

# Government E-Procurement through the Internet



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## INTRODUCTION

Electronic procurement (e-procurement) is one business-to-government e-commerce venture that can benefit from the Internet. Government e-procurement is different from private sector e-procurement because of concepts such as value for money, transparency and accountability, which may be considered the main benefits for the public sector. Public sector organizations have to meet multiple, often conflicting goals, and they are subject to constraints of a financial, legal, contractual, personnel and institutional nature. In addition, radical process changes from e-procurement can only be achieved with deep changes in bureaucratic practices. These changes cannot normally be achieved without either changes in the law or privatization (Panayiotou, Gayialis, & Tatsiopoulos, 2004).

## BACKGROUND

One definition of e-procurement is any technology designed to facilitate the acquisition of goods by a commercial or government organization over the Internet (Davila, Gupta, & Palmer, 2003). E-procurement technologies are focused on automating workflows, consolidating and leveraging organizational spending power, and identifying new sourcing opportunities through the Internet. In this article, I focus on the use of the Internet for the procurement process. However, there are other electronic technologies for not discussed in this article because of space limitations, such as phone or voice-over-Internet-protocol (VoIP).

The World Bank (2003) working group on government e-procurement defines it as the use of information technology (IT) (especially the Internet) by governments in conducting their procurement relationships with suppliers for the procurement of works, goods and consultancy services required by the public sector. Government e-procurement breaks down the space and time and allows for a more transparent and efficient information flow and wider access to information and services.

Moon (2003) defines e-procurement as a comprehensive and systematic process in which governments either

establish agreements for the acquisition of products/services (contracting) or purchase products/services in exchange for payment (purchasing) using IT systems. According to Moon's definition, e-procurement uses tools such as electronic ordering, purchasing cards, reverse auctions and automatic accounting systems, and goes beyond just using the Internet for the procurement process.

The Internet is an extremely low-cost communication medium that provides access to the Web and differs from other communication media. Digital communication is more malleable, meaning it can easily be retrieved, stored, indexed, transmitted and revised. In fact, Gartner Group predicted that government-to-business e-procurement spending would expand dramatically from \$1.5 billion in 2001 to more than \$6 billion by 2005 (Gansler, Lucyshyn, & Ross, 2003).

E-procurement had seen rapid development before the economic recession in the United States (U.S.) in early 2000. Although much of the initial growth has slowed, all state governments are at least maintaining a Web presence in their procurement function, and some states are participating in Internet bidding (Moon, 2005). The findings of a 2003 national study by the National Association of State Purchasing Officials (NASPO) indicate that there is much room for advancement in e-procurement (NASPO, 2003). Less than one-quarter of the surveyed states' central procurement offices conducted solicitations via the Internet. The potential for economies of scale because of e-procurement is profound, but obviously underutilized in these governments. Part of this may be attributed to differences in management capacity in governments (Reddick, 2004; Moon, 2005). The existing literature on e-procurement has conducted descriptive and empirical studies of e-procurement adoption (see Wyld, 2001; Moon, 2003, 2005; Reddick, 2004).

Traditional procurement is a paper-based process that often is characterized by fragmented purchasing, off-contract buying and lack of control over expenditures (Mitchell, 2000; Krysiak, Tucker, Spitzer, & Holland, 2004). The paper-based procurement process has managers spending most of their time chasing paperwork rather than managing their supplier base or negotiating better prices (Moon, 2003).

## **ONLINE BIDDING, DIGITAL SIGNATURES, AND REVERSE AUCTIONS**

For public sector organizations, the first step to online procurement is to send out solicitations and receive bids for government contracts electronically (Holmes, 2001). Requests for bids or proposals can be placed on the Web or e-mailed to contractors, eliminating the need for traditional postal waiting periods—which often take up to 4 weeks—between the announcement of a contract and the acceptance of bids. Bidders can be notified immediately by e-mail. Other common vehicles for e-procurement are e-catalogs, procurement cards and e-marketplace (Krysiak et al., 2004). There are fully integrated e-procurement systems developed by various commercial vendors (SAP, Oracle, etc.). Web-enabling Enterprise Resource Planning (ERP) is another electronic technology that governments can use and is discussed in the future trends section of this article (Reddick, 2004).

Technologies such as digital signatures are becoming well established, making it safer to procure over the Internet. A digital signature is an electronic means of signing electronic documents that provides sender authentication using public-key encryption (Laudon & Laudon, 2001). Digital signatures support e-procurement by facilitating online financial and document transactions. The authentication procedure of digital signatures includes: (1) combining private keys and specific documents; and (2) computing the composite (key + document) and generating a unique number—the digital signature (Moon, 2003).

Online reverse auctions (descending prices) present a major departure from the standard public procurement process, in which contracts are awarded on the basis of sealed envelopes and companies have only one chance to make a winning bid (Soudry, 2004). In a reverse auction, the buyer sets up an auction to receive bids from suppliers (Wyld, 2001). In online auctions, bidders typically make several submissions over the course of an hour or two. A reverse auction is a supply-aggregating event that lowers the price of goods for a buyer. Through a pre-qualification process, all issues are generally settled between the procuring organization and potential suppliers before the auction. Usually, the only remaining issue to be settled is the price.

Some of the chief benefits noted in the literature of reverse auctions are: (1) increased numbers of potential suppliers; (2) reduced procurement cycle times; (3) lowered purchase prices; and (4) increased transparency (Wyld, 2002; Soudry, 2004). One drawback of online auctions is that they remain focused on the market of buying indirect goods or Operating, Resources and Man-

agement (ORM). Another drawback is that the entire process works against some of the key value principles of procurement and new public management (MacManus, 2002). Furthermore, it is difficult to predict prices, and each day may bring a completely different set of bid responses. In addition, because of the emphasis of an auction on price alone, it makes it difficult for suppliers to maintain any close relationship with the buyer. Issues concerning collaborative design, quality assurance levels and delivery dependability are often much more important in the procurement of direct goods or Maintenance, Repair, and Operations (MRO) than price alone (Neef, 2001).

## **BENEFITS AND DRAWBACKS OF E-PROCUREMENT**

Several benefits are achieved through the implementation of e-procurement practices. A government can lower its administrative costs associated with procurement by reducing the number of people and time associated with the process. For instance, in a typical manual system, users would first have to find a supplier, obtain the appropriate paper catalog, select the item, and seek and obtain management approval. After review and approval of the requisition by the procurement professional, a purchase order would be faxed to the supplier. This fax would be followed up with a phone call to verify receipt, and then copies would be sent to shipping and receiving, accounting and finance, and department managers. This paper-based system is sequential, prone to errors, encourages the carrying of excess inventory and makes enterprise-wide integration very difficult. With e-procurement, the process is significantly more efficient. Employees can access approved vendor catalogs from their personal computers, identify and compare needed items, and order them. Product availability and delivery information is readily accessible, and payments can be made electronically. Rule-based software can either provide automatic approval for routine orders or route the request to an available manager for approval (Gansler, Lucyshyn, & Ross, 2003).

An example of the public sector procurement process eliminating manual processes can be seen through the World Bank's use of e-procurement for the selection of consultants. This is said to achieve efficiency, transparency, service quality and compliance in the consultant selection process required by the World Bank (Leipold, Klemow, Holloway, & Vaidya, 2004). The Republic of Korea adopted its Government e-Procurement Systems (GePS), which is a Internet portal site providing information on public procurement and an application service

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