



WHAT IS ELECTRONIC PROCUREMENT: A LITERATURE REVIEW

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ABSTRACT

The concept of electronic procurement has gained popularity over the last decade. Electronic procurement systems experienced a diffusion in the late 1990s due to the proliferation and advances of information technology and the Internet. There is a good literature emerged on the concept of e-procurement covering different aspects like description, practices and applications. This paper reviews reputed refereed journal articles dealing with the definition of electronic procurement and examines the angle through which it is viewed. Based on the insights gained, directions for future research are suggested.

Keywords:

Conceptualization, Electronic Procurement, Internet, Purchasing.

INTRODUCTION

Electronic procurement (EP) is frequently defined as the sourcing of goods or services via electronic means, usually through the Internet. Electronic data interchange (EDI) can be regarded as a form of electronic procurement. Electronic procurement systems experienced a diffusion in the late 1990s (Puschmann and Alt, 2005) due to the proliferation and advances of information technology and the Internet, the tremendous potential savings achievable via this tool, and possibly also because of the fear associated with the Y2K issue.

There are newer facets of electronic procurement proposed by De Boer et al. (2002). e-MRO, web-based ERP is the process of creating and approving purchasing requisitions, placing purchase orders and receiving the goods or services ordered via a software system based on Internet technology; e-MRO deals with indirect items, Web-based ERP deals with product-related items. E-sourcing is the process of identifying new suppliers for a specific category of purchasing requirements using Internet technology. E-tendering is the process of sending requests for information and prices to



suppliers and receiving the responses using Internet technology. E-reverse auctioning enables a purchaser to buy goods and services needed from a number of known or unknown suppliers. E-informing is the process of gathering and distributing purchasing information both from and to internal and external parties using Internet technology (Schoenherr and Tummala, 2007).

The goal of the present review is to identify and provide a broad account of what is e-procurement and how it is defined by several researchers.

METHODOLOGY

Articles were selected from ProQuest global database, which includes a vast literature on e-procurement and related topics. Articles were selected using keyword search with the term “electronic procurement” and a total of 25 journals were selected to represent the sample for the current study. The papers were downloaded and printed and those who were not available in print or via electronic database were ordered via interlibrary loan.

LITERATURE REVIEW

This part of the paper explains how electronic procurement is defined and identifies similarities and differences across the studies.

Electronic procurement has been widely described, in its most basic form, as using electronic means to buy products and services over the Internet (Carayannis and Popescu, 2005; Davila, Gupta and Palmer, 2003; Roche, 2001; Subramaniam and Shaw, 2004). Within this context, electronic procurement entails electronic ordering, bidding and rendering via portals, extranets, private platforms, marketplaces, and/or electronic data interchange (EDI) (Dooley and Purchase, 2006). It can also involve the use of purchasing cards, reverse auctions, and/or integrated automatic procurement systems (Moon, 2005).

Overall, EP facilitates, simplifies and enhances the corporate buying process on several levels (Presutti, 2003) and includes all forms of electronic infrastructure that connects two organizations in the purchasing process (de Boer et al., 2002; Dooley and Purchase, 2006; Min and Galle, 2003).

Articles provided various illustrations, such as electronic procurement enabling individual employees to make purchases in real-time directly from their own PCs, thus cutting costs, improving operational



effectiveness and improving customer service (Croom and Johnston, 2003; Oliveira and Amorim, 2001). Numerous articles also relied on definitions established in past research.

The most frequently used conceptualization of EP was the model developed by de Boer et al. (2002). The authors describe EP as encompassing several functionalities including e-MRO, web-based ERP, e-sourcing, e-tendering, e-reverse auctioning and e-informing, which can be realized via electronic marketplaces, intranets and extranets. Several studies described EP not only as the simple and efficient buying of products reducing transaction costs, but also noted additional benefits and efficiencies that can be derived through process automation (Davila et al. 2003; Leipold et al., 2004). For example, Kameshwaran et al. (2007) conceptualized EP as “an Internet-based business process for obtaining materials and services, and managing their inflow into the organization” (Kameshwaran et al., 2007), with the potential to make the identification of and negotiation with suppliers more efficient (Cater, 2001).

As such, electronic procurement systems can automate workflows, consolidate or leverage organizational spending power, and identify new sourcing opportunities through the Internet (Davila et al., 2003; Reddick, 2004). These systems can help in the search, order processing, monitoring and control, and coordination of procurement activities (Subramaniam and Shaw, 2004). Along the same lines the UK Office of Government Commerce described electronic procurement as facilitating the procurement process, from identification of requirements through to payment, and potentially to contract management (UK Office of Government Commerce, as cited by Anonymous, 2004). Overall, electronic procurement is a very powerful business tool enabled by the Internet that will revolutionize the purchasing function (Kheng and Al-Hawamdeh, 2002).

Electronic procurement does not only automate and facilitate internal process, but it can also be extended across the entire supply chain, covering internal as well as external B2B processes, enabling information sharing and integration (Stein et al., 2003; Roche, 2001; Talluri et al., 2006; Versendaal and Brinkkemper, 2003). As such, an EP system is usually connected to other systems within the enterprise, such as ERP or EDI systems (Subramaniam and Shaw, 2004). Other studies used the terms ERP and electronic procurement interchangeably, which is consistent with the definition by de Boer et al. (2002) who include Web-based ERP as a facet of EP. Electronic procurement has also been conceptualized as electronic marketplaces (Ash and Burn, 2006; Goldsby and Eckert, 2003), and it has



been described within the context of electronic commerce (Benslimane et al., 2005; Ugwu et al., 2002), information and communication technology (Bruno et al., 2005), and supply chain management (Nissen, 2001; Qualyle, 2003). To that end, electronic procurement can fundamentally change and transform how an organization conducts procurement, facilitating every step in the process (Presutti, 2003; Rai et al., 2006).

Some studies also alluded to the ongoing debate about what electronic procurement really entails (Dooley and Purchase, 2006; Vaidya et al., 2006), and whether there is a distinction between electronic purchasing and electronic procurement. As such, MacManus (2002) suggested using these terms interchangeably. However, one study (Dooley and Purchase, 2006) specifically noted that a definition of EP was provided for potential respondents to avoid confusion with differences in definitions that may exist. Electronic procurement can also be seen as a specific area of e-business (Versendaal and Brinkkemper, 2003), or as subset (Leipold et al., 2004) or a mirror image (Johnson and Whang, 2002) of electronic commerce. While e-commerce is a transaction conducted via electronic means, EP is the automation of many of these processes (Vaidya et al., 2006).

DISCUSSION

Most articles did not have a formal discernible definition of electronic procurement. Instead, e-procurement was described in rather general terms, mentioning facets of it as illustrations. While there was general agreement that EP entails the use of electronic means to source products and services, subtle differences existed. A few articles also dealt with the confusion that exists between terms of ‘electronic procurement’ and ‘electronic purchasing’, suggesting that they can be used interchangeably. One cannot find more formal definitions of electronic procurement, since not all studies deal with it in the same way. As such, some articles dealt with particular aspects of EP, for example reverse auctions, whereas others considered the whole spectrum of EP applications, and even put it into the wide context of supply chain management.

Above observations can be explained by the fact that e-procurement is a relatively new area, and studies so far have dealt mostly with an exploration of this emerging area. Therefore no formal definitions or conceptualizations have been developed yet. A few exceptions exist, for example the characterization in de Boer et al. (2002). Another explanation why not more formal definitions exist can be that the concept of e-



procurement is assumed to be so well understood that no official definition is deemed necessary.

CONCLUSIONS AND LIMITATIONS

This paper reviewed reputed journal articles dealing with electronic procurement and examined them electronic procurement definitions wise. While many EP studies have already been conducted, the potential is still large. This paper should serve as a motivation for researchers to explore this exciting area even further, along the research gaps outlined above.

Some limitations exist with this research, which at the same time pose opportunities for future studies. The main limitation concerns the fact that few journals may not have included in the database taken for this study which may have provided valuable insight to the e-procurement literature. Searching for related literature using the keyword 'electronic procurement' is also a limitation. Searching with words like online procurement, online purchasing would have resulted in another set of few relevant studies. As some articles could not be retrieved in full form, abstracts were used in this paper hence leaving a chance that some important details may have been overlooked. However, this review was not intended to provide a specific and thorough review of each article, but to offer a broad picture of the concept of electronic procurement area and its definition.

Future research may be carried out replicating this study searching with all possible keywords and manually scanning the articles for electronic procurement research rather than relying on a keyword search in academic databases.

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