

Implementation of ERP System in Engineering Unit: A Case Study of Mutha Group, Satara.

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Received: December 06, 2018

Accepted: January 20, 2019

ABSTRACT: Enterprise resource planning (ERP) systems are becoming advanced tools to support various business processes. ERP can provide major enhancements across an enterprise, but only when it is implemented properly. Otherwise, an ERP system pulls the whole enterprise into inefficiency and huge financial loss. Therefore, it is required to deeply study the implementation of ERP system. In this article, the researcher presents a case study of an ERP system implementation in engineering unit by Mutha group, Satara. This case study includes the analysis of current status of ERP system implementation and identified different problems in ERP implementation.

Key Words: Enterprise Resource Planning (ERP) system, ERP system implementation, Modules, ERP implementation problems / issues.

Introduction:

Currently, enterprises are struggling hard to sustain competitiveness in the market. Therefore, ERP systems have been getting abundant attention, to support enterprises for survival in such environments. ERP system links the entire organizational departments together to improve the communication and accessibility of real information flow within and between departments. However estimated benefits of ERP systems cannot be easily derived. Enterprises may face many difficulties in ERP system implementation, as it might need extensive investment and depends on many factors to be implemented successfully.

Mutha group is well known engineering organization located at Satara. Mutha group carry business of manufacturing & supplying all types of iron castings for automobiles. Before implementing ERP system, they used MS-office for presentation purpose and Tally software for accounting purpose only. Mutha group also carried out some work manually. Manual work led many problems like redundancy of data, increasing administrative overheads, excessive manpower, data security issues, etc. By considering all these problems, organization has started ERP implementation in 2011. They adopted outsourced ERP system from CompServ Consultants Pvt. Ltd., Kolhapur.

Literature Review:

There has been lot of work done over the world regarding the ERP implementation. Researcher reviewed & mentioned some work related to ERP implementation issues / problems as follows –

Firms around the world have been implementing ERP systems to have the uniform information system in their respective organizations. ERP system includes multiple modules and each module is related to particular functional area of various business processes. ERP system commonly includes modules like finance, production planning, manufacturing, human resource, material management, plant maintenance, sales and distribution, quality management, marketing, purchasing, etc.^[1] The modular approach of ERP system aids to integrate many business processes organized together. Effective implementation of ERP system leads to many advantages such as use of modern technology, integration of various business processes, better planning and analysis abilities, flexibility, better customer satisfaction, reduction of lead time and cycle time, on time shipment, etc.^[2]

However ERP system implementation process involves a wide range of issues. These issues are lack of knowledge about selecting ERP vendors and applications, wrong perceptions about ERP solutions, wrong approach to implementation, poor change management, and increased cost of implementation.^[9] Furthermore imprecise scope of implementations, poor top management commitment, improper implementation strategy, poor project management, poor user training and education are major issues noticed in ERP implementation.^[10]

It is observed that the organization which implemented ERP without Business Process Reengineering (BPR) had lesser values in their selected performance indicators than the organization who implemented BPR.^[11]

According to the literature, it reveals that user with negative views about ERP implementation and strong attitude towards legacy system may show a more resistance for new ERP system. [12]

Objectives of Study:

1. To study various ERP modules and their present status of implementation in Mutha group.
2. To identify the problems in ERP implementation.

Research Methodology:

Present study is inferential descriptive in nature. Data is gathered regarding to Mutha group, Satara, which includes profile of organizations, functional areas within organizations, ERP modules implemented, ERP implementation methodology, data regarding present status of ERP implementation, problems in ERP implementation, etc. Data is collected from steering committee members and ERP end users. Researcher used structured schedule for collecting the data. The method used for selection of sample is census sampling method for steering committee. For selecting end users proportionate stratified random sampling method is used. In order to reach towards objectives of the study, data analyzed using statistical tools viz weighted mean and rank.

I. Present Status of ERP Implementation:

Below table shows different ERP modules & their sub systems implemented in Mutha group, Satara.

Table No. 1: ERP Models Implemented

ERP Modules and Sub systems		Status of Implementation		
		Fully Implemented	Partially Implemented	Not Yet Implemented
A	Finance			
1	Financial Accounting	Yes	No	No
2	Investment Management	No	No	No
3	Controlling	No	Yes	No
4	Treasury	No	Yes	No
5	Enterprise Controlling	No	No	No
B	Human Resource Management			
1	Personnel Management	No	Yes	No
2	Organizational Management	No	No	No
3	Payroll Accounting	Yes	No	No
4	Time Management	No	No	No
5	Personnel Development	No	No	No
C	Quality Management			
1	Quality Planning	No	No	No
2	Quality Inspection	No	Yes	No
3	Quality Control	No	Yes	No
D	Production Planning			
1	JIT / Repetitive Manufacturing	No	No	No
2	Material & Capacity Requirements Planning	Yes	No	No
3	Shop Floor Control	Yes	No	No
4	Cost Management	Yes	No	No
5	Engineering Data Management	No	No	No
6	Engineering Change Management	No	No	No
7	Configuration Management	No	No	No
8	Serialization / Lot Control	No	Yes	No
9	Tooling	No	No	No
E	Material Management			
1	Pre Purchasing Activities	No	No	No
2	Purchasing	Yes	No	No
3	Vendor Evaluation	No	Yes	No
4	Inventory Management	Yes	No	No
5	Invoice Verification &	Yes	No	No

	Material Inspection			
F	Sales and Distribution			
1	Master Data Management	Yes	No	No
2	Order Management	Yes	No	No
3	Warehouse Management	Yes	No	No
4	Shipping	Yes	No	No
5	Billing	Yes	No	No
6	Pricing	No	Yes	No
7	Sales Support	No	No	No
8	Transportation	No	Yes	No
9	Foreign Trade	No	No	No
10	Marketing Management	Yes	No	No
G	Plant Maintenance Management			
1	Preventive Maintenance Control	No	No	No
2	Equipment Tracking	No	No	No
3	Maintenance Order Management	No	Yes	No
4	Component Tracking	No	Yes	No
5	Plant Maintenance Calibration Tracking	No	Yes	No
6	Plant Maintenance Warranty Claim Tracking	No	No	No
7	Work Clearance Management	No	No	No

(Source: Primary data)

Above table reveals the implementation status of various modules implemented in Mutha group like finance, human resource management, quality management, production planning, material management, sales and distribution, plant maintenance management, etc.

In case of finance module - financial accounting subsystem is fully implemented; controlling and treasury subsystems are partially implemented whereas investment management and enterprise controlling subsystems are not implemented.

In case of human resource management module - payroll accounting subsystem is fully implemented; personnel management subsystem is partially implemented whereas organizational management, time management and personnel development subsystems are not implemented.

In case of quality management module - quality inspection and quality control subsystems are partially implemented whereas quality planning subsystem is not implemented.

In case of production planning module - material & capacity requirements planning, shop floor control, and cost management subsystems are fully implemented; serialization / lot control subsystem is partially implemented whereas JIT / repetitive manufacturing, engineering data management, engineering change management, configuration management, and tooling subsystems are not implemented.

In case of material management module – purchasing, inventory management, and invoice verification & material inspection subsystems are fully implemented; vendor evaluation subsystem is partially implemented whereas pre purchasing activities subsystem is not implemented.

In case of sales and distribution module - master data management, order management, warehouse management, shipping, billing, and marketing management subsystems are fully implemented; pricing and transportation subsystems are partially implemented whereas sales support and foreign trade subsystems are not implemented.

In case of plant maintenance management module - maintenance order management, component tracking, and plant maintenance calibration tracking subsystems are partially implemented whereas preventive maintenance control, equipment tracking, plant maintenance warranty claim tracking, and work clearance management subsystems are not implemented.

II. Problems / Issues in ERP implementation:

For understanding different problems / issues involved in ERP implementation opinions from steering committee members and ERP end users are collected using likert scale and weighted mean as well as rank is calculated. Following tables show intensity of various implementation problems in organization.

Table 2: ERP Implementation Problems / Issues Faced by Steering Committee Members

Sr.No	Problems / Issues	Weighted Average	Rank
1.	Poor vendor support	3.50	3
2.	Poor ERP project planning	3.00	7
3.	Poor ERP project management	3.08	6
4.	Heavy customization	4.33	1
5.	Problems in data migration and testing	3.83	2
6	Inadequate training	3.15	5
7.	User resistance	3.33	4

(Source: Compiled by researcher)

Above table depicts that in Mutha group, heavy customization issue receives 1st rank with weighted mean score 4.33. It reveals that this issue is major and it has high intensity.

Problems in data migration and testing, poor vendor support, user resistance, inadequate training, poor ERP project management and poor ERP project planning issues receive ranks from 2nd to 7th with weighted mean scores 3.83, 3.50, 3.33, 3.15, 3.08 and 3.00 respectively. It reveals that these issues have moderate intensity.

Table 3: ERP implementation Problems / Issues Faced by ERP End Users

Sr.No	Problems / Issues	Weighted Average	Rank
1.	Poor top management support	2.34	3
2.	Inadequate training	3.23	2
3.	Poor communication and organizational culture	4.12	1

(Source: Compiled by researcher)

Above table depicts that in Mutha group, Poor communication and organizational culture issue receives 1st rank with weighted mean score 4.12. It reveals that this issue is major and it has high intensity.

Inadequate training and poor top management support issues receive 2nd and 3rd rank with weighted mean scores 3.23 and 2.34 respectively. It reveals that these issues have moderate intensity.

Findings:

- Study reveals that material management module and sales & distribution module are almost fully implemented whereas finance, human resource management, quality management, production planning, and plant maintenance management modules are partially implemented in Mutha group.
- It indicates that there is tremendous scope of ERP implementation regarding partially implemented modules in Mutha group.
- Researcher represents various problems in ERP implementation viz. poor vendor support, poor ERP project planning, poor ERP project management, heavy customization, problems in data migration and testing, inadequate training, user resistance, poor top management support, poor communication and organizational culture, etc.
- Heavy customization, problems in data migration and testing, poor vendor support and user resistance are major problems faced by steering committee members in Mutha group.
- Poor communication and organizational culture is major problem faced by ERP end users in Mutha group.
- There is absence of consultant in Mutha group. It means lack of consultant support is also other issue while implementing ERP.
- Mutha group used AutoCAD software for product designing purpose but they did not integrate CAD data with ERP system.
- Mutha group had not carried out Business Process Re-engineering (BPR). It means lack of BPR is also another issue while implementing ERP.
- Moreover there was more than 6 months overrun between estimated ERP implementation time & actual ERP implementation time. This indicates that delay in implementation time is another issue in ERP implementation.
- Besides these all, there is mismatch between estimated ERP implementation cost & actual ERP implementation cost. This indicates that cost overrun is also one more issue in ERP implementation.

- Mutha group had not used standard package selection criteria while selecting ERP system for implementation. Vendor approached to Mutha group and suggested their ERP system for implementation.

Suggestions:

- Mutha group should hire consultant for ERP implementation.
- Organization should perform proper BPR for getting benefits from ERP implementation.
- Organization should conduct induction programs regarding to benefits of ERP system which may improve ERP end users' positivity towards using ERP system.
- Steering committee members should welcome opinions and suggestions from ERP end users for making healthy communication throughout the organization. It will lead to smooth organizational culture as end user's requirements will address properly.
- Mutha group suggested to integrate AutoCAD based data with ERP system for increasing product design and development efficiency. It may shorten the product development cycle.
- In future if Mutha group plans to change their existing ERP system then they should adopt standard package selection criteria. It will be essential for selecting right package which is functionally fit to Mutha group.

Conclusion:

Even though various modules are implemented in present ERP system of Mutha group, Heavy customization and Poor communication and organizational culture are major problems / issues in ERP implementation. Organization does not get proper benefits from present ERP system. Also there is absence of consultant & BPR which leads to various ERP implementation problems. To minimize those problems, different suggestions were made by researcher & it will help the organization to sustain in today's competition environment.

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