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A model for electronic commerce success

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Abstract

This paper attempts to develop a framework for electronic commerce (e-commerce) success. Key factors impacting e-commerce are identified from a detailed literature review. These factors are then differentiated according to their contribution to the success of e-commerce and according to the locus of impact. The final model is then cast in a structural equation modeling framework comprising four exogenous variables (internal driver, internal impediment, external driver and external impediment) and one endogenous variable (e-commerce success) with 24 observed variables. Data are collected via a questionnaire-based survey from large Australian companies. The study results suggest that increased benefits (both internal and external) from the use of e-commerce significantly predict the perceived and/or expected success of e-commerce. However, lowering of impediments (internal and external) does not significantly affect the success of e-commerce.

Keywords: Electronic commerce; Internet; Structural equation modeling; LISREL

1. Introduction

Electronic commerce (e-commerce), Internet-based or otherwise, is changing the way organizations perform their tasks, interact with customers and, in general, do their business. E-commerce is not only the buying and selling of products via electronic means, it involves all other activities to support the sale process (Applegate, Holsapple, Kalakota, Radermacher,

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& Whinston, 1996). As such, the current study adopts the definition of e-commerce provided by Wigand (1997) and Kalakota and Whinston (1997) vide "electronic commerce includes any form of business activity conducted via electronic means, which might range from products/services information to selling and/or buying products". Undoubtedly, e-commerce is changing the business process and it is also changing the organizational structure to support the new process. Among the myriad of computer- and telecommunication-based applications in the modern era, the advent of e-commerce is having the biggest impact on organizations and their customers.

To take advantage of e-commerce, during the late 1990s many companies expanded their business activities to reach new customers and/or to offer new opportunities to their existing customers. During the same time there has been exponential growth of new start-up companies embracing e-commerce technologies, popularly known as dot-com companies (Lovelock, 2001). However, there have been substantial failures amongst these companies and it is now time to look back and learn from the mistakes of the past.

The literature provides a sketchy picture of the reasons for the failures. Janenko (2003) examines the illusion of automated success as the primary reason for the dot-com doom. According to him, many companies automated many aspects of the business processes via web sites and thought that success would automatically follow. Varianini and Vaturi (2000) found similar reasons for failures. The authors also offer some factors of success such as maintaining a constant flow of market information, flexible organization, establish up-front objectives, strong emphasis on marketing. Lovelock (2001) found a number of reasons for dot-com meltdown: poor revenue/cost/profit model, no competitive advantage, lack of benefit to consumers, problems in organization and execution, ineffective warehouse management and fulfillment and web site conflict with existing business partners. Agrawal, Arjona, and Lemmens (2001) find 'fatal attraction' as the primary symptom of e-commerce failures. In their comprehensive data analysis, the authors found that at least 6 months before the collapse all companies attracted significant number of visitors to the site, but they did not purchase enough. The authors stress the importance of attracting, converting and retaining visitors as the measures of e-commerce success.

It is therefore evident that companies embarking on e-commerce had not planned well (in terms of appropriate business models) to start with. They also did not have a good measure of e-commerce success. There appears to be no comprehensive model of e-commerce success and its empirical study. This important gap is addressed in this paper.

In spite of the need to assess the impact of e-commerce, the available measures have proved inconclusive. This results in difficulties when assessing the performance of e-commerce relative to alternative strategies (Rose, Khoo, & Straub, 1999). Some use technical measures such as page hit and view (Kroll, 2000; Rose et al., 1999). Others use strategic assessments, for example the firm's goal attainment and competitive advantage. These inconclusive assessments call for more comprehensive e-commerce measures that can accommodate multiple criteria for success.

In this vein, the current study aims to develop a framework for assessing e-commerce success. In doing so, the factors affecting e-commerce success are identified. The success resulting from the interplay of these factors is then measured using multiple criteria derived from prior studies. The framework provides four scenarios for factors affecting e-commerce success. They are classified depending on whether they are drivers or impediments of e-commerce success, and whether the impacts are internal or external to the organization.