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The Softer and Harder Sides of a Technology Implementation

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ABSTRACT
As mandated by Electricity Act 2003 Gujarat Electricity Board (GEB), an Indian electrical services public sector organization, reorganized in April 2005 into initially six Companies. The power generation activities were transferred to GSECL (Gujarat State Electricity Corporation Limited).GSECL has implemented an Enterprise system (ERP) to support its business processes called the e-Urja project. In this paper we have analysed using a structured questionnaire the experience shared by the employees at GSECL who are also the end users of the system across various functional teams about workflow and process improvement for better decision making and HR processes via the e-Urja platform.

Keywords: value chain, ERP, Power sector, technology, business process

INTRODUCTION
GSECL (Gujarat State Electricity Corporation Limited) – The Organization

Gujarat Electricity Board (GEB) came into being on separation of the erstwhile Mumbai State in the 1960s. The GEB until 2005 was responsible for generation, transmission and distribution of electrical energy in the whole state of Gujarat.

In support of Government's endeavor for bringing sense of responsibility and responsiveness to the public and as part of the reform process, the Government of Gujarat has unbundled the various functions of GEB. As a result of this unbundling, Gujarat State Electricity Corporation Limited (GSECL) has taken up the responsibility of electricity generation. Electricity Transmission has been entrusted to the already existing company - GETCO. Distribution network in the state has been split up among four distribution companies, which cater to the northern, central, southern, and western parts of the state respectively. All these companies have been structured as subsidiaries of a holding company, Gujarat Urja Vikas Nigam Limited (GUVNL). GUVNL is also the single bulk buyer in the state as well as the bulk supplier to distribution companies.

The Gujarat State Electricity Corporation Limited was incorporated in the year 1993 by the erstwhile Gujarat Electricity Board (GEB). As an objective to initiate the process of restructuring in the power sector in the State of Gujarat, the Government of Gujarat has also given the status of Independent Power Producer (IPP) to GSECL with approval to undertake

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new power projects. The Company commenced its commercial operation in the year 1998. Initially, the Company was operating 2 nos. of 210 MW Thermal Power Stations each and 2 Gas based Power Stations till 2005. Pursuant to the enactment of the Electricity Act, 2003 and the Gujarat Electricity Industry (Reorganization and Regulation) Act, 2003, the Government of Gujarat has issued various Notifications, Government Resolutions and Transfer Schemes for vesting of the assets and liabilities of the erstwhile GEB to the Government of Gujarat and then to retest the same into initially six Companies i.e. one Generation Company, one Transmission Company and four Distribution Companies. A new Corporation named Gujarat Urja Vikas Nigam Ltd. (GUVNL) was then incorporated in the year 2004 to carry out the residual functions of the erstwhile GEB. As a part of the reform process, the erstwhile GEB was unbundled and pursuant to the transfer scheme issued by the Government of Gujarat, the power generation activities i.e. the power plants have been transferred to GSECL.

Subsequently, the Company GSECL has also added the generating capacity as stated herein below:-

(1) 374 MW Gas based Power Plant at Utran.

(2) 75 MW Lignite based Power Plant at KLTPS

(3) 10 MW Wind Farm in Bhuj(kutch) district

(4) 1 MW Solar Power Plant at Gandhinagar and 1 MW Canal top Solar Power Plant in Chandrasan, Tal. Kadi, Dist. Ahmedabad.

GSECL now has power capacity comprising coal, gas, oil, lignite, hydro and wind power. In addition to Gas Based Power Plants, GSECL has also installed wind farm and also commissioned solar based Power Plant. In order to ensure compliance with the environmental issues, follow-up actions for energy conservation through energy audit is done. The power stations are regularly maintained along with renovation and modernization of the old Power Stations, thereby ensuring their sustained operation at efficient levels.

Electricity in India initiated under the British Rule in 1897. This was followed by the creation of State Electricity Boards in 1948. The first phase of reforms in the early 1990s focused on Power Generation. Second phase of reforms led to the creation of the Electricity Regulatory Commissions in 1998. A comprehensive roadmap for reforming the power sector as a whole was created by the enactment of the Electricity Act in 2003.

After GEB restructured into seven corporate entities, there was a realization and implementation of a continuous reform process to focus on the below:

- Smooth and sustainable operation of the Companies
- Customer Focus – better services and quality power
- Rural Electrification
- Efficiency in Operations
    - Lower Cost of Generation with higher PLF (Plant Load Factor)

- Lower Transmission and Distribution Losses
- Optimum use of resources and manpower

Information Technology supported systems was one of the means to address the goals.

The objective of this paper

Post the e-Urja (ERP) implementation, comparing senior managements' understanding of parameters (improved business processes) creating positive impact with the employees' feedback on parameters they agree as creating significant positive impact.

Following a planned implementation of the e-Urja ERP project at all nine centers of GSECL, the senior management had verbally discussed at many instances about the business processes that have undergone a positive change due to the e-Urja rollout. However, there had been no proper process of capturing their assertions. As first part of this ongoing research work, an unstructured questionnaire had been first used to capture the result of the e-Urja implementation at GSECL. The questionnaire was administered to the senior management at GSECL and data had been collected and analyzed. Based on the findings, the variables had been divided in 2 groups:

1. Business processes that have improved due to e-Urja (Operational)
2. The HR processes provided by e-Urja that are significantly used by the employees at GSECL. (HR)

The second part of the research has been to reach out to the employees at GSECL who are the actual users of the e-Urja platform and understand which of the ones stated by the senior management are useful in their area of work. Specifically to identify:

1. The business processes where they find a significant improvement in their day to day work
2. In HR, the items regularly used by them

e-Urja - the project

Project scope: In order to manage the complexities of the power sector and improve business processes, the e-Urja project was planned and implemented at GSECL. It is an IT enabled ERP based end to end IT solution for the organization.

What is ERP?

"a business strategy and set of industry-domain-specific applications that build customer and shareholder communities value network system by enabling and optimizing enterprise and inter-enterprise collaborative operational and financial processes"(Source: Gartner's Research Note SPA-12-0420)

Enterprise Resource Planning (ERP) is the broad set of activities supported by multiple module application to manage business. ERP applications are a collection of readymade software modules for different business processes that can be customized according to organizational needs.

Why implement an ERP?

- To support business goals
  - Integrated, on-line, secure, self-service processes for business
  - Eliminate costly mainframe/fragmented technologies
- Improved Integration of Systems and Processes
- Lower Costs
- Empower Employees
- Enable Partners, Customers and Suppliers

In a nutshell, there must be a value proposition, return on investment and total cost of ownership. It's about aligning people process and technology so that they master the raging waters of the high volume transactional system.

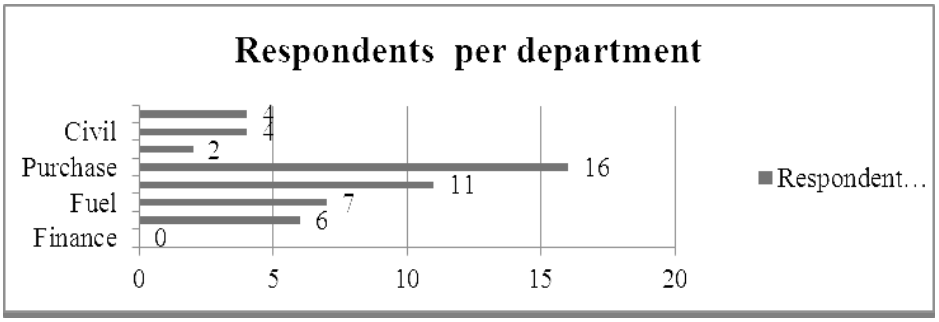
The specific data points regarding the scale of the "e-Urja" project included touching 50,000 employees across GUVNL (Gujarat Urja Vikas Nigam Limited) and 97.7 Lakh customers, 45000 suppliers spread across 1500 locations with a total budget of 225 crores in 5 years. The e-Urja solution would be end-to-end solution for each of the 7 companies and TCS was their implementation partner. The ERP implementation model ensured best business practices, real time access to data integrated and stable system that was scalable and upgradable. It would consolidate the following functional areas: Financial Management, HR and Payroll, Material procurement and Inventory Management, Asset management, Fuel management, Project management etc at GSECL.

A strong maintenance and support system was established to provide a smooth transition and build confidence amongst employees.

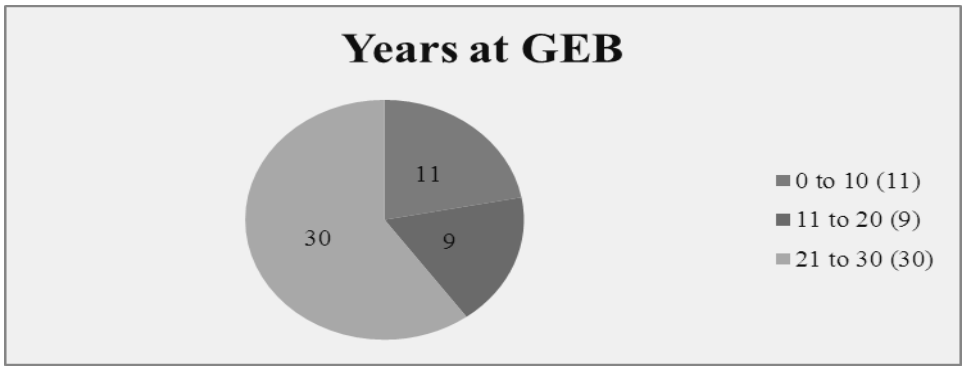
Data Collection Process for this paper

For this paper, 50 employees (e-Urja users) at GSECL had been approached using the structured questionnaire in February 2013 to understand the advantages they see post the e-Urja project in business processes and HR functions. Respondents were primarily from the corporate office in Vadodara.

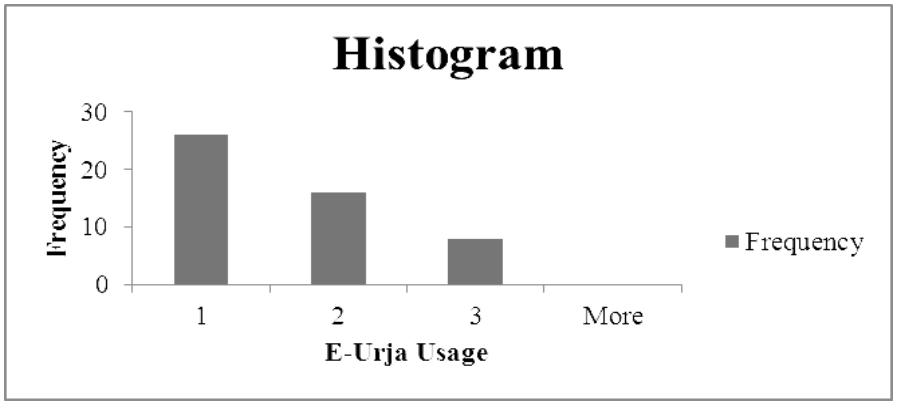
RESULTS AND DISCUSSIONS



The diagram above shows the distribution of employees reached in various departments for collecting their feedback on the survey questionnaire.



The diagram above shows the distribution of respondents based on their years of employment at GEB. They have been categorized in 3 groups, 1-10 years, 11-20 years and 21 to 30 years. We observe that the percentage of employees having 20 or more years of service is significant.



The graph above captures the use of the real time available to employees.

The 3 categories are as follows:
1 – Only access to data for work
2 – Input/update data
3 – Use real time data for decision making and monitoring

We observe that majority of the respondent's access data for routing transactional work.

Following were the questions (portion of the structured questionnaire) asked to the employees. The ones with the higher hits have been recorded. The variable list as options have been taken from the results obtained from the senior management questionnaire.

A. Business processes that have improved due to e-Urja are (tick as many as apply)
    a. Reduced time in preparing custom reports ___
    b. The storage and access of all transactions ___
    c. Easy interface with accounts department and data management ___

d. Matching wagons with railway freight receipt ___
e. Streamlining payment of washery contractors ___
f. Coordination and tracking of coal rakes ___
g. Online purchase enquiry and order ___
h. Approval of purchase orders ___
i. Inventory planning and maintenance ___
j. Project tracking and monitoring ___
k. Environmental safety reports ___
l. Plant equipment and maintenance online ___

B. The following HR processes are provided by e-Urja. Tick the ones that you agree are advantageous and regularly used by you (tick as many as apply)

a. E-Urja provides transparency in HR Processes
b. Employee Self Service for on-line processing and monitoring of Leaves, Loans, Claims and Advances
c. On-line Increment/Bonus/Incentive Processing
d. On-line performance appraisals and Succession planning
e. Employees personal data available online
f. Employees transfer, relieving and joining available online
g. Online Processing of Leave requests
h. Single payroll run through for all the employees of a location
i. Online retrieval of salary slips by the employees
j. Digitally signed Form -16 available to the employees
k. On-line employee Grievance gets addressed
l. Automated rule-based approval process ensures reduced cycle time
m. Complete monitoring of Employee Overtime
n. Online management of PF trust and availability of PF balance to the employee in ESS
o. Interlinking of employee leaves and wages (payment /deduction)

CONCLUSION

Analyzing the responses received to the questions asked via the questionnaire, the following can be concluded related to the business process improvement and HR module. From the responses it can be concluded that the variables which are seen as most impactful in the 2 sections above are as follows:

1. The business process improvement is seen most in “Approval of purchase orders” followed closely by “Reduced time in preparing custom reports” and “Online purchase inquiry and order”
2. The HR processes seen as advantageous and regularly used by employees are “b” Employee self service closely followed by “i” online retrieval of salary slips.

The change management process during the unbundling of GEB led to decentralization of processes and delegation of power to employees down the line and the power stations. Each employee has been assigned an Employee number, which acts as the Primary Key for the database. The access to the system is via a personal login.

As future study, employees at the plant locations of GSECL will be approached with a structured questionnaire consisting of interval scaled data focusing on the following:

1. Training requirement for better productivity. The current questionnaire has indicated need for more training on e-Urja
2. Degree to which individually each of the business processes are significant, including item "Approval of purchase orders"
3. Degree to which each of the HR processes are advantageous including item "b".

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