

# **INFLUENCE OF SYSTEM AUTOMATION ON SERVICE DELIVERY AT THE MINISTRY OF PUBLIC SERVICE AND GENDER IN NAIROBI- KENYA**

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## **ABSTRACT**

Process automation is the practice in which an organization advances its system from the manual to computerized system to ease the work flow and ease of undertaking operations. Automation is important to organization as it enables easy operations by use of machines and this leads to improved productivity and increased productivity. System automation entails all that is done in order to reduce the manual operations and speed up operations by use of electronic gadgets and internet services. One of the methods of automation is having an online presence of an organization by having a website which is friendly to users. The main objective of this study was to evaluate the influence of System Automation adopted by the Ministry of Public Service and Gender and how they influence Service Delivery in the Ministry. This study used the Resource Based Theory to explain the relationship between the study variables. The study used questionnaires collect primary data. A descriptive survey design was adopted. The target population included all the 128 Senior Management Staff working at the head office in Nairobi as at December 2019. Krejcie and Morgan formula was used to calculate the sample size where a sample of 96 employees was used from the three levels of management, that is, lower level, middle level and the top level of management. Data collected was analyzed using descriptive and inferential statistics ranging from

frequencies, percentages, correlation and regression. Statistical Package for Social Sciences version 23 was used for Data Analysis. Both descriptive and inferential statistics showed that system automation significantly influences service delivery at the Ministry of Public Service and Gender in Nairobi. The study concluded that system automation initiatives conceptualized by the study as having user friendly websites, customer information system and staff proficiency in computer skills significantly influences service delivery at Ministry of Public Service and Gender in Nairobi, thus service firms that regularly and timely roll out customized and user friendly automated system can realize a significant improvement in their service delivery. The study recommends that there should be regular, timely and continuous improvement activities such as introduction of new services, procedure enhancement and user support services across all cadres of employment in the Ministry of Public Service and Gender in Nairobi, so as to realize a significant improvement in service delivery, and that suitable and feasible customer focus approaches must be crafted and seamlessly implemented by employees to boost public service delivery Ministry of Public Service and Gender in Nairobi.

**Keywords: System automation, Service delivery, user friendly websites; Customer information system, Staff proficiency**

## **INTRODUCTION**

### **Background**

Modern organizations across the world have faced a continuous transformation in their functioning operations because of amplified competition, ecological instability, globalization, multiplicity in the labour force, increased costs of production and variation in consumer preferences (Ismaylis & Moschidis, 2015). Organizations will remain competitive in both government and non-governmental institutions and survive the tough times in business by adopting Total Quality Management (Kiprotich, Njuguna, & Kilika, 2018).

Due to globalization, availability of enhanced technology and improved ease of doing business, many businesses are providing similar products in the market. It therefore leads to customers preferring the organization which provides an improved quality to them. Total Quality Management (TQM) is the only instrument that can continuously improve the quality of products and services since it is a continuous enhancement practice and makes use of customer feedbacks to quality of service (Akhtar, Zameer, & Saeed, 2015)

### **Problem statement**

The Ministry of Public Service and Gender is one of the key Ministries in Kenya as it is concerned with provision of direct services to the Kenyan citizens. The Ministry was created with the aim of providing policy and management of human resource functions in the public sector in Kenya as well as promotion of gender equity and equality in the public sector (GOK, 2020). State Department for Public Service is responsible for overall coordination of the Human Resource Management function in Ministries/Departments and Agencies (MDAs) in the mainstream Civil Service of the National Government. They also provide advisory to Heads of HR function in MDAs and coordinate the HR function in the Civil Service. The Ministry will be able for formulate a policy on TQM and instruct all the MDAs to implement it.

Even though there is a general understanding that system automation is associated with improvement in service delivery in organization, studies have showed that there are public entities and particularly the Ministry of Public Service and Gender which is experiencing downward performance due to internal and external factors (Kiprotich, Njuguna, & Kilika, 2018). According to Kenya Bureau of Statistics (2016) public entities and especially the Ministries are inefficient and ineffective. There have been issues related to poor customer satisfaction feedback due to delays in service delivery, delayed replies to customer questions and lack of inspiration on the employees. Some of these aspects were as a result of lack of participation of staffs in important pronouncement, lack of constant upgrading of systems and self, lack of automation of systems and lack of alignment of organizational goals where they are

not focused on customer rather, they are not aligned to serving the citizens (Wanza, Ntale, & Korir, 2017). Studies undertaken in the field of TQM both locally, regionally and globally shows that 85% of the public organizations do not achieve their goals due to challenges in embracing TQM procedures such as employee involvement, constant upgrading, system automation and client attention (Aghimien, Aigbavboa, Thwala, & Mothiba, 2019). For example, an exploration undertaken in Turkey by Sadikoglu and Olcay (2015) indicated there was a progressive connection concerning TQM Practices and service delivery in organizations. However, it should be pointed out that the study observed the variables in seclusion and concentrated more on ISO licensed businesses. In South Africa, Aghimien, Aigbavboa, Thwala, & Mothiba (2019) noted that implementation of TQM was determined by leadership commitment. Nevertheless, the study was limited to diverse variables from those of this study such as governance, awareness and procedure management, training and supplier quality management.

In addition, despite the few studies undertaken in Kenya, it has been found out that few explorations have concentrated on the inspiration of system automation on service provision of the Ministries. For example, a research by Kiprotich, et al (2018) was restricted to assesment of association of TQM practices and functioning of Kenya Revenue Authority in Kenya. An study by Wanza, Ntale, & Korir, (2017) was limited to TQM practices and functioning of Kenyan Universities while another study by Keinan and Karugu (2018) was confined to TQM practices and operations of manufacturing firms with a case of Bamburi Cement Ltd. To begin with conceptually, some of the studies were studying variables of this research in segregation or combined two variables and neglected to study the intergrated methodology of the aspects of this research on service provision at the Ministry of Public Service and Gender. Contextually, some examinations were undertaken in different nations such as Turkey, South Africa and Switzerland and did not emphasis on the Government Ministries in Nairobi. In addition, some studies focused on diverse areas such as manufacturing and engineering areas. On methodological gap, some researches were limited to random cross section methods and information analysis approaches which did not scrutinize the nature of association among the concepts of the research. In comparison, it is in this ground that this study sort to determine the influence of system automation as an element of Total Quality Management Practices on Service Delivery at the Ministry of Public Service and Gender in Nairobi by studying the four research variables to establish how they influence the service delivery at the Mininstry of Public Service and Gender in Nairobi. The study used descriptive and inferential statistics to describe the relationship between the independent variables and the dependent variable.

## **Objective**

The objective of this study was to determine the influence of system automation on Service Delivery at the Ministry of Public Service and Gender in Nairobi.

## **THEORETICAL LITERATURE REVIEW**

### **System Automation**

Process automation is the practice in which an organization advances its system from the manual to computerized system to ease the work flow and ease of undertaking operations (Kiprotich, Njuguna, & Kilika, 2018). Automation is important to organization as it enables easy operations by use of machines and this leads to improved productivity and increased productivity. It is important to note that system automation entails all that is done in order to reduce the manual operations and speed up operations by use of electronic gadgets and internet services (Aghimien et al, 2019). One of the methods of automation is having an online presence of an organization by having a website which is friendly to users. A website is defined as a collection of related network resource, developed by an organization in order to inform stakeholders of its products and services and where to contact them (Kiprotich et al 2018). Organizations usually develop a website which is user friendly in order to push for their recognition and increase their sales to their clients.

System automation in organization also occurs through development of a customer information system where information of customers with their buying behavior and their preferences is stored (Oduma & Shale, 2019). This helps in improvement of services to the various clients by ensuring services are tailored according to client preferences. Where staff members are proficient in computer skills, service delivery is usually greatly improved since the waiting time of clients is reduced. Automation is aimed at increasing the speed of service provision by reducing the waiting time.

### **Resource Based View Theory**

The theory of Resource Based View (RBV) was advanced by Barney, in 1991. This theory advocates that resources possessed by an enterprise, firm or an organization are responsible for its success in terms of performance and effectiveness. This is due to the fact that these resources are applied and exploited efficiently; they are in a position of providing possibilities for more productive opportunities that gives rise to an economic benefit for the business. Barney (1991) argues that the internal capabilities of a firm are critical and significant in enhancing the effectiveness of the organization. This theory advocates that an organization should strive to make best use of the available capabilities within its borders. Capabilities are hereby described as the physical resources, human capital, and organizational resources possessed by an enterprise that can be used to comprehend and execute tactics (Ketchen, Barney, & Wright, 2011).

For resources to give an organization an economic benefit, they must have four features namely, Valuable Rare, Inimitable and Non-substitutable (VRIN). These features are unique and propel

an organization's performance and enable it to have a competitive advantage. Valuable entails value creating strategies which enables an organization to outsmart its rivals or increase its strength by improving its effectiveness and increasing its efficiencies. Rare in this case means that the resources are not available to the competitor. Imperfectly inimitable means that the value of that resource is with only one firm and those other firms cannot duplicate the resource for their usage. Non-substitutable means that the resource cannot be substituted or replaced by any other resource available in the organization and that it is unique (Barney, 1991).

The RBV theory is related to this study because it offers insights on how to harness the core competencies of the organization in order to increase their output. This theory thus supports the two research variables of this study, continuous improvement and customer focus.

### **System Automation and Service delivery**

In USA, O'Hara, Higgins, Ki, & Fleger (2017) studied to understand adaptive automation on effectiveness of nuclear regulatory commission. This enquiry reviewed published literatures and experts on nuclear. Site visits were also undertaken to nuclear plants of adaptive automation. It was determined that the system automation was affecting the performance of nuclear regulatory commission.

Atanda (2018) completed an enquiry to determine the impression of Library Automation in Nigerian Universities. The focus populace of this enquiry was all universities in Nigeria. An explanatory research strategy was used for this enquiry. The unit of observation was all the Librarians employed in the universities, where a sample of 20 was chosen by purposive sampling. First-hand information was used for the enquiry which was collected by aid of research enquiry forms. The assembled information was evaluated for descriptive statistics. It was determined that system automation of Libraries in Nigerian universities had a progressive and major inspiration on the functioning of libraries in the universities.

In Kenya, Madegwa, Makokha & Namusonge (2018) studied to determine the effect of computerization of income collection on the operations of Trans-Nzoia County Government. The enquiry embraced a descriptive research design. The focus populace was seven (7) top level management, fifteen (15) accountants and forty (40) revenue collectors. A sample of sixty two (62) staff members was selected by aid of stratified proportionate random sampling. Research enquiry forms were used to assemble first-hand information. Assembled information was assembled by descriptive analysis by use of SPSS software. It was established that accessible practice of computerization of income collection procedures influences the operations of Trans-Nzoia County Government.

Oduma and Shale (2019) researched to understand the consequence of logistics automation on operations of supply chain in Kenya Medical Supplies Authority. Census research design was employed on this enquiry. The focus populace was high ranking personnel working on the Supply Chain Management. A total of 91 respondents were used for the enquiry. First-hand information was used for the research which was assembled by use of questionnaires. Collected information was evaluated for descriptive and inferential statistics. It was established that logistics and warehouse automation helps in reducing the workforce requirement of KEMSA and this leads to improvement in operation and performance of the organization.

## **RESEARCH METHODOLOGY**

### **Research methods**

The study used descriptive research design as the examination strategy for the purposes of information gathering. The total focus populace will be 128 Senior Management Employees working at the Headquarters at the Ministry of Public Service and Gender in Nairobi from the lower, middle and top levels of management. The reason for choosing Nairobi offices is because it is the headquarters of the Ministry of Public Service and Gender.

The sampling frame of the study comprised a collection of 96 management employees that is top, middle and lower management levels at the Ministry of Public Service and Gender in Nairobi. The study used the Krejcie and Morgan formula to determine the sample size for the study. According to Ott and Longnecker (2015), Krejcie and Morgan formula enables the researcher to decide the sample size more precisely and to avoid ambiguous sample selection. The study used census to select the Managers at the Ministry of Public Service and Gender in Nairobi for the study from the three levels of management.

The formular is:

$$s = \frac{X^2 NP (1 - P)}{d^2 (N - 1) + X^2 P (1 - P)}$$

The formula is explained as

S= the required sample size

X<sup>2</sup> =chi square for 1 degree of freedom (usually 3.841)

N=the size of the population

P=Population proportion

d=Degree of accuracy

Substituted as follows;

$$n_f = \frac{z^2 pq}{e^2} = \frac{1.96^2 * 0.5 * 0.5}{0.05^2} = 384$$

However, the formula above is usually used if the population is more than ten thousand units. If less, it is substituted as follows;

$$n = \frac{n_f}{1 + \frac{n_f - 1}{N}}$$

On substituting, the sample size is calculated as follow;

$$n = 384 / \left\{ \left( 1 + \frac{384}{128} \right) \right\} = 96$$

n=96 respondents.

A questionnaire with a 5-point Likert scale was used to collect data

The study collected data by means of dropping and picking the questionnaires. Inquiry forms were released to the respondents and hand-picked afterwards after a period of fortnight which allowed the respondents' sufficient period to answer to the inquiry forms. This technique was desired due to the busy schedules of the top managers. The method ensured a high response rate is obtained.

### **Pilot Study**

A pilot test helps in refinement of the research instrument so that respondents will not face troubles in replying to the queries (Hakim, 2012). Ambiguity and sensitivity of the items and additional matters related to data assembling are discussed and the data collection tool and procedures appraised in advance before the commencement of the main research (Wahyuni, 2012). Pre-testing enabled the study to correct and improve the study tools thus success of information gathering. To improve dependability of study tools, a mock study on 10% of the study target respondents was targeted and this forms a total of 9 managers. For great accuracy pilot studies, 10% of the trial ought to be made of the pilot test size (Loannidis, Fanelli, Dunne, & Goodman, 2015).

### **Reliability of the Research Instrument**

Dependability is the steadiness of a set of measurements items while correctness stipulates that the tool is scrutinizing what it ought to (Cronbach, 1951). Information is believed to be dependable for a decision making when information gathering technique and the tools used to assemble the information gives rise to related outcomes when used frequently within a given period (Wahyuni, (Wahyuni, 2012).

This study used Cronbach's Alpha ( $\alpha$ ) scale of 0.7 as an inside reliability scale calculated as a constant oscillating from 0 and 1. Dependability as low as 0.70 is usually satisfactory for simple inquiries (Bryman & Cramer, 1997). Cronbach's alpha is very suitable for break-level

dimension concerning several gauges, particularly to measure uniformity of interior reliability of fundamental concepts grounded on inter-item relationship methods, satisfactory to quantify the dependability of the tools. If the calculated Cronbach alpha is higher than 0.7 then the tool of measuring is more dependable but if it is less than 0.7 then it is considered unreliable.

## **Data Analysis and Presentation**

Data scrutinization encompasses making information meaningful for conclusions and generalizations (Merriam & Tisdell, 2015). This study analyzed the quantitative data using descriptive statistics (percentages and mean) and inferential statistics (correlations and regressions). The study used SPSS version 23 software in analysis. The regression model used was a multiple regression which took the form below:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where:

**Y** = the dependent variable

**$\beta_0$**  = constant

**$\beta_1 \beta_2 \beta_3 \beta_4$**  = Beta Coefficients of independent variables

**$X_1$**  = employee Involvement

**$X_2$**  = Continuous Improvement

**$X_3$**  = System Automation

**$X_4$**  = Customer Focus

**E** = the error term

## **RESEARCH FINDINGS AND DISCUSSIONS**

### **Descriptive statistics**

This study assessed the influence of system automation on service delivery at the Ministry of Public Service and Gender in Nairobi. The descriptive results are summarized in the table below.

From the table there were mixed reactions on system automation, because while most respondents (56.0%) agreed that the website is friendly and easy to use while 11.0 were neutral while 12.1 disagreed, implying not the Ministry website is not perceptively user friendly to all.

This is supported by 19.8% of respondents who disagreed that having a friendly website has led to high traffic from citizens interested in our services- simply because, they do not perceive the website as user friendly, thus need improvement in customized use.

More so, most respondents 62.7% agreed that the Ministry has developed an information system which has ensured improved services to citizens, which is also supported by majority of respondents (59.3%) who agreed that having an information system has ensured that needs of citizens are met and taken into account leading to improved services. Further, 58.2% of respondents agreed that staff members are well versed with computer skills leading to efficiency in service delivery; and also, a majority of respondents (60.5%) agreed that due to automation, we have been able to cut on cost in terms of many hours lost in waiting, thus supporting the efficacy of system automation.

In summary, the grand mean of responses is 3.49 rounded off to ‘4’ which is agree on the likert scale, implying that most respondents generally agreed that system automation positively influence service delivery at the Ministry of Public Service and Gender in Nairobi. This is supported by Oduma & Shale (2019) who reiterated that system automation helps in improvement of services to the various clients by ensuring services are tailored according to client preferences. Where staff members are proficient in computer skills, service delivery is usually greatly improved since the waiting time of clients is reduced. System automation also increases the speed of service provision by reducing the waiting time.

**Descriptive statistics: System Automation and service delivery**

Statement	5	4	3	2	1	mean	Std.dev
1. Our website is friendly and easy to use.	12(13.2)	51(56.0)	10(11.0)	11(12.1)	7(7.7)	3.51	0.913
2. Having a friendly website has led to high traffic from citizens interested in our services	11(12.1)	44(48.4)	8(8.7)	18(19.8)	10(11.0)	3.46	0.915
3. We have developed an information system which has ensured improved services to citizens	15(16.5)	57(62.7)	5(5.5)	8(8.7)	6(6.6)	3.52	0.923
4. Having an information system has ensured that needs of citizens are met and taken into account leading to improved services.	10(11.0)	54(59.3)	16(17.6)	6(6.6)	5(5.5)	3.44	0.927
5. Our staff members are well versed with computer skills leading to efficiency in service delivery	14(15.4)	53(58.2)	7(7.7)	13(14.3)	4(4.4)	3.46	0.939
6. Due to automation, we have been able to cut on cost in terms of many hours lost in waiting.	17(18.7)	55(60.5)	5(5.5)	8(8.7)	6(6.6)	3.53	0.923

**Valid listwise 91**

**Grand mean = 3.49**

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### **Inferential statistics**

Correlations of the study variables was tested using Pearson's product moment correlation coefficient so as to show that independent variables had significant relationships with the dependent variable. System automation had a significant positive relationship with service delivery (0.879  $p=0.001$ ).

Multiple regression results of the combined effects of the four independent variables (employee involvement, continuous improvement, system automation, customer focus) showed a fit model (( $F=136.356$ , significant at  $p<.001$ ). Analysis showed an  $R^2$  of 0.864, this indicated that the conceptualized study model explains 86.4% of the variations in service delivery at the Ministry of Public Service and Gender in Nairobi, while other factors not in this conceptualized study model accounts for 13.6%, thus, it is a very good model. System automation was a significant predictor of service delivery ( $\beta = 0.502$  (0.084);  $p=0.001$ ). The results are supported by Oduma and Shale (2019) who researched on the consequences of logistics automation on operations of supply chain in Kenya Medical Supplies Authority. Census research design was employed on this enquiry. Based on a total of 91 respondents inferential statistics established that logistics and warehouse automation helped in reducing the workforce requirement of KEMSA, which led to improvement in overall performance of the organization in terms of operational performance and improved service delivery.

## **CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

This study concludes that: System automation initiatives conceptualized by the study as having user friendly websites, customer information system and staff proficiency in computer skills significantly influences service delivery at Ministry of Public Service and Gender in Nairobi, thus service firms that regularly and timely roll out customized and user friendly automated system can realize a significant improvement in their service delivery.

### **Recommendation**

The study recommends that there must be regular, customized, upgraded and user friendly automated systems in the Ministry of Public Service and Gender in Nairobi, so as to realize a significant improvement in their service delivery to citizens.

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