

ADOPTION OF E-PROCUREMENT PRACTICES BY INDIAN MANUFACTURING SMALL AND MEDIUM ENTERPRISES, A DESCRIPTIVE STUDY OF SMALL INDUSTRIES DEVELOPMENT CORPORATION IN COIMBATORE DISTRICT, INDIA

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ABSTRACT

Opening Indian market to the globe in 1991 has bestowed the Indian organizations with opportunities and an equal amount of threats. Indian organization especially, manufacturing Small and Medium Enterprises (SMEs) are not able to cope with the stiff competition from the Multi-National Corporations (MNCs) in their respective markets. In current scenario with the increase in growth of internet facilities, SMEs can adopt e-procurement practices to extend their markets to global level. This study examines the extent of e-Procurement practices adopted by manufacturing SMEs in Small Industries Development Corporation (SIDCO) in Coimbatore district in India and also figure out how SMEs perceive the benefits and barriers of e-procurement implementation. A questionnaire based survey technique was adopted to conduct the study. Study reveals that though SMEs views e-procurement practices as advantageous, their usage was minimal and is practiced to a great extent for the purpose of information sharing only.

Keywords: Indian SMEs, SIDCO, E-Procurement adoption, manufacturing, benefits and barriers.

INTRODUCTION

Small and Medium Enterprises (SMEs) have been the backbone of Indian Economy next to agriculture, employing close to 40% [1] of India's workforce and contributing 37.52% [2] of India's manufacturing output. SMEs play a critical role in generating millions of jobs. Although they employ 40% of India's workforce, the manufacturing sector SMEs contribute only 7.04% to Indian GDP (2012-13) which may be due their low scale and poor adoption of technology and poor productivity [3].

In an era of Globalizing economies many markets become increasingly international and competitive. However, the story is different for SMEs than it is for MNCs. Globalization is a source of opportunities as well as a source of threats. Specific advantages derived from operating in a global market seem to be exploitable only by large organizations unless SMEs can find an organizational solution allowing them to cope with global business opportunities without suffering from limited resources [4]. Thus to survive in a highly competitive environment, the SMEs have to adopt technology in their operations. Instead of competing against large multinational companies SMEs can take advantage of opportunities afforded by e-commerce to access new and often distant markets or global value-chains.

Currently, based on market relationship, e-commerce is classified into Business-to-Consumer (B2C), Business-to-Business (B2B), Consumer-to-Consumer (C2C), and Business-to-Government (B2G). One element of B2B is e-procurement which specifically concentrates on purchase and sales of supplies, work and services through internet as well as other information and networking system like Electronic Data Interchange (EDI), and Enterprise Resource Planning (ERP). In line with the growth of internet, the e-commerce has been growing exponentially. However among all the four types mentioned above, B2B is fast growing.

E-Procurement streamline paper intensive tasks in an organization's buying process thus reducing cost and cycle time required to process a purchase order. A study on the extent to which e-procurement is adopted by the companies in Singapore reveals that e-procurement is used as a key mechanism to enhance their competitiveness, though security concerns, investments in IT infrastructure, training required for e-procurement, lack of laws and regulations governing e-commerce are found to be the challenges for e-procurement [5]. Our Indian counterparts also face these challenges at present.

In one study the significant benefits of web-based procurement are classified into strategic, operational and opportunity benefits. Some strategic benefits includes consolidation of purchasing practices and better services from suppliers, accelerated flow of information between suppliers and buyers. The operational benefits include improved financial controls, elimination of paper works, shorter delivery time and reduced inventory levels. The opportunity benefits improved trading relationships, improved buyer and seller relationships, and better accuracy [6].

A study on the usage of B2B marketplace websites by Indonesian SMEs views B2B e-commerce as a tool for SMEs to go global [7]. In one of the literature the issues SMEs can face in changing business environment and the potential of e-commerce in this new environment is studied. Despite the size of SMEs being a disadvantage to compete with global players, they can use e-commerce to expand their market to distant geographies [8].

A study on adoption of e-procurement in Indian organizations suggest that Indian organizations are using e-procurement to increase flexibility in production and cost reduction, enhance customer satisfaction, improve delivery, better inventory management and offer broad range of products.

Adopting e-procurement not only helps in sustaining in competitive environment, but is mandatory in order to bring greater transparency and elimination of unethical practices in procurement [9].

The current state of e-procurement in Indian manufacturing SMEs has been studied very little. This study examines the extent of e-procurement adoption by Indian manufacturing SMEs in SIDCO in Coimbatore district and explores the perception of these companies towards the benefits obtained by implementing e-procurement and barriers in implementing e-procurement. The organization of this manuscript is as follows: section 1 provided an introduction. Section 2 presents definition of e-procurement. Section 3 discusses the methodology and objective of the study. Section 4 presents data analysis and findings of the study. Finally section 5 concludes the article.

E – PROCUREMENT

Almost all of the definitions of e-procurement in the literature suggest that it is an automated purchasing process, employing information technologies such as Electronic Data Interchange (EDI), internet and World Wide Web [10]. A large proportion of time in purchasing process is spent on “non-value activities” such as data entry, correction of errors in paper work and delivery expedition. Two factors were identified as critical to success of effective purchasing management, (i) reduction in number of routine tasks, (ii) reduction of the overall procurement cycle through the use of appropriate technology. E-Procurement is a powerful business tool that will revolutionize the purchasing process and streamline the laborious procurement routine [11].

EDI technology has been used to transmit information such as purchase orders, invoices, material release, shipping notices and product inquiries electronically. This requires a traditional client/server technology which uses Value Added Network (VAN) as the network vehicle. However they are expensive and are mostly privately maintained and run. Internet has changed the scenario today, it does not require a traditional client/server technology and what it requires is just a web browser. E-Mail, web based catalogue, e-auction, e-tender are some of the business tools in web based procurement [6]. Figure-1 shows a picture of various elements of e-procurement.

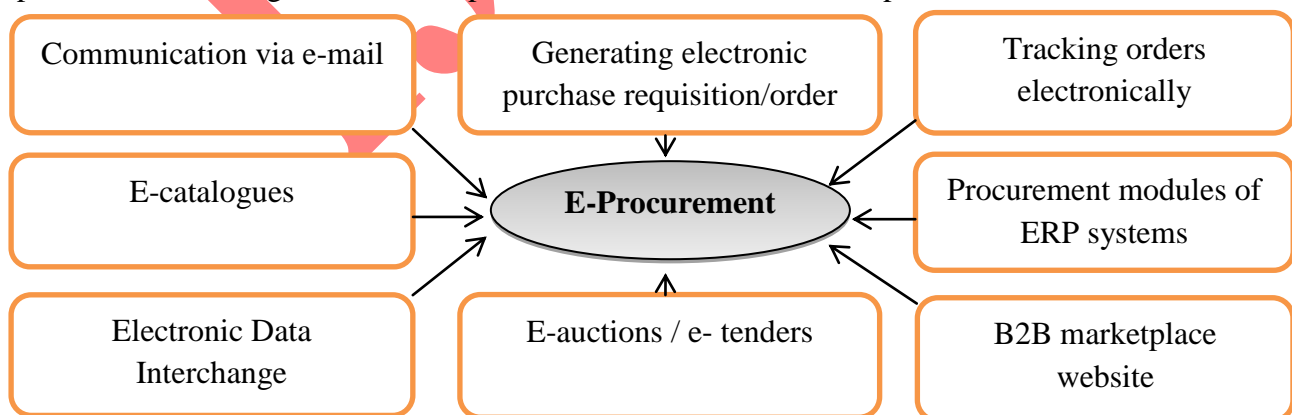


Fig. 1 The Elements of E-Procurement system

METHODOLOGY

The extent of e-procurement adoption was analyzed under two functionalities, one is information sharing (how e-procurement is used to share information between and within organization) and other is transaction (how e-procurement is used to execute transaction) [12]. A five-point scale ranging from 1(not used at all) to 5 (used very extensively) is used for each of the functionalities. The perception of SMEs towards benefits and barriers in e-procurement implementation was studied [10]. A five-point scale ranging from 1(strongly disagree) to 5 (strongly agree) is used for each construct.

The study employed a questionnaire based survey method. A randomly selected 210 companies operating in SIDCO, Kurichi and SIDCO, Malumichampatti in Coimbatore, India were selected for study. The study does not concentrate on any particular type of industry; it considers all the manufacturing companies operating in the above mentioned industrial estates. Thirty four usable responses, 16.2% were obtained. A response rate of 15% is accepted for these kinds of studies [10].

Basic demographic data was gathered on responders who are involved in purchasing activities in their companies. Face-to-face interview was conducted with the personnel from the above companies. The following are the summary of the data. 71% of the responders were of the age group 25 to 40 and 18% were above 40 years. Around 65% of the responders have work experience in the range of 3 to 10 years. These statistics suggest that the responders were fairly young and has considerable amount of experience in procurement.

FINDINGS AND DISCUSSION

The study is descriptive in nature; hence weighted averages are used to report the data. The data were analyzed using MS Excel. The number of companies having employees less than 50 is found to be 18, 12 companies had between 50 and 199 employees, 4 companies had between 200 and 499. Based on the number of employees these companies can be considered as SMEs (based on European definition). Indian definition of SMEs is in terms of total investment in plant and machineries by the industry. The authors faced difficulties in collecting such information from responders and hence European definition was adopted. Only around 9% of the companies have their own websites.

Extent of e-procurement use. The extent of e-procurement use with the view of information sharing in the manufacturing SMEs of two SIDCO estates in Coimbatore is shown in table-1. It has been observed from the study that most of the companies used e-procurement to communicate with their suppliers / customers via e-mail (4.0/5), and to communicate with their suppliers / customers using technologies other than e-mail (3.6/5). Other technologies being used at present are telephone, social networking site and applications. The next most commonly used e-procurement practice is checking price for goods electronically (3.4/5). Other aspects like checking availability of goods/services electronically, checking price for services electronically, exchanging purchase

information with both internal and external parties electronically are very rarely used. It is worthwhile to note that companies use electronic media to check price of goods, whereas it rarely use it to check price of services.

Table1 Extent of e-procurement use

Extent of e-procurement use with respect to information sharing.	Weighted average
Communication with suppliers/customers via e-mail	4.0
Communicating with suppliers/customers using technologies other than e-mail	3.6
Checking price for goods electronically	3.4
Internal electronic communications on issues related to procurement via e-mail	3.2
Negotiating contracts (such as price and volume) with suppliers electronically (such as via e-mail)	3.2
Searching for suppliers of goods electronically	3.1
Searching for suppliers of services electronically	2.7
Exchanging purchasing information with external parties electronically	2.6
Checking availability of goods electronically	2.6
Checking price for services electronically	2.6
Internal electronic communications on issues related to procurement using technology other than e-mail	2.6
Checking availability of service electronically	2.4
Extent of e-procurement use with respect to transaction.	Weighted average
Creating purchasing requisitions electronically	3.4
Approving purchase requisitions electronically	2.9
Purchasing goods using e-catalogues	2.9
Purchasing services using e-catalogues	2.6
Tracking orders electronically	2.5
Purchasing goods by issuing electronic calls for tenders	2.3
Purchasing services using e-auctions	2.3
Purchasing goods using e-auctions	2.2
Integrating e-procurement system with other internal systems	2.2
Purchasing services by issuing electronic calls for tenders	2.1
Permitting suppliers to directly access our internal systems	2.0

The extent of e-procurement use with the view of transaction in the manufacturing SMEs of two SIDCO estates in Coimbatore is shown in table-1. Except for creating purchasing requisition

electronically (3.4/5) other aspects of e-procurement are seldom used by the companies. Usage of sophisticated functionalities like e-auction, usage of e-catalogues, tracking orders electronically were uncommon.

With the above context it can be understood that companies predominantly use e-procurement for the function of information sharing rather than for transaction purposes. Lack of knowledge and security concern may be attributed as foremost reason behind this. Also the companies used e-procurement for purchasing goods more than services. A reason behind this could be that most of the e-procurement practices may be centered on raw materials, semi-finished goods rather than services.

Benefits and barriers of e-procurement as viewed by SMEs. The perceived benefits of implementing e-procurement are presented in this section. Survey responders were asked to rate to what extent they accept various benefits realized on implementing e-procurement based on their understanding of e-procurement. Improved efficiencies (4.0/5), increased supply chain performance (3.8/5), reduction in transactional cost (3.8/5), better utilization of staffs (3.5/5) were viewed as the potential benefits on implementing e-procurement practices. Reduction in non-contractual buying obtained a weighted average of 2.8 suggesting that it is not perceived as a benefit of e-procurement.

Table 2 Perceived benefits and barriers realized on implementing e-procurement

Perceived benefits realized on implementing e-procurement	Weighted average
Improved efficiencies	4.0
Increased supply chain performance	3.8
Reduction in transactional cost	3.8
Better utilization of staffs	3.5
Reduction in operational cost	3.4
Improved relationship with partners and suppliers	3.4
Reduction in inventory levels	3.4
Increased customer satisfaction	3.4
Increased service levels	3.2
Reduction in processing time	3.0
Reduction in non-contractual buying	2.8
Barriers in implementing e-procurement	Weighted average
Lack of skill and knowledge in E – procurement	4.1
Security concern	3.9
Insufficient financial support	3.7
Lack of top management support and commitment	3.6
Incompatibility with ERP system	3.5

Insufficient technology in current system	3.5
Fear/ Resistance to change to a new system	3.3

The perceived barriers of implementing e-procurement are presented in this section. Survey responders were asked to rate to what extent they accept various barriers on implementing e-procurement based on their understanding of e-procurement. Lack of skill and knowledge in e-procurement (4.1/5) is seen as the most important barrier in implementing e-procurement. Security concern (3.9/5) stood second, followed by insufficient financial support (3.7/5). The least weightage was obtained by the item fear / resistance to change to a new system which got 3.3 which suggest that all the items mentioned in the questionnaire were viewed as a barrier in implementing e-procurement. Table-2 summarizes the results.

Reasons for not implementing e-procurement. The responders were asked to rate reasons for not implementing e-procurement in their company. Cost of e-procurement implementation was found to be the most predominant reason for not implementing e-procurement as the item “too costly to implement” was ranked first with a weightage of 4. The item, lack of adequate resource and security concerns shared the second position (3.5/5). The SMEs does not feel that e-procurement is difficult to implement since the item “too difficult to implement” got a weightage of 2.4. Also the weightage for the item “not perceived as an advantage at all” was 2.3 indicating that SMEs have a perception that implementing e-procurement is advantageous to the company. Table-3 presents the result.

Table 3 Reasons for not implementing e-procurement system

Items	Weighted average
Too costly to implement	4.0
Lack of adequate resources	3.5
Security concerns	3.5
Inadequate knowledge in implementation	3.2
Customers are satisfied with current practices	3.1
Insufficient technology in current system	3.1
Too difficult to implement	2.4
Not perceived as an advantage at all	2.3

CONCLUSION

This study shows that e-procurement is practiced to a less extent by manufacturing SMEs in the SIDCO estates in Coimbatore. These companies use e-procurement practices for information sharing than transaction purposes. Communicating with the suppliers and customers via e-mail is the most commonly used e-procurement practice. Sophisticated items like tracking of goods

electronically, e-auction, and usage of e-catalogues were uncommon among the companies studied. Improved efficiencies, increased supply chain performance, and reduction in transactional cost were viewed as the benefits of implementing e-procurement. The most important barriers with respect to SMEs in e-procurement implementation were lack of knowledge & skill in e-procurement and security concern. High cost of implementation was found to be the foremost reason for not implementing the e-procurement practices. This study is conducted in manufacturing SMEs operating in two Industrial estates of Coimbatore; hence the findings of this study cannot be generalized to the entire country which may be a limitation of this study.

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