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WEB based ERP and Related E-Business Software

The value of e-business relies on a company's ability to integrate their internal processes with external suppliers, customers and other companies. First-generation ERP systems did not have the ability to interact outside the company with other ERP systems, with e-businesses or directly with suppliers or customers. The second generation of ERP (called ERP II , or extended ERP or XRP) enabled the vendors to create web-centric systems by consolidating data and allowing dynamic access from various clients.

ERP systems provide vast amounts of data for analysis. Powerful new analytic tools and applications that capitalize on ERP's central depository of data have been developed by software vendors, *for example,* software system such as Customer Relationship Management (CRM) Supply Chain Management (SCM) and Collaborative Product Commerce (CPC)

Customer Relationship Management (CRM)

Software plans and executes business processes that involve customer interaction such as marketing, sales fulfillment and service. CRM shifts the focus from managing products to managing customers. Prospect information, customer profiles, sales force automation, and campaign modules for direct mail and special sales promotions are managed with CRM. CRM also provides decision support for forecasting demands, demand management, pricing products and services, quoting order delivery dates and planning for customer service needs. CRM interacts with supply chain management (SCM) software and ERP to ensure prompt and accurate order fulfillment and to plan for future requirement.

Supply Chain management (SCM)

Software includes supply-chain planning, supply-chain execution and supplier relationship management. ***Planning*** involves designing the supply chain network, demand planning and collaborative production planning. ***Execution*** involves fulfillment, manufacturing, and delivery. ***Relationship management*** handles all the interactions with suppliers, from supplier certification to quality assurance, contracts and agreements.

Collaborative Product Commerce (CPC)

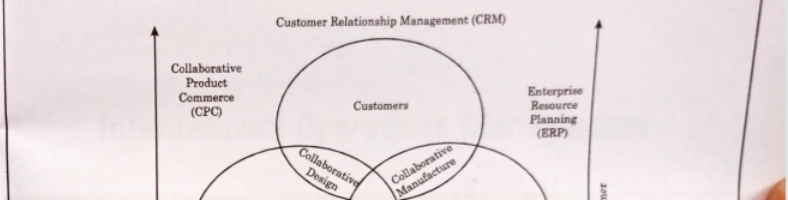
CPC is concerned with new product design and development as well as product life-cycle management. CPC manages product data through the life of the product, co-ordinates

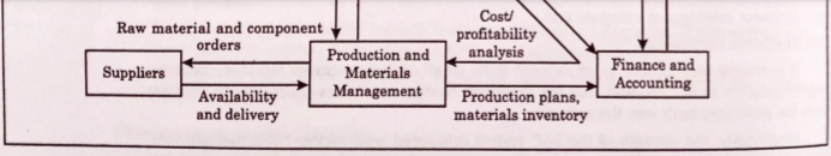
product and process redesign and collaborates with suppliers and customers in the design process.

CPC, CRM and SCM make a powerful combination. *Exhibit 26.5* shows how t of software systems can work together.

Customer and supplier collaboration on design with CPC can reduce ***time to market*** for new products and services. Likewise, customer and supplier collaboration in manufacturing via ERP helps to reduce the ***time to customer*** (*i.e.,* speedy delivery of the product to the customer).

Exhibit 26.5 : ERP and Related Software Systems

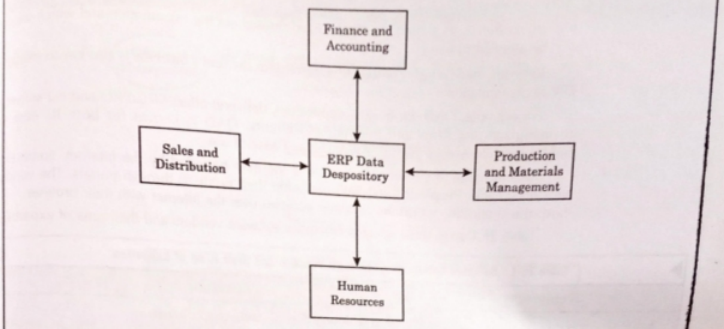




ERP system provides an integrated information technology strategy for effectively managing the entire enterprise.

Together with the modules mentioned earlier, the ERP system provides an integrated information technology strategy for effectively managing the entire enterprise. ERP connects processes that belong together, giving every employee fast, convenient access to the information required for their jobs. As shown in *Exhibit 26.3*, ERP creates a central depository for the company's data which enables the company to perform various business analyses. A company can quickly access data in real time related to forecasting and planning, purchasing and materials management, product distribution and accounting and financial management so that it can deploy its resources quickly and efficiently. It can help schedule its production capacity to meet demand and reduce inventory levels.

Exhibit 26.3 : ERP System's Central Database



ERP Implementation

In the past, many companies have failed to achieve the desired results after spending huge amounts of money and time for ERP implementation (*for example*, Dow chemicals USA spent half a billion dollars and 7 years implementing an ERP system which was found to be ineffective). As a consequence, the second generation ERP systems (known as ERP II) were developed. These are different from the first generation ERP systems. They offer stand-alone modules and open architecture. Companies can choose the modules they want to install and can even choose a collection of modules from different vendors – the "*best-of-breed*" approach, But single source ERP systems are easier to integrate while "best-of-breed" systems may provide a better match with organisational needs.

Two steps involved in the implementation of ERP are :
- **Analysing the business processes.**
- **Determining which ERP modules to be implemented and how to configure them.**

Analysing business processes is the first step in the implementation of ERP, Because ERP is an integrated technology that pervades and connects all parts of an enterprise, it usually changes the way a firm makes decisions. Therefore, its implementation requires major changes in a firm's organisational structure and business processes. To guide the firms to implement ERP, vendors of ERP packages have designed their own softwares around best practices for specific industries. *For example*, many industries such as aerospace, defense, apparel, automotive, chemicals, consumer products, engineering and construction, health care, high-tech industries, insurance, media, oil and gas, pharmaceuticals, the public sector, real estate, retail, telecommunications and utilities have successfully implemented ERP Systems. Companies have two choices in their effort to implement ERP (*i*) use the software as a blue print for how their processes should operate and adjust their processes or (*ii*) map out their own business processes and customize the software accordingly.

The second step is to determine which ERP modules to implement and how they should be configured. It is a process-oriented decision rather than a technology oriented decision. Questions to be answered before taking the decision regarding the ERP modules to be selected and their configuration to be used are :

scheduled. Huge investments involved in the purchase of ERP packages makes switching from one package to another almost impossible, hence the necessity for "doing it right the first time" approach in this phase.

Once the packages to be evaluated are identified, selection criteria should be developed by the company to evaluate all the alternative packages on the same scale. To choose the best system, the company should identify the system that meets the business needs, matches the business profile and identifies with the business practices of the company. While it is impossible to get a system that will perform exactly as the company does its business, the aim should be to select the system that has the least number of differences.

Some of the factors that should be considered while evaluating and selecting the ERP software are :

(*i*) Functional fit with the company's business processes

(*ii*) Degree of integration between the various components of the ERP system

a better match with organisational needs.

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Some of the factors that should be considered while evaluating and selecting the ERP software are :

(i) Functional fit with the company's business processes
(ii) Degree of integration between the various components of the ERP system
(iii) Complexity
(iv) Flexibility and scalability
(v) User friendliness
(vi) Implementation time
(vii) Technology
(viii) Amount of customization required
(ix) Total costs (including cost of license, training, implementation, maintenance, customisation and hardware requirements).

3. Project Planning

In this phase the implementation process is designed and the details of how to go about the implementation are decided. (*i.e.*, determining time schedules, dead lines etc.). The project plan includes the following:

(i) Identification of roles and assignments of responsibilities to individual members of ERP implementation team.
(ii) Decision regarding the organisation resources to be used.
(iii) Identification of person to head the ERP implementation team.
(iv) Selection of implementation team members and allocation of tasks to them.
(v) Decision regarding when to begin the project, how to do it and when the project should be completed.

Also answers to the following questions must be found and included in the project plan.

(a) What to do in case of contingencies?
(b) How to monitor the progress of the implementation?
(c) What control measures should be installed? and
(d) What corrective actions should be taken when things go out of control?

4. Gap Analysis

This is the most crucial phase in the ERP implementation. Gap analysis helps companies to create a complete model of where they are now and in which direction they want to head in the future. Even the best ERP package, custom-tailored to a company's functional requirements meets only 80% of the company's functional requirements and the remaining 20% of the requirements should be met by the company's business reengineering efforts.

5. Reengineering

The human factors are considered in this phase. "Reengineering" has two different connotations in ERP implementation settings. They are:

(i) using ERP to aid in downsizing efforts
(ii) using ERP for business process reengineering involving a technical implementation and a business process implementation.

In the first connotation, companies usually purchase an ERP package with the aim of reducing significant numbers of employees (i.e., downsizing). While every ERP implementation involves some change in job responsibilities due to automation and efficient processes, it is best to treat ERP as an investment as well as a cost-cutting measure rather then a tool for downsizing. In the second connotation, ERP is used as a means for business process reengineering which involves two closely linked implementations: the technical implementation and a business process implementation. This approach emphasizes the human element of necessary change within organisations.

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6. Configuration

This is the main functional area of the ERP implementation project. What is desired in ERP implementation is "synchronizing existing company practices with the ERP package rather than customizing it to suit the company:. In order to do so, business processes have to be understood and mapped in such a way that the arrived at solutions match with the overall objectives and goals of the company.

A prototype – a simulation of the actual business processes of the company is tested in a controlled environment. This helps to solve any logical problems inherent in the business process reengineering before the actual "go-line" implementation.

Configuring a company's system reveals the strengths and weaknesses of a company's business process. This would help in explaining what won't fit into the package and where the gaps in functionality occur.

7. Training of implementation team

The implementation team must be trained regarding how to implement the system and later run the system. After the implementation is over, the ERP vendors and hired consultants will leave the company and the company should be able to run the ERP system on its own. Hence a good in-house team should be developed to run the ERP system.

8. Testing

The ERP system is tested using real case scenarios such as system overloads, multiple users logging on at the same time with the same query, users entering invalid data, hackers trying to access restricted areas etc. The test cases must be designed specifically to find the weak links in the system so that these bugs could be fixed before 'going-live".

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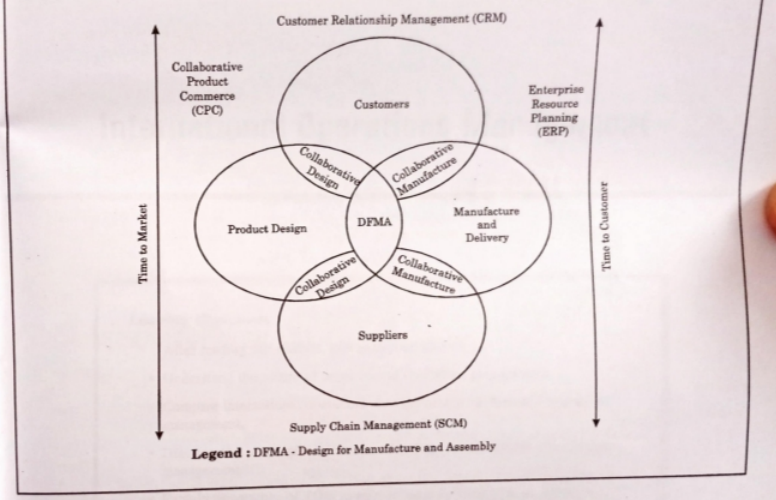

Legend : DFMA - Design for Manufacture and Assembly

I QUESTIONS

1. Define the term "Enterprise Resource Planning" (ERP).
2. Discuss the role of information technology in modern business.
3. Give a brief account of the evolution of ERP.
4. What are the various functions within an organisation which are integrated through an ERP System?
5. Discuss the advantages and disadvantages of ERP systems.
6. Explain the features of "SAP R/3" ERP system.

7. Describe the information flows in an ERP system with a diagram.
8. Explain the process of ERP implementation.
9. What is meant by "ERP implementation life cycle"? Discuss the various phases involved in it.
10. Discuss the relationship between ERP and related software systems such as CRM, SCM and CPC software systems.

* * * * *