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11R. An Assessment of eProcurement Adoption Experiences in Canadian Purchasing Organizations

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Research-in-Progress

Abstract

Electronic procurement technologies and practices have matured significantly in the past decade. However, the existing literature might suggest the adoption of eProcurement is still very limited. However, our recent survey of 334 purchasing management professionals in Canada found that over 75% of the organizations have used eProcurement technologies for at least one year and over half have used eProcurement for at least three years. While only 24% of respondents were satisfied with their organizations' current eProcurement implementation, 72% of respondents felt that their organization would benefit from more usage of eProcurement. This paper contrasts the results of a survey on eProcurement adoption, success factors, and challenges conducted in 2009, with findings from prior studies. The preliminary findings suggest that many of the barriers to success identified in earlier studies (such as lack of management support) have largely been overcome, yet the technical challenges of integrating information systems and processes remain. This paper concludes with a call for more intensive field studies to further explore these findings.

Keywords

E-Procurement, Technology Adoption, Success Factors, Hype Cycle, Business-To-Business E-Commerce.

1. Introduction

This study investigates current experiences, benefits, and challenges of electronic procurement (eProcurement) in Canada. Many recent peer-reviewed studies suggest eProcurement adoption is still very limited (Angeles & Nath, 2007; Percy & Giunipero, 2008). However, results of our recent survey of 334 purchasing management professionals in Canada suggests otherwise. In this study, eProcurement is defined as the use of computer-based information systems linked via the Internet or other data networks to facilitate the purchasing of goods or services.

eProcurement has matured significantly since its initial "hype" over a decade ago. Subsequent market observations were disappointing: existing adoption processes were slower and more complex and technologies were less developed than expected. Companies realized

that they did not have a full understanding of the inter-organization collaboration and network effects underlying this new model (Antonio, Mahendra, & Richard, 2003). This progression of eProcurement adoption closely correspond to the shifts from the technology trigger, to the peak of inflated expectations, to the trough of disillusionment of the “hype cycle” concept popularized by Gartner Inc. (Linden & Fenn, 2003). Gartner’s hype cycle characterizes the typical evolution of an emerging technology from over-enthusiasm through a period of disillusionment to an eventual understanding of the technology’s role in a market or domain. As suggested by our survey findings, eProcurement appears to be progressing through the slope of enlightenment, where the focus is on experimentation and real-world application.

While the impact of eProcurement technologies was previously overestimated in the short term, it is important to not underestimate its influence in the long term (Hawking, Stein, Wyld, & Foster, 2004). This paper reports some preliminary findings from an ongoing study on the issues organizations face when adopting rapidly maturing technologies such as eProcurement.

2. Prior Literature

The factors that are believed to influence the success of eProcurement implementations form at least five major categories: organizational, readiness, supply chain integration, strategic, and policy factors (Walker & Harland, 2008). First, the main organizational factors are size and type of operation: eProcurement is usually more advantageous in bigger organizations and in more repetitive systems. Second, an organization’s readiness for adopting eProcurement has been found to be largely dependent on its employees willingness to embrace new systems and processes (Osmonbekov, Bello, & Gilliland, 2002). Third, full integration throughout the supply chain ensures maximum benefit from eProcurement implementation (Currie, 1999). Fourth, organizations should be strategic in their eProcurement adoption by creating and following a specific eProcurement strategy and aligning this in broader context to organizational strategy (Porter, 2001). Lastly, research shows that public procurement organizations can use government spending as an instrument of industrial or social policy, helping to support regional developments and promoting industrial efficiency (Arrowsmith, 2002). These five types of factors affect the degree of overall success, and experiences of benefits and challenges of the eProcurement implementation.

Early on, three key areas were identified as potential causes of eProcurement implementation failure: difficult software solutions, lack of integration/standardization, and buyer/seller/user resistance (Attaran & Attaran, 2002). Instead of embracing the new technologies, employees adopted a “wait and see” approach in adopting eProcurement (Huber, Sweeney, & Smyth, 2004). The remainder of this paper introduces new findings to examine how usage, benefits, and challenges of eProcurement have changed now that the technologies and practices have matured further.

3. Methodology

In March 2009, the 2484 members of the Purchasing Management Association of Canada (PMAC) that had achieved the C.P.P. credential were invited to fill out questionnaires in English or French. In total, 334 members took part in the survey. The items for the survey were drawn from prior eProcurement studies and pilot tested with two researchers and two managers to ensure the questions had strong face validity. The eProcurement usage, benefits,

and challenges items used a five-point Likert-type scale from strongly disagree to strongly agree.

Respondents were from a diverse variety of industries, including manufacturing (22%), resources (17%), government/not-for-profit (17%), and utilities/transport (11%) which reflects the Canadian economy in general. The size of organizations in terms of annual sales was evenly distributed between \$1M to \$100M (19%), \$100M to \$1B (27%), greater than \$1B (22%) and not applicable (28%).

Most respondents (55%) held titles of manager/director, while 16% were buyers, and 14% were analysts. On average, respondents had seven years of eProcurement experience at their present organizations and fourteen years at other organizations. Two-thirds (67%) of the respondents felt knowledgeable about their organization's current plans for eProcurement; over half (56%) felt knowledgeable about their organization's future plans for eProcurement. The majority of organizations (53%) have used eProcurement for more than three years, while 22% have used eProcurement for more than five years.

4. Preliminary Results

Findings from the survey included data on how eProcurement is currently being used, what are the perceived benefits to the organization, and what are the perceived challenges. A principal components analysis will be used to obtain estimates of the factors that account for the largest variance in the sample and uncover the underlying constructs for each set of items (Stevens, 1986). Further investigation of the results from using factor analyses, path analyses, and a qualitative analysis of evidence from follow-up interviews and focus groups is ongoing.

4.1 Usage of eProcurement

Figure 1 shows the extent to which respondents' organizations use eProcurement systems to support various procurement functions. The functions formed five broad categories including: purchasing supplies, paying for supplies, evaluating suppliers, managing requisitions and tenders, and reporting on procurement performance. The overall level of current usage, which encompasses widespread and minimal usage, was strong, with the greatest percentages of organizations currently using eProcurement for the purposes of purchasing from existing suppliers, purchasing from new suppliers, and placing orders through single supplier's website.

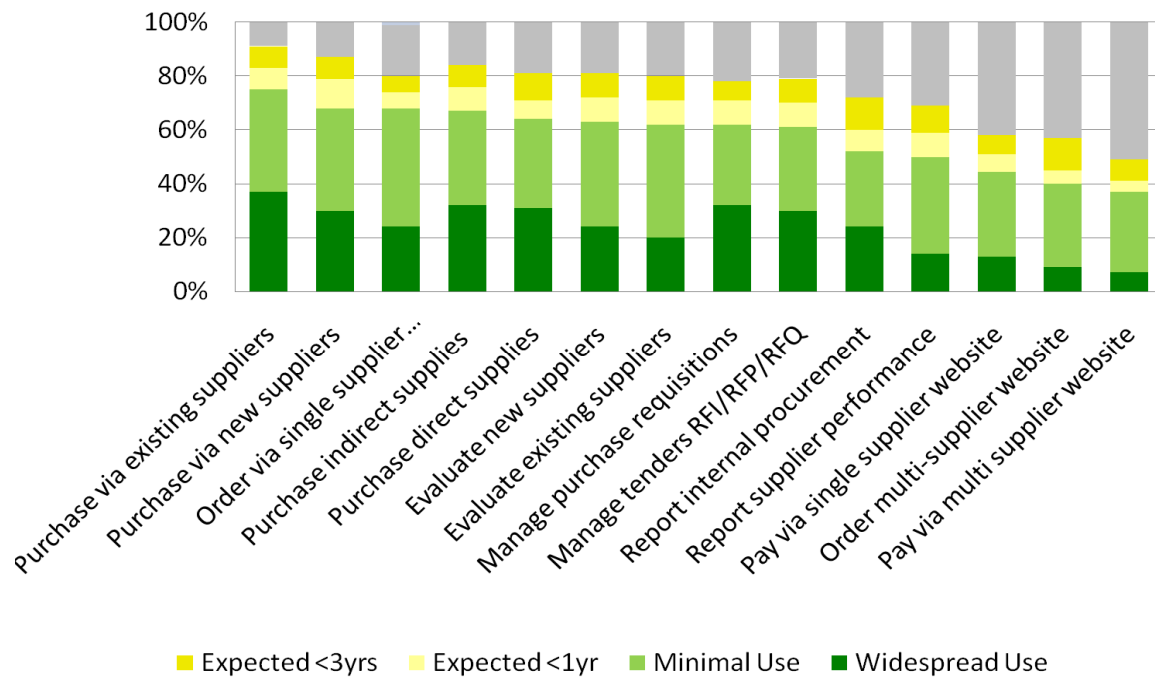


Figure 1: Usage by Type of Activity

4.2 Perceived Benefits and Challenges of eProcurement

As shown in Figure 2, the greatest current benefits were attributed to spending less time on low-value tasks, finding new suppliers, and paying less for supplies. The benefits least mentioned were understanding suppliers' plans, involving suppliers in the organizations' plans, and reducing number of contracts. Agreed encompasses the strongly agreed and agreed categories. These results show that eProcurement has served to increase economic efficiency, but has not necessarily improved buyer-supplier relationships.

Figure 3 indicates the greatest challenges in an organization's eProcurement implementation were difficulty integrating internal procurement systems, difficulty integrating organization's system with supplier's, and lack of standard data formats. In contrast, the least significant challenges were incurred in external supplier resistance (17% agreed), internal buyer resistance (19% agreed), and internal end-user resistance (22% agreed). Previously perceived to be a major obstacle, buyer/seller/user resistance and apprehension has been overcome with time and training. These results suggest that the major barriers to more effective eProcurement implementation are no longer due to user resistance or lack of management support but merely overcoming the current technological challenges.

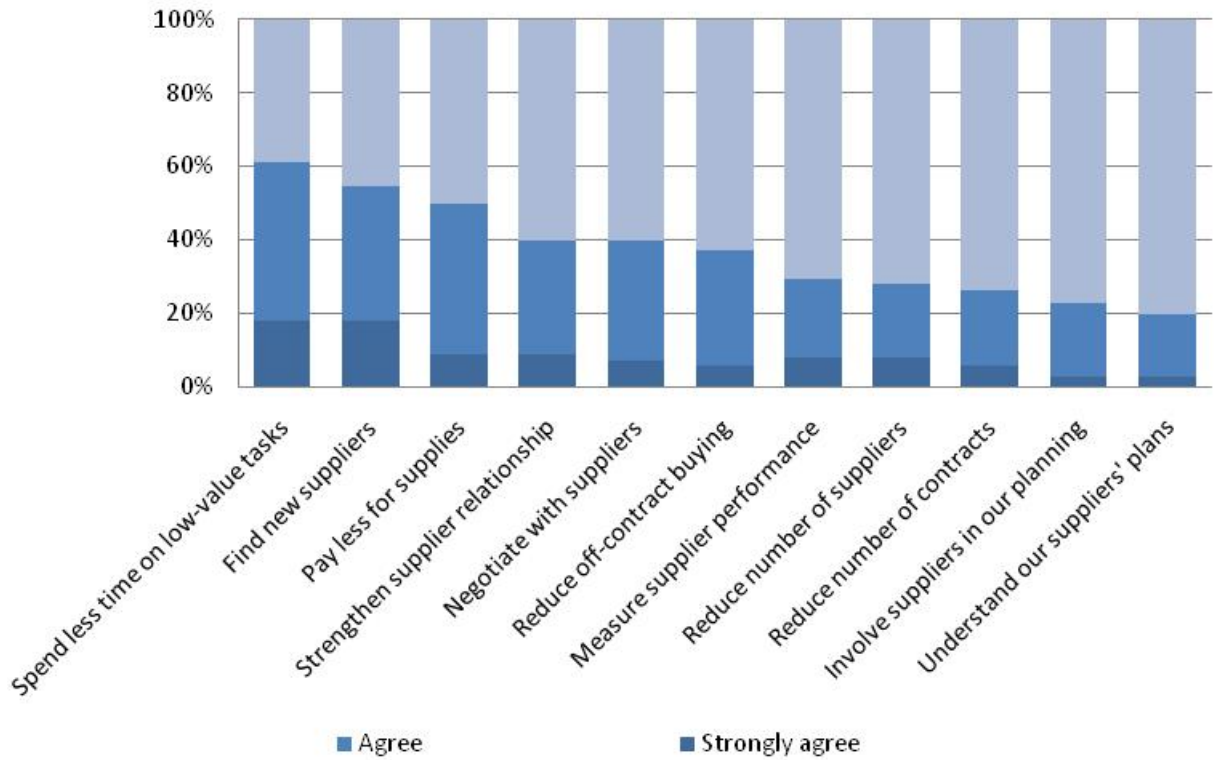


Figure 2: Perceived Benefits of the Organization's eProcurement Systems

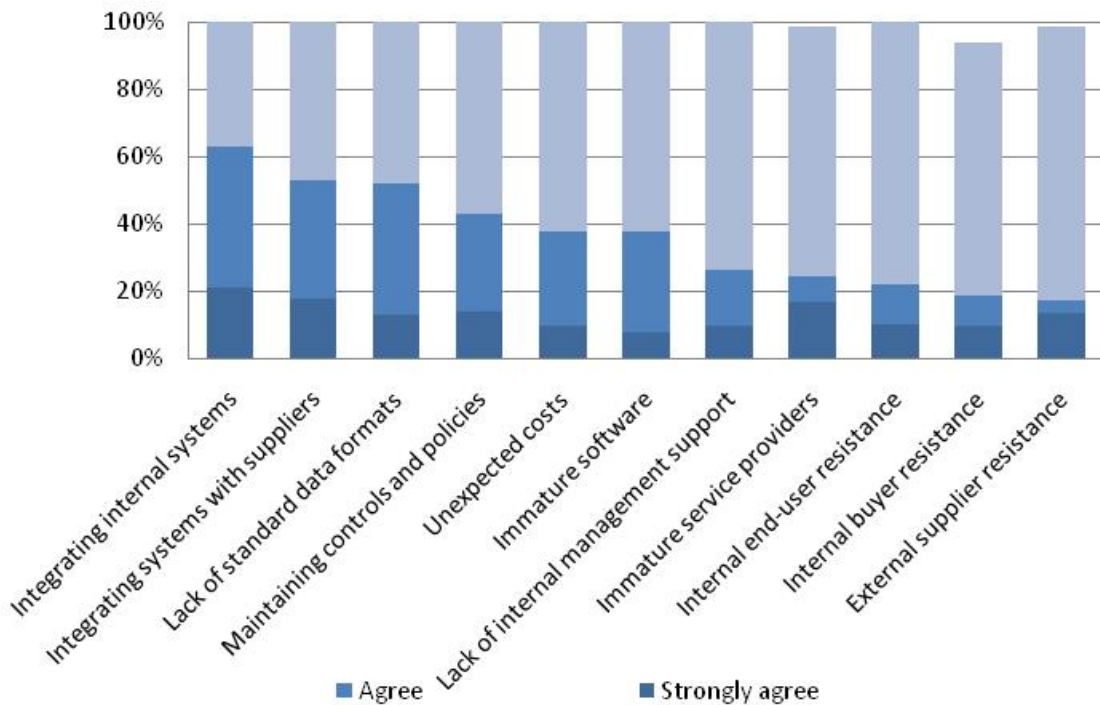


Figure 3: Perceived Challenges of the Organization's eProcurement Systems

A final series of items focused on the respondents' satisfaction with the current eProcurement implementation in their organization. 41% of respondents agreed that the benefits outweigh the costs of eProcurement systems as opposed to the 13% who disagreed. However, only 24%

of respondents indicated that they were satisfied with their organizations' current levels of eProcurement implementation. Despite this low level of current satisfaction, 72% felt that their organization would benefit from more usage.

5. Discussion, Conclusions, and Further Research

In contrast to prior reports which contend eProcurement adoption is not yet widespread (Angeles & Nath, 2007; Percy & Giunipero, 2008), this survey of 334 purchasing management professionals in Canada found that, in 2009, over 75% of the organizations have used eProcurement technologies for at least one year and over half have used eProcurement for at least three years. eProcurement technologies were most frequently used for purchasing- and single-supplier activities and less so for payment- and multi-supplier activities. In comparing public- and private-sector organizations, the biggest difference in usage of eProcurement was in managing tenders, which was the second greatest area of eProcurement usage for the public sector but did make the top nine most common uses for the private sector.

The most frequently cited benefits attributed to eProcurement systems were: spending less time on low-value tasks, finding new suppliers, and paying less for supplies. Surprisingly, the most frequently reported challenges reported did not include user or supplier resistance, but rather involved the technological difficulties in integrating information systems. Lack of support from management or external suppliers was not found to be consistently cited by the respondents, as has been found in earlier eProcurement studies (e.g., Angeles and Nath, 2007, which reports on a survey conducted several years prior). However, this finding was consistent with the finding of Frolich (2002) which found that internal readiness was often more significant than supplier or customer readiness. More intensive research techniques such as interviews and case studies are needed to further probe these findings.

Further efforts in researching and improving eProcurement technologies and practices should focus on the areas highlighted in these results. More detailed analyses of the underlying constructs and relationships in our survey results is underway, but there is also a clear need for more intensive field studies to further investigate these issues. It would appear from these preliminary results that some of the prior focus on overcoming resistance among managers and suppliers has paid off, now it would appear further attention must be paid on how to solve the ongoing problems of integrating technologies and processes across departmental and organizational boundaries.

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