Adoption of Cloud Computing in Firms to Enable Software as a Service

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ABSTRACT

Software as a Service (SaaS) is a subset of cloud computing that provides information systems functionality through a web browser. Organizations that adopt SaaS can receive value over time if they continue to use the SaaS solution after implementation. This study analyzed the extent to which SaaS adoption and continued use factors affect the continued use of SaaS in organizations. The research can help organizations maximize the value of SaaS by identifying success factors for continued use. The study determined the extent to which the independent factors of Rapport, Responsiveness, Reliability, Features, Security, Flexibility, and Marketing Effort affected the dependent variable of the decision makers’ intent to continue use of SaaS within their organization.

KEYWORDS

Features, Rapport, Reliability, Responsiveness, SaaS, Security, Software as a Service, TAM

INTRODUCTION

Software as a Service (SaaS) is a subset of cloud computing that provides information systems functionality over the Internet. Organizations that adopt SaaS as a means to lower IT costs and increase competitiveness can receive value over time if they continue to use the SaaS solution after implementation. Existing research about the factors that affect the continued use of SaaS is limited. The current study was conducted to analyze the extent to which SaaS adoption and continued use factors identified in previous studies affect the continued use of SaaS in organizations (Benlian, Koufaris, & Hess, 2011; Wu, 2011). This research can help organizations maximize the value of SaaS by identifying critical success factors.

Understanding and controlling the cost of ownership of information systems is challenging. Acquisition cost of hardware and software is only 20% to 50% of the cost (Waters, 2005). Cost of ownership includes direct capital costs for hardware, software, and facilities. Operation and administration costs associated with planning, upgrades, and support are direct costs. Indirect costs include staff development and user downtime (McIntire, 2006). Known and fixed costs simplify planning and budgeting activities. Hidden and variable costs make planning and control difficult which adds risk to an organization’s budget and profitability.

DOI: 10.4018/IJORIS.2016100101
Background of the Study

Seminal studies on technology acceptance have evolved over time into two distinct threads. One thread is technology adoption (Davis, 1989; López-Nicolás, Rogers, 1995; Wu, 2011). Continued use of technology is the other thread (Benlian et al., 2011; Ma, Pearson, & Tadisina, 2005; Parasuraman, Zeithaml, & Berry, 1988; Parasuraman, Zeithaml, & Malhotra, 2005). Technology adoption research evolved from the Technology Acceptance Model (Davis, 1989) and Diffusion Theory Model (Rogers, 1995) to the Technology Acceptance Model – Diffusion Theory Model (TAM-DTM) (López-Nicolás et al., 2008). An exploratory model developed by Wu (2011) assessed the extent to which various factors affect SaaS adoption. Wu’s study evolved from the Technology Acceptance Model – Diffusion Theory Model (TAM-DTM). Wu added the factors of Marketing Effort and Security/Trust to the TAM-DTM factors because they are relevant to adoption of SaaS technology.

The SERVQUAL model was the basis for research related to the continued use of technology. SERVQUAL analyzed the effect that various factors have on customers’ perceptions of service quality and subsequently on continued use of technology (Parasuraman et al., 1988). Several models were created by leveraging SERVQUAL. Each model uses unique factors applicable to different technologies. Asp-Qual included factors affecting application service providers. E-S-Qual assessed electronic service quality. Asp-Qual and E-S-Qual both include factors used to assess the quality of SaaS, but do not address security and flexibility. The SaaS-Qual measure developed by Benlian et al. (2011) extended the ASP-Qual model by adding both Security and Flexibility factors which can affect continued use of SaaS.

Adoption and continued use theories and models prior to Wu’s (2011) SaaS adoption model and Benlian et al.’s (2011) SaaS continuance model focused on adoption and use by individuals as opposed to organizations. Decision makers for SaaS adoption and continued use within organizations are often managers, not the individual users themselves. Factors affecting the decision to adopt and use SaaS in an organization are likely different from factors driving SaaS adoption and continued use by individuals. Models prior to Wu’s and Benlian et al.’s did not consider the effect of Security, Flexibility, and Marketing Effort. These factors could affect SaaS continuance decisions in organizations.

PURPOSE OF THE STUDY

The purpose of this study is to help organizations maximize the value of SaaS solutions. Value maximization can be achieved by leveraging the results of this study which adds to the body of knowledge related to the continued use of SaaS in organizations. In this study, Benlian et al.’s (2011) SaaS-Qual measure for continued use of SaaS was extended with a Marketing Effort construct from Wu’s (2011) SaaS adoption study. The factors included in the Extended SaaS-Qual model were used to evaluate the extent to which the factors affect the intent to continue to use SaaS.

Limited SaaS adoption and continued use research existed at the time of this study. The Benlian et al. (2011) SaaS-Qual model evaluated several service quality factors affecting continued use. Benlian et al. indicated that additional research using the SaaS-Qual model with IT executives, managers, and professionals will increase the applicability of the instrument in organizations. Wu’s (2011) SaaS adoption model has several constructs similar to those in the SaaS-Qual continued use model and also includes a Marketing Effort construct for SaaS adoption. The SaaS-Qual model did not include the Marketing Effort construct even though it could affect continued use of SaaS. This study met Benlian et al.’s (2011) request for additional research to test the applicability of the SaaS-Qual model. This study also extended SaaS-Qual with Wu’s (2011) Marketing Effort construct to evaluate a more comprehensive set of factors.
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