

# e-PROCUREMENT ADOPTION BY SUPPLIERS

## *Enablers, Barriers and Critical Success Factors*

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Abstract: This paper presents a current research with the aim to identify the enablers, barriers and critical success factors for e-procurement adoption by suppliers. Any successful e-procurement system needs suppliers disposed to trade electronically. We present a review of the actual literature about e-Procurement, with focus on the barriers, enabler's and CSF's already identified. 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.

## 1 INTRODUCTION

E-procurement allows buyers to automate transactions and focus on more strategic activities. It has been defined as "the use of electronic technologies to streamline and enable the procurement activities of an organizations" (OGO, 1999).

E-procurement solutions 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 with the objective of reaching the market as quickly as possible with the right products and services in the most cost-effective manner (Hawking, Stein, & Wyld, 2004).

Although there are many benefits in e-procurement solutions, there also appears to be some barriers to their successful implementation. Former research shows that numerous companies still prefer the traditional methods (telephone, fax and e-mail) to communicate and exchange with business partners. Companies need to better understand how to implement e-procurement solutions in an efficient and effective manner. Any successful e-procurement system relies on suppliers that are willing and able to trade electronically. 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).

Users of e-procurement technologies reported that they can acquire goods over the Internet from only 15 per cent of their supply base (Davila, Gupta, & Palmer, 2003). A report from EU also confirms that only 13% of EU enterprises are receiving orders online (EU, 2005). If suppliers are not involved from the beginning, then a low adoption rate can constrain buyers from leveraging the full associated capabilities from e-procurement solutions. The lack of a critical mass of suppliers accessible through the organization's e-procurement system might limit the network effect that underlie these technologies, further delaying the acceptance and adoption of the technology.

Suppliers need to be convinced about e-procurement benefits. E-procurement may not guarantee additional sales but it can provide many other benefits like lower transaction costs and faster payment through better invoice processing. However, small and medium enterprises (SME's) in particular may experience a number of barriers that need to be overcome. The main issues must be addressed to achieve effective electronic trading

between companies.

## 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.

The Web and associated technologies facilitate the constitution of collaborative networks, which 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 supplier relationship management strategy, and often is the first and major step towards trading partner collaboration (Gilbert, 2000). Collaboration between supply chain members also requires the exchange of sensitive information. Teo and 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 across the internet. In a business perspective the e-commerce definition is much more than simply buying and selling goods and services. It also represents the collaboration with business partners and electronic transactions between organizations. Different models of e-commerce have been presented in order to describe the nature of these transactions. When all members are companies or other organizations, the type of association is named business-to-business (B2B). A B2B association can be supported by the company's

private network or have an extranet basis, taking advantage from the internet to establish multiple networks.

Electronic marketplaces allow collaboration and data sharing within or across industries. They are attractive to both the buy and sell-side organizations for different reasons. On the buy side they provide demand aggregation, enable quick and easy supplier comparisons, and allow activity reporting, strategic sourcing, and so on. On the sell side, they provide low-cost introduction to customers, better capacity management and efficient inventory, production management via demand aggregation, and analytics that help suppliers position their product better in the market.

There are several criteria for classifying e-marketplaces. Kaplan and Sawhnew (2000) offered a classification based on the type of goods and the way these goods are purchased. An e-marketplace can either provide indirect goods that support the business process or the direct goods used in production. The way the buying process occurs can fall into two categories: long term contractual buying between two entities, or a one-time (spot) purchase with no long term relationship between the two parties.

It is also possible to classify the e-marketplaces based on their degree of openness. E-marketplaces with a high degree of openness are those 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 and Roberts (2002) recognized three main types of e-marketplaces: public e-marketplaces, consortia and private exchanges.

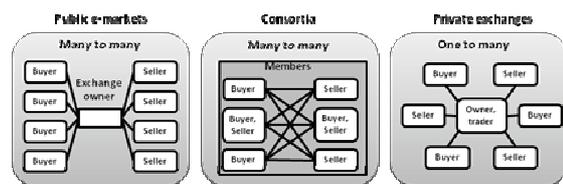


Figure 1: Main types of e-marketplaces.

E-procurement is closely related with supplier's selling activities. Kim and Shunk (2004) consider e-procurement systems as various internet B2B commerce systems, which are located at the buyer, the supplier or at a third party, with the following categorization:

- Buyer-centric e-procurement systems;
- Supplier-centric e-procurement systems;
- Neutral e-marketplaces;

- End-to-end electronic document/message exchange systems.

It is common to distinguish direct procurement from indirect procurement. The role of procurement and the emerging use of large information systems to conduct e-procurement was analyzed by Hawking and colleagues (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).

Country maturity in ICT also plays an important role in e-procurement adoption by companies. A report from European Union declares that e-business activity is higher in companies belonging to countries more advanced in their Information Society those who are not so advanced (EU, 2005).

### 2.4 Enablers for Supplier Adoption

On this research, we considered enablers as the factors identified as having a positive influence on the adoption of e-procurement by suppliers. By understanding the main enablers that influence

suppliers, companies can develop strategies to leverage their adoption on e-procurement implementation.

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, and Hopkins (2006) they will find e-procurement attractive because they could easily and cost effectively reach new customers, improving their sales. Also, on private e-marketplaces, by making the electronic catalogue accessible in a direct way to all employees and buyers, or using e-hubs and e-commerce communities, the seller can widely increase the number of selling's (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). 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 and Popescu (2005) analyzed and evaluated some 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 improvements 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 and 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 tend to create more effective customer-supplier relationships over time.

### 2.5 Barriers for Supplier Adoption

For the purpose of this study, barriers are considered as the factors not contributing to the successful adoption of e-procurement by suppliers.

Cooperation with suppliers 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)

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)

For e-procurement technologies to succeed, suppliers should provide sufficient catalogue choices to satisfy the requirements of their customers. Ideally, suppliers will provide e-catalogues in the formats required by customers, reflecting custom pricing and/or special contractual agreements and will send updates on a regular basis (Davila, Gupta, & Palmer, 2003).

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, Stein, & Wyld, 2004).

A study conducted in SME's revealed a lack of knowledge of e-business related benefits. For those companies e-business adoption is an incremental process that involves on-the-job learning. This means that companies beginning to do some online sales are educating their staff through experience. Experience will accumulate and companies will move towards more online activities as they and their business partners become more experienced (Archer, Wang, & Kang, 2008).

### 2.6 Critical Success Factors

The factors that are critical to the successful

adoption of e-procurement have been identified based on previous experience and literature available. This could be defined as the best practices for the successful adoption of an e-procurement solution.

The organizations who are 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, providing the services necessary for the system to succeed. It is necessary to put together a supplier adoption team, train the suppliers, and get them synchronized with the organization's implementation (Rajkumar, 2001).

According to Davila and colleagues (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, Woumlfle, Schubert, & Quade, 2008).

Some case studies in Scotland and Italy where a supplier engagement process was developed, documented and facilitated to ensure supplier's business and technical requirements were met resulted in a high incident of supplier activity. In contrast, the buyer centric approach adopted in Western Australia meant that suppliers did not understand the benefits of joining the marketplace and therefore were reluctant to join (AGIMO, 2005).



Figure 2: Enablers, Barriers and CSF for e-Procurement Adoption by Suppliers.

## 2.7 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, barriers and CSF's 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 by suppliers, and how can they be addressed?
- What are the major perceived enablers to the adoption of e-procurement by suppliers, and how can companies explore it?
- What are the critical success factors to the adoption of e-procurement by suppliers?

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.

## 3 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 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.

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