public hospitals. In Kiambu County, cases of public complains due to poor services in public hospitals are on rise, with health workers protesting over poor working conditions, delayed salary and promotion and patient being left un attended in spite of strategic plan being in place to improve the service quality in these hospitals (Wanjau, Muiruri & Ayodo, 2013).

STATEMENT OF THE PROBLEM

Kiambu county public health sector has a strategic and investment plan formulated in 2012 that covers from 2013 to 2019 with the main strategic objective being to improve the service quality in public hospitals. Even with the strategy in place to address service quality in public hospitals,

there still a large public outcry on the poor quality of services (Wanjau, Muiruri & Ayodo, 2012). Factors such as demotivated health workers and strikes, inadequate drugs, poor working conditions, high employee turnover, untidiness and overcrowding of patients have affected service quality in public hospitals (Wavomba & Sikolia, 2015). The county government receives public complaints over poor services in public hospitals due to the above factors which have adversely affected the service quality in spite of having implemented a health strategic and investment plan to improve service quality (Ochieng, 2016). This strategic plan is made up of information systems, leadership and governance among others, all aimed at improving service quality in public hospitals (KHSSP, 2012). However, there is public outcry over quality of service hence the need to assess the influence of information systems, leadership and governance on service quality in these hospitals.

OBJECTIVE OF THE STUDY

The general objective of the study was to assess the influence of information system, leadership and governance on service quality in public hospitals in Kiambu County.

THEORETICAL REVIEW

System Theory (ST)

This theory is interdisciplinary study of systems with the goal of discovering patterns and elucidating principles that can be discerned from and applied to systems at every level of nesting. This theory was first introduced by Bertalanffy (1968), which is trans-disciplinary and attempts to investigate both the principles common to all complex entities and models which can be used to describe them. It was later improved on by Connors (2007), according to Connors (2007), a system consists of four things; the first one is object which contains parts, elements or variables within the system, second is attributes which refers to qualities and properties of the system and its objects, third is internal relationships among its objects and fourth is environment.

A system is then defined as a set of things that affect one another within an environment and form a larger pattern that is different from any of the parts. The fundamental systems interactive paradigm of organizational analysis features the continual stages of input, throughput (processing) and output which demonstrate the concept of openness and closeness. A closed system does not interact with the environment while open system receives information which is used to interact with environment hence likelihood to survive and prosper.

According to Connors (2007), organizations that adopt open system in their information systems do prosper and survive for a longer time than those that adopt closed system. Therefore in an organization set up, information is supposed to flow from one stage or department to another to achieve the desired results hence lack of departmental or organizational free flow of information

leads to poor output. This theory has been developed and used by other scholars in different disciplines such as politics, economics, biological sciences and management science.

Heil (2006), view organizations as systems of cooperation of human activities to meet the criteria for survival through effectiveness and efficiency. This implies that the organization has to rely on information from one department to another to achieve its overall objective. Kiambu County public hospitals information flows from top management down to the least employee in the organization following top down approach. Information flows from one unit to another until it reaches employees at operational level who are supposed to put it into action to achieve desired results. However in the process of passing information from one unit to another, their challenges such as distort, lack of clearly, lack of proper understanding which end up leading to operational lapses that could be a possibility of poor services hence the need for this study.

Human Capital Theory (HCT)

Jones and Romer (2010), opines that human capital is the stock of knowledge, habits, social and personality attributes, including creativity, embodied in the ability to perform labor so as to produce economic value. It also corresponds to any stock of knowledge or characteristics the worker has that contributes to his or her productivity. This theory is characterized by education and experience which is regarded as a resource that is heterogeneously distributed across individuals. Other early scholars who did the study of human capital theory include Smith (1776) and Schultz (1961).

Human capital is the most important of all factors of production in an organization as it help in setting strategy for realization of organization goals and objectives and combine other resources to create a bundle that gives the organization a competitive edge, therefore the work force need a number of specific skills if the organization is to survive in the competitive environment (Mokyr, 2004).

The work force especially at management level need three basic types of skills in performing their work; the technical, conceptual and human or interpersonal skills to execute the organizational objectives (Saleemi, 2006), hence the assumption that investment in human capital will lead to greater economic outputs. In Kiambu County public hospitals, the level of service quality is attributed to the manner in which the health work force has been managed and their grievances pending unresolved. Health work force attained certain skills and training which should be relevant to their work, however even with this, there has been public complain over the level of services. Thus well management of human capital is an important factor that would contribute to improve quality service hence the overall success of the public hospitals.

EMPIRICAL REVIEW

Information System and Service Quality

An assessment of the influence of information system implementation on service quality in public hospitals in Kiambu County is an area that has not been studied; however scholars have attempted to carry out studies related to strategic management in relation to public hospitals in areas of strategy formulation and implementation. WHO (2003), highlights re-engineering as one of the best strategy for improved quality in public hospitals, even though the study acknowledges that there is no scientific evidence that one type of strategy is better than the other, while Wanjau, Muiruri and Ayodo (2012), in their study of factors affecting provision of service quality in public health sector, identified technology and improved communication as some of the factors contributing to improved services. This study does not specify which technology improves service quality.

Ombaka (2013), in the study on the evaluation of the level of quality health care accorded to patients in public hospitals revealed that patients take a lot of time to be served as a result of poor information systems. The health care strategies such as Information Communication Technology (ICT), management standards and system and innovation in information systems have co-relationship with service delivery (Owino, 2014). The study by Ochieng (2016), on the factors affecting provision of quality service in the public health sector highlights lack of technology advancement and information system as major cause of poor services and therefore recommends investment in technology by the public hospitals for better services; while Juma and Okibo (2016), in their study of the effects of strategic management practices on the performance of public health institutions in Kisii county agree that Technology Architecture if well implemented in public hospitals it improves on the performance of health care institutions, however the study is silent on what aspect of health care is improved on. Strategic Information system has helped to improve on service quality in high performing organizations. A study by Bharati and Berg (2003), on managing Information Systems for service quality identified system quality, information quality, user information system characteristics, employee information system, performance and technical support as factors influencing service quality.

Studies have shown that information systems have a positive relationship on service quality, with organizations that embrace this technology posting better results than their competitors that are not using information systems. Information system has increased efficiency in service delivery and information passed from one unit to another is more clear and timely (Miller, Nita, Thomas & Lee, 2008). Service quality in many institutions has been used as indicator of information system effectiveness with institutions with poor service quality being considered to be having inefficient information systems. Challenges associated with information system will lead to communication barrier which will eventually results to poor service delivery. This calls upon the organizations to invest heavily on better information system for superior services. It's therefore

clear from the above studies that information system has influence on the service quality. In this study the current information system in Kiambu County public hospitals was studied to establish its influence on the service quality.

Leadership, Governance and Service Quality

Success of any institution greatly depends on the type of leadership and governance in place, since this is what motivate or de motivate employee to perform (Berman, Pallas, Smith, Curry and Bradley, 2011). WHO (2003), highlights strengthening management standards and guidelines as best strategies for ensuring quality services in hospitals. The management should therefore embrace total quality management practices and must from time to time reorganize their hospitals to ensure that the service quality is not compromised. Since strategy formulation and adoption comes from the top management, its success will depend on management willingness to change and implement it. The leadership should therefore assess implementation capacity before committing to the new strategy and the managers have a responsibility of selecting a strategy that will aid in improving service quality in public hospitals. Leadership and governance style is key determinant of strategic plan implementation in public hospitals, since implementing a strategy requires organization culture change and desire for greater performance. Poor leadership has therefore hindered success of implemented strategy in public hospitals which has led to poor service delivery (Mutunga, 2003).

Poor management of strategic plan in public hospital was identified as key challenge to strategy success and quality service which has now resulted to poor services in public hospitals (Akerle et al; 2013). Effectiveness of quality health care strategies in improving service delivery at the national referral hospitals in Kenya was done by Owino (2014). The study found out that lack of strategic leadership training in public hospital has contributed to poor strategic implementation which eventually has resulted to poor service delivery in public hospitals. This study agrees with Mutuli (2014), who studied challenges affecting the implementation of strategic reproductive health programs among level five hospitals in Nairobi. Mutuli (2014), identified managerial incompetency as a barrier that is contributing to poor services in public hospitals. Similar findings were revealed by Asuman, Mungara, Kimemia and Warui (2015), in their study on organizational factors affecting the adoption of strategic planning in rural mission hospitals in Kenya where leadership was found to affect the adoption of strategic planning hence contributing to the low service quality in hospitals. The study recommends that mission hospitals should consider designing and implementing strategy taking into account all the internal and external factors and that despite the benefits resulting from strategy implementation, it's important that the leadership be aware of challenges inherent in the activity and the mitigation for each.

The managers in charge of providing leadership in hospitals should always carry periodic monitoring and evaluation of strategic plan in place to determine its effect on service quality

(Malei, 2015). Strategic leadership and governance if well implemented, it improves the service quality in public hospitals (Wachira & Irungu, 2015). Even though study by Wachira and Irungu (2015), on how strategic planning improve organization performance, a case study of Kenyatta National Hospital tend to suggest that strategic planning has improved performance of public hospitals, study by Waromba and Sikolia (2016), on the quality of service delivered in public hospitals in Kenya disagree with the findings since the quality of service delivery in public hospitals is questionable despite the hospitals management having implemented a strategic plan to address this problem.

RESEARCH METHODOLOGY

Research Design

The study adopted a descriptive survey method. This was preferred because it's efficient in collecting large amount of information within a short time. Descriptive survey collects data from existing population units with no particular control over factors that affects the population characteristics of interest in the study (Gupta, 2008). Kothari (2008), argues that the use of surveys in social science fact finding provide a great deal of information which is accurate. Furthermore, Kothari (2008), state that the intention of survey research is to gather data at a particular point in time and use it to describe the nature of existing conditions. Since the aim of the study was to assess the influence of information system, leadership and governance on service quality, a descriptive survey design was the most suitable for the study. Descriptive survey has been used by Malei (2015), in the study of institutional factors influencing implementation of strategic plans in government hospitals in Kitui central sub-county, kitui county, Kenya and Kimanzi (2014), in the study of factors influencing provision of quality service in the public health sector, a case of Mwingi sub-county hospital, Kenya.

Target Population

Target population according to Ngechu (2004), is well defined set of people, services, elements, events, group of things or households that are being investigated in the study. The study population should be homogeneous and more representative because everyone has equal chance to be included in the final sample that is drawn (Mugenda & Mugenda, 2003). According to Kiambu county public health administration, Kiambu county public hospitals are categorized into levels depending on the facilities, region covered and the number of patients the hospital serves in a day. Level five is the highest and level one is the lowest, with level one being managed by the community without the involvement of county government management and level five being the county main hospital followed by 3 level four hospitals, then 20 level three hospitals (health centres), then 54 level two which are mainly government based dispensaries. The study focused on government owned health facilities which ranges from level five to level two. Since level one are owned and managed by the community they are not under county

government management hence the county health sector strategic plan does not apply to them. According to county government of Kiambu department of health services, there are 78 public health facilities distributed across the Kiambu County which are managed by the county government(See appendix vi), with level five and four being manned by medical superintendent and deputy superintendent while level three and two hospital is manned by clinical officer and assistant clinical officer. These officers in charge make a total of 156 which forms the target population for this study. This is because they are the ones in charge of formulating and assessing the county health strategic plan in public hospitals.

Sample Size and Sampling Procedures

Singh (2007) defines sampling frame as a list of entities from which sampling units are selected for observation in the study. A sample is a finite part of a statistical population whose properties are used to make estimates about the population as a whole (Kothari, 2008). A sampling frame is required before sampling in order to select acceptable representative sample of 10-30% if the elements in the sample are more than 30 (Mugenda & Mugenda, 2003). Therefore stratified random sampling at 30% was used. The target population of 156 officers in charge of public health facilities in Kiambu County was stratified per category and the sample size of 50 was drawn.

Data Collection, Presentation and Analysis

The study used semi-structured questionnaire which contained well organized questions that are grounded on the objectives of the study. The questionnaire was divided into three sections; Section A contained questions on general information on public hospitals, section B; Specific information on the valuation of the influence of information system, leadership and governance and section C; specific questions on the service quality in public hospitals. The purpose of using questionnaire to collect data is because it is easy to use and requires limited time as well the questionnaire gives descriptive data that would be used to provide the representative views and opinion of the population under study. The use of semi-structured questionnaire to collect primary data has also been used by Mbuthia (2013), in the study on “service quality practices in public healthcare facilities in Mombasa County, Kenya” and Malei (2015) on “Institutional factors influencing implementation of strategic plans in government hospitals in Kitui Central sub-county, Kitui County, Kenya”. Data collection instrument was administered by the help of 2 research assistants to ensure higher percentage of return rate. The questionnaires were administered on the sampled hospitals management staffs that have the responsibility of formulating, implementing and managing county strategic plan. Research assistants ensured correct interpretation of questions asked. Drop and pick method was used where the questionnaire were self-administered to respondents to allow them enough time to answer the questions before collection. The questionnaires containing data were checked for completeness and consistency before any processing and analysis can be done. Data capturing was done using

excel software. The data from completed questionnaire was coded and entered into computer using the statistical package for social science (SPSS) version 21 for window analysis. Descriptive statistics such as frequencies mean and standard deviation and inferential statistical methods were used to analyze collected data. Descriptive statistics was used to show the general characteristics of the findings from the study population. This is because they are simple to understand and appropriate in summarizing the opinions of the sample population as it enables the aggregation of raw data in numerical terms (Nunnally, 2000). ANOVA was used to test the influence that the variables interactively and each in isolation have on service quality. The data was tested at 5% level of significance. Chi-square and logical multiple regression model was used. The regression model was as below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + e$$

Where: Y- Service Quality (dependent variable); β_0 , β_1 , β_2 - is the constant; X_1 , X_2 – independent variables as follows: X_1 -Information system, X_2 - Leadership and governance; e – Error term at significant level of 0.05

The error term was used to test the trend of influence the strategic plan implementation has on service quality in public hospitals in Kiambu County. The results of the data analysis were presented using frequency distribution tables, pie charts and bar graphs.

RESEARCH RESULTS

Information System and Service Quality

The first research question was on what is the influence of information system on service quality. The study found out that information system positively influenced service quality in the hospitals. The patient's records were easily kept up to date and retrieval helped reduce patient overcrowding. This study concurs with Shekelleet (2006), who undertook large piece of research involving systematic review of the evidence around the cost and benefits of health information technology (HIT) projects, many of which involved electronic health records. Therefore many respondents in the study tend to suggest that the existing information system is contributing positively to the level of service quality in the public hospitals in Kiambu County. The study concluded that health information technology has the potential to enable dramatic transformation in the delivery of health care, making it safer, more effective, and more efficient.

Leadership and Governance and Service Quality

The study found out that most people understood the leadership governance strategic objectives and that the current leadership and governance has influenced service delivery in a slightly positive way. Factor such as the use of public private partnership helps in improving service quality by reducing customer complains as found in this study. However lack of accountability

and transparency as well as transactional leadership has a negative influence on service quality in public hospitals. This study agrees with Owino (2014), who conducted a study on the effectiveness of quality health care strategies in improving service delivery at the National referral hospitals in Kenya. The study used quality management standards and systems, strategic leadership training, Information Communication Technology- (ICT) innovations and results based financing as independent variables against quality health care as dependent variable. The study found out that health care leadership strategies have co-relationship with service delivery, however the service levels at National referral hospital was still below the standards of W.H.O.

This study is in congruence with Asuman, Mungara, Kimemia and Warui (2015), in their research on organizational factors affecting the adoption of strategic planning in rural mission hospitals in Kenya. The study identified leadership, organizational culture, organizational policy, external environment, and resource allocation and organization structure as some of the organizational factors affecting the adoption of strategic planning in rural mission hospitals.

INFERENTIAL STATISTICS

In order to test the influence that information system, health work force training and welfare, leadership and governance and resource mobilization and allocation strategic objectives had on the service quality, ANOVA was used. A random effects regression model was run and the results are as presented in the table 1.

Table 1: Analysis of Variance

| Model | | Unstandardized Coefficients | | Standardized Coefficients Beta | t | Sig. | 95% Confidence Interval for B | |
|-------|---------------------------|-----------------------------|------------|--------------------------------|-------|------|-------------------------------|-------------|
| | | B | Std. Error | | | | Lower Bound | Upper Bound |
| 1 | (Constant) | 1.163 | .874 | | 1.331 | .019 | -.606 | 2.933 |
| | Information system | .199 | .139 | .226 | 1.430 | .016 | -.083 | .481 |
| | Leadership and governance | .190 | .144 | .229 | 1.322 | .019 | -.101 | .481 |

The results presented in the table 1 show that, information system had a statistical significance on the service quality having a t-value of 1.430 which was greater than the upper and the lower bounds in absolute terms respectively (0.481 and -0.083). This means that as the current information system continued to be implemented in the hospitals, the rate of service quality also increased. From the study as indicated by table 1, leadership and governance in the study area was of statistical significance to provision of quality service in the hospitals by having a t-value of 1.322 that was greater than the upper and lower bounds 0.481 and -0.101 respectively. This means that as implementation of leadership and governance strategic objective in the hospitals increased the rate of quality service delivery.

$$Y = 1.331 + 1.430X_1 + 1.322X_2 + e$$

From this model, it is evident that the current information system is the most influential strategic factor affecting service quality in public hospitals. This implies that an increase in one unit of information system will increase the service quality in public hospitals by 1.430. The current leadership and governance was the second influential aspect of the strategic objective influencing service quality at 1.322. This indicates that a unit increase in leadership and governance increases the service quality by 1.322.

The study then carried out a regression analysis to test the significance of the influence of Information system, Leadership and Governance. The model summary is depicted in Table 2.

Table 2: Model Summary

| Model | R | Adjusted R Square | Std. Error Change Statistics | | | | | | | |
|-------|-------------------|-------------------|------------------------------|--------------|-----------------|-------|-----|-------------|------|--|
| | | | R of Estimate | the R Change | Square F Change | df1 | df2 | Sig. Change | F | |
| 1 | .332 ^a | .220 | .017 | .50158 | .220 | 1.177 | 4 | 38 | .002 | |

a. Predictors: (Constant), Information system, Leadership and Governance

The R² value of 0.220 implies that 22.0% of the variations in the service quality can be explained by the variations in independent variables. This therefore means that other factors not studied in this study contribute 78.0% of service quality.

CONCLUSIONS

The aims of this study can be restated as follows; to assess the influence of information system on service quality in public hospitals in Kiambu County, and to establish the influence of leadership and governance on service quality in public hospitals in Kiambu County. To fulfill the above aims of the study, a problem was formulated seeking to assess the influence of information system, leadership and governance on service quality in public hospitals in Kiambu County. Extensive literature was consulted to provide a background to the study where descriptive research design was utilized. Data was collected using self-administered questionnaires distributed to subjects. Based on the findings discussed above this study has resulted to two main conclusions as follows.

First, the information system plays a key role in influencing the service quality in public hospitals. Most people understood the information system strategic objectives as contained in the County Health Sector Strategic and Investment Plan. From the data collected and findings of this research, it can be concluded that in Kiambu County Public hospitals patient's records were fully up to date; information retrieval was not cumbersome and information obtained was reliable. This therefore has little contribution to overcrowding, bad patient experience, increased

turnaround time and customer complains as current information system is contributing to improved service. Secondly, the study concludes that leadership and governance influenced service quality and it was understood by most respondents. Public private partnerships improve quality, better services in private hospitals and that transformational leadership is better than transactional leadership. Lack of transparency and accountability has an influence on service quality in public hospitals but this does not compromise the quality standards.

RECOMMENDATIONS

Recommendations on Policy

Effective information system has great potential of producing superior results if well utilized. The study therefore recommend the government to use integrated information system and training on the strategic plan in the management of public hospitals at all level, for this would greatly improve efficient and service quality.

Recommendation on Practice

Stakeholder involvement should be improved to ensure ownership which contributes to effective implementation. The hospital managers should ensure that all the stakeholders are represented in the strategic planning and also their participation should start from the initial steps of stating the mission, the vision and the final strategic plan. The study recommends that hospital management team should be equipped with the necessary managerial skills to help them successfully implement strategic plans in their respective hospitals. Hospitals should embrace institutional policies which they should enforce strictly to ensure they help in the successful implementation of the strategic plans.

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