

AN OVERVIEW OF ENTERPRISE RESOURCE PLANNING (ERP)

Question 1

Briefly explain Enterprise Resource Planning (ERP) and describe five of its characteristics.

(10 Marks) (Nov 2008)

Answer

Enterprise Resource Planning (ERP) is the latest high-end solution that IT has lent to business applications. ERP solutions streamline and integrate operation processes and information flows in the company to synergize the resources of an organization namely men, material, money and machine through information. An ERP system is a fully integrated business management system covering functional areas of an enterprise like Logistics, Production, Finance, Accounting and Human Resources.

General Model of ERP

ERP is a global, tightly integrated closed loop business solution package and is multifaceted. It promises one database, one application, and one user interface for the entire enterprise, where once disparate systems ruled manufacturing, distribution, finance and sales.

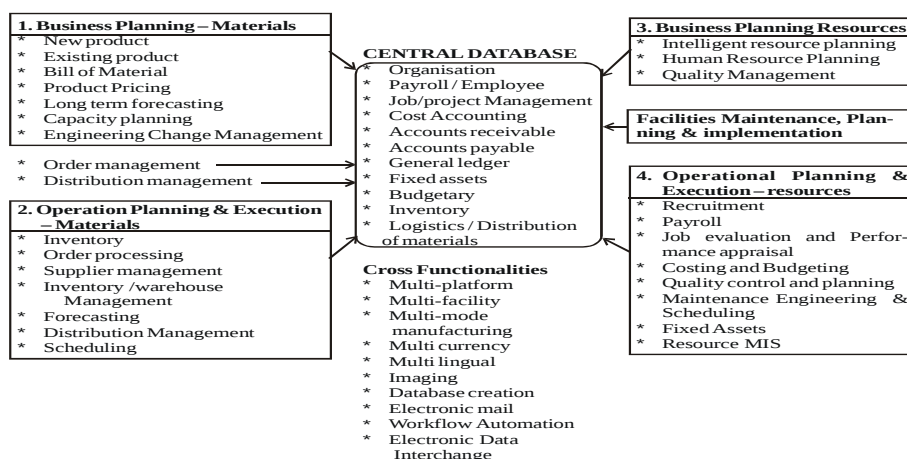


Fig. : General Model of an ERP

Taking information from every function it is a tool that assists employees and managers plan, monitor and control the entire business. A modern ERP system enhances a manufacturer's ability to accurately schedule production, fully utilize capacity, reduce inventory, and meet promised shipping dates. ERP systems are implemented in a three Tier Client Server Architecture; the server stores the data, maintaining its integrity and consistency and processes the requests of the user from the client desktops. The load of data processing and application logic is divided between the server and the client. As companies implementing ERP solutions have multiple locations of operation and control, online data transfer has to be done across locations. To facilitate these transactions, the important enabling technologies for ERP systems are Workflow, Work group, Group Ware, Electronic Data Interchange (EDI), Internet, Intranet, Data warehousing, etc.

ERP Characteristics: An ERP system is not only the integration of various organization processes, any system has to possess few key characteristics to qualify for a true ERP solution. These features are:

- **Flexibility:** An ERP system 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 (ODBC).
- **Modular and Open:** ERP system has to have open system architecture. This means that any module can be interfaced or detached whenever required without affecting the other modules. It should support multiple hardware platforms for the companies having heterogeneous collection of systems. It must support some third party add-ons also.
- **Comprehensive:** It should be able to support variety of organizational functions and must be suitable for a wide range of business organizations.
- **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.
- **Best Business Practices:** It must have a collection of the best business processes applicable worldwide. An ERP package imposes its own logic on a company's strategy, culture and organization.

Question 2

XYZ Company, engaged in the manufacturing of several types of electronic goods is having its branches all over the World. The company wishes to centralize and consolidate the information flowing from its branches in a uniform manner across various levels of the Organization.

The factories are already working on legacy systems using an intranet and collating information. But each factory and branch is using different software and varied platforms, which do not communicate with each other. This not only results in huge inflow of data which could not be consolidated for analysis but also the duplication of data. Even one percent

change in any data entry or analysis translates into millions of Rupees and can sometimes wipe out the profits of the organization. So the company needs a system that would help them to be responsive and act fast.

Read the above carefully and answer the following with justifications:

- (a) *What are the problems that the company is facing now?* (5 Marks)
 - (b) *Should the company go for ERP solution? If yes, will the company be able to share a common platform with its dealers to access servers and database to update the information of issues of mutual interest?* (5 Marks)
 - (c) *For the selection of ERP package, state the issues to be considered.* (5 Marks)
 - (d) *Suggest how to go about the implementation of ERP package.* (5 Marks)
- (Jun 2009)*

Answer

- (a) XYZ company, having its branches all over the world, is engaged in manufacturing of several types of electronic goods. It is confronted with the problem of centralizing and consolidating the information flowing in from its various branches in uniform manner across various levels of the organization.

No doubt, the factories are working on legacy systems using an intranet and collating information. As each factory is using different type of software on varied platforms, therefore, they are not able to communicate with each other. Because of this reason, there is a huge inflow of data which could not be consolidated for analysis. Lack of communication among factories has not only resulted into duplication of the data entry which is not only costly, slight change in data entry and analysis may translate into millions of rupees that can sometimes wipe out the profits of the organization. Hence, there is an urgent need of a system that would help the branches to be responsive and to act fast.

- (b) Yes, the company should go for ERP solutions. ERP implementation brings different business functions, personalities, procedures, ideologies and philosophies on one platform, with an aim to pool knowledge base to effectively integrate and bring worthwhile and beneficial changes throughout the organization. Some of the major features of ERP are that it provides the support to 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 material and resources. All these functions are effectively integrated for flow and updation of information immediately upon entry of any information, thereby providing a company-wide Integrated Information System.

In case, the company decides to include a module for dealers which provides limited/restricted access to company databases and server, dealers will be able to update the information of issues of mutual interest.

- (c) While selecting the ERP package, the performance of following issues should be taken into account:
- (i) Better inventory management and control.
 - (ii) Improved financial reporting and control.
 - (iii) Automation of certain tasks that were performed manually to increase productivity.
 - (iv) Improved production planning.
 - (v) Better information on stocks at various locations.
 - (vi) Using an integrated system as opposed to disparate systems at different locations, thereby eliminating errors of duplicate entries.
 - (vii) More accurate costing of products.
 - (viii) Better credit control.
 - (ix) Improved cash flow planning.
 - (x) Automatic quality control and tracking.
 - (xi) Better after sales services.
 - (xii) Better information and reporting to top management.
- (d) In the stated scenario, several steps involved in the implementation of a typical ERP package are enumerated below:
- (i) Identifying the needs for implementing an ERP package.
 - (ii) Evaluating the 'As Is' situation of the business i.e., to understand the strength and weakness prevailing under the existing circumstances.
 - (iii) Deciding the 'Would be' situation for the business i.e., the changes expected after the implementation of ERP.
 - (iv) Reengineering the Business Process to achieve the desired results in the existing processes.
 - (v) Evaluating the various available ERP packages to assess suitability.
 - (vi) Finalizing of the most suitable ERP package for implementation.
 - (vii) Installing the required hardware and networks for the selected ERP package.
 - (viii) Finalizing the Implementation consultants who will assist in implementation.
 - (ix) Implementing the ERP package.

Question 3

ABC Limited has recently migrated to real-time Integrated ERP System. As an IS Auditor, advice the company as to what kinds of businesses risks it can face? (5 Marks) (Nov 2009)

Answer

Organizations face several new business risks when they migrate to real-time, integrated ERP systems. These risks include the following:

1. *Single point of failure* – All the data of an organization is input and transaction processing is within one application system.
2. *Structural Changes* - Significant personnel and organizational structural changes associate with reengineering or redesigning business processes.
3. *Job Role Changes* - Traditional roles of users are changed to empowered-based role. They have more chances to access enterprise information in real-time. This point of control shifts from the back-end financial processes to the front-end point of creation.
4. *Online Real-Time* – This environment requires a continuous business interaction. This warrants the capabilities of utilizing the ERP application and responds quickly to any problem that requires a re-entry of information (e.g., if field personnel are unable to transmit orders from handheld terminals, customer service staff may need the skills to enter orders into the ERP system correctly so the production and distribution operations will not be adversely impacted).
5. *Change Management* - It is challenging to bring together a highly integrated environment when different business processes have existed among business units for long. The level of user acceptance of the system has a significant influence on its success. Training and awareness of users is mandatory, to understand that their actions or inaction have a direct impact upon other users and in the performance of their day-to-day duties.
6. *Distributed Computing Experience* - Inexperience with this environment may pose significant challenges.
7. *Broad System Accessibility* – The need arises due to remote users, outsider access and high integration among application functions that allow broad access to application and data.
8. *Dependency on External Assistance* – It could introduce an element of security and resource management risk. For example an organization with in-house legacy systems they have to rely on external help that could introduce an element of security and resource management risk and expose the organizations to greater risk.
9. *Program Interfaces and Data Conversions* - Extensive interfaces and data conversions from legacy systems and other commercial software are necessary. The exposures of data integrity, security and capacity requirements for ERP are much higher.

10. *Audit Expertise* – Specialist expertise is required to effectively audit and control an ERP environment. An auditor, who is required to audit the entire organisation's business processes, needs to maintain a good grasp of all the core modules to function effectively.
11. *Single sign on* - Security administration on web-based access to multiple systems simultaneously introduces additional risk by incorrect assignment of access to multiple systems.
12. *Data content quality* - As enterprise applications are opened to external suppliers and customers, the need for integrity in enterprise data becomes paramount.
13. *Privacy and confidentiality* - Regularity and governance issues surrounding the increased capture and visibility of personal information, i.e. spending habits.

Question 4

How will you get over the impediments for the successful implementation of ERP? Mention any five. (10 Marks) (May 2010)

Answer

Implementation of ERP

ERP implementation is a special event, which integrates different business functions, different personalities, procedures, ideologies and philosophies together, brings worthwhile and beneficial changes throughout the organization. It involves considerable amount of time, effort, and valuable resources. One can get over the impediments for successful implementation of ERP in the following manner:

- The success of an implementation mainly depends on how closely the implementation consultants, users and vendors work together to achieve the overall objectives of the organization. The consultants should understand the needs of the users, understanding the business realities and design the business solutions keeping in mind all these factors. It is the users who will be driving the implementation and therefore their active involvement at all stages of implementation is vital for the overall success of implementation.
- During the course of implementation, the standard packages may undergo changes which may be a simple one or a major functionality' change. Implementing such change is known as customization. It is always better to satisfy user requirements and overall objectives within the available framework of the existing package because any change in any functional module will have an adverse impact on the functioning of the other modules of the package.
- The roles and responsibilities of an employee to be clearly identified, understood and configured in the system. The employees will have to accept new processes

and procedures laid down in the ERP system. At the same time, these process and procedures have to be simple and user friendly.

- The ability of the ERP package to manage and support dynamically changing business processes is critical requirement for the organization and therefore the package should be expandable and adaptable to meet these changes.
- An ERP package after implementation is expected to improve the flow of information and formalize and standardize all the business processes and workflow that exist in an enterprise. It is worthwhile to remember that ERP is an enabling tool, which makes one to do his/her work better, naturally needs additional efforts. A well managed and implemented ERP can give 200% return on investment.

Question 5

If you are the CEO of a company, what factors would be considered before undertaking implementation of an ERP system?
(5 Marks) (May 2010)

Answer

Various factors which should be considered before undertaking the implementation of an ERP system are:

- (i) Integrate financial information:** As the CEO tries to understand the company's overall performance; he may find many different versions of the truth. Finance has its own set of revenue numbers, sales has another version, and the different business units may each have their own version of how much they contributed to revenue. ERP creates a single version of the truth that cannot be questioned because everyone is using the same system.
- (ii) 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 the loading dock ships the merchandise and finance department sends an invoice. By having this information in one software system, rather than scattered among many different systems that can't communicate with one another, companies can keep track of orders more easily, and coordinate manufacturing, inventory and shipping among many different locations simultaneously.
- (iii) Standardize and speed up manufacturing processes:** Manufacturing companies - especially those with an appetite for mergers and acquisitions—often find that multiple business units across the company make the same transaction/ recording/ report using different methods and computer systems. ERP systems come with standard methods for automating some of the steps of the manufacturing process. Standardizing those processes and using a single, integrated computer system can save time, increase productivity and reduce headcount.

- (iv) **Reduce inventory:** ERP helps the manufacturing process flow more smoothly, and it improves visibility of the order fulfillment process inside the company. It can lead to reduced inventories of the materials used to make products (work-in-progress inventory), and it can help users to better plan deliveries to customers, thereby reducing the finished good inventory at the warehouses and shipping docks. To really improve the flow of the supply chain, one needs supply chain software, but ERP helps too.
- (v) **Standardize HR information:** Especially in companies with multiple business 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 problem.

Question 6

You are entrusted with the duty of implementing an ERP in your office. You have taken care of all the preparations during the implementation. However, during post implementation, there will be a need for course correction many times. What can be the reasons for them?

(4 Marks) (Nov 2010)

Answer

The need for course correction during Post-implementation of ERP may be because of the following reasons:

- (i) A change in the business environment requires a change in the Critical Success Factors (CSF), resulting in a new or changed set of Key Performance Indicators (KPI) necessitating reconfiguration.
- (ii) A review indicates a need for change in some processes.
- (iii) Vision changes in the ERP and improvements in hardware and communication technology necessitate changes.
- (iv) *New additions to the business require extra functionality.*

Question 7

Why does an organization implement an ERP package and evaluate the various available ERP packages for assessing suitability? Mention the various evaluation criteria that are required to assess suitability of an ERP package on implementation. (4 Marks) (Nov 2010)

Answer

ERP implementation in the organization 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. Implementation of ERP is a risky effort since it involves

considerable amount of time, efforts and valuable resources. Even with all these, the success of an implementation is not guaranteed.

The ability of the ERP package to manage and support dynamically changing business process is a critical requirement for the organization and therefore the package should be expandable and adaptable to meet these changes. The ERP implementation methodology involves several steps of which, one is evaluating the various available ERP packages to assess suitability.

Evaluation of ERP packages are done based on the following criteria:

- Flexibility
- Comprehensive
- Integrated
- Beyond the company
- Best business practices
- New technologies
- Other factors: These include:
 - Global presence of package,
 - Local presence,
 - Market Targeted by the package,
 - Price of the package,
 - Obsolescence of package,
 - Ease of implementation of package,
 - Cost of implementation, and
 - Post-implementation support availability.

Question 8

Write short notes on the Business Engineering.

(4 Marks) (Nov 2010)

Answer

Business Engineering:

- Business Engineering has come out of merging of two concepts, namely Information Technology and Business Process Reengineering.
- It is the rethinking of business processes to improve speed, quality and output of materials or services.

- The emphasis of business engineering is the concept of process oriented business solutions enhanced by the client-server computing in Information Technology.
- The main point is the efficient redesigning of company's' value added chains assisted by business models, developed by Information Technology.
- It is the development of business processes according to changing requirements.

Question 9

What are the tasks for which the company should be ready for post implementation period of an ERP System?
(4 Marks) (May 2011)

Answer

Having evolved the processes while the configuration, construction and implementation are in progress, the organization needs to ready itself for the post-implementation period. Some of the tasks that are to be performed are to:

- develop the new job descriptions and organization structure to suit the post ERP Scenario;
- determine the skill gap between existing jobs and envisioned jobs;
- assess training requirements, and create and implement a training plan;
- develop and amend HR, financial and operational policies to suit the future ERP environment; and
- develop a plan for workforce logistics adjustment.