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e-Procurement

Courtesy By

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Editorial Team

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INTRODUCTION

Government to Business (G2B) the area that encompasses electronic buying and selling transactions between organizations and in which e-procurement is a central function—has become central to doing business effectively. If it is executed properly, it can help the Government to achieve enormous cost savings and productivity improvements.

- E-procurement is the most important area of development in the e-Governance arena.
- E-procurement will fundamentally restructure the way in which a Government purchases goods and services.
- E-procurement has a far greater potential for cost savings and business improvement than online retailing or enterprise resource planning systems, and will permanently and fundamentally reform e-Governance in the future.

e-Procurement is the process wherein the physical tendering activity is carried out online using the Internet and associated technologies. e-Procurement enables the user to introduce ease and efficiency of operations without compromising on the required procurement policies and procedures of the organization.

e-Procurement provides transparency, results in savings of time and money, shortening of procurement cycle and ease of operation to the implementing organization and to the Vendors.

A second key area of potentially revolutionary improvement can be seen in the rapid development of online electronic auctions and E-PROCUREMENT It helps suppliers by greatly expanding sales opportunities, and often greatly reducing the purchase price for buyers of bulk or difficult-to-find items.

Components required for e-Procurement

2.1 Application Software:

The application is the software which makes it possible to carry out the procurement process online using computers and internet, replacing paper based documents. The application plays a pivotal role, as it is responsible for actual execution of the tendering process online. A robust and dynamic application seamlessly integrates with the existing systems allowing the user organization to customize it according to organizational policies.

2.2 Hosting and Bandwidth:

The application has to be hosted at a secure site where bandwidth is not a hindrance when multiple users are logged on the system. The application has to be up 24X7 for e-Procurement to achieve its objectives. The reliability of the server and the bandwidth assurance for load bearing in terms of simultaneous usage, are inevitable for the smooth implementation of e- tendering for any organization.

2.3 Security and Legal Sanctity:

E-Procurement involves a high amount of commercial transactions and also publishing of organization specific sensitive data on a public domain. High level of security has to be ensured so that there is a trustworthy access-control technology and authorization policy in place. Security has to be maintained not only of the data that is stored on the server but also of the information that is in transit. E.g. the bid documents or the bid figures being sent to the server by the vendor. The e-Procurement process and the policies that are implemented for the security of the data and communication have to comply with the IT Act of this country so that the transactions and disputes (if any) arising there from, are admissible in the Court of Law. Non-repudiation has to be taken care of within the purview of the Law, for the assurance to the organization and the vendors. Indian IT Act has well defined provisions for documents submitted online, electronic records and digitally signed documents.

(n)Procure

(n)Procure is a portal created by (n) Code Solutions, a division of GNFC Ltd. This portal offers a complete web-based PKI enabled e-Procurement solution. The solution is offered on an ASP (Application Service Provision) basis. *(PKI or Public Key Infrastructure is a set of policies, procedures, infrastructure and the law required to handle electronic signatures and verification thereof.)*

(n)Procure enables the organization to implement the tendering process online from the "raising of indent to the placement of LOI (including reverse auction if required)". (n)Procure is a one stop, end to end solution for the entire e-procurement activity.

Features of e-Procurement

- Government officials (Users) registration and Right Allocation
- Vendor registration & Pre Qualification
- Indent creation and approval
- Estimated Cost Value (ECV)
- Tender Document management
- Tender Creation and approval
- Tender Publishing
- Tender promotion via e-mail alerts
- Issue of Corrigendum
- Online / Offline Sale of Tender Schedule
- Conduction of online Pre Bid meeting
- Online bid Submission by vendors (Facility for 2 bid / multiple bid system)
- Online Automated Bid Comparatives (Technical and Commercial)
- Online negotiations
- Award of LOI
- Reverse Auction / Forward Auction
- Rate contract management
- Purchase statistics
- Site Access Reports / Web Statistics
- Encryption of bids submitted by the vendor (by the public key of the tender issuing authority)

BENEFITS OF e-PROCUREMENT

1. Benefits to Buyers:

- Improve efficiency and reduce labor costs by eliminating the manual, paper-based processes and providing enterprise-wide, self-service procurement
- Gather accurate and meaningful data on total spending, both by supplier and type of purchase (decision support)
- Using supplier performance, select preferred suppliers for strategic sourcing
- Move as many transactions as possible to front-line employees without worrying about violation of business rules
- Increase transparency in administration
- Enhanced confidence of suppliers
- e-Procurement enables a centralized database of procurement at all the project sites, thereby aggregating the requirement of similar items across locations. It results in increased purchasing power to negotiate better prices from suppliers.
- Fast and efficient process reduces the procurement cycle time.
- The complete procurement transaction through the e-Procurement system happens in a transparent manner. The system captures the justification and comments of approvers at every stage and thereby enables users and approvers associated with a transaction to justify their decision.
- Encryption ensures integrity of the bid submitted.
- Immediate gains can be made by saving on the cost of publishing the NIT in the newspapers, as all the tenders can now be intimated via e-mail in case of registered users as well as published on the procurement web-application.
- Reverse auctions can enable the departments to negotiate better rates from its suppliers.
- e-Procurement brings down the cost of doing business for the suppliers. This in turn will translate into reduction in prices by suppliers.
- It drives process efficiencies and results in reduction in the turnaround time for a tender and/or a purchase order, again resulting in reduction in the inventory required to be

maintained at the users end, thereby resulting in reduction in cost.

- e-Procurement by making the procurement process paperless helps in reducing stationery and warehousing cost significantly.
- The system inspires confidence among suppliers as being fair and transparent.
- Lower vendor development cost as various departments will have new suppliers registered on the web application.

2. Benefits to Suppliers:

- Information on all the tenders is available at one place to the suppliers.
- Reduction in the transaction cost as the requirement of unnecessary trips to the organization and communication to find the required information gets eliminated.
- Reduction in stationery cost as the supplier/contractor no longer needs to submit bulky multiple copies of his bid in the paper form. Also he can submit the bid from his office and need not visit the department for bid submission.
- 24X7 access enables the vendor to fill in the tender or access of tender status anytime, from anywhere.
- After online bid submission, the supplier/contractor can know the status of his bid online.
- e-Procurement system allows the supplier/contractor to modify his bid even after the bid is submitted online. However, the bid modification facility is available to the supplier/contractor only till the tender bid submission closing time specified by the department.
- Increased reach as the supplier has access to all the procurement requests of all the departments on the e-Procurement. This leads to reduction in sales and promotion costs for the supplier.
- No tenders can be missed because of distance.
- No dependency on news paper as email alerts provision is made for vendors selected preferred departments.
- Last minute tender submission is possible.

PROCESS AND TECHNOLOGY

1. Process flow of e-Procurement:

Once indent is approved, Digitally Signed tender can be published on the website with the facility to download the complete tender documents by the prospective vendors. Payment of the tender fees can be achieved through online payment Gateway OR offline mechanism.

(n)Procure also provides the facility to amend the tender (if required), extend the tender issue date etc. All such amendments have to be Digitally Signed by concerned authority. Vendors who has selected department in his preference list, will be notified about such amendment / corrigendum through e-mail.

Vendors can submit their bids through online forms created in the application. These bids will be digitally signed and encrypted. The Encryption will be done using Public Key of the Tender Issuing Authority. Thus, privacy is ensured.

All necessary documents (such as Income Tax registration, Sales Tax registration proof) can be scanned and submitted duly digitally signed as part of the bid. There will be department defined format in which vendors will submit the bid (to make the evaluation online).

Modification of the bid submitted by vendor (before tender closing date) is permitted. All such changes / modification will be digitally signed by the vendor.

Vendors can also track status of their Bids. For example, in a tender if Technical Bid and Price Bids are required separately and Technical Bid is evaluated before opening Price Bid, vendor can know the comparative of Technical Bid provided department shares the result.

The offers received electronically will be stored in a Time locked box which can only be opened by the authorized Tender Opening Committee nominee on or after date and time.

The purchase department will, at the specified date and time, open the technical bids of all the suppliers and evaluate them. System will provide comparative report of Technical Bid only. As it's a subjective matter technical evaluation is required to be carried out by the departments. Subsequently, the commercial bids of the technically qualified suppliers can be opened for evaluation. After the commercial evaluation, Digitally Signed LOI may be awarded to the successful supplier. At every stage of the tender, the tender initiator, approvers and the suppliers can remain informed about the status of the tender through tender status bar.

If need be, suppliers can submit Technical Bid and Price Bid separately digitally signed and can send it to the purchase department. Price bid can be opened only after evaluation of Technical Bid and only for those suppliers who are technically qualified.

Another useful feature supported is online negotiations /reverse auction keeping other terms such as Payment, Delivery etc. frozen. This will create a healthy competition amongst suppliers to bid low. Also, vendors cannot form a cartel to quote high rates because in online negotiations identity of vendors is hidden from each other. All the vendors will digitally sign their final bids.

Similarly for disposal of scrap and surplus goods forward auction can be conducted where in vendors will bid online to buy the items under auction.

(n)Procure supports various report generations at different stages. These reports help in analyzing the buying pattern of a particular department.

- Statistics of Purchase activities
- Department-wise tender / expenditure analysis
- Item / category wise reporting
- Vendor-wise reports
- Tender Accounting management system
- Annual report on tendering

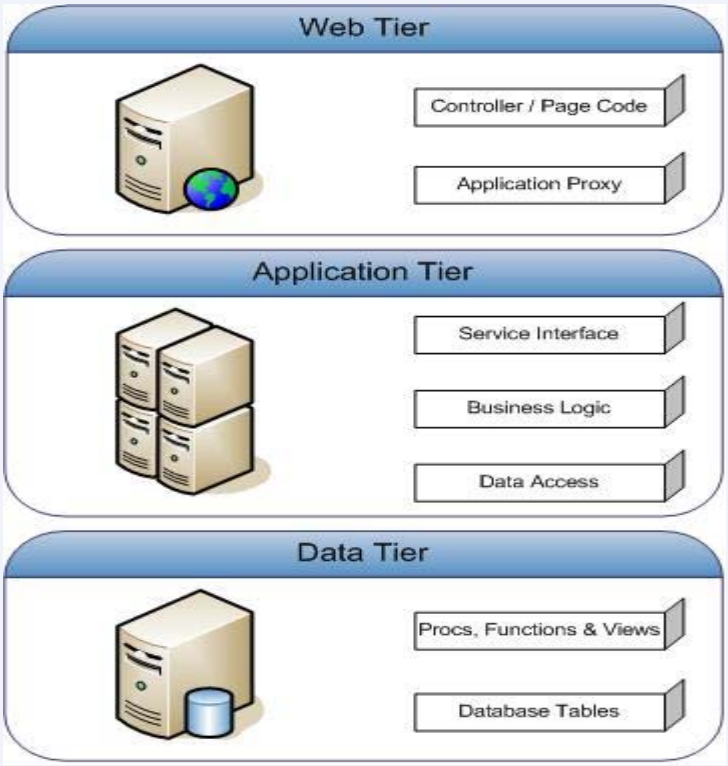
2. Security:

The security is implemented both at the level of content and payments. The following security features are integral part of (n)Procure:

- Usage of legally valid class of Digital Signature Certificate under guide lines of Indian IT Act 2000 (issued by Licensed Certifying Authority) for Authentication and Non-repudiation at all levels.
- Usage of Time based access services.
- 128-bit encryption with SSL security or equivalent.
- Access to sensitive content such as price bid based solely on authorization.
- Rights allocation such that it ensures only authorized personnel to perform tasks such as tender floating, bidding, opening, etc.
- Biometric access can be provided for sensitive transactions of Tender Opening and LOI issuance. (Department should have compatible Biometric device to use this feature)
- Complete compliance to IT Act 2000 for legal sanctity
- IP tracking facility
- Secure login based accessed using Hashing Algorithm SHA1
- Time validity of DSC (Expiry Check at the client's end)
- Complete chain checking (Valid CA and CCA)
- Private Key checking (Private Key attached with the Digital Certificate or not)
- Certification Revocation List checks at regular interval.
- Business Continuity Measure included Firewalls, Antivirus, IDS, Automated back up etc.

3. Architecture:

The project has been built on a 3-tier architecture. There's a presentation tier, which provide the front end for the site. There's a business logic tier, which handles several tasks including authentication, authorization and workflow management. Lastly there is a database tier, which is used to read and write the data from its database. The business logic has been kept separate from the presentation logic by design. This makes the system more scalable allowing new departments to be incorporated into the system. All workflow and navigation code has been abstracted from the user interface for achieving this. Being an online system where users are logging in, getting authenticated and filing tenders the system needs to have proper security. For this, two-factor authentication, digital signatures and 128-bit SSL encryption have been incorporated.



4. Standards:

- World Bank e-Procurement Standards for the Portal.
- CMM Level5 Standards for Technical Development and Documentation.
- ISO9001-9002 Standards for Quality.

5. Modularity:

The application is modular, which contains modules like Tender Creation, Bid Submission, Corrigendum, Bid Evaluation, and Dynamic Forms. These kinds of modularity make the application highly scalable, flexible and manageable.

6. Hardware and Software requirements

Following hardware and software is required at the buyer end to run e-Procurement application of (n)Code. This facilities are required to create the tender documents and at the time of opening of the bids. The application remains hosted on (n)Code servers.

- Operating System - Windows 2000 or higher (CPU license) and suitable hardware with USB port
- Internet Explorer 5.5 or above version software
- Internet connectivity
- Biometric device for buyer (If required) to make sure that tender opening takes place by authorized person only.
- CD / DVD Writer for Back up
- Digital Signature Certificates and eTokens

7. The E-Procurement System introduced for the following transactions:

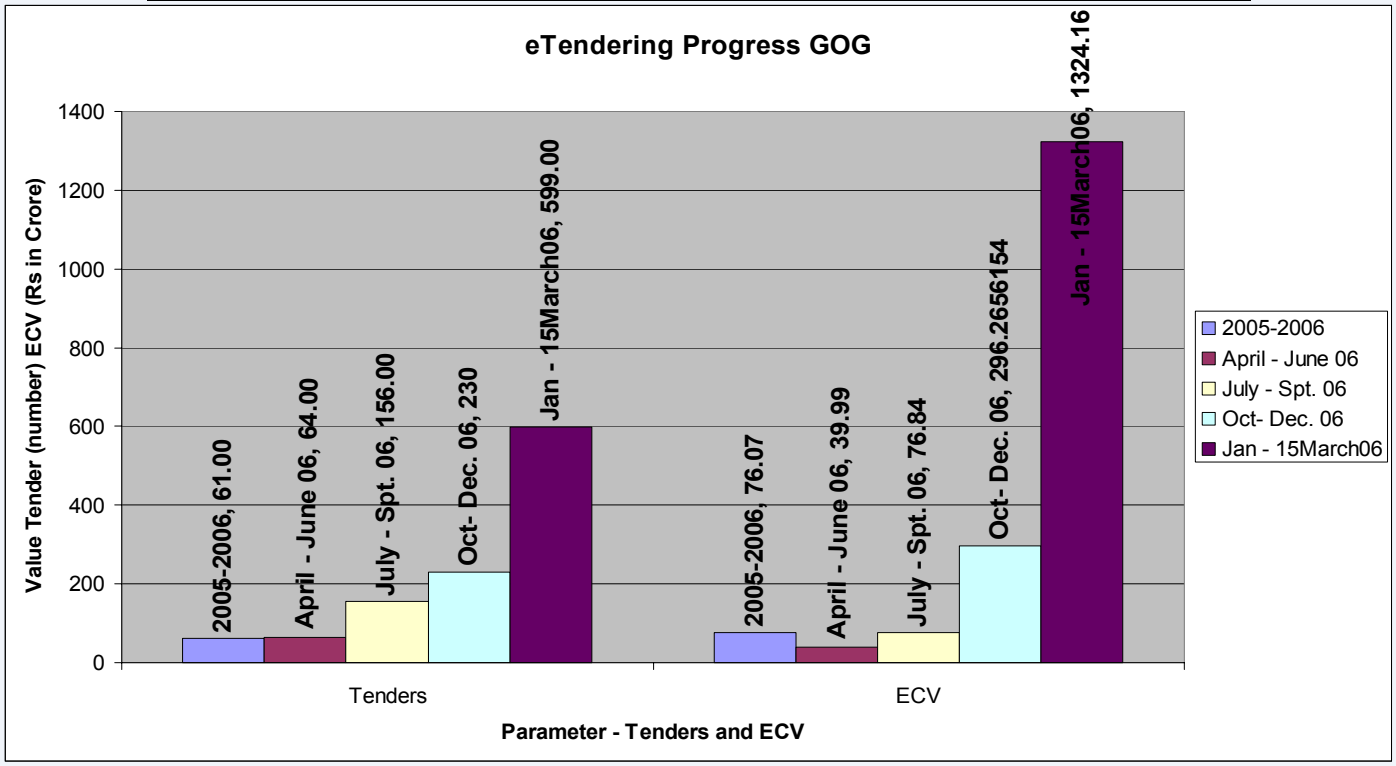
For purchases and Procurement of Goods, Plants, Equipments, Machinery, Medicines, Medical and Surgical supplies and Stores items, all type of store items, supplies and purchases, Food and civil supplies stores items and purchases, Printing and stationary items and purchases, all type of Vehicles purchases, Furniture and Fixtures etc.

- All type of civil construction works, (including roads and buildings), all types of irrigation and water supply works, ports and marine related structures and constructions, geology and mining related store purchases and works, construction works for electrification establishment of mechanical, electronics and computer systems etc.
- Outsourcing of required services etc.
- Auctioning of old plants, equipments, machinery, buildings, vehicles, furniture and fixtures, lands, properties etc.
- Auctioning of Government lands and Government plots for commercial purpose.
- The list of above items is only indicative and the e-Procurement is to be used for all purchases and work orders.

SUSTAINABILITY

1. Status of tenders and users before and after compulsory role out of e-Tendering

Tenders Published	
April 2006 to November 2006	**381**
December 2006 to March 2007	**837**
Value of Tenders Published	
April 2006 to November 2006	**Rs. 29,769 Lacs**
December 2006 to March 2007	**Rs. 1,66,989 Lacs**
Offices	
April 2006 to November 2006	**31**
December 2006 to March 2007	**85**
Suppliers Registered	
April 2006 to November 2006	**566**
December 2006 to March 2007	**827**



2. Methodology for Training and Sustainability

- Initial roll out took extensive time for the education of the Buyer and Supplier community.
- Resistance to change was observed through out both the community and till the time it was made compulsory by Government of Gujarat, lots of resistance prevailed at different level of various departments. Only few departments mainly Nigams, Boards and corporation took initiative to adopt e-Procurement.
- Limited infrastructure resources and unawareness about Internet and Computer literacy also become bottleneck for e-Procurement adoption.
- Personal awareness activities carried out extensively by Application Service Provider starting from email id creation to usage of Application software like Microsoft word, excel and Adobe PDF. (These are basic requirements for e-Procurement activities.
- Digital Signature Certificate Awareness campaigns conducted at different platform like SPIPA, Police Academy of Gujarat and department offices.
- Training to different Department employees given through seminars, presentations and one to one awareness programs at different locations of Gujarat.
- Tailoring of tender documents with respect to Online mechanism of e-Procurement also suggested with in the legal boundaries of Purchase processes.
- Training to suppliers provided through the platform created by Departments.
- User manuals for Buyers as well as Suppliers in the format of color booklets distributed.
- Total tender process Movie CD prepared and distributed to buyers and suppliers.

Training – Buyers and Suppliers

Training of suppliers and buyers from April 2005 to November 2006	
Buyer	**1180**
Suppliers	**1550**

Training of suppliers and buyers from Dec 2006 to March 2007	
Buyer	**1560**
Suppliers	**410**

- Every buyer department is unique department.
    - The tenders are of different types like Single Envelop or Multi Envelops,
    - Close Bidding (Limited Suppliers) or Open Bidding,
    - Tenders with online Joint ventures and tenders without Joint ventures,
    - Tenders asking for rebate and tenders without rebate,
    - Tenders for rate contract and tenders simply for purchase,
    - Tenders of percentage rate above/below comparative or Lowest value comparatives,
    - Tenders with Indian currency and tenders with multicurrency.
    - Tenders with single L1 per tender and tenders with Multiple L1 per tender.
    - Tender having price preference criteria
    - Tenders with loading factors on the total output and so on…. So Customization as per the requirement of Departments is adopted as a continuous process.

The application is also build up with the following key features

- Dynamic and Flexible
- Customizable
- Integrated workflow
- Template creation and Library concept
- Highly Scalable and with robust load handling capacity
- Completely PKI enabled application
- Can be easily integrated with online payment gateway
- Multicurrency bidding
- Multi envelop bidding
- Department specific sub domain provision
- Dynamic reports and auto evaluation of price bid

COST EFFECTIVENESS

1. Cost Recovery:

e-Procurement roll out carried out in the form of Public Private Partnership. The Application Service Provider concept avoids investment for the government on hardware, software, Internet bandwidth pool and regular customization / Maintenance of the application. Cost towards Application Service Provider Charges is compensated against the reduced cost of News Paper based Advertisements for the tenders.

2. Costs reduction:

The project is still in its initial stages of implementation. The general observation is: achievement of lower price compare to Estimated Cost Value and new supplier participation. However an elaborate statistical comparison is yet to be carried out over a large number of observations covering different scenarios. There is a general observation of the reduction in the overall purchase cycle time thereby improving efficiency.

Screenshot

Home Page

Prize Distribution Ceremony of Project INVITE - 2006

The Prize distribution Ceremony of Project INVITE - 2006 (Initiative to Nurture a Vibrant Information Technology Ecosystem) - a collaborative effort of Gujarat Informatics Ltd. & IBM as a part of MOU, was held on 11th June, 2007 at GCERT, Gandhinagar in the presence of Shri Raj Kumar, IAS, Secretary, Department of Science and Technology, Shri Anil Menon, Vice President (Marketing & Eco-System), IBM India and Dr. Neeta Shah, Director (e-Governance).

Top 10 Team members along with Team guides were facilitated during the ceremony.

Top 10 winning Teams are as follows:

Sr_No	Team_Name	Project_Title	Institute_Name
1	AtmiyaBEEGP 789	E-Gram – Panchayat Department	ATMIYA INSTITUTE OF TECHNOLOGY & SCIENCE, RAJKOT
2	HLICA2	GIL Portal	H L Institute of Computer Applications (BCA), Ahmedabad
3	javastrikers	E-Bazar	U.V. PATEL COLLEGE OF ENGINEERING GANPAT UNIVERSITY, Mehsana
4	Mannschaft	GIL Portal	DA-IICT (Dhirubhai Ambani Institute of Information & Communication Technology)
5	MScITVNSGU	District Collectorate Office	J.P.Dawer Msc.I.T.Dept Surat
6	NASA	Hostel Admission System	DA-IICT (Dhirubhai Ambani Institute of Information & Communication Technology)
7	Revolution	Animal Husbandry – Cattle Development	MDS MAHA VIDHYALAYA, Gujarat Vidyapith, Ahmedabad
8	silversea	E-Gram – Panchayat Department	SHRI SADVIDHYAMANDAL INSTITUTE OF TECHNOLOGY, Bharuch
9	srimca4	Agricultural Business: Access Kiosk System	S. R. INSTITUTE OF MANAGEMENT & COMPUTER APPLICATION, Nardoli
10	ZEAL	Hostel Admission System	DA-IICT (Dhirubhai Ambani Institute of Information & Communication Technology)

WEB CORNER

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