Chapter 20

Gujarat Urja Vikas Nigam Limited

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I) OVERVIEW

The Gujarat Electricity Board was a state owned power utility of Gujarat state. It served 55 million people populated in 196000 sq. kms. area. The State is one of the industrial hubs of the country and contributes 16% of industrial production of the country. In the wake of reforms in the power sector, the monolithic organization was unbundled into 7 consumer responsive and market competitive entities in 2005.

The Gujarat Urja Vikas Nigam Limited (GUVNL) GUVNL embarked on mechanization and computerization of some of the core activities with the IT technologies available at that time. However, need was felt to come out from the islands of information to an integrated, comprehensive, end-to-end IT solution to meet the changing business imperatives and to make the new entities more responsive and pro-active.

With this objective, the organization started its efforts for introspection of its existing processes, its shortcomings, available technology options and smooth migration path. The ground work to evaluate the various alternatives etc. commenced two years back. "e-Urja" was the name coined for this end-to-end Enterprise Resource Planning (ERP) Project.

1st January, 2008 was a historical day for GUVNL and its subsidiary companies when the new era with the state of art IT technology ushered, with Go-Live phase in the organizations. The project covers all facets of power sector encompassing generation of power to distribution to the village population and spanning from customer relationship management to satisfy the needs of its 10 million consumers to complex module of power purchase, load management, finance, consumer billing and HR of its 50,000 employees. It may be mentioned that the GUVNL and its subsidiaries are the first Public Sector Power Utility to implement complete ERP solution.

It covers 1500 widely dispersed offices from western border of India (Rann of Kutch) to southern part of Gujarat. 50,000 employees were trained for computer literacy and application specific skills. The Central Data Centre has

106 IBM make P – series and X – series servers having 68 terabytes storage capacity. The offices are networked with numerous heterogeneous communication links. In true sense, it is **"empowering people, anywhere anytime".**

The implementation was never a smooth sail. Many challenges were faced in terms of winning confidence of the user employees, resolving domain knowledge issues, mapping of processes and customization. Adhering to the time line and reinforcing the ebb confidence of the users was a stupendous task.

The implementation of ambitious e-Urja project has resulted into improved customer satisfaction, efficient utilization of manpower and revenue, optimal management of materials and machines and relieving the existing manpower from mundane task to more intelligent work. The organizations have not only become more responsive, but pro-active as well. It has also increased transparency in its dealings with the Government, utilities, Regulators and consumers.

II) RESULT INDICATORS

1. Key Performance

a. Stakeholder services and benefits achieved through ICT interventions

- Customer Satisfaction
- Employee Satisfaction
- Benefits to the business
- Effective Inventory Management
- Improved Revenue Management
- Supplier Satisfaction
- HR Management
- Finance Management
- Asset Management

b. % of services covered as ICT interventions

Majority of functions are covered

c. Geographical Spread in the State achieved

- 55 million people populated in 196000 sq. kms. area.
- Number of employees ~50,000

- Number of consumers ~10 million
- Power Stations – 9
- Transmission Circles – 13
- Sub-stations – 1001
- Distribution circles – 22
- Divisions – 95
- Sub-Divisions – 503
- LAN - WAN ~900 Locations
- Dial – Up Connections ~600 Locations
- Desktops ~15,000
- Total number of Routers ~ 690
- Total number of Licensed Users – Universal ~ 38000
- Total number of Licensed Users – Comprehensive ~ 12000

2. Efficiency improvement

a. Time saving / improvements in the delivering the above set of services.

Benefits to Consumers	Before e-Urja	After e-Urja
New Connection Release/ Additional Load (Non Motive power)	30-33 Days	15-18 Days
New Connection Release/ Additional Load (Motive power)	104-122 Days	55-72 Days
Billing Related Complaints	16 per S/Dn.	2 per S/Dn.
Payment Options	At Sub-Division & Specified collection Centre	Any Time, Any where
Meter related Complaints	15 Days	Immediate attention
Consumer Response Time	4-6 Hours	2 Hours
Quality of Power Supply	99.74 %	99.82 %
Consumer Detail	Stand alone billing system	Unique consumer master as well as history
Change of Load	3 Days	1 Day
Meter Tracking	No system	Meter is being tracked throughout its life cycle using Install Base functionality.

Benefits to Employees	Before e-Urja	After e-Urja
Employee Information	Stand alone system	Unique records across

		all companies with history
Leave, loan, claims, advances approval	Manual process	Online request entry & Real time status monitoring of application.
Payroll Process	Stand alone system	Integrated with HR, Income tax & CPF.
Integration between modules	No Linking between various modules	e.g. Integration of HR and Payroll process to finance incorporating data flows of salary, leaves, claims and loans
Appraisal system	Manual process	On-line with proper competency templates and appraisal approvals.
Cashless Claim Process	Manual process	New Feature provided in e-Urja, which helps employees to enjoy cashless claim benefit.

a) Benefits to Business

- Increased asset productivity and reduced operating costs associated with maintenance, procurement, transmission, distribution, and customer service.
- Proactive management of available resources such as inventory, equipment, and skilled personnel and mapping with asset maintenance demand, leading to optimized availability, reliability, and productivity of assets.
- Streamlined procurement functions; reduced lead time for procurement, informed decision making inputs for effective and optimal procurements thereby enabling companies to save significant costs of procurement.
- Fact-based decisions leading to decreased operating costs, improved regulatory compliance, enhanced safety, and maximized return on investment.
- Streamlined field service operations, improve citizen responsiveness and issue resolution.

- Better materials planning & control; material stock availability across locations (main stores/departmental stores) made visible; there by reducing inventory carrying cost.
- Proper material management with implementation of various management techniques like ABC Analysis, Fast Slow Non-moving (FSN) Analysis, XYZ Analysis etc.
- Project Management
- Proper cash management
- Proper budgeting
- More prompt payments to vendors
- Effective Inventory Management
- Improved Revenue Management Supplier Satisfaction
- HR Management
- Finance Management

III) ENABLER INDICATORS

1. Processes

a. Major front end process changes and implemented

1. Customer Satisfaction
   - Standardization of Connection Release, Load Change, Name Change and other Customer Services
   - Anywhere Payment
   - Timely and proper communication to Customers about Load Shedding and Scheduled Downtimes
2. Employee Satisfaction
   - Reduction in cumbersome process of monitoring and tracking by providing the features for the same in the system
   - Availability of Pay slip, Performance Evaluation and other details as and when required.
3. Supplier Satisfaction
   - Reduction in lead time for clearance of dues.

b. Major back end process changes and implemented

1. Effective Inventory Management
   - Implementation of Global Best Practices for Inventory Valuation
   - Better Tracking and Monitoring of Stock at all times
2. Improved Revenue Management
   - Improved Collection Efficiency and Debt Recovery
3. HR Management

- Continuous improvement of Payroll process
- Faster processing of employee claims

i. Finance Management

- Better Monitoring of Loans and Advances
- Accurate Calculation of Depreciation of Assets
- Improved Monitoring of Supplier Performance

4. Asset Management
   - Improved Tracking and Monitoring of Assets
   - Optimal Utilization of Assets

2. *People and Resources*

a. Project management & Monitoring – Full time team in place

- GUVNL and its subsidiaries have put up Chief Nodal Officers, Nodal Officers and Process Champions across various modules in order to have focused effort for E-Urja Implementation and roll out and make it accepted at field level by all the stakeholders.

b. Achievements of training of internal & external members on the new system

- Along with IT Implementation Partner the Process Champions have been continuously giving the refresher trainings to the various users so as to make sure that the understanding is reinforced at regular intervals as required.

c. Change management strategy defined and implemented

- Module wise Change Management Group is formulated and a designated Convener is appointed to drive the overall change management process as prescribed.

d. Leadership support (Political, Bureaucratic) and its visibility

- Regular review meetings are conducted by Hon. Minister of State for Energy along with Principal Secretary. This is beyond the quarterly review meetings conducted in by MD GUVNL, CIO, GUVNL and DGM-IT, GUVNL over and above the regular weekly reporting done by the IT Implementation partner.

e. Financial Model (Funding pattern , Business model PPP etc) defined and implemented

- Initial funding from M/s PFC, Which is repaid before time & now it is self funded.

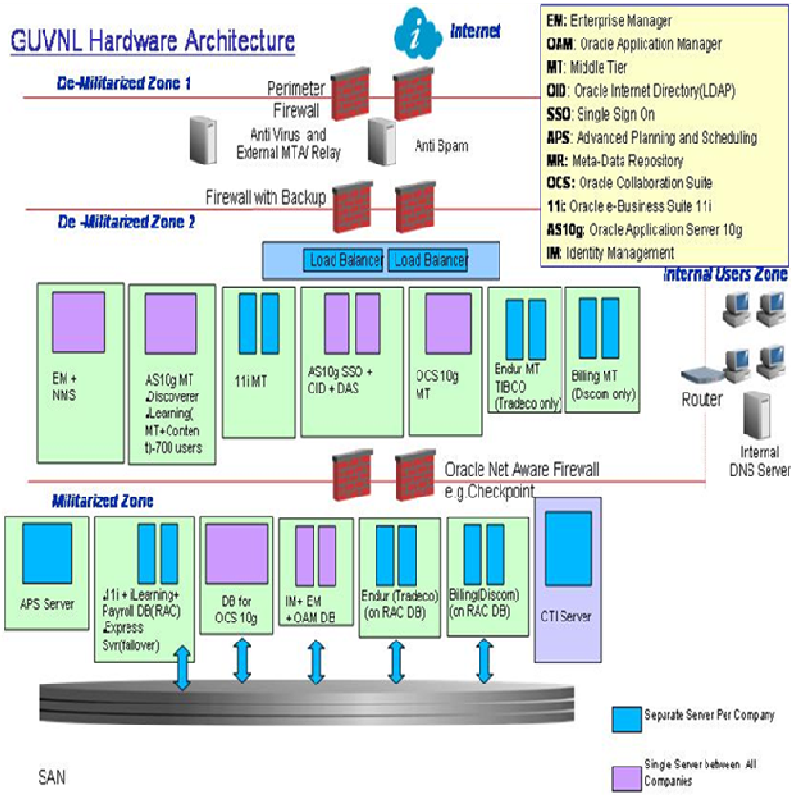
3. *Technology*

1. Data Center

- A Location used to house mission critical Servers or Server Farms & its various components like storage , network components , backup library etc.
- It has
  - 24x7 high availability of System, Services, and Applications in highly Secure Environment
  - Centralize Data Base Management
  - Optimum utilizations of resources
  - Reduce the Infrastructure management cost
- It includes
  - redundant or backup power supplies,
  - redundant data communications connections,
  - environmental controls (e.g., air conditioning, fire suppression, fire detection , water leakage detectors, Intrusion detection system etc)
  - Security devices like access card system, Biometric, CCTV Camera etc.

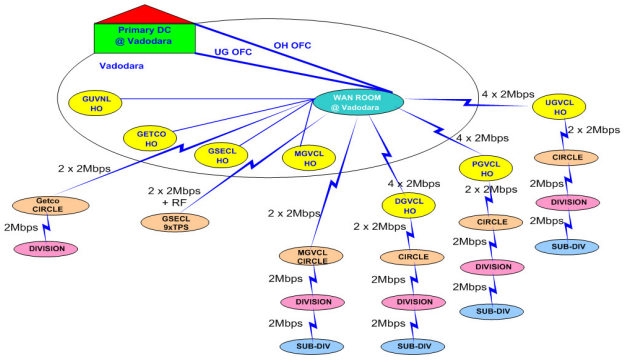
Architecture of e-Urja

A State of the Art Data Center with appropriate architecture is developed at the central level at **Vadodara** covering all the requirements for the implementation of the **e-Urja** Project. A typical architecture for the Data Center is depicted below.



Network Architecture- "Communication made the key" All subsidiary companies of GUVNL and all their offices are connected in a single network across Gujarat. Around **600** locations are working together on a single platform.

The schematic of network across Gujarat is depicted below…



E-Urja Networking Statistics

- **Infrastructure Statistics**

Total Numbers of Nodes	**~15000 Nos.**
Total Number of Servers	**106**
Total Storage Capacity of Data Centre	**68 Tera Byte.**
Total number of Routers	**~690**
Total number of Licensed Users – Universal	**38000**
Total number of Licensed Users – Comprehensive	**12000**
Total number of LAN – WAN connections	**~900**
Total number of dial up connections	**~600**
Total number of offices covered in Project	**~1500**

Components of e-Urja Project

1. Oracle Applications E-Biz Suite 11.5.10 (ERP)
   - Finance, Materials, Process manufacturing, Projects, HR, Business Intelligence, Customer relationship management, Maintenance
2. Oracle Collaboration Suite
   - E-mail, Files, i-meeting, Calendar
3. Oracle Database 10g
4. Billing solution (Broadline Systems Pvt. Ltd.)
5. Triple point Trading solution (Triple Point Technologies)
6. Payroll solution (TCS)
7. ETAP Network Analysis (KLG System)
8. Interfaces with external applications like SCADA, GIS

Challenges during Implementation

The GUVNL management faced diverse challenges during the entire implementation process. Some of the key challenges faced during this process are:

- A very large geographical spread all over Gujarat
- Dedicated Wide Area Network (WAN) & LAN consisting of more than **900** leased line circuits & **600** Dial Up connections.
- The Post Unbundling scenario posed a great challenge in implementation of this project as there was a sense of **uncertainty and fear among the employees** due to the various organizational changes happening.
- One of the largest HR processes' implementation covering more than **50,000** employees and addressing their concerns, fears and reservations.

- Very limited exposure and awareness among the intended users/employees regarding the ERP system and the project in particular.
- Provision of exposure to users of the current best practices being adopted in the utility sector across the globe and aligning their existing business processes to the current best processes.
- Mapping of the existing complex business processes (wide variation being practiced differently at various locations of the same company) and standardizing these processes for each of the companies.
- Strategy of collection and migration of huge volume of data relating to distribution network assets, consumers etc into the system.
- Planning and undertaking of a daunting task for training a very large number of non computer savvy end users across the seven companies with a widespread geographical presence.
- Procurement and implementation of necessary infrastructure related to WAN, LAN, desktops and peripherals.

Success story

Go Live

After completing ground work and setting the required infrastructures, the e-Urja project has been made LIVE **across 1500** offices of GUVNL & its subsidiary Companies from **1st Jan-2008.**

Change Management Process

The toughest challenge to implement the e-Urja project across all the subsidiaries of GUVNL was to apply the biggest Change using challenging working methods, working environment and customer interactions. Since, the employee strength of GUVNL including all subsidiaries was more than 50,000, it was a difficult and huge task to convince such a huge work force about the change to be adopted. However, the same was successfully implemented by majority of the employees in year 2009, with following measures

- Top Management commitment
- Periodical review by State Government
- Employee Awareness about System Benefits
- Employees participation in the Change Process
- Imparting exhaustive Training to every end users
- Linking e-Urja with Employee promotion
- Creating a dedicated team for E-Urja
- Motivating the employees by organizing e-Urja Quizzes, newsletters etc

Training & Development

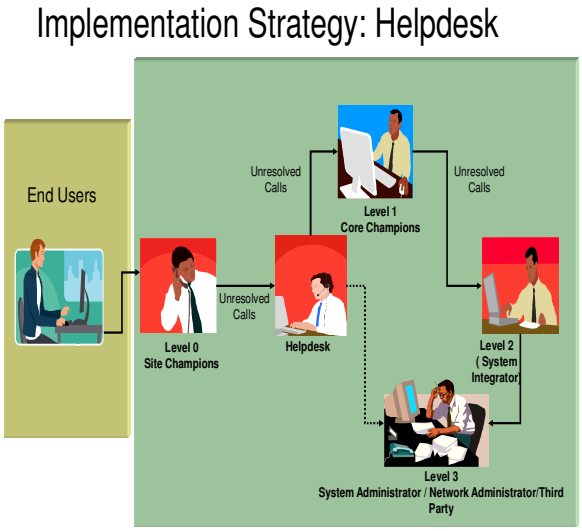
One of the most crucial factors in the implementation of the e-Urja Project with minimum resistance was to impart an exhaustive training to all end users. This was achieved through the following steps:

- Introduction of Train to Trainer Concept
- Identification of IT savvy employees and developing them as In-house Faculty for end user training.
- Knowledge sharing by creation of a chain of process champions.

No. of trainings – Core users (L-0 & L-1 Champions)	**15,000**
No. of training - End user training	**35,000**
No. of man days	**76,000**
No. of Core Users (Faculties)	**1,076**

Implementation Strategy

Looking to the huge geographical spread, the implementation of e-Urja was critical but the same was successfully implemented within a record time by creating a chain of Champions and team of dedicated skilled persons at strategic points. To support the end user regarding any issues / problems of e-Urja modules, an exclusive HELPDESK was created, wherein various levels of process champions are defined to resolve the issues of END user. The process flow is as mentioned below.



Officers nominated across GUVNL.

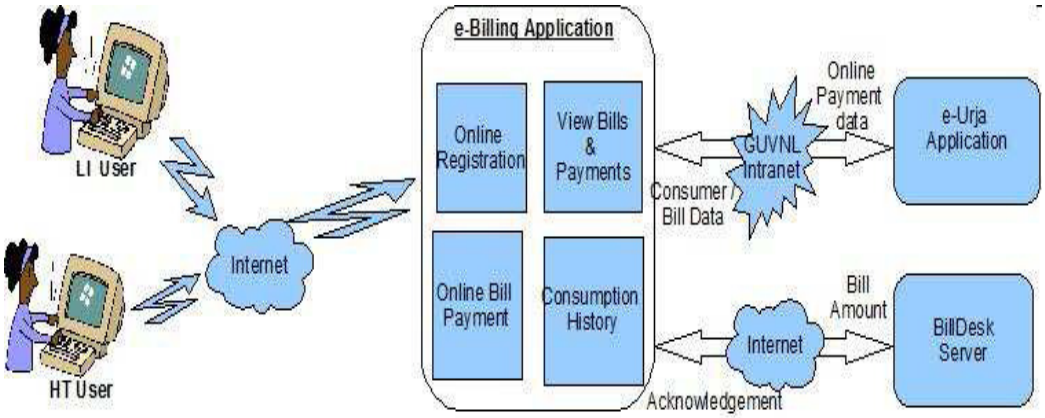
No. of CNO (Chief Nodal Officer)	**7**
No. of NO (Nodal Officer)	**48**

No. of L-1 (Level-1) Champions	**242**
No. of L-0 (Level-0) Champions	**1034**
No. of CMG (Change Management Group) and Members	**19 / 67**

Implemented modules under e-Urja

HR	• **Employee Self Service** • **Manager Self Service** • **HRMS Manager** • **Payroll (customized)** • **Legal**
FINANCE	• **Accounts Payable** • **Accounts Receivable** • **Fixed Asset** • **Fund/Cash Management(Loans, bill discounting, Cash flow analysis)** • **General Ledger** • **Fuel Accounting (customized)** • **Power Trading Solution (customized)**
CONSUMER	• **Customer Relationship Management** • **Energy Billing (HT and LT Billing) (customized)** • **e-Payment system (customized)**
TECHNICAL	• **Projects Tracking & Costing** • **Enterprise Asset Management (Equipment Maintenance)** • **Procurement** • **Inventory** • **Order Management (Scrap and Ash Disposal)** • **OPM (Operations)** • **Quality – Lab/Environment** • **Network Analysis solution (customized)**
Messaging Solution / Voice Conference	• **Oracle Collaboration Suite**

Online Payment of Consumer Bills :



Impact of the Project

Improved Customer Services

Business Process	**Benefits to Consumer**
New Connection	The processing Period from registration to release of Connection has been reduced significantly.
Addition / Alternation to existing Installation	Immediate attention
Billing Related Complaints	Almost non existent
Payment Options	Multiple options made available, 24x7
Meter Related Complaints	Immediate attention
Customer Care Centers	Functional in all Field offices
Quality of Power Supply	Immediate attention

a. Disaster Recovery & business continuity plan defined & implemented

Disaster Recovery and Business Continuity Plan is under implementation. However the Data Centre Management is done with all the necessary contingencies in place like back ups, updates and patches to Systems and Software.

b. Technological solution cost effective and maintenance over time

- Integrated end to end system provides business intelligence to improve efficiency
- Streamlined and Consolidated Business Process ensures low maintenance cost

- Single repository of Master data helps is reduction of data redundancy
- Easy Data Retrievals and Reporting
- Anywhere Payment Collection to provide customer delight
- Regulatory Compliance and reporting made easy and on time
- Tracking of inventory at the sub division level and reduction in idle/dead inventory
- Easy retrieval of old data for reference in case of legal requirements
- Maintenance of Audit Trail to speed up attending customer queries and complaints

c. Security and confidentiality standards defined and implemented

- Active Directory Services – (Identity Management)
- Asset, Desktop and Patch Management
- Service Desk
- Firewalls and Intrusion Detection Systems
- Enterprise wide Anti-Virus Solution
- Network Management System

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