

# The Extent to which IT Tools are used in E-Procurement in Selected Industrial Units of Gujarat

Prakash Patel\*

Satendra Kumar\*\*

Rajesh Khajuria\*\*\*

Procurement is the process of acquiring, buying goods, services or works from an external source, often via tendering or bid process. Procurement is a collection of processes that involve many steps and interactions with the other departments of a company and with suppliers. Internet has made the world small and through it business transactions are conducted globally at a faster pace. E-procurement can include services such as hosting of databases, catalogue management, managing tenders and auctions on behalf of clients through to a complete outsourced procurement service. The purpose of the research is to study the extent to which IT tools are used in e-procurement and to study the significant difference of IT tools used and preferred for E-procurement across Industry, Size and Ownership of the firm.

Current study is a descriptive study, for this, primary data collected through structured questionnaire by the personal survey method. The sampling unit is an Executives and Managers concerned with E-procurement activities of an organisation. Non-probability convenience sampling technique adopted for the survey. Researchers have used SPSS 20 to analyze the data using nonparametric statistics. There is a significance difference of IT tools used and preferred for E-procurement with Size and Ownership of the firm. But, there is no significance difference of IT tools used and preferred for E-procurement across industry. This study addresses a gap in knowledge by investigating the extent to which IT tools are used in e-procurement. The outcome of this study has been derived from the comparisons of e-procurement process.

**Keywords:** Information Technology (IT), E-procurement, Marketplace, EDI, Web-EDI

## Introduction

### *E-procurement*

E procurement is an automation tool for corporate purchasing process. The core definition is a business to business sale using the internet as the medium for order processing. E procurement is more than the simple shortening of the supply chain with the Internet closing time and distance obstacles between suppliers and users of products. Instead, it is a comprehensive integrated IT network that encourages purchasing discipline and leverages group buying power for all procurement responsible people in an organization.

### *The History*

The origin of e-procurement began in the 1980s, with the development of electronic data interchange (EDI). EDI allowed customers and suppliers to send and receive orders (and invoices as well) using call-

forwarding networks. In the 1990s, technology, as it tends to do, improve and software companies began to develop electronic catalogues, specifically for the vendor's use and, e-procurement software has become a mixture of the two: a platform for sending and receiving orders and various catalogues. Marketplaces have also proved to be a popular addition to e-procurement software.

### *E-procurement trends in the global marketplace*

There is no doubt that the Internet is drastically changing the way purchasing is done globally. It has grown and evolved into a complex marketplace with many players offering a variety of e-procurement and business-to-business services. E-procurement can include services such as hosting of databases, catalogue management, managing tenders and auctions on behalf of clients through to a complete outsourced procurement service.

### *E-procurement trends in the private sector*

Externally hosted e-procurement services are clearly part of a growing trend. Some specialize by industry sector, like those serving the oil and gas, pharmaceutical and mining industries all of which have embraced e-procurement more than some other sectors. Some e-procurement service

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\* Assistant Professor, C K Shah Vijapurwala Institute of Management, Vadodara.

\*\* Head of Research Centre, C K Shah Vijapurwala Institute of Management, Vadodara.

\*\*\* Director, C K Shah Vijapurwala Institute of Management, Vadodara.

companies provide the full range of supply network services to support global procurement transactions.

Another e-procurement trend is where large corporations elect to manage their e-procurement in-house. Successful implementations of e-procurement are considered as one of the measures of a world-class purchasing organisation. To do this they need to install enterprise-wide software to manage the database and transactions but the big investment in time and money sometimes means that there is not a compelling business case.

### ***E-procurement trends in the government sector***

Some governments in mature economies are adopting e-procurement more extensively as it provides structure, audit trails and transparency of transactions. World Bank research has also found some reluctance by governments in adopting a system that is so fully transparent. Certain basic requirements need to be fulfilled before an e-procurement system can achieve maximum potential in government. These are recommendations by the World Bank which include expanding ICT services, guaranteeing a secure online environment, development of standards and processes, and most importantly, for purchasers to be trained.

### ***Sourcing E-procurement services***

Sourcing e-procurement services requires much prior forethought and a clearly defined strategy. However, e-Procurement is more than just a system for making purchases online. A true e-procurement system can connect companies and their business processes directly with suppliers, managing all interactions between them. This traditionally includes the management of bids, supplier correspondence, pricing history and an electronic communication system. Outsource companies provide services covering the design of the strategy through to implementation, hosting and maintenance of the on-going operations. The selection of the right service for a company's requirements is the key to success. Some e-procurement service providers only provide e-sourcing services, others may only provide the hosting services and some specialize by industry. E-sourcing is the process from identifying suitable vendors, to obtaining competitive terms and managing the on-going supply relationship.

### ***E-procurement Tool***

E procurement systems consist of a number of different tools. These include automation of internal ordering processes, online catalogues from approved vendors, and an electronic Request for Proposal (e-RFP) process that leverages online auctions (e-auctions) to accumulate bids on providing goods and services for a specific project. The choice of which document to use: RFI RFP RFQ for which type of sourcing project depends on the desired outcome – is it information, a firm proposal or a detailed price bid that is needed. A Request for Information (RFI) is a method of collating information from different suppliers prior to formally sourcing products or services. It is normally used where there are many potential suppliers and not enough information is known about them. It is a structured process where a long list of potential suppliers can be reduced to a short list of those organizations that are willing and able to fulfil your requirements. A Request for Proposal (RFP) is a formal method of receiving detailed and comparable proposals from different suppliers for a defined product or service. It is a comprehensive document that should provide all the required information needed to make an informed purchasing decision. A Request for Quotation (RFQ) is a competitive bid document used when inviting suppliers and subcontractors to submit a bid on projects or products. An RFQ is suitable for sourcing products that are standardized or produced in repetitive quantities. A technical specification must be provided as well as commercial requirements. Sometimes an RFQ can be preceded by an RFP where the shortlisted suppliers are requested to provide a more detailed price quote. The RFI, the RFP and the RFQ are all tools that can be used separately or in combination to achieve a successful sourcing solution.

### ***Ariba***

Ariba is the world's leading Spend Management organization providing technology and consulting services to reduce, control and manage enterprise wide spend and improve profitability. Ariba is a NASDAQ listed, global organization working with more than 500 large corporate and Governments (including more than 50 of the fortune 100 organizations) in 22 countries. Integrated Ariba Spend Management solutions provide world-class tools and technology for businesses to engage, manage, and leverage Enterprise Spend Management (ESM) throughout

the spend lifecycle. Ariba Solutions Delivery can give the company a single point of connection to the expertise required to leverage and extend their ESM successes. Buyers and suppliers are empowered to transact globally in a participative way that delivers true value.

### Purchasing Cards

Purchasing cards is the payment vehicle for low value transactions. The main benefit of the purchasing card are the speed and convenience for the end user, reductions in the cost and time associated with purchasing related activities, and the ease of use to acquire goods over the Internet. The purchasing card was developed to streamline the traditional purchase order and payment process and cut the cost and time of acquiring routine goods and services. These purchases are typically described as MRO, (maintenance, repairs and operational expenses).  
Research Objective

The objective of the research is to study the extent to which IT tools are used in e- procurement.

### Research Methodology

The current study is a descriptive study with objective to study the extent to which IT tools are used in e- procurement. For this, primary data collected through structured questionnaire by the personal survey method. The sampling unite is an Executives and Managers concerned with E-

procurement activities of an organisation. The sampling technique adopted for the survey is non-probability convenience sampling technique. Sample size is 49 companies from the entire Gujarat which includes South zone, North Zone, Central Gujarat and Saurashtra region.

### Data Analysis

Kruskal-Wallis test is performed with an objective to understand the significant difference of IT Tools used and preferred for E-procurement across industry, Size and Ownership of the firm.

- To understand the significant difference of IT tools used for E-procurement across Ownership of the firm.

**Ho:** There is no significant difference of IT tools used for E-procurement across Ownership of the firm

**H1:** There is a significant difference of IT tools used for E-procurement across Ownership of the firm

Table 1 show the p-value of IT tools used for E-procurement across Ownership of the firm. "Material management module (ERP-System)" is 0.029 which is less than 0.05, Hence for this statement the null hypothesis rejected. So there is a significant difference of IT tools used for E-procurement across Ownership of the firm. Table 2 shows the mean rank, from the mean rank, we can say Public Sector ownership frequently used Material management module (ERP-System) (IT tool) for e-procurement.

**Table 1 : Test Statistics**

	Chi-Square	df	Asymp. Sig.
Material management module (ERP-System)	7.116	2	0.029
Reporting and controlling tool	2.448	2	0.294
Electronic data interchange (EDI)	0.083	2	0.96
Tool for supplier evaluation	1.713	2	0.425
Catalogue management tools for indirect goods	0.136	2	0.934
Desktop purchasing of indirect goods	0.982	2	0.612
Contract management tool	1.008	2	0.604
Online invitations to tender	3.006	2	0.222
Online purchasing auctions	4.05	2	0.132
Web platform for scheduling and planning with suppliers	0.722	2	0.697
Web platform for product development with suppliers	0.455	2	0.796
a. Kruskal Wallis Test			
b. Grouping Variable: Ownership Firm			

**Table 2 : Ranks**

	Ownership Firm	N	Mean Rank
Material management module (ERP-System)	Public Sector	20	29
	Private Sector	24	22.9
	Joint Sector	5	19.1
	Total	49	
Reporting and controlling tool	Public Sector	20	22.1
	Private Sector	24	27.29
	Joint Sector	5	25.6
	Total	49	
Electronic data interchange (EDI)	Public Sector	20	25.65
	Private Sector	24	24.6
	Joint Sector	5	24.3
	Total	49	
Tool for supplier evaluation	Public Sector	20	24.68
	Private Sector	24	23.77
	Joint Sector	5	32.2
	Total	49	
Catalogue management tools for indirect goods	Public Sector	20	24.48
	Private Sector	24	25.69
	Joint Sector	5	23.8
	Total	49	
Desktop purchasing of indirect goods	Public Sector	20	24.45
	Private Sector	24	26.46
	Joint Sector	5	20.2
	Total	49	
Contract management tool	Public Sector	20	26.58
	Private Sector	24	24.67
	Joint Sector	5	20.3
	Total	49	
Online invitations to tender	Public Sector	20	28.8
	Private Sector	24	22.31
	Joint Sector	5	22.7
	Total	49	
Online purchasing auctions	Public Sector	20	29.45
	Private Sector	24	22.29
	Joint Sector	5	20.2
	Total	49	
Web platform for scheduling and planning with suppliers	Public Sector	20	26.65
	Private Sector	24	24.4
	Joint Sector	5	21.3
	Total	49	
Web platform for product development with suppliers	Public Sector	20	26.1
	Private Sector	24	24.79
	Joint Sector	5	21.6
	Total	49	

Like wise to understand the significant difference of IT tools used for E-procurement across industry, Size and Ownership of the firm. Table 3 shows the result of the test.

**Ho:** There is no significant difference of IT tools used for E-procurement across industry, Size of the firm and Ownership of the firm

**H1:** There is a significant difference of IT tools used for E-procurement across industry, Size of the firm and Ownership of the firm

Table 3 shows the p-value of various IT tools used for E-procurement, which is less than 0.05, Hence for these statement the null hypothesis rejected. So, there is a significant difference of IT tools used for E-procurement across industry, Size and Ownership of the firm. Forms the mean rank, interpretations are given for the respective IT tools for which null hypothesis rejected.

2. IT solutions used for operative order processing

Table 4 shows the frequency of IT solutions used for operative order processing. 27 out of 49

Manufacturing Industrial Units are using SAP MM (materials management module) and ERP. 13 out of 49 Manufacturing Industrial Units are using Purchasing Card (VISA, Airplus, Amexco ..), 7 out of 49 Manufacturing Industrial Units are using SAP BBP/EBP (The SAP solutions Enterprise Buyer Professional (EBP) and its preceding version (BBP) and Product development in-house, 5 out of 49 Manufacturing Industrial Units are using SAP SRM (Supplier Relationship Management ), 2 out of 49 Manufacturing Industrial Units are using Oracle, PeopleSoft, J.D.Edwards and Only 1 out of 49 Manufacturing Industrial Units is using Ariba.

3. To understand the significant difference of IT preferred for E-procurement across industry, Size and Ownership of the firm. Table shows the result of the test.

**Ho:** There is no significant difference of IT tools preferred for E-procurement across industry, Size of the firm and Ownership of the firm

**H1:** There is a significant difference of IT tools preferred for E-procurement across industry, Size of the firm and Ownership of the firm

**Table 3 : IT tools used for E-procurement across industry, Size and Ownership**

IT Tools	Size (Investment)	Size (No of employees)	Ownership	Interpretation
Material Management Module (ERP - System)			P = 0.029 Ho - rejected	Public sector ownership Material Management Module (ERP - System)
Electronic data interchange (EDI)		P = 0.014 Ho - rejected		Large Scale enterprise have frequently used Electronic data interchange (EDI)
Tool for supplier evaluation	P = 0.035 Ho - rejected			Large Scale enterprise have frequently used Tool for supplier evaluation

**Table 4 : IT Solution Frequencies**

IT Solution*	Responses		Percent of Cases
	N	Percent	
SAP MM (materials management module)	27	30.30%	56.30%
SAP BBP/EBP (The SAP solutions Enterprise Buyer Professional (EBP) and its preceding version (BBP)	7	7.90%	14.60%
Purchasing Card (VISA, Airplus, Amexco ..)	13	14.60%	27.10%
SAP SRM (Supplier Relationship Management )	5	5.60%	10.40%
Oracle, PeopleSoft, J.D.Edwards	2	2.20%	4.20%
Ariba	1	1.10%	2.10%
Product development in-house	7	7.90%	14.60%
ERP	27	30.30%	56.30%
Total	89	100.00%	185.40%

a. Dichotomy group tabulated at value 1.

**Table 5 : IT tools preferred for E-procurement across industry, Size and Ownership**

Statement	Size (Investment)	Size (No of employees)	Ownership	Interpretation
Materials management module (ERP-System)	P = 0.01 Ho - rejected		P = 0.01 Ho - rejected	Public sector ownership and Medium scale enterprise have preferred Material Management Module
Desktop purchasing indirect goods	P = 0.033 Ho - rejected	P = 0.006 Ho - rejected		Medium scale enterprise have preferred Desktop purchasing indirect goods
Electronic data interchange (EDI)	P = 0.031 Ho - rejected	P = 0.05 Ho - rejected		Large scale enterprise have preferred Electronic data interchange (EDI)
Catalogue management tool for indirect goods		P = 0.035 Ho - rejected		Medium scale enterprise have preferred Catalogue management tool for indirect goods
Online purchasing auctions	P = 0.029 Ho - rejected	P = 0.040 Ho - rejected		Medium scale enterprise have preferred Online purchasing auctions
Web platform for product development with suppliers		P = 0.024 Ho - rejected		Medium scale enterprise have preferred Web platform
Online invitations to tender			P = 0.024 Ho - rejected	Public sector ownership have preferred Online invitations to tender

Table 5 shows the p-value of various IT tools preferred for E-procurement, which is less than 0.05, Hence for these IT tools the null hypothesis is rejected. So, there is a significant difference of IT tools used for E-procurement across Size and Ownership of the firm. From the mean rank, interpretations are given for the respective IT tools for which null hypothesis is rejected.

## Findings

There is no significant difference of IT tools used for E-procurement across Size and Ownership of the firm. But, there is a significant difference of IT tools used for E-procurement with the Size and Ownership of the firm. Public sector ownership has frequently used Material Management Module (ERP - System), Large Scale enterprise has frequently used Electronic data interchange (EDI) and Large Scale enterprise has frequently used Tool for supplier evaluation. Almost 30.3% (27 out of 49) Manufacturing Industrial Units are using SAP MM (materials management module) and -ERP for operative order processing.

There is no significant difference of IT tools preferred for E-procurement across industry. But there is a significant difference of IT tools preferred for E-procurement with the Size of the firm and Ownership of the firm. Public sector ownership and Medium scale enterprise have preferred Material Management Module, Medium scale enterprise

have preferred Desktop purchasing indirect goods, Large scale enterprise have preferred Electronic data interchange (EDI), Medium scale enterprise have preferred Catalogue management tool for indirect goods, Medium scale enterprise have preferred Online purchasing auctions, Medium scale enterprise have preferred Web platform and Public sector ownership have preferred Online invitations to tender.

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