E-COMMERCE PRACTICES:
CHALLENGES, UTILIZATION, AND EFFECTIVENESS

Mahmoud M. Yasin, College of Business and Technology, East Tennessee State University, Box 70625, Johnson City, TN 37614, 423-439-5877, mmyasin@etsu.edu
Andrew J. Czuchry, College of Business and Technology, East Tennessee State University, Box 70619, Johnson City, TN 37614, 423-439-7444, czuchry@etsu.edu
Maria Gonzales, East Tennessee State University, Box 70619, Johnson City, TN 37614, 423-439-7444, mgon1@mindspring.com
Paul E. Bayes, College of Business and Technology, East Tennessee State University, Box 70710, Johnson City, TN 37614, 423-439-4432, bayes@etsu.edu

ABSTRACT

Using data gathered from a sample of 82 organizations varying in size and industry, this study attempts to shed some light on issues related to E-commerce practices, challenges, utilization, and effectiveness. Specifically, the study focuses on the differences among small to medium-sized organizations and large organizations, with regard to the different facets of E-commerce applications. Based on the results of this study, it is concluded that small and medium-sized organizations are still hesitant to implement E-commerce. The results also seem to suggest that technology readiness may be an overriding factor in determining the cost-effectiveness of E-commerce for small to medium-sized organizations.

INTRODUCTION

The emergence of E-commerce is redefining the way business is conducted. It offers organizations new ways to expand the markets in which they compete, streamlines their corporate business processes to deliver products and services more efficiently, attracts and retains customers in new and innovative ways, and reduces cost of operations. E-commerce is transforming the way customers, employees, and suppliers are relating to one another. These changes are forcing organizations to craft new strategies and adopt new methods of implementation.

The objective of the research presented in this paper is twofold. First, this study attempts to shed some light on the reasons behind the apparent reluctance of small to medium-sized organizations to implement E-commerce business models. Second, the experience of those organizations which implemented E-commerce is examined to determine the planning and modification efforts needed for effective implementation. Lessons learned from the experience of these organizations may prove valuable for small to medium-sized organizations as they attempt to implement E-commerce business solutions.

METHOD

The research instrument used in this study was based on the E-commerce literature and feedback obtained from practitioners. A panel of practitioners and academicians examined the instrument for face validity before it was used. The final research instrument consisted of 25 questions. Three questions were open ended, eight used categorical scales, and fourteen utilized a Likert-type scale. The research instrument was mailed to a random sample of 500 organizations. Out of the 500 instruments mailed, 82 usable responses were obtained. This resulted in a response rate of about 16.4%.

For the combined sample of organizations which implemented E-commerce and those which did not, 62% were in manufacturing. Twenty-five percent (25%) of the organizations which did not plan to implement E-commerce were in the construction industry. On the other hand, twenty-four percent of service organizations had plans to use E-commerce. The average number of employees in organizations which did not plan to implement E-commerce was under 100. In contrast, the average number of employees for organizations which implement E-commerce was 6000. The average annual sales for organizations that did not plan to implement E-commerce was $12.59 million. In comparison, the average sales for organizations which planned to implement E-commerce was $1.14 billion. Thus, organizations which decided not to implement E-commerce were of the small to medium-sized type.

OVERVIEW OF RESULTS

Based on the results of this study, 60% of the sampled organizations were already using E-commerce. For those organizations, the usage time ranged from less than six months to over five years. The responses, in association with the organizational planning efforts in preparation for E-commerce implementation, appear to stress the role of well-defined and integrated plans, both at the departmental and organizational levels. The role of teamwork and project management approaches is also stressed during the planning phase. In this context, planning for E-commerce appears to be an organizational effort with emphasis on procedures and people involvement.

The most important strategic factors considered during the planning phase were the impact on competitive standing in industry, financial performance, and market share. Operational factors receiving the most consideration were impact on existing processes, existing procedures, and existing organizational structures. Competitor factors included competitive climate of market, and use of E-commerce by competitors. Current and future use or lack of by suppliers were also given consideration. Customer factors considered during planning phase were customers' current and future desire for E-commerce, customers' current and future use of E-commerce, and ensuring confidentiality of transaction. Extent of training and retraining required and existing skills profile of employees were employee-related factors considered.

Technology issues considered included integrating existing and new technology, constraints due to existing technology, capacity needed, and factors dealing with system downtime, power outages, cyber attacks, and other failures of technology. Legal issues considered included maintaining security of transactions, protecting against violation of privacy, establishing E-commerce policies and procedures, protecting intellectual property, and potential legal action. Financial factors considered included maintaining financial resources, and budgeting for technology on a short and long term basis.

Strategic modifications utilized included modifying existing business strategy and adding E-commerce needs to short and long-term budgets. Organizational modification efforts included cross functional teams, top down planning approach, project management tools, and business process engineering. Operational modifications necessary for effective E-commerce implementation included developing new procedures, and modifying facility to combine legacy layout technology with new technology. Supplier modifications included building strategic relationship with key suppliers, and the initiation of new requirements for suppliers. Modifications concerning customers included changing communication patterns with customers, increasing capacity of contacts with customers, and reengineering customer links to the organization. Employee modifications included training employees to use new procedures and equipment, and convincing employees of benefits and desirability of E-commerce.

CONCLUSIONS AND MANAGERIAL IMPLICATIONS

This research investigated reasons behind the apparent reluctance of small to medium-sized organizations to implement E-commerce. Concerns which larger organizations appear to overcome as they planned for E-commerce implementation were also examined. Based on the literature and the results of this study, the following conclusions are drawn.

First, organizations that chose to implement E-commerce are mostly larger organizations with moderate to high levels of technology. The literature supports this finding (Decovny, 1998; Poon and Swatman, 1999; Wilson and Abel, 2002). The majority of the organizations that are using or plan to use E-commerce are in manufacturing. The literature suggests that manufacturing organizations gain substantial benefits from E-commerce (Gunasekaran et al, 2002).

Second, the results of this study underscore several reasons for the reluctance of small to medium-sized organizations to implement E-commerce. These organizations appear to attribute such reluctance to: their industry does not have the characteristics needed for E-commerce, competitors do not use E-commerce, or E-commerce technology does not lead to financial rewards. Other reasons include security issues, privacy, shortage of people with the necessary skills, lack of financial resources, and other technological issues.

Third, with regard to the planning and implementation of E-commerce, this study identifies several issues that should be addressed. Most organizations agree that an incremental approach to the planning and implementation of E-commerce is appropriate. Also, a well-designed strategy and management support are important to achieve successful E-commerce implementation. These findings are consistent with the literature (Decovny, 1998; Ngai and Wat, 2002; Nath et al, 1998; Wilson and Abel, 2002).

Fourth, the results of this study indicate that most organizations use E-commerce to communicate with customers, employees, and suppliers. Organizations also use E-commerce to purchase products and advertise products and services. This finding is consistent with the literature (Kalakota and Whinston, 1997; Nath et al, 1998; Gunasekaran et al, 2002; Poon, 1999; Chang et al, 2002; Phan, 2003; Cockburn and Wilson, 1996; Ngai and Wat, 2002; Foley and Sutton, 1998; Vieyra and Claycomb, 2001; Strader and Shaw, 1997).

Managers of organizations that are planning for E-commerce implementation need to consider the strategic, operational, competitive, customer, and technological facets of the E-commerce business model. Several types of organizational modifications are required in order to bring about the effective organizational utilization of E-commerce. Therefore, systematic planning is required to ensure the consistency between E-commerce planning, modification and desirable organizational outcomes.

References available upon request.