

# **TANGIBILITY OF ICT SYSTEM AND IMPACT ON THE QUALITY OF SERVICE DELIVERY AT EMBU HUDUMA CENTRE, EMBU COUNTY, KENYA**

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©2018

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

**Received:** 21<sup>st</sup> June 2018

**Accepted:** 3<sup>rd</sup> July 2018

Full Length Research

**Available Online at:**

[http://www.iajournals.org/articles/iajhrba\\_v3\\_i2\\_79\\_92.pdf](http://www.iajournals.org/articles/iajhrba_v3_i2_79_92.pdf)

**Citation:** Matsalia, V. A. & Waithaka, P. M. (2018). Tangibility of ICT system and impact on the quality of service delivery at Embu Huduma Centre, Embu County, Kenya. *International Academic Journal of Human Resource and Business Administration*, 3(2), 79-92

## **ABSTRACT**

Governments strive to provide quality services to the citizens by innovating new ways of service provision. Government of Kenya has pursued many public sector reforms such as Rapid Results Initiative (RRI) aimed at improving service delivery. Various innovations in service delivery have been implemented and include the use of Information and Communication Technology (ICT). The introduction ICT in the Kenyan public sector was one way of safeguarding quality services provision. However, there are challenges in the provision of quality services. Reports show existence of complaints such as poor coverage of ICT infrastructure, long queues, costly services, long waiting time, poor record keeping, inadequate human resources, technical inexperience, digital divide, lack of public awareness and bribery. The study was done at Huduma Centre in Embu County with the objective of finding how tangibility of ICT system impacted on the quality of service delivery. The study was guided by Resource Base and the Systems theories. Service quality model was used. The study employed cross-sectional

descriptive design. A census of 56 frontline employees was taken. Questionnaires were administered to the respondents who filled and returned to the researcher. Raw data gathered was coded, captured, cleaned and analysed using Statistical Package for the Social Sciences software and presentations done using tables and graphs. Quantitative data was analysed and presented using the median and percentages. Stepwise regression was used for inferential analysis while Spearman's rank-order correlation analysis was done to determine relationships between variables. The study found that tangibility of ICT system had evidently impacted on the quality of service delivery at Embu Huduma centre. The study recommends that the management of Embu Huduma centre should maintain the high level of visual appeal and decrease congestion in the waiting bay. This is because tangibility was found to have a direct positive impact on the quality of service delivery.

**Key Words:** *information and communication technology (ICT), tangibility, ICT system, service quality, Huduma Centre, front line employees*

## **INTRODUCTION**

Numerous researchers have measured service quality in public services using a number of models and dimensions. The Service quality (SERVQUAL) model is outstanding (Wisniewski & Donnelly, 1996; Rowley, 1998; Wisniewski, 2001; Brysland & Curry, 2001). This model uses several dimensions which include access, courtesy, competence, reliability, security, responsiveness, credibility, communication, understanding/knowing the customer and tangibility. Gronroos (1994) model is an additional one where overall perceived service quality obtains when the experienced quality meets the expected quality by the consumer. The anticipated

quality is influenced by several undertakings; marketing communication, word of mouth, company image, price, consumer needs and values.

While measuring service quality, several authors have identified and documented a number of dimensions they used. Barnes and Vidgen (2002) identified five e-service quality dimensions. They are information, usability, trust, empathy and design. Santos (2003) identified a number of determinants of the quality of e-service. They are appearance, ease of use, layout and structure, linkage, reliability, content, efficiency, communication, support, incentive and security. Wolfenbarger and Gilly (2003) identified four e-quality dimensions; reliability/fulfillment, customer service, security/privacy and website design. Ribbnink, van Riel, Liljander and Strauks (2004) identified five e-service quality dimensions; customization, ease of use, responsiveness, e-scape (i.e. web site design) and assurance. Lee and Lin (2005) identified five e-service quality dimensions; responsiveness, website design, trust, personalization and reliability.

Technology usually refers to the use of knowledge for the implementation of a given task. It entails expertise and processes essential for carrying out actions in a given context. Information technology, the technology that empowers data, is a term that usually covers the coupling of automated technology for the information requirements of a business at all echelons. It refers to the computerization of procedures, controls and information manufacture using computers, telecommunication software and auxiliary equipment such as Automated Teller Machines (ATM) and debit card, (Khalifa, 2000). Information and Communication Technology is defined by the Federal Republic of Nigeria (2012) in the Nigerian National Policy for Information Technology as all of the subsequent; computers software and hardware together with its subsidiary tools and their operations. It goes forward to say that ICT is any apparatus or inter connected scheme or subsystem of apparatus that is used in the spontaneous attainment, storage, manipulation, management, programme, transmission or reception of records. In this respect the use of technology and open data permit a different kind of involvement by the people (Lathrop, Daniel & Laurel, 2010).

The ICT referred in this study entailed the constituents of ICT which include the FLE required to supply facts to the ICT system and their skills benefaction for quality services provision. Information as a constituent of ICT involved the practicality of the outcomes from data processing in guaranteeing quality services delivery. Physical constituent of the ICT system is the hardware whose plan has an effect on effective quality provision of services. Additional component of ICT the study looked at was the laid down processes when interrelating with consumers in the process of service provision. The usage of applicable software in service delivery was another component that the study focused on. The applicability of the software in giving customers quality services was looked at. The ICT organization has both the tangibles and intangibles constituents. While it is difficult to quantify tangibility of a service unlike the mechanical excellence component of products, tangibility (servicescape) of services is measured

by observing the physical features customers discern. Servicescape is defined as the physical amenities of a service business which includes the physical setting where the ICT hardware is.

Servicescape thus plays a great part by influencing customers' assessments of other factors defining apparent service quality like empathy, reliability, responsiveness and assurances (Reimer & Kuehn, 2005). William and Dargel, (2004) further suggest that, servicescape is supplementary in service locale because of the exclusive physiognomies of services (intangibility, perishability, inseparability and heterogeneity). Servicescape is significant in the provision of services and affects apparent service quality which additionally leads to either customer gratification or not.

### **Study Location**

The study was done in Embu County at Embu town where the Huduma centre is situated. Embu County is one of the 47 Counties established by the Constitution of Kenya, 2010 with its headquarters in Embu town. The County is characterized by a population of 516,212 people and it covers an area of 8,218 Square Kilometres. It has a rural population of 433,341 and an urban population of 82,871 (KNBS, 2009). The study focused on the Huduma Centre in Embu town. The targeted population was all the Frontline employees at Embu Huduma Centre. All the services being offered by MDAs at Embu Huduma Centre at the time of the study were assessed to determine how ICT had impacted the quality of their provision. The study was conducted in September 2017.

### **Service Delivery at Huduma Centres**

The public service in Kenya has, in the recent past, been experiencing interdependent, multidimensional and interlocking reforms through performance enhancement. Various studies have been conducted in regard to service delivery in the public sectors in Kenya and the findings are documented. Recent studies on service delivery at Huduma centres focused on customer gratification. Since 2003, there was a common feeling that services provision must be done in a manner that is welcoming to the public and need to embrace deviations in the environment such as technology. This was a noble step in the right course although it may not have been the first attempt in public service revolution by the government. For instance the Kenyan Government introduced Results-Based Management system through the 'Results for Kenya' programme. It was not until 2013 that the freshly elected Administration introduced a new concept of service delivery in Kenya by rolling out Huduma Kenya programme. Some incredible progress has been made in the service delivery through this programme.

### **The SERVQUAL Model**

Gronroos (1990) was the first to model measurement of quality of service. He recognized a number of constituents of quality of service; practical, functional and image qualities. They are whatever is delivered (result), the technique of provision of service (how it is provided) and

commercial image of the business which emanates from practical and functional qualities of service components respectively. This study used service quality (SERVQUAL) model (Zeithaml & Bitner, 2000) which suggests that customers assess the quality of a service on five separate dimensions: tangibles – physical amenities, tools, staff look; reliability – ability to perform assured and advertised service reliably and precisely; responsiveness – readiness to help customers to get rapid service; assurance – staff skills, graciousness and ability to inspire trust and empathy – customer care and understanding.

This model has been tested severally and utilized to determine quality of service in diverse settings, including universities (Galloway, 1998), police services (Donnelly, Mike, Kerr, Neil, Rimmer, Russell, & Shiu, 2006), hospitals (Baker, Grant & Morlock, 2008), banks (Kangis & Passa, 1997), public utilities (Babakus & Boller, 1992) and travel agencies (Luk, 1997). The writings evidently back SERVQUAL usage in civic sector with the use of the disconfirmation paradigm which recommends that the quality of service is excellent or good when the performance is at an advanced or same level than expectations. However, when the expectation is at higher level than performance, the quality of service is bad or mediocre (Bryslan & Curry, 2001). The extensive collection of application of such an instrument as SERVQUAL influences confidence in its utilization as a technique for measuring service quality in Huduma centre.

## **GENERAL OBJECTIVE**

The objective was to find out how tangibility of ICT system impact on the quality of service delivery at Embu Huduma Centre, Embu County, Kenya.

## **RESEARCH HYPOTHESIS**

H<sub>01</sub>: There is an impact of tangibility of ICT on quality of service delivery at Embu Huduma centre, Embu County, Kenya.

## **EMPIRICAL LITERATURE REVIEW**

### **Tangibility of ICT**

Tangibility denotes the physical amenities, tools and look of employees in the organization (Parasuraman, Zeithaml, & Berry, 1985). It has been contended by Gronroos (1990) that the single most imperative difference amid commodities is intangibility. It has substantial impact on publicity of services. Frequently this creates difficulties for consumers in comprehending the quality of service and organizations comprehending the assessment of consumers on an amenity. The customer's insight of quality is often founded on somatic indication and charge and not the service itself. Tangibility is the setting where services are provided; where organization and consumer interrelate and every perceptible products enabling announcement of the service. This certifies that tangibility of any service manufacturing process influences service familiarity (Zeithaml & Bitner, 1996).

Santos (2002), states that, tangibles are elements of a service containing appearance of physical facilities, equipment, personnel and communication material. Vandamme and Leunis (1993) found that in Belgium the greatest dimensions elucidating general quality of service involved tangibility. Boshoff and Gray (2004) explored the association among consumer gratification and loyalty and service quality amongst South Africa's private hospital industry patients. The research found that tangibles impacted positively on patients' loyalty hence quality of service delivered by the nursing staff. From their responses, it was found that general hospital's cleanliness, neatness of the constructions and their grooming had an impact on allegiance.

The importance of tangibility is further established by looking at the insights of quality of service in health care in private hospitals in Malaysia (Sohail, 2003). The research established that patients' prospects regarding current apparatus, professional appearance and the photographic look of amenities remained reasonably small. However, their apparent utilization was greater for all variables. This research found that generally all opportunities with respect to tangibility comparatively were great with the maximum prospects for hygiene of amenities and the overall state of tools. A study done in South Africa by Mdududzi and Janneke (2011) found that notwithstanding the government's determination to use ICT in service delivery to assist in increasing the speed of service delivery complaints were still endemic. The study found that several ICTs existed and were being used by the employees, but not automatically for service provision. Moreover, nonexistence of computers and internet access was acknowledged as a chief challenge. Denis (2000) found that there are problems in using ICT for service provision and one of the most conspicuous one is the failure to manage without technical knowhow and a contemporary telecommunication infrastructure.

In a study by Augustine, Joseph and Sunday (2015) it was found that in sampled local governments, there was an extremely small degree of existence of ICT system and its usage. Moreover, absence of web presence and portals disadvantaged them for efficient provision of elementary services; more so because most of them were with rigid lassitude. Already changing the way we work and live, availability of ICT not only makes fresh methods of undertaking old things, it also makes it possible for fresh methods of performing new undertakings like the ability to do vacancy hunts online (Jones & Williams, 2005). Intangibility means absence of somatic commodity, hence nil tasting, no sense of touch or sound afore buying thus disabling consumers to discern what they want to get. This is the case in some MDAs while in others it is a task to assess intangibility since many activities are centred on the physical commodity such as identification cards. The implication is that service suppliers define intangibility level of services and attempts are made to embrace tangible features that help in accepting customer's anticipation from his perspective (Beamish & Ashford, 2007).

### **Quality of Service Delivery**

Extraordinary quality of service is a key achievement factor in service businesses because it adds immensely to customer gratification (Fick & Ritchie, 1991; Johns & Karatepe, 2004). Service

quality and customer gratification determine customer allegiance (Cristobal, Flavian & Guinaliu, 2007; Cronin & Taylor, 2002). Moreover, loyal clienteles are expected to buy extra services, spread affirmative word-of-mouth, pay greater prices and can also improve the service proficiency due to the knowledge curve effect (Reichheld & Sasser, 1990). A worthy quality service is measured as one which surpasses or meets customer's anticipation of the service (Parasuraman, Zeithaml & Berry, 1985). Service quality is usually referred to as the whole assessment of a service by the clienteles, (Eshghi, Roy & Ganguli, 2008) or the extent to which a service meets customer's desires or hopes, (Asubonteng, McCleary & Swan, 1996).

Therefore, service quality involves the general outlook or judgment, relating to the pre-eminence of the expected service by the consumer and it explicitly encompasses appraisals of the what the purchaser really receives from the service (outcome) and the style in which the services are provided (procedure of service provision). Thus Gronroos (1990) and Smith and Houston (1982), Parasuraman, et al., (1985, 1988) theorized and operationalized quality of service as the variance between purchaser's observations of 'what they get' and expectations of 'what they want'. When the customer desires are met at their predictable level, they can either tip to customers retention, lure of new ones, improvement of corporate appearance, progressive word-of-mouth endorsement and above all guarantees viability and existence, (Ladhari 2009; Negi, 2009).

Serious elements of quality of service recognized are; anticipation of the consumer which is seen as whatever they feel service provider would offer, which is subjective to their individual desires, previous involvement, service suppliers communication and word-of-mouth, (Parasuraman et al., 1985). Customers' performance perception is what they experience, (Parasuraman, Zeithaml & Berry, 1988). According to Douglas and Connor, (2003) and Ladhari, (2009), the immaterial features of a service (perishability, inseparability and heterogeneity) are the serious causes impelling quality of service observed by a customer. It implies that a service needs to be clear from the provider in terms of its physiognomies so that the provider can appreciate how service quality is observed by customers.

While measuring service quality, several authors have identified and documented a number of dimensions they used. Barnes and Vidgen (2002) identified five e-service quality dimensions; information, usability, trust, empathy and design. Santos (2003) identified a number of determinants of the quality of e-service including appearance, ease of use, layout and structure, linkage, reliability, content, efficiency, communication, support, incentive and security. Wolfenbarger and Gilly (2003) identified four e-quality dimensions; reliability/fulfillment, customer service, security/privacy and website design. Ribbink, van Riel, Liljander and Strauks (2004) identified five e-service quality dimensions; customization, ease of use, responsiveness, e-scape (i.e. web site design) and assurance. Lee and Lin (2005) identified five e-service quality dimensions; responsiveness, website design, trust, personalization and reliability.

Quality service is accepted as a tool of strategic importance since it helps in achieving efficiency and business performance enhancement (Sanjay & Gupta, 2004). Thus it is considered very important because it points to profitability, reduced costs, greater customer satisfaction, loyalty and retention. Studies that concentrated on quality of service argue for diverse viewpoints especially regarding relationship. Some consider that service quality enables gratification (Negi, 2009; McDougall & Levesque, 2000) while others opine that gratification tips to service quality (Cronin & Taylor, 2002).

## **RESEARCH METHODOLOGY**

This study used a descriptive research design. It involved the collection of data on more than one case and at a particular point in time in order to gather a body of quantitative or measureable data related to two or more variables to identify patterns of relationship (Gall & Borg, 1989). This being a census study, data was systematically collected and recorded on all the subjects of the study (William, 2006). This study was a census because the target population was small and well defined thus allowing an in-depth analysis. This study used both primary and secondary data. Primary data was collected using questionnaires. Secondary data was gotten from the customer survey that the Huduma centre carries out on regular basis, media reports and other published works by Kobia, Oliech and PSC (K) (CAPAM, 2016) and Huduma centre customer feedback analysis reports. Semi structured questionnaires were given to the FLE who conveniently filled them and returned to the researcher. The study ensured that content validity was addressed adequately by applying the Content validity formula by Amin (2005). A pilot study was undertaken to determine CVI before commencement of the study. In order to test the reliability of the questionnaire used in the study, the Cronbach alpha,  $\alpha$  was used. The analysis of data was done using Statistical Package for the Social Sciences (SPSS) software. The questions were coded to enable the performance of statistical analysis. Descriptive statistics specially played an important role in the arrangement and interpretation of analysed data. Descriptive statistic used to describe and summarize raw data was the median because of the responses were ordinal in nature. The study used both qualitative and quantitative analysis to dissect the data.

The hypothesis of this study was summarized in a population regression function thus:-

$$SQ = \alpha + \beta_1 X_1 + \varepsilon.$$

Where: SQ = Service quality;  $\alpha$  = A constant;  $\beta_1$  = the regression coefficient;  $X_1$  = dimensions of service quality (Tangibility);  $\varepsilon$  = is a random disturbance assumed with zero mean and constant variance (independent identically distributed normal error).

This study applied stepwise multiple linear regressions to carry out diagnostic test. The statistics generated were the p-value, which tests the null hypothesis meaning that a forecaster with a low p-value was likely to be meaningful to the equation. A larger (insignificant) p-value proposes that changes in the predictor are not associated with changes in the response. The study carried

out spearman's rank-order correlation (rs) analysis which generated correlation coefficients which were used to measure the strength and direction of a linear relationship between the variables. The study used coefficient of determination, R<sup>2</sup> to determine the goodness of fit of the econometric equation.

## **RESEARCH FINDINGS**

The study sought to determine the impact of tangibility of ICT on quality service delivery. The features of tangibility of ICT were; Huduma centre has up-to-date modern ICT equipment (Mdn ICT Eqp), the ICT facilities (Computers, servers, printers, etc.) are visually appealing (ICT Vsl Appl), the Huduma employees are well dressed and appear neat (Empl Neat) and the Physical environment of the Huduma centre is clean (Phy Env Clean).

### **Measurement of the Attributes of Tangibility of ICT**

The respondents were asked to give their level of agreement with the attributes of tangibility of ICT. The median of the responses from the study are shown in Table 1. It is clear in table 1 that the median for huduma centre has up to date modern ICT equipment and the physical environment of the Huduma centre is clean was 4.00 which on the likert scale is agree. The median for the ICT facilities are visually appealing and the Huduma employees are well dressed and appear neat was 5.00 which on the likert scale denotes strongly agree. This implies that the ICT infrastructure at Embu Huduma centre is evident thus its utilization in service delivery. This agrees with the assertion by Bitner, (1996) who posits that the physical evidence in which services are delivered facilitate performance or communication of the service.

**Table 1: Agreement with Attributes of Tangibility of ICT**

Attribute	Median
Huduma centre has up to date modern ICT equipment (Mdn ICT Eqp)	4.00
The ICT facilities (computers, servers, printers, etc.) are visually appealing (ICT Vsl Appl)	5.00
The Huduma employees are well dressed and appear neat (Empl Neat)	5.00
The physical environment of Huduma centre is clean (Phy Env Clean)	4.00

### **Correlation Analysis for Tangibility of ICT and Quality of Service Delivery**

The study used Spearman's Correlation (rs) to relate the attributes of tangibility and those of quality of service delivery. The features of tangibility of ICT were Mdn ICT Eqp, ICT Vsl Appl, Empl Neat and Phy Env Clean while those of quality of service delivery were ICT has led to efficient service delivery at Huduma centre (Efficient services), ICT has made your customers satisfied with services at Embu Huduma centre (customer satisfaction), ICT enables you to perform beyond your expectation (performance beyond expectation) and ICT has led to effective

provision of services to your customers (effective services). The resultant correlations are as shown in table 2.

**Table 2: Spearman’s Correlation between Attributes of Tangibility of ICT and Quality Service**

Attributes		Mdn	ICT	ICT	Vsl	Empl	Phy	Env
		Eqp		Appl		Neat	Clean	
Efficient services	Rs	0.378		0.654		0.406		0.313
	Sig. (2-tailed)	0.004		0.000		0.002		0.019
	N	56		56		56		56
Customer Satisfaction	Rs	0.262		0.521		0.351		0.325
	Sig. (2-tailed)	0.051		0.000		0.008		0.015
	N	56		56		56		56
Perform beyond expectation	Rs	0.471		0.637		0.456		0.480
	Sig. (2-tailed)	0.000		0.000		0.000		0.000
	N	56		56		56		56
Effective services	Rs	0.443		0.577		0.447		0.471
	Sig. (2-tailed)	0.001		0.000		0.001		0.000
	N	56		56		56		56

These results show that there is linear relationship between attributes of tangibility of ICT and quality of service delivery. All the rs as shown in table 2.2 were positive. This implies that increase in attributes of tangibility of ICT results into an increase in quality of service delivered. This finding contradicts the findings of Augustine et al., (2015) who in their study of local governments found that there is no relationship between tangibility of ICT and customer satisfaction.

**Multiple Linear Regression Equation**

After forward selection and backward elimination, the results of regression from the study generated model summary results as shown in table 3. From table 3 it is evident that the average adjusted R<sup>2</sup> of the model is 0.47. This means that tangibility of ICT system explained 47% of the variance in the quality of service delivery. This means that quality of service delivery changed by 47% due to changes in tangibility of ICT system. The Durbin-Watson d = 2.219 which is between the two critical values of 1.5 < d < 2.5, implying that there is no first order linear auto-correlation in the multiple regression data. The ANOVA for quality of service delivery with tangibility of ICT F-test has the null hypothesis that the model explains zero variance in the quality of service delivery (in other words R<sup>2</sup> = 0). It can be seen that (F(1,55)=35.35, R<sup>2</sup> =0.47). Therefore the F-test is highly significant, thus we reject the null hypothesis for the F-test and accept the alternative hypothesis that the model explains a significant amount of the variance in quality of service delivery at Embu Huduma centre.

**Table 3: Model Summary and ANOVA for Tangibility of ICT and Quality Service Delivery**

Model	Degree of Freedom	F-Test	Adjusted R <sup>2</sup>	Durbin Watson
Tangibility of ICT and Quality of Service Delivery	1,55	35.35	0.47	2.219

Table 4 indicate the coefficients of regression in regard to Tangibility of ICT and quality of service delivery. From table 4, the population regression function is presented:

$$SQ = 1.28 + 0.3815X_1$$

Where: SQ = Service quality; X<sub>1</sub> = Tangibility of ICT system.

This means that the independent variable, X<sub>1</sub> impacted service quality at Embu Huduma centre. This means that the respondents predicted quality services delivery at Embu Huduma centre is equal to 1.28 + 0.3815(Tangibility of ICT System). A change of 0.381 was expected in quality of service delivery when tangibility of ICT system changed by one unit. Where tangibility of ICT system was coded (1=strongly disagree, 2=disagree, 3=neutral, 4=agree and 5=strongly agree). There was no multicollinearity because the variance inflation factor (VIF) value was <10. A VIF value should range 1<VIF<10 to negate multicollinearity.

**Table 4: Coefficients of regression for Tangibility of ICT and Quality of service delivery**

Model	Coefficients	Standard Error	Beta	t-value	Significant value	Collinearity statistics Tolerance	VIF
Constant	1.28	0.4105		5.5155	0.00		
Tangibility of ICT	0.3815	0.1005	1.736	5.5803		1.00	1.00

This study therefore agree with a study done by Vandamme and Lennis (1993) which found that in Belgium the greatest dimensions elucidating overall service quality involved tangibility. However this study contradicts the findings of a study by Wisniewski (2001) which found that there were poor quality services in Scottish Councils’ services as measured in terms of tangibles. Other studies that concur with this one are those done by Brady and Cronin (2001) on tangibility.

**CONCLUSIONS**

Based on the findings of this study it is concluded that tangibility of ICT had the highest degree of impact on the quality of service delivery at Huduma centre in Embu County. Tangibility of ICT system was remarkable in offering quality services through the profound visual appeal of the ICT system and the presence of modern ICT equipment. This implies that the visibility of

modern ICT system at Huduma centre in Embu County was by design applied in serving the customers and thus affording citizens quality services.

## **RECOMMENDATIONS**

The study made the following recommendations; given that tangibility of ICT had impacted positively on quality of service delivery, the management of Embu Huduma centre should maintain and enhance the high level of visual appeal of the centre. However, since the respondents felt that the waiting bay is congested, a deliberate effort should be undertaken to increase the waiting bay area.

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