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**Concept based notes**

# **ERP System**

MCA

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## Preface

I am glad to present this book, especially designed to serve the needs of the students. The book has been written keeping in mind the general weakness in understanding the fundamental concepts of the topics. The book is self-explanatory and adopts the “Teach Yourself” style. It is based on question-answer pattern. The language of book is quite easy and understandable based on scientific approach.

Any further improvement in the contents of the book by making corrections, omission and inclusion is keen to be achieved based on suggestions from the readers for which the author shall be obliged.

I acknowledge special thanks to Mr. Rajeev Biyani, *Chairman* & Dr. Sanjay Biyani, *Director (Acad.)* Biyani Group of Colleges, who are the backbones and main concept provider and also have been constant source of motivation throughout this endeavour. They played an active role in coordinating the various stages of this endeavour and spearheaded the publishing work.

I look forward to receiving valuable suggestions from professors of various educational institutions, other faculty members and students for improvement of the quality of the book. The reader may feel free to send in their comments and suggestions to the under mentioned address.

**Author**

# ERP System

Enterprise wide information system, Custom built and packaged approaches, Needs and

Evolution of ERP Systems, Common myths and evolving realities, ERP and Related Technologies, Business Process Reengineering and Information Technology, Supply Chain Management, Relevance to Data Warehousing, Data Mining and OLAP, ERP Drivers, Decision support system.

ERP Domain, ERP Benefits classification, Present global and Indian market scenario, milestones and pitfalls, Forecast, Market players and profiles, Evaluation criterion for ERP product, ERP Life Cycle: Adoption decision, Acquisition, Implementation, Use & Maintenance, Evolution and Retirement phases, ERP Modules.

Framework for evaluating ERP acquisition, Analytical Hierarchy Processes (AHP), Applications of AHP in evaluating ERP, Selection of Weights, Role of consultants, vendors and users in ERP implementation; Implementation vendors evaluation criterion, ERP Implementation approaches and methodology, ERP implementation strategies, ERP Customization, ERP-A manufacturing Perspective.

Critical success and failure factors for implementation, Model for improving ERP effectiveness, ROI of ERP implementation, Hidden costs, ERP success inhibitors and accelerators, Management concern for ERP success, Strategic Grid: Useful guidelines for ERP Implementations.

Technologies in ERP Systems and Extended ERP, Case Studies Development and Analysis of ERP Implementations in focusing the various issues discussed in above units through Soft System approaches or qualitative Analysis tools, Learning and Emerging Issues, ERP and ECommerce.

Concept of E-Governance : Concept, E-Governance frame work, area of application like public sector, service industry

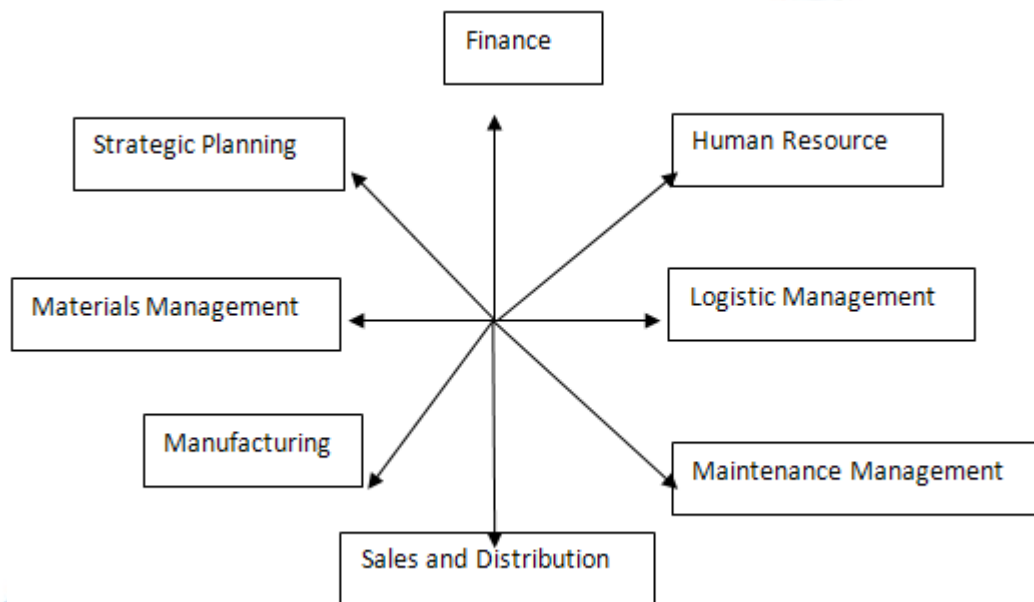
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## UNIT-1

### Q.1 What is ERP? Describe it's needs.

Ans. ERP is the short form of Enterprise Resource Planning. In an organization there are many important processes such as customer order fulfillment and manufacturing etc.

ERP uses ERP software applications to automate or advance the performance of an organization. ERP System



ERP software designed to automate and integrated major/important business process of a company. ERP system tries to integrate all data and process of an organization. ERP software perform multiple tasks which integrate different process like functional, department, product planning, part purchasing, inventory control, product circulation to order tracking.

### Q.2 Explain evolution of ERP System.

Ans. Evolution in ERP:

In 1960's business had to depend on the traditional ways of managing all major business processes to ensure smooth functioning of the company. These theories are called classical inventory management. In this the most popular technique as EOQ (Economic Order Quantity).

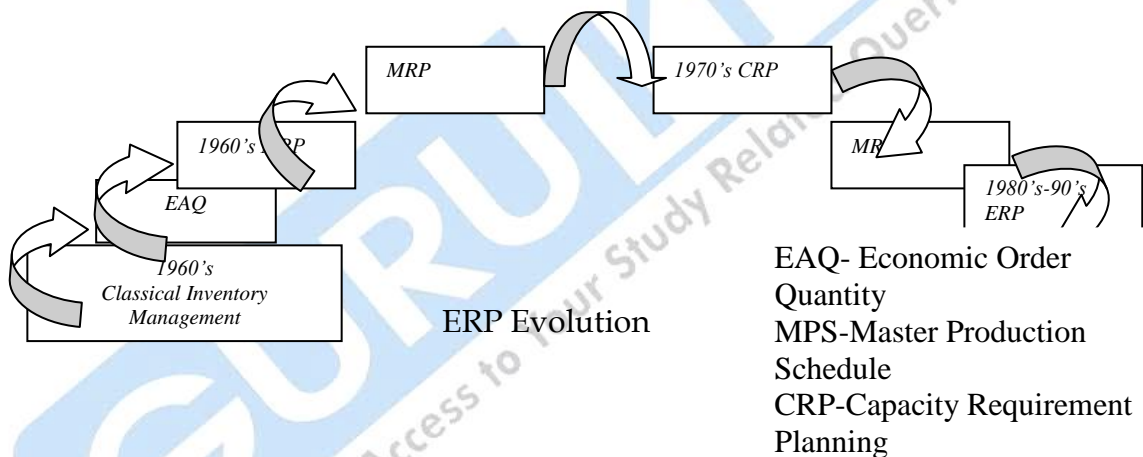
This technique was based on ordering cost and inventory carrying cost of each item in stock.

In 1960's, a new technique known as MRP (Material Requirements Planning) was evolved. This technique was focused on end product demand obtained by Master Production Schedule (MPS) for a particular product structure which is obtained from bill of material. MRP successfully showed the effectiveness by avoiding delays and better coordination.

In 1970's modified technique of MRP evolved this technique popularly known as Capacity Requirements Planning (CRP).

In 1980's financial resource with manufacturing activities integrated together. This gave birth to Manufacturing Resource Planning (MRP II).

In 1980's-90's MRP II transform into ERP. By overcoming shortcomings of MRP II and integrating new technologies.



**Q.3. What are the common ERP myths and evolving realities?**

Ans. There are following myths about enterprise resource planning.

- a. ERP means more work and procedures- Transforming traditional system to ERP is difficult. For this new skills have to be learned. Many employees think that ERP will add more work and make the work more difficult. If management and implementation team plan properly and employees are given proper training then transition can smoothly take place.
- b. ERP will make many employees redundant and jobless- Another popular myth is implementation of ERP many employee will lose their jobs because of the automation of business process and tasks.

ERP automate tasks in the organization and also create new opportunities.

- c. ERP is just for the managers/decision makers- Managers and decision makers uses ERP the most. But this is also true that every employee in an organization benefits from ERP system by high quality and timely information.
- d. ERP is the only responsible for the management- ERP system and its work has the duty of all the employees, every department and every single person within the department. Management just plays a role of given that back to ERP system. When ERP system will have full backing support from the management then only its will be able to work smoothly.
- e. ERP is just for manufacturing organizations- This myth is basically due to ERP has evolve from MRP and MRP II which are relevant to manufacturing organizations. ERP focuses on all of the areas of enterprise, wide planning and its resources. It is not related to only manufacturing or any other particular department.
- f. ERP slows down the organization- In the traditional system most business tasks were performed manually which was a time consuming process. ERP system automated the flow of information within different departments of an organization without duplication of errors and provides more accurate results.
- g. ERP is just for the ERP implementation team- In an ERP implementation team there are consultants, vendors and group of employees. After the implementation and the user training is over, consultants and vendor representatives will leave and then it becomes the responsibility of employees to make best use of ERP system.
- h. ERP is just to impress customers- ERP system helps in serving better. It also help company to react faster, response better and deliver accurate, fast and quality product which improves customer goodwill and customer relations.

- i. ERP package will take care of everything- A properly implemented ERP can automate tasks, reduce waste improve profits but ERP system needs people to operate it.
- j. One ERP package will suit everybody- For different organizations you need different ERP systems because one organization is different from other in its functionality, price, technical supports size, features. Thinking that one tool will be suitable for all organizations it is wrong. For an ERP system implementations successful tool should be according to organization culture needs.
- k. ERP is very expensive- ERP system comes in different size and shapes. High-end tools are very expensive. Qualified people are requiring for proper implementation and effectiveness. So implementing and managing ERP system is expensive. But the ERP system gives more benefits against expenses.
- l. Organizations can succeed without ERP- In today's scenario organizations are becoming large in size and technology. Today's era is of distributed production in which different parts of one product is developed in different parts of world. In such scenario, to integrate and control the activities of an organization can be only done through ERP system.

**Q.4 Describe ERP and its related technologies.**

Ans. ERP system plays an important role in the organization by integrating different business tasks-such as materials management, product planning, sales distribution in one application.

However ERP systems have three limitations-

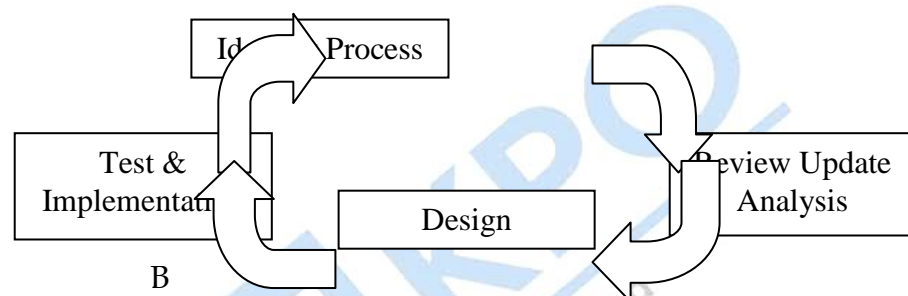
1. Managers cannot generate custom reports and queries without help of computer programmer.
2. ERP system provides current status only such a open orders. It does not provide past record.
3. The data which is in the ERP application is not integrated with other enterprise or division lack of external intelligence.

ERP related technologies-



### A. Business Process Reengineering (BPR)

A Business process is a series of logically related task/activities performed to achieve a defined business outcome. Business process reengineering is design and analysis of workflows and processes within an organization. BPR is also known as Business Process Redesign, business transformation or business process change management.



### Business Process Reengineering(BPR)

BPR helps organizations fundamentally rethink how they do their work in order to dramatically improve customer service, cut operational costs.

BPR is basically redesigning/rethinking in a circular format using existing resources of an organization.

### B. Supply Chain Management-

“ A supply chain is the alignment of firms that bring products or services to market.”-Lambert, Stock, Ellram

Supply chain is a network of facilities and distribution options which perform the task of acquire of materials, transformation of these materials to finished products and distribution of these products to customers. Supply chain exists in service as well as manufacturing organizations.

### C. Data Mining

Data Mining is a process of acquiring valid, useful and complete knowledge forms the database. This knowledge is used to make major and important

decision in the organization. A big problem is turning data into effective information and then extracting knowledge from the database. Organization, research institutes, academic institutions commercial organizations create and store large amount of data in a day. It is impossible for human to deal with huge amount of data.

One more benefit of automated data mining systems is that **this** process has a much lower cost than hiring a team of highly paid professionals.

ON-LINE Analytical processing (OLAP)

According to <http://www.OLAPReport.com> , it can be defined in five words:-

1. Fast - means the target of the system is to deliver most response within about five seconds.
2. Analysis - means that system can deal with any business logic and statical analysis which is relevant to user and application.
3. Shared - means system should follow all security measures for confidentiality.
4. Multi-Dimensional - means system must provide a multi-dimensional conceptual view of data.
5. Information - means data and derived information needed wherever it is and however much is relevant for the application.

**Q.5 Describe Decision Support System.**

Ans. DSS is a part of CBIS i.e. "Computer Based Information System" is a collection of variety of information system for eg: office automation system, transaction processing system.

Definition - A computer based interactive human-computer decision-making system that:-

1. Support decision makers
2. Utilizes data models
3. Solves problem with different degrees or structures.
4. Focus on effectiveness instead of efficiency indecision processes.

**Q.6 What is enterprise information system?**

Ans. Enterprise information system is a computing based system. It offers good and high quality of service it also deals with huge amount of data and also supports large organizations.

Enterprise Information System provides technology bases that allow organizations to integrate and organize their business processes. This

system is central to the enterprise/organization so that the information can be common between practical level as well as the management level.

**Q 7. What do you understand by enterprise wide information system and its approach?**

**Or**

**What do you understand by enterprise information system?**

Ans. Enterprise wide information system (EWIS) is a system where various computing systems are involved such as ERP (Enterprise Resource Planning), SCM (Supply Chain Management), Knowledge Management System etc.

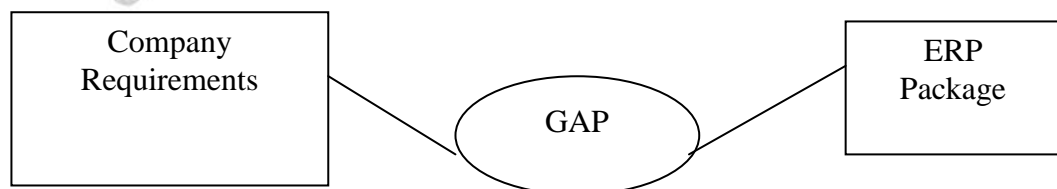
Information system support different activities of business such as manufacturing, order processing, inventory, HR management. It also supports external interactions with customer, suppliers and business partners.

Enterprise Wide Information System is system which allows the company to integrate information about operations.

1. Enterprise wide information system combined business process operations and information system from all of organizations functional areas.
2. This system does not store the information on difficult places it provides all information to a central and common for all place.

Approaches:-

1. Custom built approach- In the customization approach business needs our customized or involved in the ERP system. Customization of requirements of organization is done in such a way that gap between organize requirement and ERP package can be fulfilled.



2. Packaged approach- packaged approach works with minimal organizational change for this approach software is ready for

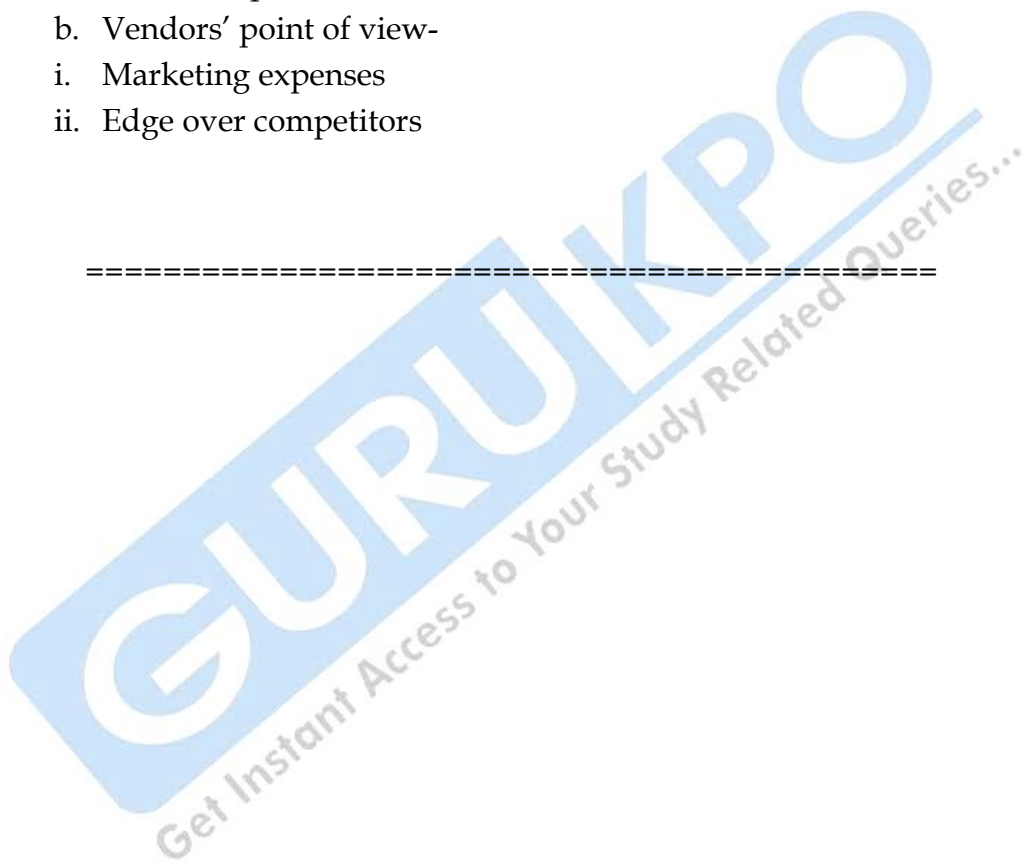
implementation. Implementation of this approach is cost effective also.

**Q.8 what do you mean by ERP drivers?**

Ans. ERP drivers includes those issue which affect/influence organization's trade and stake holder's value. There are internal and external both. Vendor needs to take care of many factors before selling his services-

- a. Companies point of view-
  - i. Contract
  - ii. Personnel process
- b. Vendors' point of view-
  - i. Marketing expenses
  - ii. Edge over competitors

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## UNIT II

**Q.1. What are the benefits of ERP systems?**

**Or**

**Explain the advantages of ERP system?**

Ans. Implementation of an ERP system has many advantages both direct as well as indirect. The direct advantage is improved efficiency information integration which helps in decision making, faster response time to customer queries.

In indirect benefits better enterprise image, it also improve customer goodwill and customer satisfaction and soon.

Direct benefits:-

1. Improves the productivity of process and person
2. Recude the cost of production and services
3. Lead time reduction
4. Faster production
5. Automated ordering and payment
6. Inventory reduction

Indirect Benefits:-

1. Improve customer response
2. Support strategic planning
3. Uniform and standard reporting accorting to global standards.
4. Save time and efforts in data entry.
5. Can reach more vendors, producing more competitive bids.
6. Access to accurate data
7. Faster access to data for timely decisions.

**Q.2 Describe ERP life cycle.**

**Or**

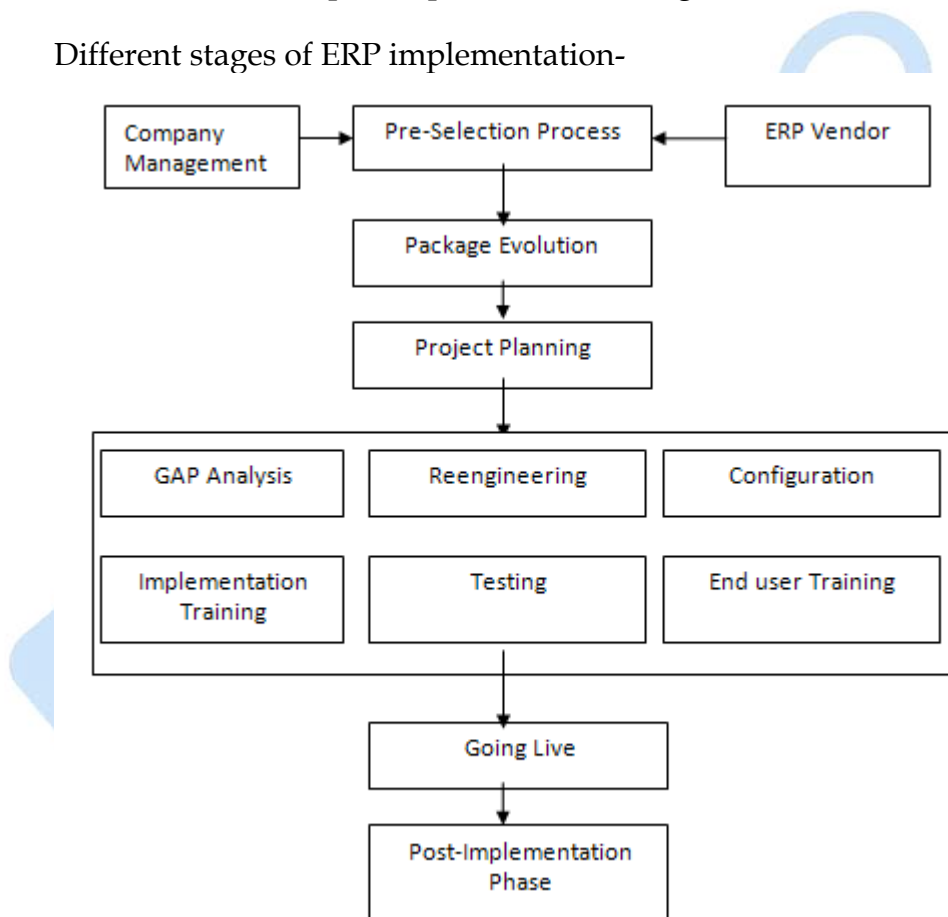
**Describe ERP implementation life cycle.**

Ans. The process of implementing ERP system is called as ERP implementation life cycle:-

1. Objectives of ERP implementation
  - a. Sped: Speed of ERP system is directly related to time used for implementation or ERP System
  - b. Scope: Scope of project is functional and technical features that the company wants to implement.

- c. Resources: Resources includes hardware systems human resource. Software system technical support and consultants.
- d. Risk: The risk of a project is a factor which affects the overall success of ERP implementation.
- e. Complexity- meaning of complexity here is level of difficulty in implementation operating and maintaining the ERP system
- f. Benefits: To get the maximum benefit out of an ERP implementation the software should be built according to the software development process and all organizational needs.

Different stages of ERP implementation-



**1. Pre evaluation screening-** Once enterprise has decided to apply ERP system the search for perfect package start. But there are several of ERP vendors-off many sizes and shapes. Analyze all the packages before reaching a decision is not an easy process, its very time consuming. Company should do per-evaluation screening to limit the number of ERP packages that are to be evaluated by the committee.

2. **Package Evaluation:** The selection process is the most important stage of the ERP implementation because the selection will decide the success or failure of the project. ERP system cost huge investment, once a package is purchased then it is not easy to switch to another one. The objective of selection process is not to identify a package that covers each and every need but also find a package that is flexible enough that covers enterprise needs.

Important points to be kept in mind while evaluating ERP software includes:-

- Functional fit with company's business process
- Flexibility and scalability
- Complexity
- User friendliness
- Quick implementation
- Technology- client server capabilities, database independence, security.
- Amount of customization required
- Total cost, cost of license, implementation, maintenance, customization and hardware requirements.

3. **Project planning phase:** The project planning phase is the phase that designs the implementation process. This phase directs about how follow implementation. Such as time schedules, deadlines etc. In this phase roles are identified and responsibilities assigned.

The organizational resources that will be utilized for implementation process are decided and people who are supposed to head the implementation are identified. The implementation team members are selected and task allocation is done.

4. **GAP analysis:** In the gap analysis stage companies create a complex model of their current status i.e. where they are now and where they want to reach. The trick of gap analysis is vendor covers

functional gaps. It is also estimated that ERP package is fulfilling companies need or not. If not or partially solutions are-

- 4.1) Pinning your hopes on an upgrade
  - 4.2) Search third party product that might fill the gap.
  - 4.3) Design a custom program.
  - 4.4) Altering the ERP source code. (Most expensive alternative)
5. **Reengineering:** Implementation of an ERP system involves reengineering of the existing business processes to the best business process standard. ERP system built upon best processes followed in the industry.
- Reengineering exhibits the existing way of doing business.
6. **Customization:** This is the main functional area of the ERP implementation. In this process the existing business processes synchronized with ERP package. For a good synchronization processes and ERP all processes have to be understood and mapped in such a way that the solutions match up with the overall goals of the company.
7. **Implementation team training:** In this phase of ERP life cycle implementation team is being trained. At the same time customization is taking place. Training is given to the team on how to implement ERP system. In the training, company trains its employees to implement and later run the system. The ERP vendors and consultants will leave after the implementation of ERP system is over.
8. **Testing:** This is the phase where you try to test and break the system. Here we will try to test the system with real case scenarios like- system overloads, multiple users logging on at the same time with the same query, users entering invalid data, hackers trying to access restricted areas and so on.
- Test case should be designed in such a way that it can identify the weak links in the system. All the problems should be fixed before living.



9. **Going live-** In this phase ERP is made available for all and for the entire organization. The technical side is almost complete, database is ready and running on the functional side the model is fully configured and tested and ready to go operational.
10. **End-user training:** In this phase the actual users are given training how to use the system. The phase starts much before the system goes live. The employees who are going to use the ERP system are identified, their current skills are noted and they are divided into groups. Each group is given training on the new system. This training is very important for the ERP System because now its in the hand of end users.
11. **Post implementation/operation and maintain-** This post implementation phase is the most important phase and critical also. Once the implementation is over the vendors and the hired consultants will go. To get full benefit from the ERP system. It should get enterprise wide acceptance. There should be sufficient employees who are trained to handle problem that might arise after implementation. People also required who has technical knowledge that can make necessary enhancement to the system when ever required.

**Q.3 What are ERP modules? Explain.**

Ans. ERP software is made up of many ERP modules. Each ERP module corresponds to a major area of an organization. Some common ERP modules includes module for finance, manufacturing, production planning, sales and distribution order tracking etc.

- a. Financial module-



b.

Finance

For all kind of organizations small scale or large scale organizations benefit from the implementation of ERP finance module. The financial module is the heart of many ERP software systems. It can collect financial data from various functional departments and generated valuable financial reports such as balance sheet and quarterly financial statements.

- c. ERP HR module- Human resources is another widely applied ERP module. ERP HR module schedules the management of human resources and human capabilities. HR module maintain a complete database of employees including contact information, salary details, attendance, performance, evaluation and promotion of all employees etc.
- d. ERP Production Planning Module/ERP Production Module- Production planning module contains the utilization of manufacturing capacity, parts, components and material resources using historical production data.

Production planning helps an organization plan production with optimum utilization of all available resources.

- e. ERP purchasing module: ERP purchasing module schedules the required raw materials. It automates the list of identifying potential suppliers, negotiating price, awarding purchase order to the supplier and the billing processes. Purchasing module is built upon inventory control and production planning modules.
- f. ERP inventory module- ERP inventory module support processes of maintaining the appropriate level of in a warehouse. It involves-
  - Identifying inventory requirements
  - Setting targets
  - Providing replenishment techniques
  - Monitoring item usages
  - Reconciling the inventory balance
  - Reporting inventory balances
  - Reporting inventory status.
- g. ERP sales and marketing module: ERP sales module implements functions or order placement, shipping and invoice order scheduling. Sales module is integrated with organizations ecommerce websites.

Activities of sales and marketing module-

  - Handle pre-sales activities of the organization.
  - Complete stock to dock tracking of sales
  - Order processing cycle.
  - Target setting for executives
  - Order amendment history
  - Over scheduling over a period of time and tracking delivery schedule.
- h. Plant and Machine Maintenance Module: The plant and machine maintenance module in ERP provides a combined solution for supporting the operational needs of an enterprise wide system. ERP plant and machine maintenance module support various options for structuring technical system with objects, type, function-related views.

- i. Quality Management Module: Quality management module allows the quality department to define its own quality test cases required at different stages of production, beginning from quality check which is required during the purchasing of raw materials.
- j. Tasks of Quality management module-
  - Quality inspection
  - Quality control
  - Quality planning

Material management module-

Material management module supports the process of maintaining the appropriate level of stock in a warehouse.

It comes under the activities of inventory control it includes-

- Inventory requirements
- Setting targets
- Providing replenishment
- Techniques
- Monitoring item usages
- Reconciling the inventory balances and inventory status.

**Q.4. Explain the global and Indian market scenario. Also explain the pitfalls of ERP system.**

Ans. Overview- ERP market is a very competitive and fast growing market. According to AMR research the enterprise resource planning (ERP) market is experiencing double digit growth in 2007, and is expected to continue to grow at an average rate of 10% over the next five years.

As the technologies of e-Business and ERP effective ERP system will be a critical component to an enterprises success. For e-Business system to be truly effective they must be applied to an optimized ERP system so that enterprise can take advantage of increasing web and collaboration focused business processes in future.

Indian Scenario-

The Indian scenario of ERP system is a bit different here small and medium sized businesses are the major force that pushes the growth. The requirement of each company differs in terms of standard industry practices and unique practices. Hence, there is greater demand for componentized solutions with stand modules.

Indian Advantage

In today's era where MNC is at top like SAP and Oracle Indian vendors are not left behind. Indian ERP vendors have a better understanding of the local landscape and are in a better position to provide solutions with the right mix of functionality, technology and pricing for the Indian customer.

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## UNIT III

**Q.1. Explain the role of consultants, vendors and users in ERP implementation.**

**Or**

**Describe the pros and cons of In-House implementation of ERP. Also explain the role of vendors, consultants and users.**

**Ans.** In-house implementation of an ERP system- People may ask why can't companies carry out the ERP implementation itself. To implement and set up ERP successfully is not an easy task. Due to the huge amount of investment involved no one can take risk for a trial and error method of implementation strategy. Failure of an ERP system can cause the organization out of business. Also the process of implementation can not go for a long time. It has to be completed within a period of reasonable time.

Many software vendors have their own team of consultants whose responsibility is to implement the software package following is a standard approach or methodology.

1. **Vendors:** Vendors are the people have developed the ERP package. They are the people who have invested huge amount of time and efforts in research and development to create package solutions.

Choosing the right software vendor goes beyond evaluating software functionality. Some vendors believe functionality ratings are no longer important since all software systems are beginning to look alike.

**Role of the vendor:**

- a. The vendor is responsible for fixing any problems in ERP software that the implementation team perform.
- b. Vendor provides initial training for the company key users
- c. Vendors training should include showing the key user how the package works.

Key users are one who will define with the collaboration with consultants how the software is to serve the company.

- d. some of us might be thinking that why can't we get training from the consultants who are more expert in the package. Consultants can provide sound training for the employees. But we are hiring consultants for implementation. Consultants also play important role in training by giving their inputs.
  - e. vendors fill gap between the package and the actual business processes.
  - f. ERP combined business process reporting for different business divisions.
  - g. The three players namely SAP AG, Oracle; Baan People soft are covering 64% of ERP market revenue.
2. Consultants- Business consultants are professional who specialize in developing techniques and methodologies for dealing with tie implementation. They are the expert in administration management and control of various problems. Which comes during the implementations. Consultants are people who have made the business of ERP implementation their business and have invested huge amount of money and man power
- Role of the consultants:-
- a. Maintain technical documents on the projects.
  - b. Analyze business requirements.
  - c. Prepare the functional specifications for ERP program development
  - d. Perform gap analysis and related studies
  - e. Perform product design and operation review
  - f. Identify requirements of the users of the ERP system
  - g. Interact with other modules consultants.
3. Users- Once the ERP system implemented ERP users are the people who will be using the ERP system. ERP system brings drastic transformation in the actual work process which leads to change in job descriptions.
- ERP system brings changes in a very huge scale. Employees will fear that system will replace existing jobs, as many functions will be automated.

The automation of the business processes through technology. Can eliminate the job of many employees whose function it is to record, control, calculate, analyze file or prepare reports.

But ERP also create new once with more qualities and values.

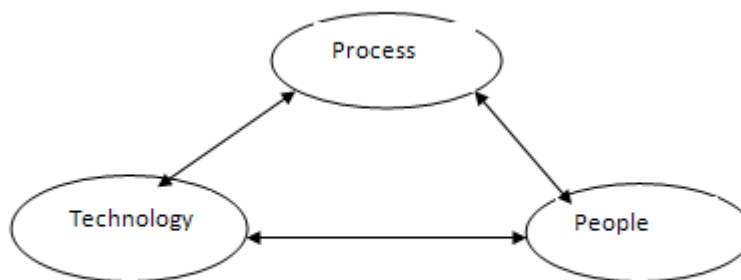
**Q.2 Explain the ERP implementation approach.**

Ans. An ERP implementation strategy shows how the ERP systems will be installed. Different companies may install the same ERP Software in totally different processes.

There are several implementation strategies but ost of them can e divided in five basis types:

- a. Big Bang
- b. Phased
- c. Parallel
- d. Process Line
- e. Hybrid

Three pillars- process, people and technology support any ERP implementation.



**Three Pillars of ERP Implementation**

- a. **Big Bang Strategy-** in this strategy companies prepare a grand plan for their ERP implementation. In this strategy all modules of an ERP system installed at once across the entire organization. This strategy is early implementation and this strategy partially contributes to higher rate of failure.



- b. **Phased implementations:** In this strategy phased implementations one module at a time is implemented in sequential order. This is also known as modular functional, sequential approach.
- c. **Parallel implementation** this approach keeps both the legacy system (Previous conversional system) and New ERP system active simultaneously for a portion of time. The amount of time in which both systems go hand I hand can be one day to several months.
- d. **Process line transition strategy-** the process line transition strategy conceptually breaks the implementation strategy to manage parallel business process flows on product lines.
- e. **Hybrid Transition Strategy:**  
Hybrid strategy is combination of the phasing, process line, parallel implementation

**Q.3 Explain ERP implementation Methodology.**

Ans. It can be divided into four phases:-

1. **Understanding the problem:-** In this the approach is to understand the type of business and company culture. How can the package fit to the business need or process? This phase is carried out by project team members and decision makers.
2. **Defining solutions:-** This is the most important and difficult phase of the ERP project. In this all of the operations of the ERP package to be performed will be defined. In this stage it is also identified the difference between present work process and new work environment which will come often implementing ERP system.
3. **Getting down to work:-** In this phase ERP project Team will follow the following steps:-
  - a. Load the initial data
  - b. Develop, test and place the automation into operation
  - c. Develop interfaces.
  - d. Document the new procedures associated with the system
  - e. Est the new work environment
  - f. Train the end users.

4. Going live:- Here user will start using the system. Here there is no assurance of success, because practically any problem can occur.

**Q.4. What is ERP customization?**

Ans. English mean of customization is to convert or adapt. Here in ERP customization is a big area of concern for enterprises which are using ERP systems.

Customization of ERP program can be very expensive. The actual customization of ERP system makes it more difficult to convert or upgrade. Customization should be generally avoided.

There are two types of customization:-

- a. Strategic customization- strategic customization is actually customization to achieve strategic goal. Strategic customization should be in the favour of the organization.
- a. Consistency customization- This customization is performed for the purpose of consistency purpose. The reason is to fill the gap between ERP and business processes.

**Q.5 Explain ERP as a manufacturing perspective?**

Ans. The manufacturing segment is 25% of total I.T. which is a largest segment. In most of the organization they spend more on I.T.in the process manufacturing sector. I.T.priorities in manufacturing is- controlling inventory, marketing production costs, delivery channel relationship.

The investment areas of manufacturing companies:

- a. Infrastructure
- b. Software design
- c. Software package
- d. ERP package
- e. ERP implementation services
- f. External connectivity
- g. Data warehousing
- h. E-commerce

ERP is stoppage for all manufacturing industry and more and companies are going to ERP solutions. ERP is a huge approach area and leads to bottom-up change in the organization.

**Q.6. Explain the framework for evaluating ERP acquisition?**

Ans. There are organizations in the market vary in size for medium and small organization it is hard to estimate or organize. The economical and organizational impacts related to ERP system.

In any enterprise, whenever implementing a new IS like an ERP, companies should re-design their business process. According to the actual requirements to get the benefits of IT.

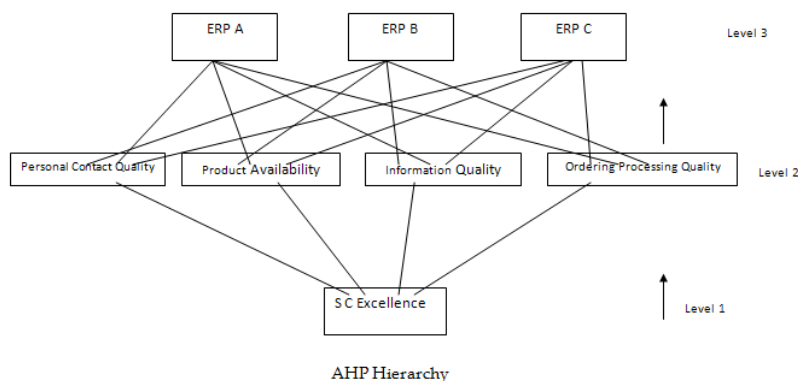
There are two approaches to the acquisition of an ERP system-

- a. Traditional Approach: In this approach BPR (Business Process Reengineering) is used. Through this many changes can be seen like the way people work, distribution of responsibility and decision making power, strategic importance of business function.
- b. Simplified Approach: In this approach ERP implementation is without BPR technique. This approach comes at the first place where the company adapts its processes according to the ERP system requirements.

**Q.7. What is AHP?**

Ans. AHP is Analytical Hierarchy Processes. AHP can be defined as in simple terms a process where decision problem are solved. Multiple solutions has to be found out for the decision problem and then priorities are made according to the alternatives.

In this approach a complex or difficult decision is break into one or more levels where through ratio comparison evaluation or assessment can be done.



1. Level 1 denotes goal
3. Level 2 denotes critical factors
4. Level 3 decision alternatives.

Q.8. What do you mean by 'Selection of weights'?

Ans. There is no correct way to calculate relative scores or weights. Here we estimate error. Here we decide the error is serious or not.



## UNIT IV

**Q.1. Describe the critical success and failure factors for implementation?**

Ans. ERP implementation includes people departments, processes and organization. ERP system also face high stress, long hours, uncertainty.

Critical success factors:-

1. Strong leadership provided by an executive management planning committee.
2. Great implementation teams.
3. Mid-level management.
4. Brilliant project management techniques
5. The old systems.
6. Measurements are implemented and closely monitored.
7. Implementation schedule is established.
8. Change management techniques.
9. Education and training.

**Failure factors:-**

1. Poor leadership from top management
2. Existing redundant or non-value added.
3. Unrealistic expectations.
4. Poor project management
5. Inadequate education and training.
6. Trying to maintain the status quo.
7. A bad match.
8. Inaccurate data
9. ERP implementation is viewed as an I.T. project.
10. Significant technical difficulties.

**Q.2. Describe ROI of ERP implementation.**

Ans. ROI is simply the figure of benefits of an investment Which is divided by sum of the costs, spoken in percentage terms. ROI is not silver bullet to analyze all IT decisions and not all IT benefits can be quantifies. Benefits from an ERP project different from company, industry, solution and vendor. No standard calculation or estimation method

can sufficiently project the benefits applicable to any specific situation. Following a structured method of analysis will lead to reasonable estimation of expectation of benefits. It is difficult to completely, accurately calculate the expected ROI before an implementation and even the actual achieved ROI after implementation.

1. Inventory reduction- Reduction of inventory levels including raw materials, WIP (work in progress) and finished goods. By reducing inventory levels, the financial value stored in that inventory becomes cash on the balance sheet and is available for other investment.
2. Improved process efficiency- The ERP application automates each of the company's major business processes, working in an integrated cyclical fashion starting from the procurement of materials, warehouse management, and machine maintenance and through sales management.
3. Improved vendor relations- Some ERP software provides features of tracking all vendors, RFQ's previous purchase and term of purchases.
4. Waste reduction- Raw materials represent a significant cost of production and a variety of factors can cause waste to occur in production, especially waste occurring through theft, expiration and improper mixing.

**Q.3. What do you understand by Hidden Cost?**

Ans. ERP software packages promise great benefits. But what are the costs involved? Exactly how much will one have to pay to get them? In most cases, the ERP implementation cost will exceed the budget? Why is this? Even a well planned and thought-out budget may be exceeded. In this section we will examine the areas that most managers fail to account for in their budgets.

1. Training
2. Customization
3. Integration and testing
4. Data conversion
5. Data analysis
6. Consultants
7. Brain drain
8. Continuing maintenance

**Q.4. Explain ERP success inhibitors and success accelerators.**

We have seen the different objective, phases and strategies for implementing an ERP system. Yet many ERP implementations fail miserably during the initial stages of the operational phase itself or fail to deliver the promised benefits. **Why does this happen?** Given below are some of the most common reasons-

- a. Lack of top management buy-in, commitment and support
- b. Improper planning and budgeting
- c. Use of wrong ERP tool
- d. Lack of training and
- e. Work culture of the organization.

**ERP success Accelerators**

Accelerators are pre-configured versions of an ERP software solution, usually based on specific industry verticals. Some vendors also provide tools designed to accelerate the configuration process by providing lists of standard questions that their functional consultants use to configure the software to meet a client's business requirements.

Three common misconceptions about ERP software accelerators-

- a. People and Business processes are the challenge, not the software
- b. 'Pre-configuration' may or may not meet your specific requirements
- c. Decision making and executive alignment can not be automated or accelerated.

**Q.5. What do you understand by management concern for ERP Success?**

Ans. For management issues it can be divided into three categories: short-term, middle-term and long-term. There are two short-term issues Y2K and a single European currency. The second is shifting from legacy systems and avoiding implementation delays. The medium-term issue for management is return on investment and the long-term issue.

ERP deployment has two parts:

1. Selection: It involves spending time in just listening to the views of various people who are involved. Since there are bound to be differences of opinion, especially among people who are very senior in the management, it is an area which should not be left to

the ERP set-up alone and the senior-most managers, even the CEO, must get involved.

2. Implementation: implementation time is also reduced by selecting a system that is simple and offers smart tools for system administration. A system that offers an abundance of unnecessary features can only increase the implantation time.

**Q.6. Explain Strategic Grid.**

Ans. The strategic grid is a widely known model proposed by Mcfarlan, which allows the visualization of the relationship between IT strategy and the business strategy, considering both present and future situations. The axes of the IT strategic grid portray the current and future strategic importance of IS activities In the organization plotted on the y-axis and x-axis respectively. There are four quadrants:

- a. Strategic quadrant- Organization in this quadrant are critically dependent on the smooth functioning of the IS activity for both their current and future needs.
- b. Turnaround Quadrant- Organizations in this quadrant are not critically dependent upon IS applications for their current operations.
- c. Factory Quadrant- Organizations in it are critically dependent upon existing IT support system.
- d. Support Quadrant- Organizations in this quadrant are in the lowest-rated quadrant of the grid, suggesting that top-management concern and involvement in IT and IS would not be strongly emphasized.

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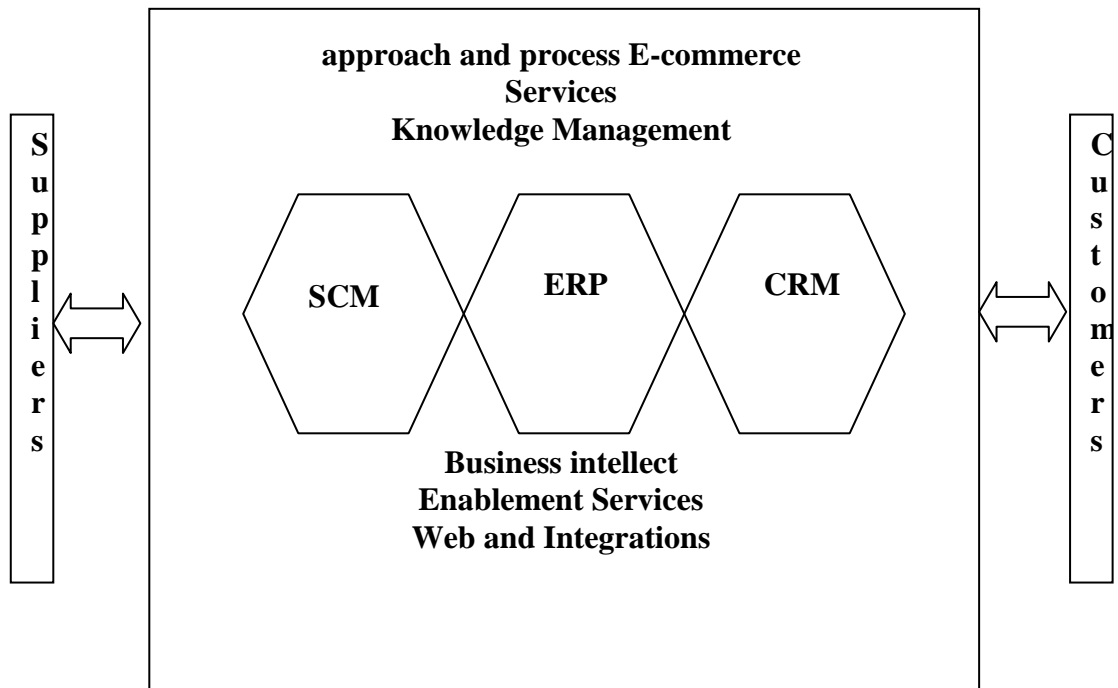


## UNIT V

### Q.1 Explain extended ERP Components?

Ans: Extended ERP components are the extra components that meet the organizational needs not covered by the core components and primarily focus on external operations. The common extended ERP components are :

- a) Business Intelligence Components : ERP systems offer powerful tools that measure and control organizational operations. Many organizations have found that these valuable tools can be enhanced to provide even greater value through the addition of powerful business intelligence systems. Business intelligence describes information that people use to support their decision-making efforts.
- b) Customer Relationship Management Components : ERP vendors are expanding their functionality to provide services formerly supplied by Customer Relationship Management (CRM) involves managing all aspects of a customer's relationship with an organization to increase customer loyalty and retention and an organization's profitability.
- c) Supply Chain Management : It is a systems approach to managing the entire flow of information materials, and services from raw materials suppliers through factories and warehouses to the end customer. SCM is different from supply management which emphasizes only the buyer-supplier relationship.
- d) E-Business :E-business stands for "electronic business", which involve communications and doing business electronically through the Internet.



#### Differences between ERP and Extended ERP

Element	ERP	Extended (ERP)
Role	Internal Enterprise optimization	Whole value chain participation
Domain	Manufacturing and distribution	All sectors/ segments
Function	Manufacturing, sales, finance, HR	Cross industry, industry sectors, and specific industry processes.
Process	Internal, hidden	Externally connected to other stakeholders
Architecture	Web-aware, closed	Web-based, open and component-based
Data	Internally generated and used	Internally and externally published and used.

#### Q.2 Explain ERP and E-Commerce.

The majority of modern ERP systems are fully Internet-enabled systems. This means that communication between a server where an ERP systems is installed and many clients is done through the Internet. An ERP system may comprise three main tiers:

1. Clients : clients are end-users that connect to the system via Internet browsers.
2. Applications Server : An applications server incorporates a Web server, forms, system tools and a variety of ERP programs.

ERP systems are considered to be a backbone of e-commerce solutions. Successful utilization of the “front-end” e-commerce solutions is unimaginable without strong support by and cooperation with the internal “back-end” computer systems. In fact, many ERP vendors combine ERP applications and e-commerce solutions in one integrated computer system.

ERP is basically a packaged business software system to allow a firm to:

1. Automate and integrate its business processes
2. Share common data and practices across the entire enterprise
3. Provide and access information in a real time environment.

It aims to integrate the firm’s back-office processes and information flows. E-commerce on the other hand, is the use of computer systems and packaged software applications protected by network security measures to conduct online transactions.

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