EFFECT OF INFORMATION AND COMMUNICATIONS TECHNOLOGY SUPPORTED OPERATIONS ON SERVICE QUALITY AT THE DEPARTMENT OF IMMIGRATION, KENYA

BY

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DECLARATION

This project is my original work and it has not been submitted anywhere for any award of a degree or diploma. Where other sources of information have been used, they have been acknowledged.

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This study is dedicated to my loving wife, Naomi Mwaka for her prayers and moral encouragement and to the big boys; Caxton Baya and Ramilson Iha, for their patience and tireless sacrifice throughout my study.

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ABBREVIATION AND ACCRONYMS

B2B	Business to Business
B2C	Business to Consumer
E-government	Electronic Government
E-S-QUAL	Electronic Service Quality
FLEs	Front Line Employees
GoK	Government of Kenya
ICT	Information Communications Technology
IRTM	Information Resources and Technology Management
IT/IS	Information Technology/ Information System
N	Number
NPM	New Public Management
OECD	Organization for Economic Cooperation and Development
RQI	Relative Quality Index
SERVPERF	Service Performance
SERVQUAL	Service Quality
TAM	Technology Acceptance Model
TANS	Technologically Advanced Nations
TRA	Theory of Reasoned Action
UK	United Kingdom

ABSTRACT

The usage of Information and Communications Technology in operations management is seen as an engine to improve on operations performance through increases in process efficiency and effectiveness that can be translated to better product and / or service offering by an organization to its customers. Where an organization has embraced Information and Communications Technology, customers expect some value addition to the ultimate quality of the products / services. The application of ICT in immigration operations in Kenya is expected to improve not only the way services are delivered but also the quality. The purpose of this study was to establish the effect of Information and Communications Technology on service quality. The first objective was to establish the status or evidence of ICT supported operations in the Department of Immigration Services in Kenya. Secondly, the study sought to find out how the availability and utilization of ICT to support immigration operations had produced any short term effects like increasing the effectiveness and efficiency of employees as well as equity. The last objective was to establish the overall effect of ICT supported operations on Service quality with reference to Immigration services in Kenya. Data was obtained using case study with two sets of respondents targeted. That is front line employees and customers. Generally, the study found out that the adoption and utilization of ICT to support operations at the Department of Immigration Services had positively affected the service quality levels. It was also established that both customers and front line employees had a shared vision of what the quality of services were to be especially, in terms of service quality dimensions of tangibles and empathy but it was thumbs up for communication and responsiveness. The positive ratings on service quality were by majority opinion of both groups of respondents and were largely attributable to the application of ICT in service operations. The study recommends that for the full range of service quality gains to be realized at the Department of Immigration Services, more investment in ICT innovation, especially the tangibles and on personnel was necessary. This is in the area of training and development; operations research and operations policy redesign so as to enable more interactive customer involvement through technology enabled platforms like websites, self service border control kiosks and automated query and response systems. There was also the need to connect all border stations and administrative control points to a common platform that would provide a 24 hour seamless link for border operations and immigration activities. Prior to deployment and implementation of ICT programs to support operations, employees and customers alike should be involved in the appraisal of the system. This was observed on grounds of sustainability and optimal yield.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Most organizations around the world, private and public alike have continuously pursued strategic objectives that are designed to enhance the effectiveness and efficiency of their operations through the innovative application of information and communications technologies (ICT) in both core and non-core operations processes. Public organizations have specifically attempted to enhance, through e-government initiatives, the way in which services are delivered to its citizens and through ICT-mediated operations, promoted government transparency and openness (IRTM, 2011). As evidenced in literature, ICT supported operations have the potential to transform the relationship between citizens and public services, and how public services are delivered. Today, almost all institutions provide services and at one point or another, in the production of service, or its delivery process, some ICT backed process is used (Jones & Williams, 2005). Berry (1995) notes that technology elevates the competitive advantage of a service organization only if it can support employees and enhance their capacity to offer superior services to the customer

Peansupap (2004) identified the adoption and use of ICT as a viable technological strategy employed in the Technologically Advanced Nations (TANS) to improve service quality. Innovative use of ICT in operations therefore offers enormous potential benefits for communities and local economies. The development of ICT Sector in Kenya is posed to open new job opportunities, improve access to information and services, increase efficiencies for business and transform our government to be more responsive. Currently,

the ICT Sector is composed of six inter-related sub-sectors that include Information and Communications, Kenya National Bureau of Statistics, Department of Resource Survey and Remote Sensing, Directorate of E-Government, Government Information Technology Services and the Department of Immigration (ICT MTEF, 2008).

The benefit of technology to service organization, their employees and their customers have received widespread academic attention. Research suggests that technology enhances a firm's value chain (Porter, 1985), and enhances service quality (Bitner et al, 2000). Kowalkowski & Brehmer, (2008) observe that ICT can be used to reconfigure existing service processes, thereby improving the internal efficiency of offered services. This is true because ICT can affect the structure (facilities, flow of goods/services and technology) and the infrastructure (planning, control and quality) design of the operations. This study was conducted to validate the argument that indeed, ICT supported operations have a profound effect on a firm's management philosophy with respect to using operations to compete, managing operations' process and managing the value chain, with the focal point being the effect of such ICT supported operations on immigration services' quality within the context of Kenyan public sector.

1.1.1 ICT Supported Operations

The utilization of ICT in performing an organization's operations is linked to its commercial perspective i.e. the business value of information technology that lies in the automation of business processes, provision of information for decision making, connecting businesses with their customers and the provision of productivity tools to

increase efficiency. According to much theoretical and empirical evidence, ICT supported operations offer benefits for a wide range of business processes and improves information and knowledge management within the firm, leading to better performance. Information systems' innovation has seen its growing use in such operations processes like transactions processing, vendor and inventory management, office automation and communication, accounts and finance, data mining and management and customer relations just as Antioco *et al*., (2008) noted that firms can use ICT to increase their service business orientation.

There has been rise and growth of a new category of services, which can be termed as the hybrid services. The distinguishing characteristic of this service category is that customers' interactions with a firm are a mix of human and technology interactions. Information technology tools are utilized to increase efficiency and effectiveness of service delivery (Marshall, 2006). But still these services are not totally devoid of human interactions (Aldrich, 2000). Examples of such services include telecommunication, banking, insurance, air travel, public transportation and utilities. The usage of ICT to support operations of an organization may be thought to produce a mix of human-technology interactions especially with regard to adoption of e-government. As a result, public service operations have increasingly been applying technological innovations to increase the value of their service offerings resulting to the so called hybrid services.

1.1.2 Service Quality in Operations

Service quality is the consumers overall impression of the relative inferiority/ superiority of the organization and its services ' (Bitner ,Brooms and Mohr ,1994) it can also be viewed as a form of attitude representing a client overall evaluation (Cronin and Taylor , 1994). However one of the notable definitions of service quality is that which looks at quality as a function of the differences between expectation and performance along the quality dimensions (Parasuman, Zeithaml and Berry, 1995). Juran (1999) observes that service quality is more of perceived. That is, an overall appraisal of service. This is the difference between customer's expectation and their perception of the actual service received.

Service quality should be built around the facility within which the service production and reception takes place, since the customer participates in its production. In the measurement of service quality, scholars have looked at service quality dimensions as the criteria to access service quality (Parasuraman, et al, .1985). Service quality has become crucial for creating a competitive advantage in today's business markets (Edvarsson, 2005). Although quality requires investments that may appear expensive, poor quality increases the cost of service as it also increases the frequency and intensity of service required. Besides, product and/or service failures are also followed by negative word of mouth, under utilization, and replacement with another care service as well as legal action (Hartline and Jones, 1996). For the above reason, assessing customers' perceptions regarding service quality perceptions is a key to long-term success.

1.1.3 ICT Supported Operations and Service Quality

In the information age, delivering quality service is considered an essential strategy for success and survival in today's competitive environment (Zeithaml, et al., 1990). There is lack of clarity about what high quality public services look like and an urgent need to articulate a clear vision of 'better' services to public service workers and citizens alike. The golden thread running through any debate about public services is a desire for higher quality public services that are delivered efficiently, yet, as always, the devil is in the detail: moving beyond this statement, it becomes evident that neither the politician, public servant nor the public have a shared vision of what 'high quality services' look like. This lack of clarity raises huge challenges for those in charge of public service transformation (Johns & Williams, 2005).

ICT offers a huge potential for transforming the relationship between citizens and public services, and the way in which services are delivered. But this will only happen if ICT is part of a wider strategy for public service reforms and if the right ICT artifact is deployed. This means that ICT has the potential to transform relationships and the way public services are delivered. As a result, fit for purpose ICT must then be used for different services and service settings given that the flashiest technology is not always the most appropriate (Williams & Jones, 2005). To successfully improve customer satisfaction, IT/IS-based services must be used in a value-added manner as determined by customers (Zhu et al., 2002). The measurement of IS service quality is critical to IS managers for evaluating and maintaining consistently high quality IS services (Watson et

al., 1998). A service is effective whenever its outcomes or accomplishments are of value to its customers.

Previously, concern with service quality was confined to private services but recent change agendas have made it also a priority in the public sector (Lagrosen and Lagrosen, 2003; Perrott, 1996). Measuring service quality is a challenging task because the concept of service quality is inherently intangible in nature and difficult to define (Kandampully, 1997). To assess improvements in service quality is even more challenging (Zeithaml et al., 1990). Commonly used techniques for measuring service quality include customer service audits (Takuechi and Qelch, 1983), gap analysis (Zeithaml et al., 1988), SERVQUAL (Parasuraman et al., 1988), SERVPERF (Cronin and Taylor, 1992), the critical incident technique (Bitner, 1990), and the sequential incident technique (Stauss and Weinlich, 1997).

Parasuraman et al. (1988) distinguished five dimensions for evaluating service quality: (i) tangibles (appearance of physical facilities, equipment, personnel and communication materials), (ii) reliability (ability to perform the promised service dependably and accurately), (iii) responsiveness (willingness to help customers and provide prompt service), (iv) assurance (knowledge and courtesy of employees and their ability to convey trust and confidence), and (v) empathy (caring, individualized attention which the firm provides for its customers). Most surveys traditionally used by organization are more focused on performance of service i.e what the customer solely thought about the current services provided by the organization (Donnlly,et al.,1995) these survey seldom give

opportunity to clients in providing their expectations upon the level of service quality that they desire in a clear manner (Kanila, 2010).

1.1.4 Department of Immigration Services in Kenya

Immigration services in Kenya are offered by the Department of Immigration Services under the Kenya Citizens and Foreign Nationals' Management Service Board, which is a body corporate courtesy of the Kenya Citizenship and Immigration Act, 2011. Under the current Kenya Government structure, it falls under the Office of the President, Ministry of Interior and Coordination of National Government. The services offered include issuance of travel documents, entry permits and passes to non citizens, regulation of entry and exit of persons across the Kenyan borders, services to Kenya Missions abroad, as well as performing other services that have a socio economic implication to the development of the country and national security interests.

The Department of Immigration Services is the sole institution under Kenyan law entrusted with offering of immigration services. As a public entity, it must conform to the general public service policy guidelines and / or regulations as revised from time to time. The Department has been one of the public institutions that have embraced ICT in the delivery of immigration services' courtesy of the public sector reforms and performance contracting under Kenya's vision 2030. As envisaged in these documents, e-government is to drive innovation through the application of ICT and improve on public service quality and delivery through improved efficiency and effectiveness in public institutions' management.

The use of ICT in operations is evidenced by a website that is host to core public information including the service charter, and allowance to make downloads, An IT based passport production and control system including online passport tracking system in Nairobi, Border management systems as well as a myriad of ICT based arsenal- witnessed by personal computer terminals and data servers serving various administrative functions. The above developments, according to literature should translate to improvements in transparency and accountability as well as commitment to purpose on the part of the staff, with the overall effect being positive improvements in service delivery along such parameters as efficiency and effectiveness in operations, delivering the promise as per service charter and response time but importantly customer satisfaction. Much of these gains were vaguely attributed to ICT supported operations and how the department had exploited technological advancements in improving service quality.

1.2 Research Problem

Operations management (OM) is concerned with the management of organizational activities which produce goods and/or deliver the services required by its customers. Slack et al. (2005) argue that one of the fundamental models within operations management is the "transformation process" in which a set of inputs are transformed into a set of outputs – typically a mixture of goods and services. The concern in literature is whether the adoption and utilization of ICT to aid the transformation process yields quality goods /services. This is the argument for technology-enabled services (hybrid services) and their effect on quality (Marshall, 2006).

Denni (1996) stress that every business must bring ICT into their business operation and take advantage of the benefits they offer. Some empirical studies by Bartelsman and Doms (2000), Brynjolfsson and Yang (1996), Dedrick et al. (2003), Kohli and Devaraj (2003) and Melville et al. (2004) confirms the positive effect of information and communication technologies (ICT) on firm performance in terms of productivity, profitability, market value and market share. Their study also reveals that ICT has some effect in terms of intermediate performance measures, such as process efficiency, service quality, cost savings, organization and process flexibility and customer satisfaction (Alam, 2009).

Public sector organizations have come under increasing pressure to deliver quality services (Randall and Senior, 1994) and improve efficiencies (Robinson, 2003). Customer needs and expectations are changing when it comes to governmental services and their quality requirements. Public sector services are responsible and accountable to citizens and communities as well as to its Customers (Prabha, et al. 2010). According to Gowan *et al.* (2001), service provision is more complex in the public sector because it is not simply a matter of meeting expressed needs, but of finding out unexpressed needs, setting priorities, allocating resources and publicly justifying and accounting for what has been done.

Since independence in 1963, the GoK has been implementing various reform initiatives aimed at improving the quality of life for Kenyans. In 2005, Kenya introduced Citizens'

Service Delivery Charters to hold public institutions accountable for delivery of the highest possible quality of service to the public (Commonwealth secretariat, 2010).

The Department of Immigration was earmarked as one of the six ICT flagship sub-sectors that were to bring about improvements in public service through delivery of quality services. This is possibly due to the fact that ICT supported operations in the public service offer the potential to eliminate opportunities for corrupt use of discretion by dis-intermediating services and allow citizens to conduct transactions themselves.

Agus, et al. (2007) argued that despite much research on service delivery, rigor was still lacking. While from literature, the service quality aspects of e-governance were tipped to be even more in need of research (Sobhani, 2008). Pathak et al (2008) concluded that e-governance was positively related to improved government-citizen relationships and corruption reduction, but their study failed to elaborate on the specific effect of ICT supported operations on service quality. Heeks (2001) found that the use of ICT can make a significant contribution to the achievement of good governance but did not address specifically, the issue of ICT based processes and service quality. Ssweanyana & Busler (2007) on evidence from Uganda observed that adoption and usage of ICT in developing countries provides increased savings, increased efficiency, improved service delivery, low transaction costs, and improved market performance to the organization that invests in ICT.

Makau, et al., (2013) undertook an empirical study on the relationship between organizational factors and adoption of ICT among health related SMEs in Nairobi, Kenya; Rangui et al. (2013) investigated service quality hindrances to success of tourism

businesses owned by locals in Kenya. A research by Saina, (2013) investigated ICT and its effect on immigration services' delivery in two border points in Western Kenya. Despite the input of scholarly works reviewed, these studies failed short of capturing the effect of ICT supported operations on immigration service quality. The current study sought to bridge the gap by investigating the effect of ICT supported operations on public service quality through finding answers to the following research questions; (i) to what extent had the Department of Immigration Services utilized ICT in supporting and improving its operations? And (ii), to find out how ICT supported operations had affected immigration services' quality.

1.3 Research Objectives

i. To establish the extent to which operations at the Department of Immigration Services are supported by ICT.

ii. To find out the effect of ICT mediated operations on effectiveness, efficiency and equity

iii. To establish the effect of ICT supported operations on Immigration services' quality.

1.4 Value of the Study

This research contributed towards narrowing the existing knowledge gap in the field of ICT and its relevance to service quality. Specifically, the study was a contribution to the long debate of the ICT- Quality paradox and importantly to service operations management. The study, through its discussion and findings helped shed light on areas of possible future research, thus contributing to knowledge generation, especially, where

academicians will use this research as a point of reference for further academic works in the field of ICT and service quality improvement.

The findings of this study will help the department of immigration services to understand the core dimensions of service quality and how such dimensions can be influenced with the help of for operations improvement. The government may draw on the study findings and rethink its public policy strategy in line with ICT deployment and utilization in the public sector.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter will discuss the literature on the application and utilization of Information communications technology and how it contributes to service quality. The review of relevant literature shall be guided by theoretical review.

2.2 Theoretical Review

The theories cited here in form the basic underpinnings behind the existence of a relationship between the deployment and utilization of information communications technology and an organizations capability to offer superior service to its clients.

2.2.1 New Public Management Theory

The theoretical underpinnings of ICT utilization in public services come from the new public management (NPM) which originated in the late 1970s in the United Kingdom, Australia and New Zealand. Since then, it has come to dominate thinking about the public sector reform and is hailed as a new paradigm. Different factors led to the emergence of NPM, among others, are changes in people's expectations and the emergence of better alternative forms of service delivery (Sarker, 2006). NPM emphasized the need for 'modern' bureaucracy with no 'traditional' bureaucracy so as to 're-invent' government and changing its role from 'rowing' to 'steering' (Osborne & Gaebler, 1992). Thus, NPM heralds the transformation of the citizen into a customer of public services, who pays for public services, and hence has choice and the exit option, and the opportunity to give feedback on public service delivery (Prakash & Singh, 2006).

As per NPM philosophy modern government should be customer oriented, competitive and result oriented, and thus ICT has a room to play for enhancing the effectiveness of government services. In short, as a strong theoretical foundation, the concept of new public management is used to strengthen the need and importance of ICT in the public sector (Geentanjali, 2011).

Public sector ICT enabled reforms are intrinsically embedded in combinations of political reforms and organizational changes, designed to enact, support and drive a profound transformation in the organization of the public sector. Research in the field has so far prioritized the concept of ICT as a short cut to increase public sector efficiency and improve internal administration and management capabilities (Medaglia et al., 2010). Since the late 1990s, ICT adoptions in the public sector leverage by following private sector experiences. There is no doubt that for the public sector the success of private sector adoptions to streamline organizational procedures and support electronic mediated exchanges (e-commerce) has acted as a stimulus prompting to raise the engagement of ICTs within NPM reforms. This trend has become evident when the wide adoption of ICT in the public sector organization has followed technical and strategic solutions - imported from private sector experiences- to improve and rationalize administrative and managerial practices.

2.2.2 Human Capital Theory

In the 1960s, Theodore Schultz and Gary Becker developed Adam Smith's original notion (described in The Wealth of Nations) that investment in education and skill formation was as significant a factor in economic growth as investment in physical plant

and equipment – the phrase human capital was born (Schuller & Field, 1998). It was believed that the impact a person's investment in education and training can have on the potential for productivity in an economic system – is the impact of human capital. A significant aspect of this theory is that the investment in knowledge, skills and health would not only benefit the individual; it could also increase employers' or country's human capital resource pool and potential productivity.

Human capital theory emphasizes how education increases the productivity and efficiency of workers by increasing the level of cognitive stock of economically productive human capability which is a product of innate abilities and investment in human beings (Olaniyan & Okemakinde, 2008). The theory has explained the reasons for the provision of enterprise training in terms of the increase in productivity that accrues to the enterprise (Kabir & Baniamin 2010). According to this view, human capital is similar to "physical means of production," e.g., factories and machines: one can invest in human capital (via education, training, medical treatment) and one□s outputs depend partly on the rate of return on the human capital one owns. Thus, human capital is a means of production, into which additional investment yields additional output (Ibid).

According to Babalola (2003), the rationality behind investment in human capital is based on three arguments: first, the new generation must be given the appropriate parts of the knowledge which has already been accumulated by previous generations, and second; that new generation should be taught how existing knowledge should be used to develop new products, to introduce new processes and production methods and social services,

and finally; that people must be encouraged to develop entirely new ideas, products, processes and methods through creative approaches.

2.2.3 Technology Acceptance Model (TAM)

Davis (1989) presented a theoretical model aiming to predict and explain ICT usage behavior, that is, what causes potential adopters to accept or reject the use of information technology. Theoretically, TAM is based on the Theory of Reasoned Action (TRA). In TAM, two theoretical constructs, perceived usefulness and perceived ease of use, are the fundamental determinants of system use, and predict attitudes toward the use of the system, that is, the user's willingness to use the system. Perceived usefulness refers to 'the degree to which a person believes that using a particular system would enhance his or her job performance', and perceived ease of use refers to 'the degree to which a person believes that using a particular system would be free of effort' (Davis, 1989)

2.2.4 Information Systems Success Model

DeLone and McLean (1992) reviewed prior research and introduced a comprehensive taxonomy of factors contributing to the success of information systems. The authors examined the literature on IS success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of IS success.

2.3 ICT Services' Support on Operations

ICT is defined as 'any technology used to support information gathering, processing, distribution and use' (Beckinsale & Ram, 2006). This covers all forms of technologies such as computers, Internet, websites as well as fixed-line telephones, mobile phones and other wireless communications devices, networks, broadband and various specialized devices (Manueli, et al, 2007). ICT is an integrated system that incorporates the technology and infrastructure required to store, manipulate, deliver and transmit information, the legal and economic institutions required to regulate ICT access and usage, and the social and inter-personal structures which allow information to be shared, facilitate access to the ICT infrastructure, and through which innovation takes place (Wangwe, 2007).

Technology allows many operations to be automated (Norton, 1995; Flanagan & Marsh, 2000). At best, automation takes care of many routine tasks and thus people have additional time for the more demanding tasks. Technology has also improved access to information (Shin, 1999; Flanagan & Marsh, 2000; Ahuja et al., 2009) and communication has become easier due to, e.g., mobile phones and video conference calls. Furthermore, the increased use of ICT has improved the quality of information (Suwardy et al., 2003). The use of (ICT) to support the work of governmental institutions and agencies with the objectives of delivering public services and information in a more convenient, citizen-centric and cost effective manner is called e-governance.

In other words, ICT services can be used for promoting more efficient and cost-effective government, more convenient government services, greater public access to information, and more government accountability to citizens (Geetanjali, 2011) Regarding e-government a distinction can be made between the objectives for internally focused processes (operations) and objectives for externally focused services (Backus 2001): The external objective of e-government is to fulfill the public's needs and expectations satisfactory on the front-office side, by simplifying the interaction with various online services. The use of ICT in government operations facilitates speedy, transparent, accountable, efficient and effective interaction with the public, citizens, business and other agencies. In the back-office, the internal objective of e-government in government operations is to facilitate a speedy, transparent, accountable, efficient and effective process for performing government administrative activities (Geetanjali, 2011).

Gershuny and Miles (1983) point out that, ICT changes services' cost, output and quality, owing to 'information' components of most services, which were the ideal breeding ground for the exploitation of ICT. Evangelista (2000) points out that, the information-based characteristics of services give to the generation and use of ICT a central role in firm's innovation activities and their performances. ICT forms a technological platform upon which new innovation in services can also be designed and implemented (Barras, 1986). With the emergence of information and communication technologies (ICTs), and e-Government, it is possible to improve efficiency and effectiveness of internal administration within government and to re-locate government service from government offices to locations closer to the citizens. Examples of such locations are cyber café',

telecenters or a personal computer at home or office. While developing countries may have similar characteristics, the Kenyan context presents various challenges that affect the successful implementation of ICT projects and the effectiveness of ICT supported operations on service quality. The notable characteristic that define Kenyan ICT environment is that most ICT projects are initially donor funded and that some donations are made without prior consultation or carrying out a needs analysis by the recipient organization (Gichoya, 2005).

ICT has been applied in the various 'tools' of government policy (Margetts, 1998, 1999), namely, nodality, authority, treasure and organizational capacity (Hood, 1983). Nodality implies the extent to which ICT facilitates information exchange and the emergence of information networks comprising government and other stakeholders; treasure refers to the application of ICT for accounting and finance in government; authority refers to ICT applications in maintaining law and order; and organizational capacity refers to increase in information processing ability of government, improvement inefficiency enabled by ICT, and development of organized expertise (Dunleavy & Margetts, 2000).

E-governance can increase the rationality in decision-making through formalization of rules and procedures reduce 'bounded rationality (Simon, 1955) and modernize public administration through 'informatization' (Frissen, 1995). The potential of e-governance to transform government-citizen relations is often rhetorical rather than realistic. Empirical evidence shows that e-government is often in the first (information dissemination) or at best in the second (two-way communication) stage of development (Moon, 2002). Most of the time, use of the Internet by governments is limited to

providing content on websites (Holden, 2003). Streib and Navarro (2006) also find that people prefer in-person and telephonic communication in comparison to the Internet. Merely taking the Internet to the villages will not cause the villages to 'leapfrog'. There is a need for multi-level institutional change.

There is a need to create social, economic and political institutions that create opportunities for people, and enable them to utilize these opportunities to attain developmental outcomes and, for success of local grassroots initiatives, it is important to design and implement projects based on killer applications in a bottom-up manner with the involvement of local communities. The induction of technology alone will not improve governance. Archaic procedures must be re-engineered and people within and outside government must be encouraged to switch over to e-governance and for e-governance to actually lead to empowerment of citizens, the focus needs to be more on provision of value-added services (Prakash & Singh, 2006).

Information Technology infrastructure should provide a seamless "pipeline" for the flow of explicit knowledge through the stages of the refining process to enable capturing knowledge, defining, storing, categorizing, indexing and linking digital objects corresponding to knowledge units, searching for ("pulling") and subscribing to ("pushing") relevant content, presenting content with sufficient flexibility to render it meaningful and applicable across multiple contexts of use (Zack, 1998).

2.4. SERVQUAL and Service Quality Evaluation

The SERVQUAL determinants have been widely accepted in the areas of service quality and customer satisfaction. The original ten determinants (Zeithaml et al 1988) have been modified into five determinants, i.e. Tangibles, reliability, Responsiveness, Assurance and Empathy (Parasuraman et al., 1994). Parasuraman et al (1985), using a gap model, attempts to show the salient activities of the service organization that influence the perception of quality. Moreover, the model shows the interaction between these activities and identifies the linkages between the key activities of the service organization or marketer which are pertinent to the delivery of a satisfactory level of service quality. The kinks are described as gaps or discrepancies, that is to say, a gap represents a significant hurdle to achieving a satisfactory level of service quality.

Service Quality (SERVQUAL), according to Lewis and Booms (1983), is a measure of how well the service level of an organization matches clients'/customers expectations. Parasuraman *et al.,* (1985) pioneered the development of the model. The model was based on the theory relating service quality to the clients' satisfaction and it is expressed thus: SERVQUAL score (value) = perception score – expectation score. It essentially focuses on perception of quality as opposed to objective quality and evaluates clients' expectation and perception of performance through established determinants of service quality. Procter and Rwelamila (1999) argued that the instrument can be adapted and applied to any service delivery system/organization. According to study carried out by Ladhari, (2009), it is recommended that the SERVQUAL model is a good scale to use when measuring service quality in various specific industries but that it is appropriate to

choose the most important dimensions of this model that fit to that particular service being measured in order to assure reliable and valid results (Chingang & Lukong, 2010).

2.5 Empirical Review

Sureshchander et al, (2002) state that "The veritable gains of a quality revolution come only from customer delight, which again to a very great extent depends on the customer's perceptions of overall service quality. This is why it is very imperative to understand how consumers perceive service quality and how these perceptions could affect their repurchase behaviour because through this way organisations can be able to identify whether or not gaps exist and do take corrective actions to improve upon their activities. In this way, organisations can implement appropriate quality systems which could result to customer satisfaction.

The outcome of a successful service is often referred to as a satisfied customer (Levesque & McDougall, 2000). Cranage (2004) believes that a customer is satisfied as long as the expectations are met or exceeded by the service provider. According to Johnston (2004), providing the customers with 'excellent service' gives the outcome of delight and this type of service includes a closer relationship between the buyer and seller than if the outcome is satisfaction. Johnston (2004) argues that the aim for service excellence does not imply that organizations should continually and always exceed expectations; service excellence is to provide the customers with what they value in order to induce feelings of delight

Many researchers have identified service quality as an important factor of information system success (Kettinger & Lee, 1995). Bonuke, et al., (2012) noted that the very basis of introducing the ICT protocol in an organization was to improve services thereby raising the level of customer satisfaction. These findings are also consistent with the views of Delone and McLean (2003), Shih (2004) and Lin (2007), that service quality is the overall support delivered by the ICT Service provider and is measured in terms of assurance, empathy and responsiveness.

Tareq, et al., (2012) observed that the reason behind the overwhelm interest on ICT is the numbers of benefits behind the adoption of ICT. Several studies finding shows that use of ICT increase sales (Ashrafi and Murtaza, 2008, Davidavičiene, 2008). Study found that ICT can reduce business costs (Christiaanse & Kumar, 2000) and improve productivity (Oulton, 2002, Gelauff et al., 2004). Adaptation of ICT is not only strengthen growth possibilities but also creating network with all other business in the world, can have cooperation, and can improve quality and knowledge (Barba-Sanchez et al., 2007).

Some empirical studies by Bartelsman and Doms (2000), Brynjolfsson and Yang (1996), Dedrick et al. (2003), Kohli and Devaraj (2003) and Melville et al. (2004) confirms the positive effect of information and communication technologies (ICT) on firm performance in terms of productivity, profitability, market value and market share. Their study also reveals that ICT has some effect in terms of intermediate performance measures, such as process efficiency, service quality, cost savings, organization and process flexibility and customer satisfaction (Alam & Noor, 2009). According to OECD

(2004), ICT is able to improve speed and reliability of transactions for both business-to-business (B2B) and business-to-consumer (B2C) transactions.

2.6 Summary of Literature Review

There exist wide literature on the effect and influences of ICT on service quality and how service quality is defined and can be measured as well as the dimensions in the measurement of service quality. What can be deduced from literature is the common denominator on the existence of various methodologies that allow service quality to be measured and additionally, from several perspectives. The area of dispute is what constitutes the best and most accurate method for measurement of service quality owing to the fact that service quality is content and context dependent.

The SERVQUAL model, developed by Paraasuraman et al (1998) has been widely cited in literature as being open to modification to accomplish predicting customer perceptions against expectations and as against the service provider. However, specific study on the validity of the SERVQUAL model in measuring the effectiveness of ICT in Kenya immigration services' quality issues remains scanty and/ or lacking. Thus, this study aimed to bridge the gap by investigating on the contribution that ICT had made onto Immigration services' quality and how best ICT can be deployed to improve on Kenya immigration services.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the general methodology that was used to conduct the study. It specified the research design, the target population, the sampling design, data collection methods and instruments as well as data analysis.

3.2 Research Design

The study was conducted using a single case survey. A case study is a type of research where focus is on a contemporary phenomenon within its real-life context and typically addresses the question of 'how' and 'why'. Its suitability rests in the fact that the study was concerned with the in-depth measurement of the same variables across all respondents in the same context. Vuolle, et al., (2013) used this type of design in conducting a survey on the impact of ICT on the knowledge work productivity in the UK; while Geetanjali (2011), used the same design to investigate ICT application in service delivery of Nepal Inland Revenue department.

3.3 Sample and Sampling Technique

For purposes of fair representation, disproportionate or purposive sampling was used to obtain a desired sample of 50 front line employees (FLE) respondents. Table 1.1 illustrates how the sample was drawn from the population. A multistage random sampling was used after the first sample size had been determined as shown in Table 3.1, reflecting respondents distribution across three administrative regions i.e. Nairobi region,

Coast region and Western region. Pathak, et al (2010) used a similar approach. This was done with the realization that each region undertakes the functions as listed in Table 3.1

Table 3.1 Population and Sample of Study

	Level	Total	No. sampled	Sample size
1	National Admin. regions	3	1	1
2	Major functional areas/sections	10	5	5
3	Sections/ control units in a section	4 (Av.)	2	2
4	FLEs in a control section	250 (Av.)	75	75

Source: Research Data, (2013)

Table 3.2 Number of Front Line Employees in a Section per Region

	Immigration Services Functional Unit/ region	**Total**	**Sample**
1	Passport	40	15
2	Border Protection and control	150	50
3	Permits	15	5
4	Citizenship/ Kenyanization/ Aliens	10	3
5	Investigations and prosecution	05	2
	TOTAL	220	75

Source: Research Data, (2013)

Table 3.3 Sample of Customers per Region per Functional Area*

	Nairobi	Coast	Western	Sample unit (Coast region)
Passport	(800) 30	(300) 30	(300) 5	**30**
Border control	(10000) 50	(5000) 100	(3000) 5	**100**
Permits/passes	(400) 20	(50) 5	(30) -	**05**
Citizenship/ Kenyanization/ Aliens	(2000) 15	(300) 10	(200) 5	**10**
Investigations/ prosecution	(150) 10	(20) 5	-	**05**
TOTAL	(13350) **125**	(5770) **150**	(3530) **15**	**150**

Source: Research Data, (2013)

*since exact service clients could not be established, approximate figures from HR indicate the above weekly figures (on the lower side). Figures in brackets represent population.

3.4 Data Collection Method

Primary data was collected using a structured questionnaire (Appendix I) as recommended by Gay and Airasian (2000), and drafted in line with the research objectives. The first two parts of the questionnaire focused on the sampled FLE (Immigration staff) and the second, targeting immigration service clients as reflected in table 3.3 above. The questionnaire was administered via a multi-method approach

entailing personal or face to face interviews, personally administered questionnaires, and mailed correspondence with respondents chosen via purposive sampling method. The questionnaires consisted of both closed ended questions and check boxes where respondents gave their ratings on a 5-point Likert scale, for the evaluation of service quality after initiating ICT supported operations. The targeted respondents were those who were thought to be familiar with the operations of the department of immigrations services. Babalola, et al., (2010) used this approach in data collection.

3.5 Data Analysis

Pathak, et al., (2010), noted that where triangulation had been used in data collection (Observation, questionnaires and interviews), analysis using mixed methods was possible. The objectives of the study were analyzed using descriptive statistics and cross tabulation. The research questionnaires were subjected to statistical operations using statistical package for social sciences (SPSS). Tables, frequencies and percentages were drawn to help in determining the proportion of respondents for each of the strategic application statements and dimensions of service quality identified. A further utilization of descriptive statistics was made onto a service quality questionnaire (SERVQUAL) with mean score values used to infer on the results according to a five point Likert scale. The scores were then be ranked based on the calculated servqual gap.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

This chapter presents the results of data analysis and the discussion of findings. It is divided into such sections like socio demographic characteristics of the respondents, the status of ICT at the department of Immigration services and data relating to the SERVQUAL instrument administered to the two groups of respondents.

4.2 Sample Characteristics

The study found out that the number of front line employees also defined as service providers in this research had different demographic profiles such as age and sex. Of the 75 questionnaires administered, 63 responses were obtained. This represents a response rate of 84% which was considered good for analysis given that studies in similar areas obtained response rates of between 80% and 93%. Babalola et al. (2010) analyzed data using a response rate of 80% while Prabha Ramseook, et al. (2010) in their research on public service quality analyzed their data with a response rate of 93%. The demographic characteristics of the front line employees are summarized in Table 4.1.

Table 4.1 Sample Characteristics of FLEs (N=63)

Gender	25 -35years	35 – 45years	Above 45 years	Total
Male	24	20	2	46
Female	12	03	2	17
Total	36	23	4	63

Source: Research Data, 2013

The sample characteristics of the FLEs was subjected to frequency distribution analysis with results indicating that a higher percentage of respondents were under the age of 45 for both gender categories and this was reflecting a moderate youthful workforce in the organization. Table 4.2 indicates the frequency distribution of FLEs with respect to age and gender.

Table 4.2 Frequency Distribution of FLE with Respect to Age and Gender

	Male		Female	
	Frequency	%age	Frequency	%age
25- 35	24	52.17	12	70.59
35 – 45	20	43.48	03	17.65
Above 45	2	4.35	02	11.76
Total	46	100	17	100

Source: Research Data, (2013)

4.2.1 Sample Characteristics of Service Clients

A total of 150 questionnaires were administered and out the total sent out, 115 were duly completed and returned for data analysis. This represents a response rate of about 82% which is considered good for data analysis. The demographic characteristics of the service clients' is displayed in Table 4.3

Table 4.3 Sample Characteristics of Customers

Gender	15 -25years	25 – 35years	Above 35 years	Total
Male	20	38	17	75
Female	15	20	5	40
Total	35	58	22	115

Source: Research Data, (2013)

The results of the distribution of customers with respect to age and gender indicated that more customers during the period of the survey were in the age bracket of 25 – 35years for both gender followed by those between ages 15 – 25. This is illustrated in Table 4.4

Table 4.4 Frequency Distribution of Customers with Respect to Age and Gender

	Male		Female	
	Frequency	%age	Frequency	%age
15- 25	20	26.67	15	37.5
25- 35	38	50.66	20	50.0
Above 35	17	22.67	05	12.50
Total	75	100	40	100

Source: Research Data, (2013)

4.3 Evidence of ICT Supported Operations at the Department of Immigration Services

A majority of the respondents, customers and FLEs alike had noticed the prevalence of ICT supported operations by way of physical ICT devices as well as utilization of the same to enabling the production and rendering of hybrid services. The results show that the adoption and utilization of ICT to support immigration operations had a positive effect not only in the way services were being offered but the overall effect on service quality touching on such variables like, effectiveness, efficiency and equality. Table 4.5 illustrates the results of prevalence of ICT usage to support immigration operations.

Table 4.5 Type of ICT Used in Supporting Immigration Operations

ICT Facility	Availability (%age)	Usage (%age)
Personal computers	78.0	94.5
Scanners	80.4	85.8
Laptops	40.5	15
Website	72.8	75
Internet/ intranet/ extranet	50*	90*
Email	68.2	70
Biometric devices e.g. optical	75.8	75.4
Software e.g. passport production	95.2	96.8
Database Servers	85.1	88.5
Other (specify)	-	

Source: Research Data, (2013)

From the information given in Table 4.5 the survey revealed that application software, servers, document scanners and personal computers were the mostly used ICT facilities in supporting immigration operations followed by biometric devices at 75.8%. The aggregate percentage on availability and usage of ICT in supporting immigration operations stood at 72% and 77%. The use of the internet was also prevalent although respondents noted that internet facilities were a personal arrangement in making their work more fruitful and was never provided by the organization they were working for i.e. the department of immigration services.

4.4 Effect of ICT Supported Operations on Effectiveness, Efficiency and Equity

In analyzing the contribution of ICT to the effectiveness and efficiency of operations at the department of immigration services, application statements were based on perceptions on the presence and possible immediate benefits derived from ICT utilization. Table 4.5 reveals the results of the study in percentage responses obtained from FLEs.

Table 4.6   ICT Versus Effectiveness, Efficiency and Equity

Variable					
Evidence of ICT supported operations	**1**	**2**	**3**	**4**	**5**
ICT infrastructure is visible at all functional sections			11.4	80	8.6
Adequate hardware and software profiles for operations			14.3	85.7	
Information access (internet & web based services)	57	8.6	34.3		
Up to date database system for records & other functions		14.3	14.3	71.4	
Most operations conducted on ICT- enabled platform		5.7	8.6	85.7	
ICT- based Operations and Effectiveness	**1**	**2**	**3**	**4**	**5**
Accurate response		14.3	14.3	71.4	
Timely information		2.9	28.6	68.6	
Feedback response		28.6	14.3	57.1	
Citizen participation			42.9	51.4	5.7
Increased transparency and openness			14.3	85.7	
Assurance (courtesy/trust/confidence)			25.7	74.3	
Reducing Transaction cost	14.3	5.7	71.4	8.6	
ICT- based Operations & Efficiency	**1**	**2**	**3**	**4**	**5**
Reduced Cost factor in acquiring services		28.6		71.4	
Reduced waiting time in acquiring services			14.3	85.7	
Streamlined Procedures / reduced layers of bureaucracy		22.9	20	57.1	
ICT- based Operations & Equity	**1**	**2**	**3**	**4**	**5**
Affordable non discriminatory services to all	2.9	8.6	14.3	74.2	
Equal access to services/ low nepotism, kickback ,e,t,c			8.6	91.4	

Source: Research Data, (2013)

From the results in Table 4.6 higher percentage scores on the scale were above average with highest score being 91.4% along equity and 85.7% on effectiveness and efficiency. The mean Likert scores under the variables above are presented in Table 4.7

Table 4.7 Mean Scores for ICT Utilization in Operations, Effectiveness, Efficiency and Equity

Variable	1	2	3	4	5
Evidence of ICT supported operations	11.4	5.70	16.6	64.60	1.70
Contribution of ICT- based Operations to **Effectiveness**	2.04	7.35	30.20	59.58	0.84
Contribution of ICT- based Operations to **Efficiency**		17.17	11.43	71.4	
Contribution of ICT- based Operations to **Equity**	1.45	4.3	11.45	82.8	

Source: Research Data, (2013)

Table 4.7 illustrates the percentage of agreement of the respondents with respect to the evidence of ICT supported operations in immigration services as well as the contribution of ICT to effectiveness, efficiency and equity. Analysis of results in Table 4.7 indicates respondents' level of agreement with higher percentage scores recorded at above average rating.

Figure 4.7   Illustration of ICT Utilization & its Effect on Effectiveness, Efficiency and Equity
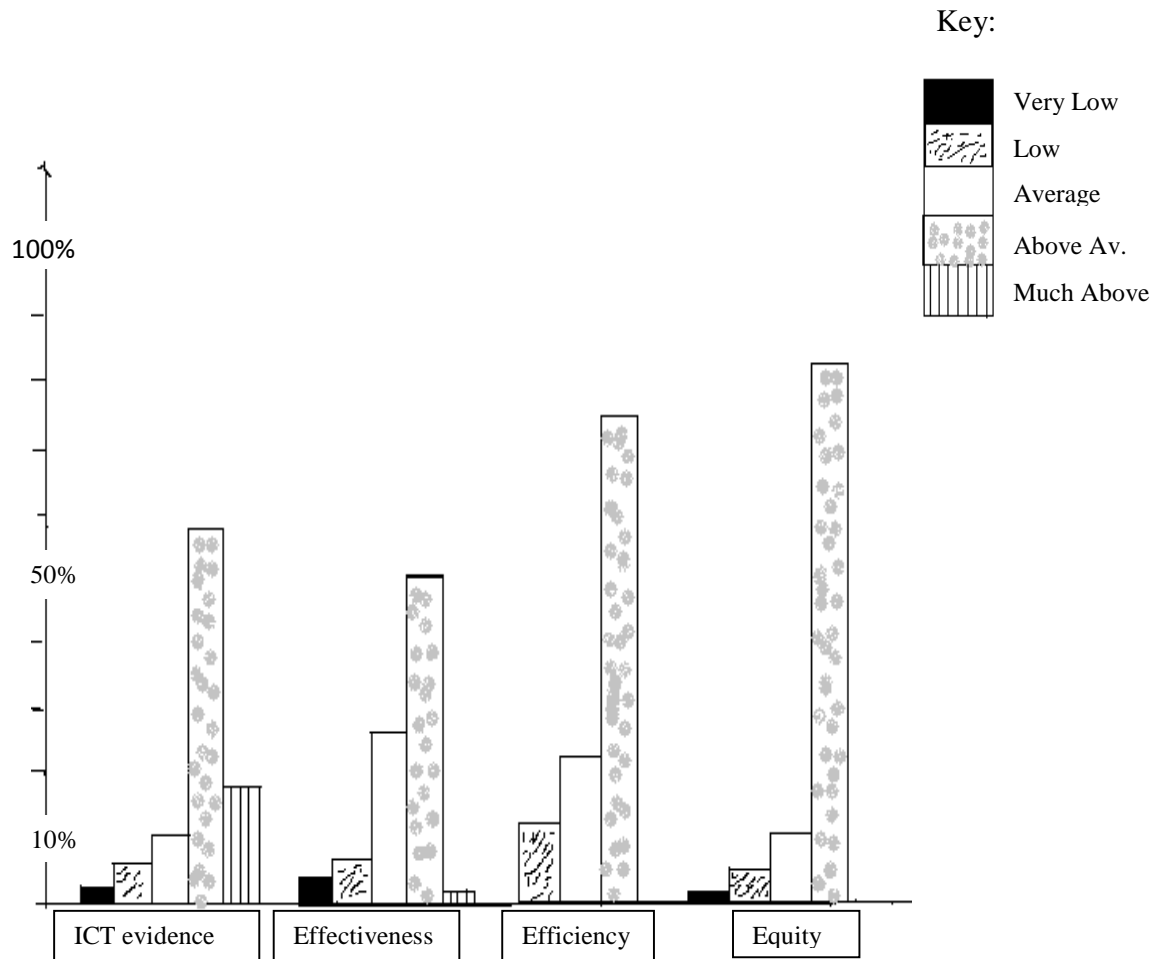
Source: Research Data, (2013)

Figure 4.7 gives a visual expression of the effect of ICT utilization on organizational effectiveness, efficiency and equity. The bars reflect the percentage agreement of respondents on the evidence of ICT supported operations and the extent to which they believed such a move had an influence on effectiveness, efficiency and equity. Respondents recorded an above average score on the basis of equal access to information and service due to ICT followed by a similar Likert score in efficiency.

4.5 The Effect of ICT Supported Operations on Service Quality

With respect to the effect of ICT supported operations on immigration services' quality, the gap analysis model/ ' servqual' was used to obtain the gap scores between perceptions and expectations of both employees and customers. The key service quality dimensions as identified by Parasuraman, et al., (1985) and also Prabha et al., (2010) and Babalola et al., (2010) were operationalized for ease of their measurement along a 5-point likert scale for both perception and expectation scores. The dimensions used were; Reliability, Responsiveness, Assurance, Empathy, and tangibles were used as well as a sixth dimension of Communication.

Table 4.8 shows that respondents on the customer category expressed the widest quality gaps in the areas of FLEs showing sincere interest in solving customer problems (reliability), while the same category of respondents had a record gap of -2.00 on the availability of up to date ICT equipment (Tangibles) at the department of immigration services. Likewise, the employees recorded the highest gap in the same area of tangibles, on the availability of up to date equipment at a gap score of -1.85. The smallest gap score was recorded under reliability dimension for the customers at a gap score of -0.65 (providing services as promised), while on the FLEs category, the gap score was lowest under the same dimension and variable at a score of 0.42. This reflects a sense of shared perception and expectation between the customers and FLEs on the provision of services as promised (reliability). In all dimensions measured, some gap did exist between the perceptions and expectations of both the customers and employees.

Table 4.8 Gap Scores for FLEs and Customers

	Customers' gap	FLEs Gap
RELIABILITY		
Shows sincere interest in solving customers' problem	-2.05	-1.17
Performing the services right the first time	-1.87	-1.08
Provides services at the promised time.	-0.85	-0.85
Maintains error-free records.	-1.43	-1.03
Providing services as promised	-0.65	-0.42
RESPONSIVENESS		
Customers informed about when services will be performed.	-1.48	-1.31
Prompt service to customers	-1.25	-0.71
Readiness to respond to customers' requests	-1.45	-1.02
.		
ASSURANCE		
Employees who instill confidence in customers.	-1.65	-1.31
Making customers feel safe in their transaction.	-1.35	-1.02
Employees who are consistently courteous.	-1.83	-1.54
Knowledgeable employee to answer customer questions	-1.37	-1.14
EMPATHY		
Giving customers individual attention.	-1.08	-1.02
Employees who deal with customers in a caring fashion.	-1.25	-1.48
Employees have customer's best interest at heart.	-1.43	-1.57
Employees who understand the needs of their customers.	-1.37	-1.25
TANGIBLES		
Availability of up-to-date ICT equipment.	-2.00	-1.85
Visually appealing physical facilities.	-1.85	-1.50
Employees have a neat, professional appearance.	-1.02	-0.74
Visually appealing materials associated with the service	-1.78	-1.60
COMMUNICATION		
good communication between providers and public	-1.00	-0.80
Provision of timely feedback to clients queries	-1.40	-1.20

Source: Research Data, (2013)

The mean gap scores for each quality dimension are shown in Table 4.9 and reflect the average discrepancy between what is expected and what is perceived of service quality. These values reflect the level of dissatisfaction of both the customers and the FLEs with respect to the tangibles dimension that recorded the highest gap score at -1.66 and -1.42 for customers and FLEs respectively.

Table 4.9 Mean Gap Scores for Each Dimension

		Customers' Gap score	FLEs' Gap score
1	Reliability	-1.37	-0.90
2	Responsiveness	-1.39	-1.01
3	Assurance	-1.55	-1.26
4	Empathy	-1.23	-1.33
5	Tangibles	-1.66	-1.42
6	Communication	-1.20	-1.00

Source: Research Data, (2013)

Analysis of the results reflected in Table 4.10 indicate that the least gap score on the customer category of respondents was on the communication dimension of service quality at -1.20 followed by Empathy dimension at -1.23. The widest gap score in the same category of respondents was on tangibles at a score of -1.66 followed by assurance at a score of -1.55. On the FLEs category, the smallest gap was on reliability at 0.90 followed by communication at a score of -1.00. The widest gap was on the tangibles dimension at -1.42 followed empathy dimension at -1.33. In order of preference for service quality action, customers ranked tangibles and assurance as wanting while employees ranked tangibles and empathy. Communication and reliability scored highly in

employees gap scores (with least negative values), while communications and empathy were well addressed from the customers perception.

Table 4.10 Ranking of Gap Scores for Each Category of Respondents

	Dimension	Customers' Gap rank	Dimension	FLEs' Gap rank
1	Tangibles	-1.66	Tangibles	-1.42
2	Assurance	-1.55	Empathy	-1.33
3	Responsiveness	-1.39	Assurance	-1.26
4	Reliability	-1.37	Responsiveness	-1.01
5	Empathy	-1.23	Communication	-1.00
6	Communication	-1.20	Reliability	-0.90

Table 4.11 Gap Scores between FLEs Perception and Customers' Expectation

Service Quality Dimension	Employees Perception	Customers' Expectation	Service Providers Gap
Reliability	3.20	4.48	-1.28
Responsiveness	3.30	4.60	-1.30
Assurance	3.40	4.74	-1.34
Empathy	3.00	4.40	-1.40
Tangibles	3.38	4.84	-1.46
Communication	3.21	4.30	-1.09

Source: Research Data, (2013)

Table 4.11 illustrates the results of the gap score between employees' perception of each service quality dimension on one hand and, the expectations of customers on other hand with regard to the same service quality dimensions. It was established that the perception of employees on service quality dimensions was average at scores of between 3.00 and 3.40, while the expectations of customers as regards the same service quality dimensions was above average at scores of between 4.30 and 4.84. The difference between the perception of employees and the expectations of the customers represent the service providers' gap score. From the table above, the dimension with the highest gap score is tangibles at -1.46 followed by empathy at -1.40. The least gap scores on the part of the provider is on the communications dimension at -1.09 followed by reliability at -1.28.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides an outline of the summary of findings, conclusions made from the analysis of data from the previous chapter and recommendations in line with the objectives and elements of the study. Based on data analyzed, conclusions and recommendations shall be made with respect to the effect of ICT supported operations and service quality at the Department of Immigration Services in Kenya.

5.2 Summary

The study was based on the effect of ICT supported operations on service quality in the Department of Immigration Services in Kenya. It established the status of ICT facilities' availability and utilization by the Department in Immigration operations, the contribution of ICT supported activities to service operations efficiency, effectiveness and equity as well as the overall effect of ICT supported operations on service quality. The study embraced a case study design, with the basic design of the questionnaire adapted from the servqual model with closed ended questions and a five point Likert scale (1= very low, 2= Low, 3= Average, 4 Above Average and 5= Much Above average), which corresponded to the respondents perceived and expected service quality ratings on the effect of ICT supported operations on service quality.

The sampling characteristics of respondents fell in two distinct categories; one comprised of service providers / front line employees and the other sample comprising of service

customers. The elements that constituted either of the sample categories were selected using a purposive sampling approach. Structured questionnaires were administered to the two categories of respondents with sample sizes of 90 for FLEs and 115 for service customers. The data that was collected was edited for completeness and coded to facilitate analysis. Descriptive statistics was used to show the distribution of the respondents as well as cross tabulation for detailed analysis.

The study findings revealed that there was sufficient evidence to suggest that the department of Immigration services was utilizing ICT to support operations. In all the functional areas sampled, the mean percentage availability and utilization of ICT in immigration operations was at 72% and 77%. The majority of the sampled respondents, 65% believed that the evidence of ICT supported operations was above average. The adoption and utilization of ICT to support operations in the organization was also found to have a profound effect on effectiveness, efficiency and equity. 59.58% was the above average belief that ICT supported operations had an effect on effectiveness, while 71.4% was the score on the above average rating that ICT supported operations had on efficiency. As to the contribution of ICT supported to equity, a score of 82.8% was recorded as above average belief. The effect of ICT supported operations on service quality was also investigated through this study by way of gap analysis.

Previous researchers (Parasuraman *et al.*, 1988, 1991) have successfully used this method for calculating difference scores. A negative service provider gap indicates that customer expectations are higher than FLE perceive them to be. A positive service provider gap indicates that customer expectations are lower than FLE perceive them to be. In this study, just

like the one by Prabha R.M (2010), all the service provider gaps were found to be negative between perceptions and expectations of both customers and FLEs. It was established that both categories of respondents had a more or less a shared sense of judgment on the quality of services offered by the Department of Immigration Services. The contribution of ICT in immigration operations had a significant effect in the quality of services, thus the low gap scores recorded and both categories of respondents were in agreement to this fact.

5.3 Conclusion

From the foregoing results, ICT supported operations are becoming the in-thing at the Department of Immigration Services with almost all operations that traditionally involved man to man interaction now being mediated by ICT thus producing hybrid services that more reflect the aspirations and expectations of the public. The empirical evidence gathered through this study, based on organizational level data from front line employees and customers correspond with the theoretical predictions that pointed out that ICT supported operations have a positive effect on service quality. The findings further indicate that the public appreciate the contribution of ICT supported operations to the performance of both the individual employees and the organization as a whole.

The findings of this study are in agreement with previous research findings like that done by Pathak, et al., (2010), on the role of ICT in facilitating service delivery and service quality in public sector in New Papua Guinea. Through the exploits of e governance, ICT was found to playing a positive role of not only transforming an organization but raising

quality levels. Other studies upon which, this current one is in agreement is that done by Geentalal U. (2011) on ICT application in service delivery (a study done in Nepal) and that by Saina (2013) on ICT and service delivery (a study done in Kenya.) where it was established that the ICT and service delivery effect followed on the effectiveness of ICT (Geentalal, 2011) and in terms of gap analysis, the service delivery gap or gap 3 (Zeithaml, et al., 1990). And in accordance with previous studies, this study found ICT to have a positive effect on service quality as follows; that enhanced utilization of ICT in operations can raise effectiveness, efficiency and equity. Thus, a need to raise not only the availability but the utilization ratio of ICT in operations. Of the six service quality dimensions applied in this study, tangibles and empathy need a little more focus as they recorded the highest gap values. This means that the organization can limit the gap scores by increasing focus on the two dimensions and finding out how innovations in ICT mediated operations can address the gap. However, for ICT to have a profound effect on service quality, the management must make available the right ICT and redesign operations to an extent that will allow full utilization of ICT to support operations.

Knowing what customers expect is an essential process in delivering quality service at any level of an operation. Any differences between customer expectations and the organization's perception of customer expectations of quality are important to identify and determine the level of quality of service provided. The department needs to recognize the importance of the behavioral aspects of service operations management as customers place great emphasis on service providers' response to their needs that can vary according to the occasion or purpose for the service. Given the fact that service quality is

hard to comprehend due to the involvement of the customer in the production and consumption of the service at each service encounter, ICT can be utilized to support operations that bring in more consumer involvement but limiting the service provider's role. Results from this study indicate that the communication dimension has the least Gap. This owes to the fact that under sound ICT utilization in operations, customers can readily consume information from websites and other social media before getting a word of mouth or otherwise from the organization.

5.4 Recommendations

The service quality gaps identified in the study show that the Department of Immigration Services was failing to meet the expectations of their customers. The results of the analysis provide evidence that there is need to reduce the service provider gaps. An important step in minimizing service provider gaps is to measure customer expectations and communicate these expectations to employees. If employees do not fully understand the needs of customers, they cannot be expected to meet or exceed these needs. Since the needs, perceptions and expectations of employees are seldom the focus of any quality improvement effort; this study recommends a full evaluation of the expectations of the internal customers (FLEs). This will help in appropriate physical resource deployment (tangibles) and utilization. The Department should also increase its investment in human resources capacity development and cause connectivity of all functional units to allow seamless organizational operations and improved service quality through the use of network and internet technologies.

5.5 Suggestions for Future Research

This study did not pay attention to the internal systems and other constraints that inherently, in many organizations, are the bottlenecks in achieving quality objectives. Thus an indication for future research is in the area of structure and infrastructure of an organization and how it affects the attainment of high quality services. Secondly, the focus of the study was on perceptions of FLE and customers and excluded the management. With the bureaucratic, financial and resource constraints under which public sector organizations operate, it is recommended that future research can endeavor to measure management perceptions of organizational service quality within the confines of the above constraints.

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APPENDICES

Appendix I: Research Questionnaire

Research Brief

The main objective of this survey is to determine the quality of immigration services in Kenya, essentially after the application of ICT in immigration operations. The information collected is "private and confidential" and is ONLY intended for academic purposes. The statements in this questionnaire are to be answered based on your belief and judgment of the quality of immigration services.

PART I: *Bio-details: Service providers*

Gender	25- 35yrs	35 – 45yrs	Above 45yrs
Male			
Female			

PART I: *Bio-details: Service customers*

Gender	15- 25yrs	25 – 35yrs	35 - 45yrs	Above 45yrs
Male				
Female				

PART II: Establishing ICT facilities & equipment used in supporting Immigration Operations

The table below provides a list of ICT equipment & facilities that may be used to support operations. Kindly, indicate the percentage availability and usage rate against each item in relation to availability and utilization in operations at the Department of immigration services.

	ICT Facility	Availability (%age)	Usage (%age)
1	Personal computers		
2	Scanners		
3	Laptops		

4	Website		
5	Internet/ intranet/ extranet		
6	Email		
7	Biometric devices e.g. optical		
8	Application software e.g. passport production		
9	Database Servers		
10	Other (specify)		

Any   comments?

_____

_____

_____

PART III: *Evaluating effectiveness, efficiency and Equity as a result of ICT usage in Operations*

The application statements given below, relate to the effect of ICT supported operations on the effectiveness, efficiency and equity principles of operations performance and improvement.

Please mark with a tick (✓) or (**X**) under the number corresponding to your level of agreement with each statement provided.

KEY: **1**(*Very Low*); **2** (*Low*), **3** (*Average*); **4** (*Above Average*); **5** (*Much Above Average*)

Evidence of ICT- supported immigration operations	**1**	**2**	**3**	**4**	**5**
ICT infrastructure is visible at all immigration functional sections					
Adequate hardware and software profiles for operations					
Information access via the internet and other web based services					
Up to date database system for records and other functions					
Most operations conducted on ICT- enabled platform					
Reduced time lags and customer crowds, and improved worker output					
Effectiveness	**1**	**2**	**3**	**4**	**5**
Accurate response					
Timely information					
Feedback response					
Citizen participation					
Increased transparency and openness					
Assurance (courtesy/trust/confidence)					

Reducing Transaction cost					
Efficiency	**1**	**2**	**3**	**4**	**5**
Reduced Cost factor in acquiring services					
Reduced waiting time in acquiring services					
Streamlined Procedures as a result of reduced layers of bureaucracy					
Equity	**1**	**2**	**3**	**4**	**5**
Affordable services to all without regard to gender, ethnicity, etc					
Accessible services low incidence of nepotism, kickback and greasing the palm					

Part IV: *Evaluating Service Quality Using Gap Analysis; Expectations and Perceptions*

Expectation (E), relates to what and how you think the service should be/ ought to be, while; **Perception (P),** relates to actual experiences on what and how the service is/ was provided.

The usage of ICT to support immigration operations has had an effect on service quality dimensions as indicated below. Please mark with a tick (√) or (**X**) under the number corresponding to your level of agreement with each application statement provided under each dimension.

KEY: **1**(*Very Low); 2 (Low), 3 (Average); 4 (Above Average); 5 (Much Above Average)*

	Perception (**P**)						Expectation (**E**)				
RELIABILITY (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Raised sincerity in solving customers' problem											
Enabled performance of services right the first time											
Made it possible to offer services at the promised time.											
Enabled maintenance of error-free records.											
Enabled Provision of services as promised											
RESPONSIVENESS (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Enabled customers to be informed about when services will be performed.											
Enabled prompt service to customers											

	1	2	3	4	5		1	2	3	4	5
Raised readiness to respond to customers' requests											
.											
ASSURANCE (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Enabled employees to instill confidence in customers.											
Made customers feel safe in their transaction.											
Made employees to be consistently courteous.											
Enabled employees to answer customer questions											
EMPATHY (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Raised employee ability for customized attention.											
Made employees to be more caring to customers											
Made employees to have customer's best interest at heart.											
Made employees to understand customer needs											
TANGIBLES (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Raised the availability of up-to-date ICT equipment.											
Made physical facilities visually appealing											
raised employees neat, professional appearance.											
Visually appealing materials associated with the service											
COMMUNICATION (ICT has…)	**1**	**2**	**3**	**4**	**5**		**1**	**2**	**3**	**4**	**5**
Raised communication between providers and public											
Raised provision of timely feedback to clients queries											

How would you rate the contribution of ICT supported operations on Immigration service quality in relation to the gaps identified above?

(Use the rating; **1**=Below 25%, **2**= 25%, **3**= 50%, **4**= 75% and **5**= 100%)

_____
_____

LIST OF MAIN FUNCTIONAL UNITS AT IMMIGRATION DEPARTMENT

1. Administration

2. Passports

3. Training, Research and policy

4. Aliens

5. Kenyanization

6. Visas

7. Permits

8. Investigations & Prosecution

9. Border control

10. Missions abroad

DEFINITION OF THE SERVQUAL GAPS

Gap 1 (the positioning gap)   managers' perceptions of consumers' expectations and the relative importance consumers attach to the quality dimensions

Gap 2 (the specification gap) the difference between what management believes the consumer wants and what the consumers expect the business to provide

Gap 3 (the delivery gap)   the difference between the service provided by the employee of the business and the specifications set by management

Gap 4 (the communication gap) the promises communicated by the business to the consumer do not match the consumers' expectations of those external promises

Gap 5 (the perception gap)   the difference between the consumers internal perception And expectation of the services

The five SERVQUAL gaps as generally defined by (Zeithaml et al., 1990)

Source: Ramseook-Munhurrun (2010)

APPENDIX IV

<u>Letter of Introduction</u>

September, 2013

Dear Sir/Madam,

I am an MBA student at the School of Business, the University of Nairobi. I am currently carrying out research project towards the partial fulfillment of the MBA degree requirement of the University of Nairobi.

The research topic is: ***Effect of ICT Supported Operations on service quality: the case of Immigration Services Quality in Kenya.***

The attached questionnaire is to enable me complete the research. The Information you provide will be treated with utmost confidentiality and will be used only for academic purpose (this research). A copy of this final project will be available to you on demand.

Your cooperation in completing the questionnaire will be highly appreciated.

Yours faithfully

Austin N. Mwamure

Student Reg No: D61/64544/2011