

7. An Overview of enterprise Resource Planning (ERP)

ERP:

ERP system is a fully integrated business management system covering functional areas of an enterprise like logistics, production, finance, accounting and Human resources. It organizes and integrates operation processes and information flows to make optimum use of resources such as men, material, money and machine. ERP is a global tightly integrated closed loop business solution package and multifaceted.

Characteristics of ERP:

1. **Flexibility:** an ERP should be flexible to respond to the changing needs of an enterprise. The client server technology enables ERP to run across various database back ends through open database connectivity.
2. **Modular & Open:** ERP system has to have open system architecture. This means that any module can be interfaced or detached wherever required without affecting the other modules.
3. **Comprehensive:** it should be able to support variety of organizational functions and must be suitable for a wide range of business organization.
4. **Beyond the Company:** it should not be confined to the organizational boundaries, rather support the on-line connectivity to the other business entities of the organization.
5. **Best Business Practices:** it must have a collection of the best business process applicable worldwide. An ERP package imposes its own logic on a company's strategy, culture and organization.

Features of ERP:

- ERP provides multi-platform, multi-facility, multi-mode manufacturing, multi-currency, multi-lingual facilities.
- It supports strategic and business planning activities, operational planning and execution activities, creation of materials and resources. All these functions are effectively integrated for flow and update of information immediately upon entry of any information.
- Has end to end supply chain management to optimize the overall demand and supply data.
- ERP facilitates company-wide integrated information system covering all functional areas like manufacturing, selling and distribution, payables, receivables, inventory, accounts, human resources, purchase etc.
- ERP performs core activities and increases customer service, thereby augmenting the corporate image.
- ERP bridges the information gap across organizations.
- ERP provides complete integration of system not only across departments but also across companies under the same management.
- ERP is the solution for Better project management.
- ERP allows automatic introduction of the latest technologies like electronic fund transfer, Electronic data interchange, Internet, Intranet, Video conferencing, E-commerce etc.
- ERP eliminates most business problems like material shortages, productivity enhancements, customer services, cash management, inventory problems, quality problems, prompt delivery etc.
- ERP Provides intelligent business tools like decisions support system, executive information system, data mining and easy working systems o enable better decisions.

Why Companies Undertake ERP?

- *Integrate Financial Information:* as the CEO tries to understand the company's overall performance, he may find many different versions of the truth. But in this system everyone use same software s truth find in single version.
- *Integrate customer order Information:* ERP systems can become the place where the customer order lives from the time a customer service representative receives it until he loading dock ships the merchandise and finance sends an invoice.
- *Standardize and speed up manufacturing process:* manufacturing companies- especially those with an appetite for mergers and acquisitions often find that multiple business units across the company make the same transaction different methods and computer system. ERP systems come with standards method of automating some of the steps of a manufacturing process. Standardizing those processes and using a single, integrated computer system can save time, increase productivity and reduce headcount.
- *Reduce inventory:* ERP helps the manufacturing process flow more smoothly and it improves visibility of the order fulfillment process inside the company. That can lead to reduced inventories of the materials used to make products, and it can help users' better plan deliveries to customers, reducing the finished goods inventory at the warehouses and shipping docks.
- *Standardize HR information:* Especially in companies with multiple units, HR may not have a unified, simple method for tracking employees' time and communicating with them about benefits and services. ERP can fix that.

Benefits of ERP

- Gives accounts payable personnel increased control of invoicing and payment processing and thereby boosting their productivity and eliminating their reliance on computer personnel for those operations.
- Reduce paper documents by providing on-line formats for quickly entering and retrieving information.
- Improves timeliness of information by permitting posting daily instead of monthly.
- Greater accuracy of information with detailed content, better presentation, satisfactory for the auditors.
- Improved cost control.
- Faster responses and follow-up on customers.
- More efficient cash collection, say material reduction in delay in payments by customers.
- Better monitoring and quicker resolution of queries.
- Enables quick responses to change in business operations and market conditions.
- Helps to achieve competitive advantage by improving its business process.
- Improves supply-demand linkage with remote locations and branches in different countries.
- Provides a unified customer database usable by all applications.
- Improves international operations by supporting a variety of tax structure, invoicing schemes, multiple currencies, multiple period accounting and languages.
- Improves information access and management throughout the enterprise.
- Provides solution for problems like Y2K and single monetary unit or euro currencies.

Business Process Reengineering (BPR)

Every company that intends to implement ERP has to reengineer its processes in one form or the other, this process is known as business process reengineering.

BPR is the fundamental rethinking and radical redesign of processes to achieve dramatic improvement, in critical, contemporary measures of performance such as cost, quality, service and speed.

- *Business engineering:* Business engineering has come out of merging of two concepts namely information technology and business process reengineering. Business engineering is the rethinking of business process to improve speed, quality and output of material services.

- Business Management: ERP merges very well with common business management issues like business process reengineering, total quality management, mass customization, service orientation, and virtual cooperation etc.
- Business Modeling: the approach of ERP implementation is carried out using MIS planning. First of all, a model of consisting of core business processes or activities of the business is to be developed.

ERP Implementation

ERP implementation is a special event in an organization. It brings together in one platform different business functions, different personalities, procedures, ideologies and philosophies with an aim to pool knowledge base to effectively integrate and bring worthwhile and beneficial changes throughout the organization.

The success of an implementation mainly depends upon on how closely the implementation consultants, users and vendors work together to achieve the overall objectives of the organization.

Key Planning and Implementation Decisions

This decisions looks at a number of the key decisions that need to be made when considering an enterprise integration effort.

- ERP or Not to ERP?
- Follow software's process or customize?
- In-house or outsource?
- "Big-bang" or Phased implementation?

ERP implementation Methodology

Several steps are involved in the implementation of a typical ERP package. These are

1. Identifying the needs for implementing an ERP packages
2. Evaluating the "As is" situation of the business. i.e., to understand the strength and weakness prevailing under the existing circumstances.
3. Deciding the "would be" situation for the business. i.e., the changes expected after the implementation of ERP.
4. Reengineering the business process to achieve the desired results in the existing processes.
5. Evaluating the Various available ERP packages to assess suitability.
6. Finalizing of the most suitable ERP packages for implementation.
7. Installing the required hardware and networks for the selected ERP package.
8. Finalizing the implementation consultants who will assist in implementation.
9. Implementing the ERP package.

Evaluation of Various ERP packages

This process is done based on the following criteria

1. Flexibility
2. Comprehensive
3. Integrated
4. Beyond the company
5. Best business practices
6. New technologies

Implementation Guideline for ERP

1. Understanding the corporate needs and culture of the organization and then adopt the implementation technique to match these factors.
2. Doing a business process redesign exercise prior to starting the implementation.
3. Establishing a good communication network across the organization.

4. Providing a string and effective leadership so that people down the line are well motivated.
5. Finding an efficient and capable project manager.
6. Creating a balanced team of implementation consultants who can work together as a team.
7. Selecting a good implementation methodology with minimum customization.
8. Training end users.
9. Adapting the new system and making the required changes in the working environment to make effective use of the system in future.

Post-Implementation

To start at the beginning, many post-implementation problems can be traced to wrong expectation and fears. The expectation and fears that corporate management has formed an ERP have been greatly published. A few of the popular expectation are as follows

1. An improvement in processes
2. Increased productivity on all fronts.
3. Total automation and disbanding of all manual processes.
4. Improvement of all key performance indicators.
5. Elimination of all manual record keeping.
6. Real time information system is available to concerned people on need basis.
7. Total integration of all operations.

ERP implementation also engenders a host of fears. Some of them are

1. Job redundancy
2. Loss of importance as information is no longer an individual prerogative
3. Change in job profile
4. An organization fear of loss of proper control and authorization
5. Increased stress cause by greater transparency
6. Individual fear of loss of authority

Risk and Governance issues in an ERP

Organization faces several new business risks when they migrate to real-time, integrated ERP systems. Those risks include:

- Single point of failure
- Structural changes
- Job role changes
- Online, real time
- Change management
- Distributed computing experience
- Broad system access
- Dependency on external assistance
- Program interfaces and data conversions
- Audit expertise

Sample List of ERP vendors

1. Baan (the Baan company) : initially developed for an aircraft company. It was subsequently launched as a generalized package in 1194. It offers sound technology ad coverage of broad functional scope.
2. Business planning and Control System (BPCS): it targets only manufacturing companies. It offers strong functionality for discrete and Kanban manufacturing. However, it lags in process oriented implementation tools and workflow.
3. Mapics XA (Marcam Corporation): it is viewed by many as legacy application.
4. MFG/Pro (QAD): strong in respective manufacturing. Originally designed to meet MRPII standards, it offers reliable manufacturing functionality and straight forward implementation.

5. Oracle Applications: it gives internet-enabled, network-centric computing. It also offers database, tools, implementation, and application and UNIX operating system under one stop-shop umbrella. It is currently running on wide choice of hardware.
6. R/3 (SAP) : it is a market elder with excellent philosophy of matching business processes with its modules. It covers almost all business segments.
7. Systems 21 (JBA): its software license revenues are small compared to other major ERP vendors. It offers a rugged, reliable manufacturing solution.

ERP Software packages (SAP)

SAP has a number of application modules in the package. Some of these modules are shown as below

1. Financials

- a. Financial Accounting
- b. General ledger
- c. Accounts receivables and Payable
- d. Fixed asset accounting

2. Controlling Cost

- a. Overhead cost control
- b. Cost centre accounting
- c. Overhead orders
- d. Activity based accounting
- e. Product cost control
- f. Cost object controlling
- g. Profitability analysis

3. Investment Management

- a. Corporate wide budgeting
- b. Appropriation requests
- c. Investment measures
- d. Automatic settlement to fixed assets
- e. Depreciation forecast

4. Treasury

- a. Cash Management
- b. Treasury Management
- c. Market risk management
- d. Funds Management

5. Enterprise Controlling

- a. EC-CS: this component is used for financial statutory and management consolidation which also allows fully automated consolidation of investments-even for many companies and complex investment structures.
- b. EC-PCA: allows to work with internal transfer prices and at the same time to have the right values from company, profit centre, and enterprise perspective in parallel.
- c. EC-EIS: Executive information system allows to take financial data from EC-PCA, EC-CS or any other application and combine with any external data such as market data, industry benchmarks and or data from non-SAP applications to build a company specific comprehensive enterprise information system.

6. Product data Management (PDM)

7. Sales and Distributions

8. Production Planning and Control

- a. Sales and operation planning
- b. Production control modules
- c. Quality management
- d. Project system
- e. Project information system

9. Material Management

- a. Purchasing
- b. Inventory Management
- c. Warehouse management
- d. Invoice verification
- e. Inventory control using purchase information system
- f. Quality management
- g. Plant maintenance
- h. Service management

10. Human Resource management (HR)

- a. Personnel administration
- b. Employee master data
- c. Recruitment management
- d. Open positions
- e. Selection and Hiring
- f. Travel Management
- g. Benefits Administrations
- h. Personnel cost Planning

11. Payroll accounting

- a. Payroll processing
- b. Integration
- c. Global solution
- d. Time Management
- e. Time data
- f. Time evaluation
- g. Time management review
- h. Integration and interfaces
- i. Shift planning

12. Internet and intranet