Effectiveness of Integrated Information System on Customer Service Delivery: The Case of Ministry of Lands, Housing and Human Settlements Development

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Abstract

The implementation of integrated customer service provision systems is essential to modern institutions. Despite the efforts expedited in the acquisition and adoption of integrated information system in government institutions specifically in the Ministry of Lands, Housing and Human Settlements Development; it appears that the effectiveness of such system on customer service delivery is not well explored. This study was conducted to assess the effectiveness of integrated information system towards the improvement of service delivery particularly in the Ministry of Lands, Housing and Human Settlements Development in Tanzania. The study adopted a case study design. Purposive sampling was used to select a sample size of 47 respondents. The quantitative and qualitative data were collected using structured questionnaires and interview respectively. The research findings establish that the use of integrated Land Management Information System is useful to meet the organizational requirements, improve the efficiency of internal operations, resolve the challenges related to the use of unintegrated system, reduce time to save customers and saves operational costs. The ministry of Lands, Housing and Human Settlements Development and other institutions are advised not only to continue to embrace their integrated systems but also to address the related implementation challenges so as to take optimal advantage of this 21st technological oriented Century.

Keywords: Integrated customer service system, System quality, information quality, Service delivery.

1. Introduction

The improvement of service delivery is inevitable for any business organizations in order to enhance the ability to acquire and maintain customers in the competitive world. Before 1980s, large brand organizations focused on products and logistics rather than customer whereby customer satisfaction was measured by asking people if they are happy with service quality (Poynter, 2019). The emergence of multinational companies and growth of customer competitions calls for organizations to put forward competitive strategies to avoid the risk of losing the market share (Wu and Xu, 2013). Thus, business organization are recognizing the need to deliver quality product and services in order to satisfy and maintain customers (Gebauer, Gustafsson and Witell, 2011). System integration can be viewed as the overall
planning, design, development, implementation, and protection of computer application and network system engineering (Lai and Cui, 2014). Integrated information system has economic efficiencies as it reduces time for a citizen to get service and resulting into operational efficiency gain.

In the modern world, the delivery of quality customer’s services and improvement of customer satisfaction is associated with the development and application of science and technology. In the beginning, different companies worked with independent systems which made difficult to share information and exchange data. The application of networked systems from 1970s made possible for different systems to communicate with each other, and this marked the beginning of the application of integrated technologies (Doglio, 2018). In the mid-1980s, business organizations began to see the need to connect their computers together as a way to collaborate and share resources, and this network architecture was called client-server (Bourgeois and Bourgeois, 2014). The use of client-server architecture allowed software companies to begin to develop applications that allowed multiple users to access the same data at the same time. Further development was manifested by the use of Remote Procedure Calls (RPC) which allows distributed systems to integrate with each other by remotely executing procedures as if it was all a single system (Krzyzanowski, 2017). While the Information Communication Technology (ICT) deployment were initially centered on infrastructure and connectivity, in early 1990s they started to be used to address other issues related to cost, efficiency, effectiveness, transparency, service delivery, customer satisfaction and greater participation by stakeholders, offering innovative solution for public and private institution (Zambrano and Seward, 2013). Integration of products and services can generate increase in revenues and attain customer satisfaction (Raja, Bourne, Goffin, Çakkol, and Martinez, 2013). A study conducted by Hartland (2011) with the aim of investigating service delivery reform in the human services portfolio in Australia Government finds out that the integration system enables back-office functions to be brought together and reduce the cost of services delivery.

A study conducted in USA established that the implementation of customer relationship management software helps to improve customer satisfaction (Mithas, Krishnan and Fornell, 2005). Khanet al.(2015) find out that customers are satisfied with the service quality of Pakistan Housing Foundation (PHF).

The Australia Government established new infrastructure that improved the efficiency and effectiveness of service delivery in 2009 so as to cope with the development in science and technology and the need to improve customer satisfaction (Trankle, Usherwood, Abbott, Roberts, Crampton, Girgis, Riskallah, Chang, Saini, Reath, 2019). The study of Asiyai (2014) conducted in Nigeria found out that ICT integration in teaching and learning in higher education enhances efficiency in instruction delivery, increases student’s interest in learning, enables student centered teaching, enhances collaborative networking, and it improves student’s performance.
The major objective of the Local Government Reform Programme (LGRP) in Tanzania is to restructure Local Government Authorities (LGAs) so that they can respond more successfully and efficiently to identify local priorities of service delivery in a sustainable manner. Local Government reform improve service delivery, increased electoral and civic participation, access to information, trust in local government, reduced corruption and financial accountability (Tidemand and Msami, 2010). With respect to the Ministry of Lands, Housing and Human Settlements Development, the customer service system was not integrated and installed to each department. This made difficult for service representative to deliver customer services on time. The Ministry implemented an Integrated Lands Management Information System (ILMIS) which integrated all departmental systems as a single system in July 2015. Nevertheless, in the preliminary observation it was detected that the effectiveness of the newly integrated systems in the Ministry of Lands, Housing and Human Settlements Development have not been explored. Thus, this study intended to explore the effectiveness of the integrated information system on customer service delivery in the Ministry of Lands, Housing and Human Settlements Development. The study answers the question: To which extent the implementation of integrated information system is effective in improving customer services delivery. Among the requirements of information system development life cycle is to evaluate the newly implemented system to inform the stakeholders the extent to which the objectives of acquiring the new system have been achieved, and determine areas of further improvements. In the same line, the current study serves as an evaluation tool for the newly implemented system in the said Ministry. The results of this study inform the decision makers and other stakeholders in the Ministry, the extent to which the objectives of the newly implemented integrated information system have been realized and spot out areas of further improvements.

2. Literature Review

DeLone and McLean Information System Model

The DeLone and McLean (1992) Information System Success Model provides a valuable framework for understanding the multi-dimensionality of information system success. The Model was originally developed in 1992 and refined later in 2003 and 2004. As shown in Figure 1, the model identified six dimensions of information system success measurement which are System Quality (technical level), Information Quality (semantic level) and Use, User Satisfaction, Individual Impact and Organizational Impact (influence level) (Urbach, 2011). The model argues that the impact of information systems must first affect an individual and then through them, the organization.

Figure 1: DeLone and McLean IS Success Model (1992)

The DeLone and McLean Information System Success Model six dimensions of success are proposed to be interrelated rather than independent (DeLone and McLean, 2003). The six dimensions of success are
interrelated as an information system is first created with various features, which can be characterized as a display of various level of system and information quality. Then features of information system are experienced by users and managers when using the system and are either satisfied or dissatisfied with the system or its information products. The use of the system and its information products then influences the individual user in the conduct of his or her work, and these individual impacts collectively result in organizational impacts.

According to Urbach and Müller (2011), the DeLone and McLean Information System Success Model underwent some changes in different period of time (2003 and 2004) and came up with additional dimensions as depicted in Figure 2: Firstly; the addition of service quality to reflect the importance of service and support in successful e-commerce systems. Secondly; the addition of intention to use to measure user attitude as an alternative measure of use. Thirdly; the collapsing of individual impact and organizational impact into more parsimonious net benefits constructs.

Figure 2: Updated DeLone and McLean IS Success Model

Therefore, a system can be evaluated in terms of information, system and service quality which affect subsequent use or intention to use and user satisfaction. DeLone and McLean model has also been tested and applied in a number of health information systems studies in both developed and developing countries as a good framework for evaluating health information systems (Ojo, 2017).

Several studies have been carried out to test the applicability of Delone and Mclean IS Success Model. As an example; Ojo (2017) conducted a study to validate the DeLone and McLean information system success model in the context of a hospital information system in a developing country where data was collected from 442 health information management personnel in five Nigerian teaching hospitals. The study found out that system quality, user satisfaction, information quality and service quality significantly influenced use while use significantly influenced perceived net benefits. However, use did not significantly influence user satisfaction. Rocky and Al Meriouh (2017) carried out a study to test for the application of DeLone and McLean’s information systems success model in automotive industry. An analysis of these data by the technique of structural equation modeling confirms that information quality plays a key role in increasing user satisfaction and intention to use the system; the significance of the relationship between the quality of service and the use of the information system; the effect of both intentions to use and use on individual impact and finally the positive influence of the individual impact on the organizational performance of automotive industry.
Furthermore, Jagannathan et al. (2018) conducted a study to test the application of DeLone and McLean's information systems success model in banking contexts where it was established that information quality influenced user satisfaction. A study by Lin (2007) revealed that system quality, information quality, and service quality significantly influenced use via behavioural intention and user satisfaction. This study intended to find out the effectiveness of integrated customer service system on service delivery in Tanzanian public sector specifically in the Ministry of Lands, Housing and Human Settlements Development. The study adopted the DeLone and McLean's information systems success model because it is widely used in evaluation of the implementation of information system (Ojo, 2017), and fits the objective of the study.

3. Methodology

Research Design and Approach
The case study research design was adopted with the aim of carrying out a detailed assessment of the effectiveness of the integrated information system on customer services delivery in the Ministry of Lands, Housing and Human Settlements Development. The study adopted a mixed research approach where both qualitative and quantitative data were involved.

The study area
The study was confined to the Ministry of Lands, Housing and Human Settlements Development specifically in Dar es Salaam Regional office in which the Ministry implemented the integrated information system.

Table 1: The research sample size

<table>
<thead>
<tr>
<th>S/No</th>
<th>Department</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Physical Planning</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Surveying and Mapping</td>
<td>17</td>
</tr>
<tr>
<td>3</td>
<td>Lands Administration</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Valuation</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Registration of Title</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total Size</strong></td>
<td><strong>47</strong></td>
<td></td>
</tr>
</tbody>
</table>

Data Sources and Collection Instruments
Data was collected from both primary and secondary data. Primary data was collected through a structured questionnaire which was administered to staff in the selected departments. Also, interview was administered to service supervisors for each of the 5 selected departments. The questionnaires were administered to all respondents. On the other hand, the interview was...
limited to the service supervisors from each of the 5 department where 5 respondents were interviewed. Secondary data was collected through text books and journal articles review.

**Data Analysis**

The thematic approach was used to analyse the qualitative data where data was summarized, and coded according to the main patterns. With the aid of Statistical Package for Social Sciences (SPSS) and Microsoft excel the quantitative data was analysed through descriptive statistics.

**Validity and Reliability**

Triangulation method was used where various participants from different departments were involved in the study. Also, the respondents were given a freedom to participate or withdraw from the study; and a friendly environment was created to allow them to give true information. The data collection instruments were designed according to the existing standards like the Likert scale style, shared and refined by experts to maintain the reliability.

**Ethical Considerations**

The permission for data collection and the introductory letter was issued from the Institute of Accountancy Arusha. The freedom of the participants to participate or withdraw from the study was provided. Participants were guaranteed that the information provided would be used for the purpose of the study only, and their identities would not be revealed.

### 4. Findings and discussions

The objective of this section is to present the responses of the research participants about the effectiveness of the system under study.

**Integrated System Meet Department Requirements.**

The study was intended to establish whether the deployed system met the department requirements. Table 1 indicates the results.

<table>
<thead>
<tr>
<th>ICSPS Meet Department Requirements</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>20</td>
<td>42.6</td>
</tr>
<tr>
<td>Agree</td>
<td>27</td>
<td>57.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field data (2020)

The research findings established that 42.6% of the participants strongly accepted that the system met the department requirements. Similarly, 57.4% of respondents accepted that the integrated customer service provision system met their department requirements. The response proofs that the objectives of acquiring the new system were met and thus contributed to the improvement in the government operations.
Integrated System Improves Efficiency of internal activities

The respondents were required to rate the extent to which the integrated system improves the efficiency of internal activities. The responses are shown in Table 2.

Table 2: Integrated system improves internal efficiency

<table>
<thead>
<tr>
<th>ICSPS Improves Internal Efficiency</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>23</td>
<td>48.9</td>
</tr>
<tr>
<td>Agree</td>
<td>24</td>
<td>51.1</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field data (2020)

The response indicates that 48.9% of the respondents strongly support that the integrated customer service provision system improves the efficiency of internal activities while 51.1% of them agree with the statement. This implies that the majority of the users were on the opinion that the deployment of the newly system contributed to the improvement of the service provision and saved cost of operation.

Integrated System resolves the Challenges Existed in the Previous Non-Integrated System

The participants were requested to rate the extent to which the newly deployed system resolved the challenges existed with the previous unintegrated system. The result is depicted in table 3.

Table 3: Integrated system resolved the challenges of the previous system

<table>
<thead>
<tr>
<th>ICSPS fulfill the challenges of Previous Non-Integrated</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>37</td>
<td>78.7</td>
</tr>
<tr>
<td>Agree</td>
<td>10</td>
<td>21.3</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field data (2020)

The response rate indicates that 78.7% of the respondents strongly support that the integrated customer service provision system addressed the challenges existed with the previous non-integrated system while 21.3% of them just support the statement. The result justifies the decision to acquire the new system and proofs that the integrated systems are more preferred and useful than the unintegrated ones.

Integrated System Reduces Time to Serve Customer

The study enquired from the participants to indicate their opinion on the extent to which the newly deployed system was capable in reducing the time spent to save the customers. Table 4 shows the responses.
Table 4: Integrated system reduces time to serve customers

<table>
<thead>
<tr>
<th>ICSPS Reduces Time to Serve Customer</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>36</td>
<td>76.6</td>
</tr>
<tr>
<td>Agree</td>
<td>11</td>
<td>23.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field data (2020)

The result shows that 76.6% of the respondents strongly emphasize that integrated customer service provision system reduces time to serve customers and 23.4% of them agree with the statement. The responses bring understanding that the integrated system is capable of improving customer satisfaction since it saves their time to be saved.

Integrated System saves the cost of operation

The respondents were requested to rate the extent to which the deployed integrated system was useful to save the operational cost. The findings are shown in table 5.

Table 5: Integrated system saves the cost of operation

<table>
<thead>
<tr>
<th>ICSPS Reflects Cost Effectiveness</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly agree</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>Agree</td>
<td>45</td>
<td>95.7</td>
</tr>
<tr>
<td>Neutral</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Field data (2020)

Table 5 indicates that 4.3% of the respondents strongly support the opinion that the integrated customer service provision system saved the operational costs of the Ministry while 95.7% of the respondents support the statement. This justifies that the decision to invest on integrated system is economical and that the saved costs can be used for other important operations.

Measures to be taken to make optimal use of the newly integrated System

The study interviewed the respective respondents to establish measures that could be taken to maximize the advantages of the newly deployed system. The results are shown in Fig 3.

Fig 3: Measures to be taken to make Effective Use of the Newly Integrated System

Source: Field data (2020)

Fig 3 shows that 78.7% of the respondents suggested that the Government should allocate more resources to ensure that the integrated system operates to its full capacity and also integrate most of the operations. On
the other hand, 32% of the respondents said that the Government should review some of the existing regulations in favor of the use of the integrate system such as banning the unnecessary use of manual operations. Furthermore, 21.3% of the respondents suggested for the Ministry to organize frequent training to build the capacity of the users to make optimal use of the system. Also, 19% of the respondents argue that the Ministry should ensure that the system is regularly maintained to make it operational and effective as expected. These responses implies that despite the advantages that have already been manifested, the integrated information system is capable of making more contributions to the improvement of customers services delivery provided that some measures are taken.

5. Discussions
The findings presented in this study established that the use of integrated Land Management Information System is useful to meet the organizational requirements, improve the efficiency of internal operations, resolve the challenges related to the use of unintegrated system, reduce time to save customers and saves operational costs. This is similar to the observation by Malik and Singh (2017) who state that implementing good customer service software can help organization to reorganize customer service processes which will make customers to be satisfied and loyal. It is also argued that the integrated system creates a network system which allows service representatives to store and share information on a single point of access and hence improves internal efficiency of an organization (Latham, 2005). According to Latter (2017) integrated system are easier for administrators, cost and storage savings, better analysis, improved system security, real-time data and accelerated growth and innovation. In the same line, Hendriks (2012) observed that Integrated systems enhance effective control over public finances, contribute to the improvement of transparency and accountability, and serves as prevention to corruption and fraud (Hendriks 2012). Again, integrated system Links between separate agencies and draws them into a single system which removes boundaries between them as it combines into a single point some or all of their activities, processes or assets (QCOSS, 2013).

6. Conclusions
On the basis of the research findings and the discussions presented in preceding chapters, the study concludes that the implementation of integrated customer service system is effective in improving customer service delivery as it is capable of meeting the organizational requirements including the improvement of the efficiency of internal operations, resolving the challenges related to the use of unintegrated system, reducing time to save customers and saving operational costs. However, the organizations can make full utilization of the existing integrated systems and gain more advantages from the same by training the system users, reviewing the existing regulations to reinforce full implementation of the system, and allocating enough resource to maintain its optimal operations. This calls for public and private organizations to venture into the integrated systems as opposed to unintegrated ones so as to make optimal support of daily institutional operations and withstand the global competitive environments.
The study advises the Ministry of Lands, Housing and Human Settlements Development and other institutions not only to continue embracing the integrated system but also addressing the challenges of its use so as to take optimal advantage of this 21st technological oriented Century. Further studies can be pursued to investigate about the effectiveness of the integrated systems on customer service delivery in private sectors.

References


