

E-PROCUREMENT ADOPTION BY SUPPLIERS: A RESEARCH PROPOSAL

Paulo Andrade

*ISCTE – Lisbon University Institute
Av. das Forças Armadas, 1600-082 LISBOA – Portugal*

Bráulio Alturas

*ADETTI/ISCTE
ISCTE – Lisbon University Institute
Av. das Forças Armadas, 1600-082 LISBOA – Portugal*

ABSTRACT

This paper presents a current research with the aim to identify the enablers, barriers and possible solutions to e-procurement adoption by suppliers in Portugal. The literature relating to e-procurement implementation and operation is reviewed, with focus on the barriers and enablers already identified in the literature. A research methodology is proposed to study the problem, and this work will contribute to better address the issues faced by suppliers on e-procurement implementations.

KEYWORDS

E-Procurement, Collaboration, E-Commerce, B2B, Supply Chain Management.

1. INTRODUCTION

E-procurement is the generic term applied to the use of integrated database systems and wide area (commonly web-based) network communication systems in part or all of the purchasing process (Croom & Brando-Jones, 2005). E-procurement allows buyers to automate transactions and focus on more strategic activities. E-procurement solutions also contribute to a better organizational performance, allowing reductions in cost and time when ordering from suppliers, and helping to achieve a well-integrated supply chain. Although there are many benefits in e-procurement solutions, there also appears to be some barriers to their successful implementation. Former research shows that many companies still prefer the traditional methods to communicate and exchange with business partners. Companies need to understand better how to implement e-procurement solutions on an efficient and effective manner. Any successful e-procurement system needs suppliers that are willing and able to trade electronically and their co-operation is crucial to the project's success. This degree of openness and transparency is new to most organizations, and it requires relevant cultural changes and high levels of trust between the participants (Harris & Dennis, 2004).

This paper presents issues related to supply chain management, e-commerce, e-procurement and the barriers and enablers for supplier adoption of e-procurement. Then a research methodology is proposed to study the problem, and this work will contribute to better address the issues faced by suppliers on e-procurement implementations. We plan to apply a quantitative approach to identify the enablers and the barriers that influence Portuguese companies to adopt e-procurement solutions.

2. LITERATURE REVIEW

2.1 Supply Chain Management and Collaboration

Supply chain management includes the planning and management of all activities included at the sourcing and acquisition process. According to the Council of Supply Chain Management Professionals (CSCMP, 2008), supply chain management encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. It also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers. In essence, supply chain management integrates supply and demand management within and across companies.

E-business and e-commerce has a significant impact on level of analysis issues in management research, specifically broadening the perspective to analysis of supply chains and networks (Cromm, 2005). The Web and associated technologies enable collaboration and sharing of information among companies. Collaboration may range from intra-organizational to inter-organizational and across the boundaries of the organization. The procurement is an integral component of an organization's supplier relationship management strategy, and often is the first major step towards trading partner collaboration (Gilbert, 2000). Collaboration between supply chain members also requires the exchange of sensitive information. Teo & Ranganathan (2004) argued that the heart of B2B e-commerce was in inter-organizational collaboration and it required a fundamental shift in the organizational mindset to collaborate and engage in effective B2B e-commerce.

2.2 E-commerce

E-commerce is the process to buy, sell or exchange products or services by the internet. Different models of e-commerce have been presented in order to describe the nature of these transactions. Electronic marketplaces allow collaboration and data sharing within or across industries. It's possible to classify the e-marketplaces with base on their degree of openness. E-marketplaces with a high degree of openness are those that are publicly accessible to any company. At the other end of the spectrum, e-marketplaces with a low degree of openness are accessible only upon invitation. Based on this distinction, Hoffman, Keedy & Roberts (2002) recognized three main types of e-marketplaces: public e-marketplaces, consortia and private exchanges.

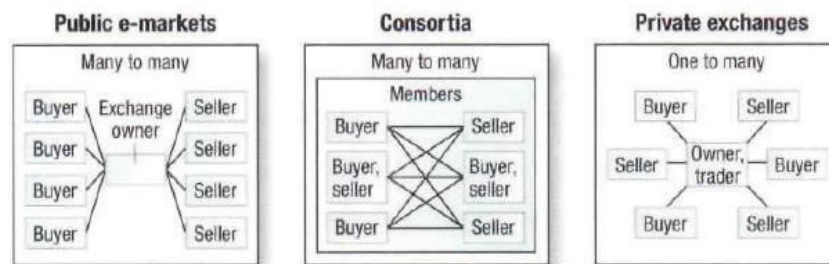


Figure 1. Main Types of E-marketplaces

The role of procurement and the emerging use of large information systems to conduct e-procurement was analyzed by Hawking and colleagues (Hawking et al, 2004) and presented with the results of a survey of 38 major Australian organizations. The main results show that direct procurement is heavily dependent upon traditional practices while indirect procurement is more likely to use "e" practices. Dedrick (2008) also found that the use of electronic procurement is associated with buying from more suppliers for custom goods but from fewer suppliers for commodity goods. In an efficiently functioning transparent market, few suppliers are sufficient for commodity goods, whereas for custom goods the need for protection from opportunistic vendor leads to the use of more suppliers.

2.3 E-procurement Adoption

Companies are approaching e-procurement adoption with different strategies. Davila and colleagues (2003) identified two main types of companies. The first type is moving aggressively to adopt e-procurement technologies, frequently experimenting with various solutions. The second type adopts a more conservative strategy by selectively experimenting, typically with one technology. (Davila, Gupta & Palmer, 2003). Also an increasing number of public institutions identified electronic purchasing as a priority to e-government. Many implemented or are implementing e-procurement systems. The adoption of e-procurement in public administration has a huge impact since governments spent large amounts in acquiring materials and services. (Pereira & Alturas, 2007).

For the Portuguese government electronic procurement has gained a strategic significance, and some evidences showed that importance. A considerable number of private exchanges and consortia have appeared in the last years. The number of internet transactions has also increased, and the government has deployed some initiatives for public electronic purchasing. The Portuguese government considered e-procurement fundamental for renovation of processes in the public administration (Amaral, Teixeira & Oliveira, 2003). An important step for e-procurement in Portugal was taken by the government with the Decree-Law n. ° 104/2002 who allows electronic purchasing by public administration.

2.4 Enablers for Supplier Adoption

By understanding the main enablers that influence the supplier adoption of e-procurement, companies can develop strategies to leverage the supplier adoption on an e-procurement implementation. The organization who is implementing an e-procurement solution should assess the impact of the system on suppliers and their technological promptness to implement the system at their end, and should provide the services necessary for the system to succeed. It is also necessary to put together a supplier adoption team, train the suppliers, and get them synchronized with the organization's implementation (Rajkumar, 2001). Suppliers need to gain conscience of the benefits resulting from their adoption of e-procurement. For suppliers, the adoption of e-procurement may be an opportunity to expand their market. According to Sharifi, Kehoe & Hopkins (2006) they will find e-procurement attractive because they could easily and cost effectively reaches new customers, improving their sales. (Berlak & Weber, 2004).

The integration between the buyer and the seller systems allows exchanging information automatically. Therefore, it is possible for the buyer to make an order more quickly. This will also reduce the chance of occurring errors that are common when an order is dependent on paper. (Berlak & Weber, 2004). By linking to a customer directly and collaborating to ensure accurate and on-time delivery provides better service and lower overall procurement costs to the customer, and can result in much more collaborative buyer-seller relationships. (Neef, 2001).

Carayannis & Popescu (2005) analyzed and evaluated the electronic procurement projects carried out by European Commission. They concluded that the transparency of EU public procurement market was improved by a systematic use of electronic tendering. The improve on the transparency allow the involved stakeholders to know how the system is intended to work, and all potential suppliers have the same information about procurement opportunities, award criteria, and decisions.

In considering how e-procurement will impact buyer-seller relationships Ellram & Zsidisin (2002) argue that close buyer-supplier relationships have a strong positive impact on the adoption of e-procurement. Therefore, while e-procurement may not deliver improved levels of trust, it has been found that e-procurement transactions are more likely to be established first between partners in high trust relationships. In addressing this issue, both Croom (2001) and Kumar & Qian (2006) support the view that increased use of e-procurement and inter-organizational systems enhance opportunities tend to create more effective customer-supplier relationships over time.

2.5 Barriers for Supplier Adoption

Cooperation with suppliers also requires them to meet the business criteria that organizations have set to accept them in their networks. Since some of the business models associated with e-procurement technologies clearly envision the use of suppliers with whom the buyer has not previously transacted

business, companies need to develop mechanisms that provide the buyer with assurances that the supplier meets or exceeds recognizable and industry enforced standards (Davila, Gupta & Palmer, 2003).

According to Davila, Gupta & Palmer (2003) providing suppliers with Internet or Intranet access to company internal data, or integrating suppliers applications with company information systems, both key to supply chain management, is still unusual. This observation reinforces the prudence that companies must demonstrate on integrating e-procurement technologies into existing systems and relationships.

A study conducted in the Swiss market revealed that the lack of supplier involvement and infrastructure to optimize B2B processes was a hindrance to integrate the B2B solution scenarios. Integration solutions are not always offered appropriate to suppliers and the majority of companies agree that the position of the suppliers is insufficiently considered (Tanner et al, 2008).

Buyers are concerned that e-procurement technologies will push prices down to the point where suppliers cannot invest in new technology or product development, upgrade facilities, or add additional productive capacity. Additional price pressures can even push suppliers with a poor understanding of their cost structure out of business (Davila, Gupta & Palmer 2003). Supplier need to know how low they can bid, and still observe an acceptable return. (Moser, 2002).

The majority of the companies believe that barriers include insufficient financial support, lack of interoperability and standards with traditional communication. Developing standards and systems for facilitating effective interoperability with traditional communication systems will help the adoption of e-procurement fairly well with minimum investment and changes to the business processes through reengineering (Hawking et al, 2004).

Enablers	Barriers
Market Growth	Intranet access
Less Operational Cost	Integration
Transparency	Price pressures
Longer buyer-seller relationships	Lack of standards

Table 1. Enablers and Barriers for e-Procurement Adoption by Suppliers

3. RESEARCH QUESTIONS AND METHODOLOGY

This research will provide a better understanding of issues affecting the suppliers within an e-procurement implementation. The research questions formulated were based on the enablers and barriers felt by suppliers when confronted with the e-procurement adoption. The following research questions will be answered:

- What are the major perceived barriers to the adoption of e-procurement in Portugal by suppliers, and how can they be addressed?
- What are the major perceived enablers to the adoption of e-procurement in Portugal by suppliers, and how can companies explore it?

This effort started by reviewing the background to the application of e-procurement, which was then followed by various definitions of e-procurement. Subsequently, we made a review of the literature available on the adoption of e-procurement by suppliers with the objective of developing a theoretical framework for determining the barriers against, enablers and possible solutions for the successful supplier adoption of e-procurement. The questionnaire will be pilot tested by e-procurement consultants and academics, before being sent out. The proposed framework will be validated with the help of empirical data collected from Portuguese companies. Finally, based on the empirical results and analysis, we will develop a framework for the supplier adoption of e-procurement.

4. DISCUSSION

Based on the database that we hope to collect, we plan to apply a quantitative approach to identify the enablers and the barriers that influence Portuguese companies to adopt e-procurement solutions. Besides,

these empirical evidences could be relevant for managers of companies who seek better understanding and predict the procurement of their products. We hope that companies could leverage their e-procurement implementations by engaging the maximum number of suppliers, and to successfully collaborate on a win to win basis.

REFERENCES

- Amaral, L. A.; Teixeira, C. and Oliveira, J. N., 2003. *E-procurement: Uma reflexão sobre a situação actual em Portugal*. Minho: APDSI.
- Berlak, Joachim and Weber, Volker, 2004. How to make e-Procurement viable for SME suppliers. *Production Planning & Control*, Vol. 15, No. 7, pp. 671-677.
- Carayannis, Elias G. and Popescu, Denisa, 2005. Profiling a methodology for economic growth and convergence: learning from the EU e-procurement experience for central and eastern European countries. *Technovation*, Vol. 25, No. 1, pp. 1-14.
- Croom, Simon R., 2001. Restructuring supply chains through information channel innovation. *International Journal of Operations and Production Management*, Vol. 21, No. 4, pp. 504-527.
- Croom, Simon R., 2005. The impact of e-business on supply chain management: An empirical study of key developments. *International Journal of Operations & Production Management*, Vol. 25, No. 1; pp. 55-73.
- Crom, Simon R. and Brandon-Jones, Alistair, 2005. Key issues in e-procurement: Procurement implementation and operation in the public sector. *Journal of Public Procurement*, Vol. 5, No. 3, pp 367-387.
- CSCMP, 2008. Retrieved 1 25, 2009, from Council of Supply Chain Management Professionals (CSCMP): <http://cscmp.org/>
- Davila, Antonio; Gupta, Mahendra and Palmer, Richard, 2003. Moving procurement systems to the internet: the adoption and use of e-procurement technology models. *European Management Journal*, Vol. 21, No. 1, pp. 11-23.
- Dedrick, Jason, 2008. How Does Information Technology Shape Supply-Chain Structure? Evidence on the Number of Suppliers. *Journal of Management Information Systems*, Vol. 25, No. 2, pp. 41-72.
- Ellram, Lisa M., and Zsidisin, George A., 2002. Factors that drive purchasing and supply management's use of information technology. *IEEE Transactions on Engineering Management*, Vol. 49, No. 3, pp. 269-281.
- Gilbert, Alorie, 2000. E-procurement: problems behind the promise. *InformationWeek*, November 20, pp. 48-55.
- Harris, Lisa, and Dennis, Charles, 2004. *Marketing the e-business*. USA: Taylor & Francis.
- Hawking, Paul; Stein, Andrew; Wyld, David C. and Foster, Susan, 2004. E-Procurement: Is the Ugly Duckling Actually a Swan Down Under. *Asia Pacific Journal of Marketing and Logistics*, Vol. 16, No. 1, pp. 3-26.
- Hoffman, William; Keedy, Jennifer and Roberts, Karl, 2002. The unexpected return of B2B. *McKinsey Quarterly*, Vol. 3, pp. 97-105.
- Kumar, Nanda and Qian, Peng, 2006. Strategic alliances in e-government procurement. *International Journal of Electronic Business*, Vol. 4, No. 2, pp. 136-145.
- Moser, Edward P., 2002. E-Procurement--Reverse Auctions and the Supplier's Perspective. *Pharmaceutical Technology*, Vol. 26, No. 5, pp. 82-85.
- Neef, Dale, 2001. *e-Procurement - From Strategy to Implementation*. USA: Prentice Hall.
- Pereira, Paulo and Alturas, Bráulio, 2007. Factores Críticos da Adesão das PME'S Nacionais, Fornecedoras de Materiais de Escritório ao Procedimento Aquisitivo Público em Portugal: Uma Proposta de Investigação. *Conferência IADIS Ibero - Americana*. Vila Real.
- Rajkumar, T. M., 2001. E-procurement: Business and Technical Issues. *Information Systems Management*, Vol. 18, No. 4, pp. 52-60.
- Sharifi, H., Kehoe, D. and Hopkins, J., 2006. A classification and selection model of e-marketplaces for better alignment of supply chains. *Journal of Enterprise Information Management*, Vol. 19, No. 5, pp. 483-503.
- Tanner, Christian; Wolfle, Ralf; Schubert, Petra and Quade, Michael, 2008. Current Trends and Challenges in Electronic Procurement: An Empirical Study. *Electronic Markets*, Vol 18, No. 1, pp. 6-18.
- Teo, Thompson S. H. and Ranganathan, C., 2004. Adopters and non-adopters of business-to-business electronic commerce in Singapore. *Information & Management*, Vol. 42, No. 1, pp. 89-102.