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Assessing the User Satisfaction and Net benefits of e-Procurement System in Government-owned Hospitals: A Conceptual Approach

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Abstract

This study proposes a conceptual framework that intends to assess user satisfaction and the net benefits of implementing e-procurement system in government-owned hospitals. The study uses DeLone and McLean IS Success model as the underpinning theory to examine the relationship between three independent variables (information quality, system quality and service quality) and the user satisfaction and net benefits of using an e-procurement system in government-owned hospitals. Predictably, the framework of this study is expected to provide a meaningful explanation on the degree of user satisfaction in using an e-procurement system in hospitals. Also, the study tries to provide a theoretical background to examine the benefits that are being derived from the system, especially regarding cost saving, timeliness, accountability and transparency. Finally, the paper suggested that empirical studies should be carried out to test the proposed model of this paper.

Keywords: e-procurement, e-government, information quality, system quality, service quality, user satisfaction, net-benefits.

1. INTRODUCTION

Information and communication technology has changed the processes of procurements in most organizations in the world over. It also facilitates the continuous change from the traditional methods of purchase and supply of electronic-based systems. It is based on this background that public sector organization use of e-government services in public organizations for the procurement of goods in ensuring that effective ways of managing the supply chain in government organizations are maximized (Hussain, Kamal, & Musa, 2005; Gamal 2010). Notwithstanding, procurement procedures in organizations are being characterized with fraudulent and corrupt practices because of non-adherence of the standard practices (Ndibalekera, Govule, & Anguyo, 2015). As such, there is a need for an efficient e-procurement system that could tackle fraudulent practices in the procurement processes. In simple term, e-procurement is the integration of procurement processes from the initial requisition to the final payment via the aid of a computerized system that uses internet technologies (Morris, Stahl, & Herbert, 2000; Croom & Brandon-Jones, 2007). In other words, E-procurement refers to a system that provides a platform for the exchange of information across the internet networks within or between organizations, businesses or consumers, at all stages in the supply chain (Hussain, Kamal, & Musa 2005; Mastor, 2001).

The importance of e-procurement system in governmental institutions, especially in public hospitals cannot be overemphasized. It is useful in reducing transaction cost, quicker and more accurate purchasing, facilitates order

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tracking, improved information and inventory management, ensuring internal transparency, optimizes value for money, improves purchase traceability and ensuring that contract regulations are being complied (Hidalgo, Orrit, & Djuan, 2010). Given this, it is apparent that there are more advantages and benefits to gain from e-procurement system use in organizations as it can simplify and improves the processes in the supply chain. In like manner, since government hospitals often make large-scale of purchases of pharmaceuticals for their need to make varieties of purchases to meet up with patients' prescriptions, e-procurement is the best system that could handle hospitals' large and complex purchases efficiently (Hidalgo et al., 2010).

It is in view of the above assertions, several studies were conducted to find out the factors that influence the use of e-procurement system among business entities, contractors and government institutions (Bilali, 2015; Tran & Huang, 2014; Daud, Mohammad, Azmi, & Mohamed, 2013; Kusuma & Pramunita, 2011; Gamal, 2010). Interestingly, the e-procurement system has been embraced by government institutions that have multiple purchases and organization in most developing countries around the globe. Though not all government institutions have adopted the system, the few that have implemented might be satisfied with the system to appreciate it as successful or otherwise. Thus, the satisfaction of an information system by users in organizations could be determined by the benefits gained from using the system regarding cost-saving, timeliness, transparency in transactions, information management and inventory management effectiveness.

According to Ketikidis, Kontogeorgis, Stalidis, and Kaggelides (2010), hospitals have many reasons to adopt and use e-procurement systems because the real-time inventories from pharmaceuticals suppliers will permit purchasing departments to compare prices and select the best one. Also, online tracking orders could also enhance proper inventory planning for timely delivery. Above all, the hospital and its supplier relationship could be heightened through the use of information technology and communication which will bring the mutual understanding of the business needs of each other in the process.

Similarly, as with other information systems studies, the success of a system is being assessed to determine its impact, benefits or user satisfaction among its end users. In this regard, previous researchers have suggested for further studies to be carried out to assess the success regarding the net benefits derived from the system which will further provide ground for improvement of the system (Calipinar & Soysal 2012). Given the above recommendation, this paper proposes a conceptual model with an underpinning theory of DeLone and McLean Information System Success model.

2. DEVELOPMENT OF THE PROPOSED MODEL

2.1 The Theoretical Framework

As explained earlier in the introduction of this paper, DeLone and McLean information system success model is regarded and suitable to describe the phenomena of the present study and hence, the underpinning theory of the paper. In 1992 DeLone and McLean developed an IS model called 'DeLone and McLean IS success model' which was purposely meant to measure the performance of information systems (DeLone & McLean, 1992). The model was initially developed with six variables, namely: Information Quality, System Quality, User Satisfaction, Use, Individual Impact and organizational impact. Accordingly, this model was extensively used by IS researchers in testing and assessing the successes of various systems in organizations. The original DeLone and McLean are success model shown in Figure 1.

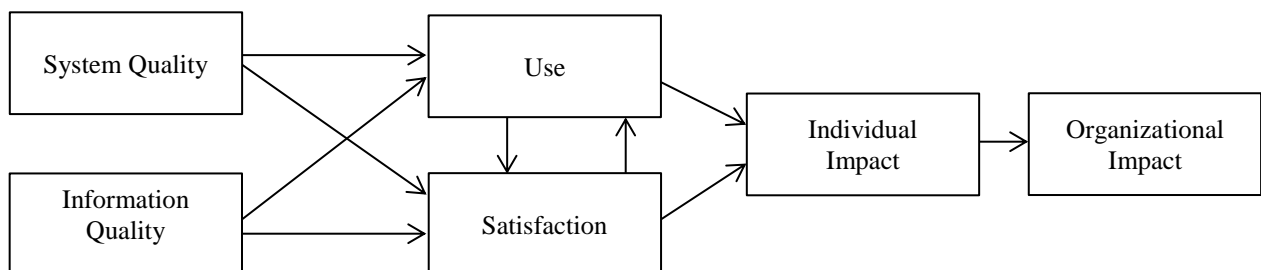


Figure 1: DeLone and McLean IS Success Model (1992)

However, after about ten years of its invention, the model was further reviewed and updated by the same authors to address the lingering issues. For instance, it was an issue at that time that how the 'quality' of an IS could be evaluated because its importance when appraising the system's success Equally, individual and organizational

impacts variables were replaced with net benefits construct (Petter & McLean, 2009). Nevertheless, it is worth to know that the updated model is a product of empirical and theoretical contributions of past researchers that have tested the original model and found its weaknesses and thereby suggested for improvement (DeLone & McLean 2002; DeLone & McLean, 2003). As a result, the modified model was developed with six interconnected dimensions of information system success factors (Information Quality, System Quality, Service Quality, User Satisfaction, Use/Intention to Use and Net Benefits). Diagrammatically, the modified DeLone and McLean model is illustrated in Figure 2.

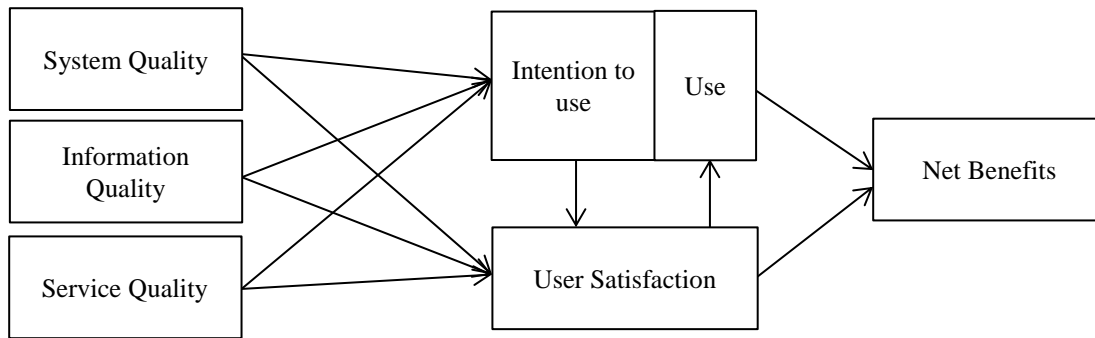


Figure 2: Revised DeLone and McLean IS Success Model (2003)

According to DeLone and McLean (2003), system quality is measuring the performance of IS in terms of functionality, ease of use, convenience, reliability, and other system characteristics. While Information Quality variable assesses the features of IS output such as its accuracy, completeness and timeliness, Service Quality variable measures the support and assessment of end-user of an information system. In addition, the difference between ‘Intention to Use’ and ‘Use’ is that, while the former relate to the future consumption of IS service, the later one is an about self-user report for actual usage. On the other hand, ‘User Satisfaction’ explains the approval or otherwise of a system by the end-users of a system. Lastly, ‘Net benefit’ is the effect of an IS that surfaced either individual or organization which is always measured regarding perceived usefulness or organizational performance respectively.

As with other IS model, DeLone and McLean IS success model has been used and validated in terms of evaluation of IS effectiveness in past studies, and it has been found to be reasonably good in evaluating IS success at both individual and organizational levels (McGill, Hobbs, & Klobas, 2003). Moreover, DeLone and McLean (2004) suggested that the model could be adopted or adapted to investigate new phenomena in IS studies such as the e-commerce and other related information systems. Therefore, e-procurement system as a trending platform being used in public hospitals for goods procurements is worthy of investigating to evaluate the system in terms of user satisfaction and the benefits being derived from using the system for procurement purpose.

2.2 The Conceptual Framework of the Study

Based on the reviewed literature, insights of information systems (IS) success have been explored within two main research streams - user satisfaction and the technology acceptance perspective (Wixom & Todd, 2005). Many studies were conducted in the later, however, for the former stream, only a few studies were seen in the literature. As such, this study proposes to adapt DeLone and McLean IS success model in assessing the user satisfaction and the overall benefits and success of an e-procurement system in government-owned hospitals. Given this, the conceptual framework of this study was developed from the model as shown in Figure 3.

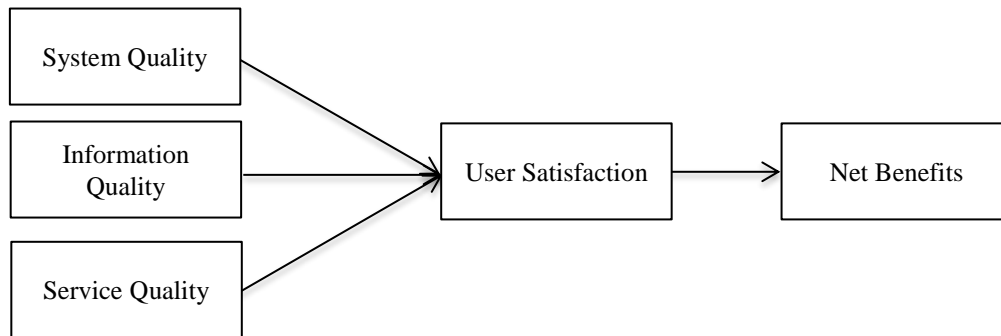


Figure 3: Conceptual Framework for the Study

User Satisfaction

The user satisfaction dimension in Delone and McLean IS success model institutes the level of satisfaction of a system by its end-user and is considered as one of the important IS success measurement. This is because, the higher the satisfaction of a system the more significant the subsequent use by its end-user (Danaher & Rust, 1996). According to Delone and McLean (2003), user satisfaction can be measured for both voluntary and mandatory information system usage. Nevertheless, it is opined that user satisfaction is more relevant in explaining human behaviour when the use of an IS is voluntary.

Net Benefits

According to Delone and McLean (2003), net benefits refers to the degree to which IS is contributing to the success of different stakeholders such as the individuals, groups, organizations, industries and nations. The net benefits of an information system are being characterized in the form of improved decision making, cost reduction, increased sale, increased profits, improved efficiency and creation of wealth to mention among others (Petter, DeLone, & McLean, 2008). Moreover, the net benefits variable is the overall dependent variable of Delone and McLean IS success model and plays a significant role in information system research (Delone & McLean, 2003).

System Quality

According to Delone and McLean IS success model, system quality refers to the measures that describe the quality of the system itself, which typically focused on the usability, accessibility, flexibility, reliability and response time of a system to mention among others. In other words, system quality can be described as a performance measure of an information system regarding its functionality, ease of use, convenience, reliability, and other system characteristics (DeLone & McLean, 1992; DeLone & McLean, 2003). System quality is a measure that could determine the success of a system in such a way that if users are enjoying its operational efficiency, they would be satisfied with the system and thereby lead to higher satisfaction with the system. Based on the following proposition is postulated:

H₁: The higher the system quality of an e-procurement system the greater the user satisfaction

Information Quality

Information is the ingredient that most organizations relied upon for their effective routine operations and decision making (Ni & Khazanchi, 2009). As such, information is the heart of an organization because of its crucial value in the decision-making process. It was posited that information quality is solely dependent on the user objectivity (Lillrank, 2003; Tayi & Ballou, 1998). Consequently, this has resulted in the development of different frameworks by several researchers with the aim of identifying information quality dimensions (Lee, Strong, Khan, & Wang, 2002) as well as examining its relevance on user satisfaction in system use. One of such frameworks is the DeLone and McLean IS success model. According to the DeLone and McLean IS success model, information quality refers to information system output regarding relevance, timeliness, accuracy and consistency (DeLone & McLean, 1992). In addition, Redman (2004) opined that understandability and the ability to interpret the system output is also a characteristic of quality information. Therefore, it is reasonable to assume that when users perceived that the information had possessed all the qualities above, it will lead to greater satisfaction with the system. Based on this, the following postulation is made:

H₂: The higher the information quality of e-procurement system the greater the user satisfaction

Service Quality

According to DeLone and McLean IS success model, service quality refers to overall support and upkeep of a system obtainable from the service provider or IS department within an organization (DeLone & McLean, 2003). In another, service quality is seen as the perception of customer or user of an information system on the service received and their expectation of its performance (Santos, 2003). Service quality was incorporated into the model in 2003 and explained that this measure is significantly relevant in determining the satisfaction of system users and the overall success of the system (Hsu, Yen, & Chung, 2015). Furthermore, service quality has domains that include assurance, responsiveness, empathy, reliability and other quality service factors. Therefore, it is expected that when users of an information system are receiving adequate responses from the service providers or IS departments whenever the need arises, the user satisfaction of the system will relatively increase. Equally, previous empirical studies have established that net benefits derived from information is substantially determined by the user satisfaction of that particular system. In other words, there is a strong association between user satisfaction and net benefits of a system (Iivari, 2005). Hence, the following postulations are made:

H₃: The higher the service quality of e-procurement system the greater the user satisfaction

H₃: The higher the user satisfaction of e-procurement system the greater the net benefits

3. PROPOSED METHOD

Most of the previous studies in information studies used survey questionnaire method to gather the required information for empirical analysis. Likewise, it is recommended that the proposed model could be tested using the same method. Top government executives and their middle management officers in Malaysian government-owned hospitals are expected to be the participants in the survey. The study proposes to do a case study of some selected local government council hospitals to find out the extent of benefits derived from the implementation of e-procurement systems as well as the user satisfaction of the system. Though several information system studies were conducted in the past with questionnaire method and relevant information were obtained from that place, equally, adopting the same method could easily explain the model in assessing user satisfaction and net the benefits of e-procurement system in government-owned hospitals.

4. CONCLUSION

Electronic government is the current trend that is changing the operational efficiency of government activities in today's public sector institutions. Electronic procurement system is one of the information system platforms that is being utilized by government hospitals for online procurement of goods, materials and other consumables. Hence, there is a need to evaluate the system to understand its strength and weakness, the benefits derived and the extent of satisfaction of its end-users. It is given the preceding that this paper proposes a conceptual framework that could be used empirically to assess the user satisfaction and the net benefits of implementing e-procurement system in government-owned hospitals. Theoretically, this study has provided a conceptual background for testing an IS success model in hospitals consisting of the key IS success constructs (system quality, information quality and service quality). In practical application, the proposed framework, if further put into the empirical investigation, it will provide a solid understanding of the impact of the key IS success factors on user satisfaction and the overall success of the e-procurement system in government hospitals.

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