Six Sigma Approach to Improve Quality in E-Services: An Empirical Study in Jordan

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ABSTRACT

This paper investigates the application of the Six Sigma approach to improve quality in electronic services (e-services) as more countries are adopting e-services as a means of providing services to their people through the Web. This paper presents a case study about the use of Six Sigma model to measure customer satisfaction and quality levels achieved in e-services that were recently launched by public sector organisations in a developing country, such as Jordan. An empirical study consisting of 280 customers of Jordan’s e-services is conducted and problems are identified through the DMAIC phases of Six Sigma. The service quality levels are measured and analysed using six main criteria: Website Design, Reliability, Responsiveness, Personalization, Information Quality, and System Quality. The study indicates a 74% customer satisfaction with a Six Sigma level of 2.12 has enabled the Greater Amman Municipality to identify the usability issues associated with their e-services offered by public sector organisations. The aim of the paper is not only to implement Six Sigma as a measurement-based strategy for improving e-customer service in a newly launched e-service programme, but also widen its scope in investigating other service dimensions and perform comparative studies in other developing countries.

Keywords: Customer Service, E-Service, Information Quality, Personalization, Quality, Reliability, Responsiveness, Six Sigma, System Quality, Website Design

INTRODUCTION

The changes in the global environment in using Internet and the World Wide Web for various day-to-day operations have led to many organisations venturing into electronic services (e-services) as they believe it would help them to stay competitive among firms and to cater towards the growing expectations of its customers. There are benefits for both individuals and organisations (Batagan, Pocovnicu, & Capisizu, 2009). Many developed countries have successfully embarked on e-services as a means of convenience and
customer reach to their community and people. However, in developing countries, nearly 85% of e-government projects have either totally failed (e-government projects were either not implemented or implemented but immediately abandoned) or partially failed (major goals were not attained and/or there were undesirable outcomes) (Holmes, 2001; Heeks, 2003; Dada, 2006). The major problem behind e-government project failure in developing countries is the gap between the e-service design and the reality, which embraces a variety of factors including information, technology, process objectives and values, staffing and skills, management systems and structures, and more importantly meeting customer expectation (Heeks, 2003; Kumar & Best, 2006; Udo, Bagchi, & Kirs, 2010). Hence, the main objective of this research paper is to address this problem by investigating the application of Six Sigma approach to improve quality in e-services.

In any firm, the quality of the e-service is the main feature that distinguishes one from another, and in achieving a competitive advantage (Batagan, Pocovnicu, & Capisizu, 2009; Miller, 2010). Hence, firms try to apply the quality e-service commensurate with the needs and desires of customers, and to reduce the gaps between the visions of top management and the actual quality service based on the perspective of the users of this service. We could relate reducing this gap to reducing defects or trying to achieve zero errors, which is the doctrine of Six Sigma approach (Pyzdek, 2001).

The Six Sigma was originally developed for manufacturing processes by Motorola in late 1980s, but today service firms and service functions within almost every sector are using Six Sigma to improve profits and performance (Antony, 2002). However, unlike products, services are based on information flows that are not easily measured, tested or controlled for quality. Hence assessing service quality continues to be a challenging topic. There are various perspectives to service quality and the information flows that exist in manufacturing organizations are quite different to the information generated by services (Abdolshah & Yusuff, 2008). These complexities have allowed very little work in applying Six Sigma to a limited number of services. This forms the basic motivation of our study and our objective is to investigate the application of Six Sigma in e-services, especially in a developing country as their e-service success rates are quite low.

The study is unique as it explores e-services programme recently launched by the public sector organisations in the Greater Amman Municipality of Jordan, which is aimed to serve several customer sectors, namely citizens, businesses, and the government. The study takes into account the quality of e-service standards including the acceptance criteria of Websites’ usability as an important factor for customer satisfaction. The results of our study would help in identifying areas of customer satisfaction levels that could be enhanced leading to quality improvement in services, thereby paving way for a successful e-services programme launch.

The importance of this study is two-fold: i) investigating the application of Six Sigma in e-services that covers several consumer sectors is to our knowledge first of its kind, and ii) using Six Sigma approach for measuring quality service levels in a developing country would help in understanding and identifying the customer satisfaction and process gaps or weaknesses so that their e-services programme launch could be improved and risks associated with e-service project failures could be minimized.

LITERATURE REVIEW

Quality of E-Service

Providing an exact definition of e-service is hard to come by as researchers have been using different definitions to describe e-service. From a customer-oriented perspective, e-service could be defined as an interactive, content-centered, and Internet-based customer services, driven by the customer, and integrated with related organizational customer support processes and technologies, with the goal of strengthening customer service provider relationship (Whitman & Wosczynski, 2003). With the widespread
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