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BCAR-501

Business Application and Introduction to ERP

BUSINESS APPLICATION AND INTRODUCTION TO ERP

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AHMEDABAD

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ISBN 978-93-91071-06-6

Edition : 2022

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ROLE OF SELF–INSTRUCTIONAL MATERIAL IN DISTANCE LEARNING

The need to plan effective instruction is imperative for a successful distance teaching repertoire. This is due to the fact that the instructional designer, the tutor, the author (s) and the student are often separated by distance and may never meet in person. This is an increasingly common scenario in distance education instruction. As much as possible, teaching by distance should stimulate the student's intellectual involvement and contain all the necessary learning instructional activities that are capable of guiding the student through the course objectives. Therefore, the course / self–instructional material is completely equipped with everything that the syllabus prescribes.

To ensure effective instruction, a number of instructional design ideas are used and these help students to acquire knowledge, intellectual skills, motor skills and necessary attitudinal changes. In this respect, students' assessment and course evaluation are incorporated in the text.

The nature of instructional activities used in distance education self–instructional materials depends on the domain of learning that they reinforce in the text, that is, the cognitive, psychomotor and affective. These are further interpreted in the acquisition of knowledge, intellectual skills and motor skills. Students may be encouraged to gain, apply and communicate (orally or in writing) the knowledge acquired. Intellectual–skills objectives may be met by designing instructions that make use of students' prior knowledge and experiences in the discourse as the foundation on which newly acquired knowledge is built.

The provision of exercises in the form of assignments, projects and tutorial feedback is necessary. Instructional activities that teach motor skills need to be graphically demonstrated and the correct practices provided during tutorials. Instructional activities for inculcating change in attitude and behaviour should create interest and demonstrate need and benefits gained by adopting the required change. Information on the adoption and procedures for practice of new attitudes may then be introduced.

Teaching and learning at a distance eliminate interactive communication cues, such as pauses, intonation and gestures, associated with the face–to–face method of teaching. This is

particularly so with the exclusive use of print media. Instructional activities built into the instructional repertoire provide this missing interaction between the student and the teacher. Therefore, the use of instructional activities to affect better distance teaching is not optional, but mandatory.

Our team of successful writers and authors has tried to reduce this.

Divide and to bring this Self–Instructional Material as the best teaching and communication tool. Instructional activities are varied in order to assess the different facets of the domains of learning.

Distance education teaching repertoire involves extensive use of self–instructional materials, be they print or otherwise. These materials are designed to achieve certain pre–determined learning outcomes, namely goals and objectives that are contained in an instructional plan. Since the teaching process is affected over a distance, there is need to ensure that students actively participate in their learning by performing specific tasks that help them to understand the relevant concepts. Therefore, a set of exercises is built into the teaching repertoire in order to link what students and tutors do in the framework of the course outline. These could be in the form of students' assignments, a research project or a science practical exercise. Examples of instructional activities in distance education are too numerous to list. Instructional activities, when used in this context, help to motivate students, guide and measure students' performance (continuous assessment)

PREFACE

We have put in lots of hard work to make this book as user–friendly as possible, but we have not sacrificed quality. Experts were involved in preparing the materials. However, concepts are explained in easy language for you. We have included many tables and examples for easy understanding.

We sincerely hope this book will help you in every way you expect.

All the best for your studies from our team!

BUSINESS APPLICATION AND INTRODUCTION TO ERP

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BUSINESS APPLICATION AND INTRODUCTION TO ERP

BLOCK 1 : INTRODUCTION TO ENTERPRISE AND ERP

INTRODUCTION TO ENTERPRISE AND ERP

Block Introduction :

In this block, we will detail about the enterprise because it plays an important role to implementing the ERP system so we need to learn about the business functions and processes about the enterprise.

ERP means Enterprise Resource Planning, which is a one type of system that is applied to combine information or operations of particular organization to single unit which can be applied to computer hardware and software with central database.

In this block, we will detail about the basic of Enterprise Resource Planning system along with it needs in organization. The block will focus on the study and concept of ERP assembles which several organizational systems result in data flow. You will get an idea on Decision support systems and basic of Executive Support System.

In this block, you will make to learn and understand about the basic of Supply chain that serves as network of facilities and distribution options. The concept related to Data mining process will also be explained to you. You will be demonstrated practically about ERP assembles technique.

Block Objectives :

After learning this block, you will be able to understand :

- Introduction to Enterprise,
- Business Functions and Processes
- Role of Enterprise in Implementing the ERP system
- Evolution, Myth, Advantages, Modules of ERP
- Roadmap for Successful ERP Implementation
- Risk of ERP
- Benefits of ERP
- Technology Related to ERP

Block Structure :

Unit 01

AN OVERVIEW OF ENTERPRISE

UNIT STRUCTURE

1.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction about the Enterprise
- Idea about Business Functions
- Idea about Business Processes
- Detail about Integrated Management Information
- Role of the Enterprise in Implementing the ERP System
- Idea about Business Modeling

1.1 Introduction :

The word "enterprise" describes two common meanings. Firstly, *an enterprise is simply alternative name for a business or venture e. g. start–ups and other businesses*. Secondly, *and maybe more importantly, the word*

enterprise is used in the context of a person i. e. being innovative. An innovative person is one who demonstrates a particular set of skills and behaviors i. e. creative thinking, determination and problem solving.

In other word enterprise means the actions of person who shows some initiative by taking risks by setting up, investing in and running a business.

Enterprise

All enterprise has Business, Goals, Ideas, Team, Strategy, Innovation, Marketing, Performance, Competition and Plan.

❑ **Check Your Progress – 1 :**

1. _____ means the actions of person who shows some initiative by taking risks by setting up, investing in and running a business.

   a. Enterprise b. Plan c. Innovation d. None of Above

2. An enterprise includes _____.

   a. Goal b. Idea c. Team d. All of Above

1.2 Business Functions and Business Processes :

All the enterprise has some business functions and business process. A business functions or process is a collection of related, organized activities that is carry on by people or equipment in which a detailed sequence produces a service or product for a particular customer. Both the elements are important in business operations. If we talking about the functions then it is specific to particular area, while processes change inputs into services and goods. Some of the business functions and processes are discussed below :

1.2.1 Business Functions :

A business function refers to the various activities performed by a company. These activities are divided into several functions or departments. It is necessary to organizing and managing the business functions because it is interrelated and interdependent. Each functions play an important role and if one function not work properly then operations cannot run. There is a four types of business functions which are as follows :

- **Operation**
- **Human Resource**
- **Sales and Marketing**
- **Finance and Accounting**

Business Function

- **Operation :**

The operation function is also known as production functions. This function is responsible for the all the activities of producing goods or providing services. It includes :

- ✓ Transforming inputs into outputs.
- ✓ Ensuring suitable resources are available for operation.
- ✓ Maintaining operation levels and quality of output.
- ✓ Completing a high level of productivity.
- ✓ Providing good and constant service if the business is a service company.

- **Human Resource :**

Human resource is responsible for managing employees within the company or organization. It includes :

- ✓ Identifying the staff needs inside the company.
- ✓ Recruiting and selecting employees with the right qualifications for the company.
- ✓ Give training to employees to encourage them and to be more productive.
- ✓ Developing and design reward system, hire contract, and set salary for each position.
- ✓ Establishing a system of incentives to motivate employees.
- ✓ Managing termination or release.
- ✓ Managing and maintaining industrial relations.
- ✓ Managing human resource outsourcing strategy.

- **Sales and Marketing :**

The marketing is responsible for marketing, market research, sales, and after–sales service activities. Here, it is going to identifies the customer needs and based on that appropriate marketing mix is going to develop to satisfy the customers. In general, the marketing deals with features such as :

- ✓ Market study
- ✓ Product progress
- ✓ Price

- ✓ Marketing
- ✓ Supply
- ✓ Customer service
- ✓ Packaging
- ✓ Customer relationship management

- **Finance and Accounting :**

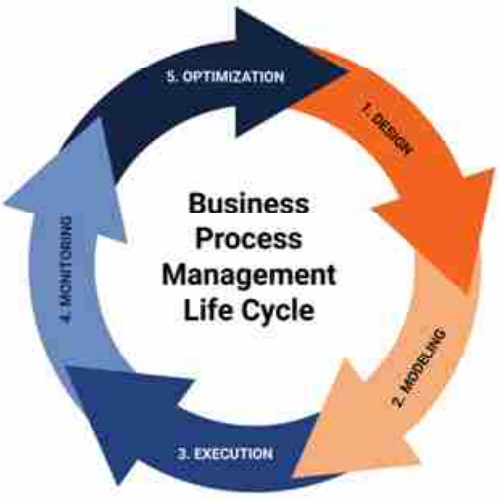
The accounting and finance deals with managing money within the business, in which it is going to identify about incoming and outgoing flow of the money in the business. In specific, the finance function is tasked with :

- ✓ Managing the financial transactions and records of the business–like salaries and payment to suppliers.
- ✓ Making budgets and assigning costs to other business functions.
- ✓ Releasing financial information to government, investors and creditors by giving financial statements.
- ✓ For decision–making providing financial information to management and other departments.
- ✓ Dealing with agreement with legal requirements such as taxes.
- ✓ Controlling company finances to avoid errors, fraud and ensure agreement with procedures, policies, and regulations.
- ✓ Raising funds and managing them, such as for capital budgeting and working capital management.

1.2.2 Business Processes :

Processes are everywhere in the business. A business process is referring to a collection of business tasks and activities that is going to perform by people or system and produce the output to achieve the goal of the business. A business process includes five phases which are as follows :

- **Design**
- **Model**
- **Implement**
- **Monitor**
- **Optimize**



Business Process Phase

- **Design :** After analyzing the existing business process, it is going to identify what can be improved. After that business process is going to develop using standardization and automation.
- **Model :** In this it is going to identify how the restructured business process operates in different scenarios.
- **Implement :** In this it is going to execute improvements, including standardization and process automation.
- **Monitor :** In this it is going to monitor improvements to see how they perform.
- **Optimize :** In this it is going to identify about continue to improve the business process on an constant base.

❑ **Check Your Progress – 2 :**

1. Business Function includes _____.

   a. Operation and Human Resource b. Sales and Marketing

   c. Finance and Accounting d. All of Above

2. Business Process includes _____.

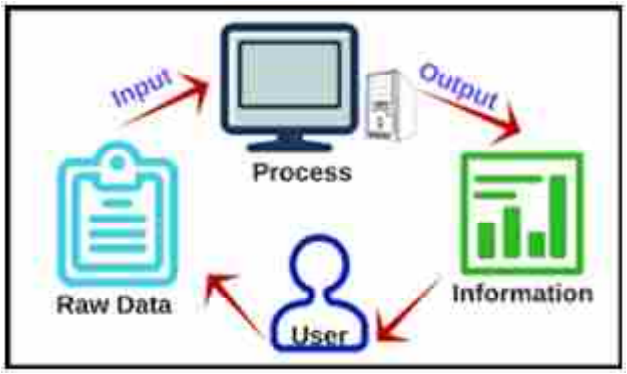
   a. Design and Model b. Implement

   c. Monitor d. All of Above

1.3 Integrated Management Information :

In any information system there is a logical flow of information in which data is applied to system (input), are manipulated (processed), and transformed into information (output). The simple IPO (Input – processed – output) model has been used.

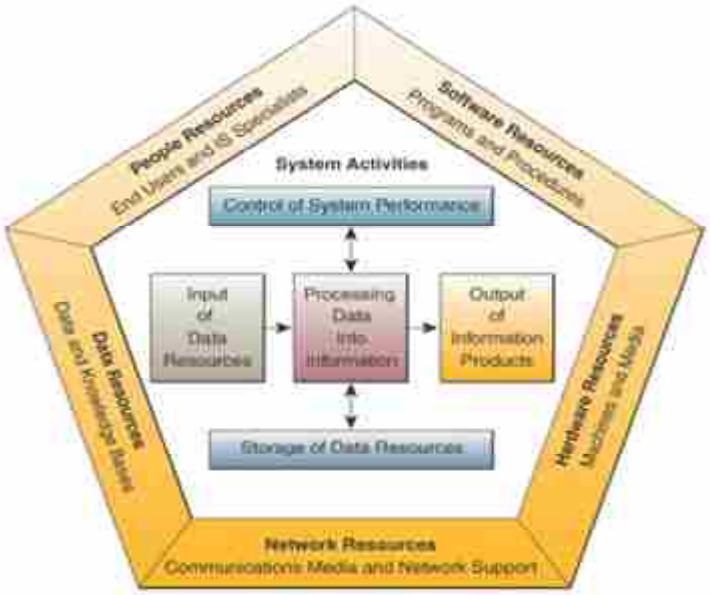
- **Input :** Input involves capturing and assembling elements that enter the system to be processed. For example : Raw Materials, Energy, Data, and Human effort must be secured and organized for processing.
- **Processing :** Processing involves transformation processes that convert input into output. Examples are manufacturing processes, the human breathing process, or mathematical calculations.
- **Output :** Output involves transferring elements that have been produced by a transformation process to their ultimate destination. For example : Finished products, Human services, and Management information must be transmitted to their human users.



Integrated Management Information

In an above figure we can see that as part of input there is raw data, that is going to provide by the users, then input is going to process which generate the output or information. This output is also considered as information and then after information is used by the user to take the decision.

An information system model shown below that expresses a fundamental conceptual framework for the major components and activities of information system.



Information System Framework

An information system depends on the resources of people (end users and IS specialists), hardware (machines and media), software (programs and procedures), data (data and knowledge bases), and networks (communications media and network support) to perform input, processing, output, storage, and control activities that convert data resources into information products.

Through the processing technology of information system data has been transformed into useable information. Management Information System (MIS) is an integrated system, that is basically concerned with processing data into information, which is then communicated to various departments in an organization for appropriate decision–making.

Integrated management information provides information to support managerial functions like planning, organizing, staffing, directing and controlling. It collects information in a systematic and a routine manner which is in accordance with a well–defined set of rules. It includes file, hardware, software and operation research models of processing, storing, retrieving and transmitting information to the users.

"An Information System can be any organized combination of people, hardware, software, communications networks, data resources, and policies and procedures that stores, retrieves, transform, and distribute information in an organization".

People relay on modern information systems to communicate with one another using a variety of physical devices(hardware), information processing instructions and procedures(software), communication channels(networks), and stored data (data resources).

Information systems has become as integrated into our daily business activities as accounting, finance, operations management, marketing, human resource management, or any other major business function. Information systems and technologies are vital components of successful businesses and organization.

Information technologies, including Internet–based information systems, are playing vital and expanding roles in business. Information technology can help all kinds of businesses improve the efficiency and effectiveness of their business processes, managerial decision making, and workgroup collaboration, which strengthens their competitive positions in rapidly changing marketplaces.

This benefit occurs whether the information technology is used to support product development teams, customer support processes, e–commerce transactions, or any other business activity. Information technologies and systems are, quite simply, an essential element for business success in today's dynamic global environment.

Management Information System (MIS) is an integrated information system, which is one of the popular subsystem or technology used in ERP. MIS offers information supports for the decision – making in the enterprise. The MIS may be represented by IPO model. i.e., people follow procedures to manipulate data and produce information.

The MIS elements are TP (transaction process), RS (reporting system), DSS (Decision supports system).

- ✓ TP is a collection, storage and processing of data and day – to day operational system.
- ✓ RS is providing report based on business rules and procedures.
- ✓ DSS is a system for providing information to help the management with new unstructured decision – making.

❑ **Check Your Progress – 3 :**

1. Write a note on Integrated Management Information.

1.4 Role of the Enterprise in Implementing the ERP System :

An enterprise implement new enterprise resource planning (ERP) systems because to make the process digitization, improvement of process and transformation of platform , it is not only just becoming increasingly critical for IT, but also for the business units themselves, to understand their central role in the complete success of these initiatives.

There are seven key role that enterprise needs to understand and accept in any successful ERP system implementation which are as follows :

1.4.1 Program Management :

Most system integration enterprise offer project management abilities, basic gaps that include mistake of internal business and IT resources, vendors management, and engagement with company leadership.

1.4.2 Enterprise Process Willingness and Design Solution :

Enterprise systems integrators are basically technical experts they are not business process experts. Enterprise should define the idea and operational outlooks of a new system with respect to each business process. Exactly, the enterprise must ensure that the whatever technical solution is suggests by the system integrator will fulfill the business process idea and future–state goals. To fulfill operational expectations, the enterprise should design process models for the end–to–end upcoming state of each business process that the new system will impact. This will help system integrators focus on blueprinting rather than designing future processes, which typically is not their core expertise.

1.4.3 Organizational Transformation Enablement :

During the establishment of solution design, it is going to determine the organizational impact of the system and process changes which ensures expected benefits are realized. Training is not sufficient. In the end, the goal is a transformation enablement plan that will increase awareness with key stakeholders, obtain their buy–in and ensure their commitment to support the changes and the performance improvement objectives of the initiative.

1.4.4 User Acceptance Testing (UAT) :

The final and most important phase is user acceptance testing is designed which ensure that the system does the things for what it was designed and it meets user expectations. UAT must go beyond prior functional and technical testing phases. UAT should cover all business processes end–to–end, include all critical real–life data variations and be validated by process owners.

1.4.5 Data Transformation :

Data transformation is the important feature but it is often ignored by the business. It is one of the most critical implementation processes, and a common basis of project delays. Data quality issues in inheritance systems can also cause delays.

1.4.6 Data Domination :

To ensure that master data and transactional data are working properly and constantly throughout the enterprise from go–live forward, the enterprise should develop a full data domination program that includes a framework of enterprise roles, a "data dictionary," defined metrics and documented policies.

1.4.7 Business Intelligence (BI) and Reporting :

BI and reporting should not be left as an extra, with the assumption that they can be addressed after go–live. For most users, the primary benefit of an enterprise system is ease and accuracy of reporting. Ensure that the BI and reporting requirements are fully combined into the design phase of the implementation and tracked throughout.

❑ Check Your Progress – 4 :

1. ERP stands for _____.

   a. Enterprise Resource Planning b. Enterprise Receive Planning

   c. Enterprise Remote Planning d. Enterprise Report Planning

2. UAT stands for _____.

   a. User Analysis Testing b. User Acceptance Testing

   c. User Assistant Testing d. User Application Testing

3. BI stands for _____.

a. Business Information b. Business Instruction

c. Business Intelligence d. Business Importance

1.5 Business Modeling :

ERP is complete business solution. The complete enterprise could be managed by ERP because it gives combined and closed loop solutions. Before integrating the entire organizational functions, a business model is planned.

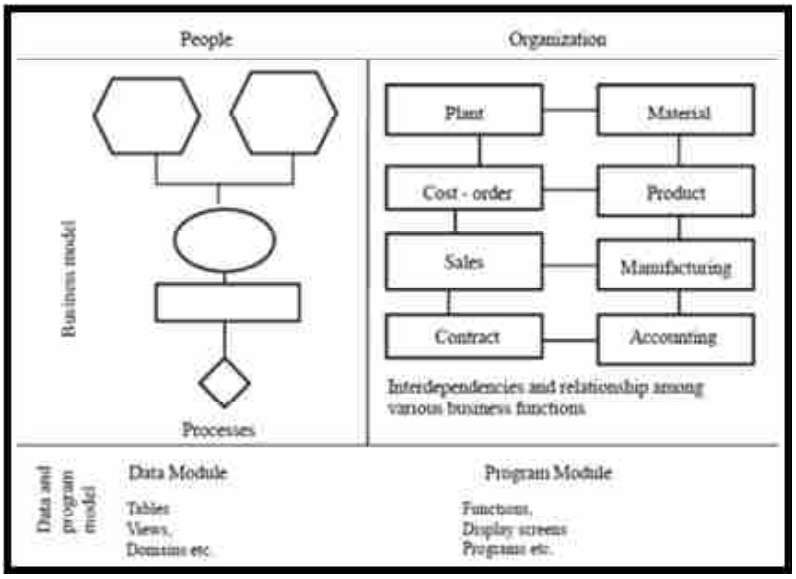
Actually, development of the business model is one of the fundamental activities in an ERP project. Business modeling is developed on the basis of enterprise's goals, objectives and strategic plans.

The business processes are under control of different people in the organization. Business model is a picture of the business – integrated system, which is having numerous interconnections and interdependences of several processes and subsystems. It helps for continuous integration through supply chain management, resource management, integrated data model technology and other functional department. This results in all resources function fully managed and well organized.

A good business model represents the real mirror image of the business. It defines the various business functions of an organization, how several business functions are integrated and what are their interdependences.

The business model is graphically represented by data flow diagrams, system diagrams and flow charts. It focuses on the representation of the business as one large system showing the interconnections and interdependencies of various subjects and business processes. The business model is not a mathematical model.

Creating an integrated data model is critical step in the ERP implementation. While designing the data model for ERP system, one should keep in mind, the information integration and process procedure automation. The data model reflects the day – to – day transaction of the entire organization and can give a snapshot of the organization at any given time. The integrated data model derived from the business model should successfully depict and integrate the data.



Business Model

Above business model analyzed business model, data module and program module which include people and the organization. If we considering the people then they are preforming processes step by step to transform input into output. Organization includes interdependencies and relationship among various business function. Organization includes pants, material, cost–order, product, sales, manufacturing, contract and accounting. Data module includes tables, views and domains while program module includes functions, display screen and programs.

❑ **Check Your Progress – 5 :**

1. Write a note on Business Modelling.

1.6 Let Us Sum Up :

In this unit we learnt about the enterprise, business function and business process. All enterprise has Business, Goals, Ideas, Team, Strategy, Innovation, Marketing, Performance, Competition and Plan. We discussed about the business functions which is an activity and that is performed by a company, while business process a collection of business tasks and activities that is going to perform by people or system and produce the output to achieve the goal of the business.

We have also seen that how input becomes output after processed the input. An Information System can be any organized combination of people, hardware, software, communications networks, data resources, and policies and procedures that stores, retrieves, transform, and distribute information in an organization We have gone through role of enterprise in implementing the ERP system and its business modelling.

1.7 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : a **2 :** d

❑ **Check Your Progress 2 :**

1 : d **2 :** d

❑ **Check Your Progress 3 :**

1 : Refer 1.3

❑ **Check Your Progress 4 :**

1 : a **2 :** b **3 :** c

❑ **Check Your Progress 5 :**

1 : Refer 1.5

1.8 Glossary :

1. **Enterprise :** enterprise means the actions of person who shows some initiative by taking risks by setting up, investing in and running a business.
2. **Business Function :** A business function refers to the various activities performed by a company.
3. **Business Process :** A business process is referring to a collection of business tasks and activities that is going to perform by people or system and produce the output to achieve the goal of the business.
4. **Input :** Input involves capturing and assembling elements that enter the system to be processed.
5. **Process :** Processing involves transformation processes that convert input into output.
6. **Output :** Output involves transferring elements that have been produced by a transformation process to their ultimate destination.

1.9 Assignment :

1. Role of the Enterprise in Implementing the ERP System.

1.10 Activities :

1. Differentiate Business Function and Business Process with proper example.

1.11 Case Study :

1. Explain Business Functions and Business Process with graphical example.

1.12 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 02

INTRODUCTION TO ERP

UNIT STRUCTURE

2.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction about the ERP
- What is ERP
- History of ERP
- Common Myths of ERP
- Advantages of ERP

2.1 Introduction :

All kinds of businesses have implemented enterprise resource planning (ERP) systems. ERP serves as a cross–functional enterprise backbone that integrates and automates many internal business processes and information systems within the manufacturing, logistics, distribution, accounting, finance, and human resource functions of a company.

ERP also served as the vital software engine needed to integrate and accomplish the cross–fundamental processes that resulted. Now ERP is recognized as a necessary ingredient that many companies need in order to gain the efficiency, quickness, and responsiveness required to succeed in today's dynamic business environment.

ERP integrates profits of the business from demanding an association through an integrated database. Enterprise Resource Planning (ERP) may be profits of the business management programming and methodology, that allows an association to use an arrangement for matched demands and will deal with the profits of the business. Furthermore, computerize office capacities identify with technology, administrations and mankind's assets. ERP product integrates continuously on planes of an operation, including result planning, development, manufacturing, and advertising.

2.2 What is ERP ?

"ERP is the technological backbone of e–business, an enterprise–wide transaction framework with links into sales order processing, inventory management and control, production and distribution planning, and finance".

Enterprise Resource Planning is a cross–functional enterprise system focused by an integrated suite of software modules that supports the basic internal business process of a company. For example, ERP software for a manufacturing company will typically process the data from and track the status of sales, inventory, shipping, and invoicing, as well as forecast raw material and human resource requirements.

ERP gives a company an integrated real–time view of its core business processes, such as production, order processing, and inventory management, tied together by the ERP application software and a common database maintained by a database management system.

ERP System

ERP systems track business resources (such as cash, raw materials, and production capacity), and the status of commitments made by the business (such as customer orders, purchase orders, and employee payroll), no matter which department (manufacturing, purchasing, sales, accounting, and so on) has entered the data into the system.

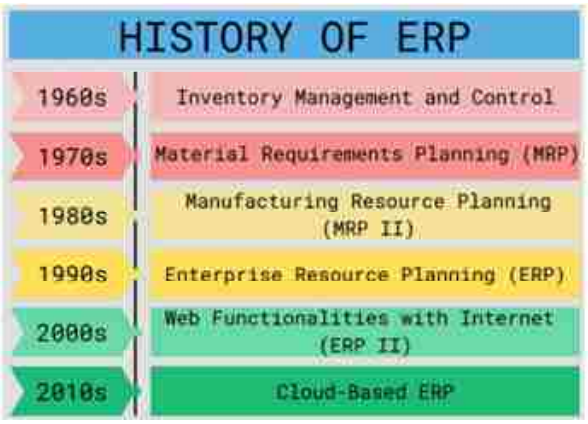
ERP software typically consist of integrated modules of manufacturing, distribution, sales, accounting, and human resource applications. Examples of manufacturing processes supported are material requirements planning, production planning, and capacity planning.

Some of the sales and marketing processes supported by ERP are sales analysis, sales planning, and pricing analysis, while typical distribution applications include order management, purchasing, and logistics planning. ERP systems support many vital human resource processes, from personnel requirement planning to salary and benefits administration, and accomplish most required financial record–keeping and managerial accounting applications.

❑ **Check Your Progress – 1 :**

1. ERP links into _____.
   a. Sales Order Processing b. Inventory Management and Control
   c. Production d. All of Above
2. ERP system track business resources like _____.
   a. Cash b. Raw Materials c. Production d. All of Above
3. ERP software integrates modules like _____.
   a. Manufacturing b. Sales c. Account d. All of Above

2.3 History of ERP :



History of ERP

From last seven decades an ERP is developed as a strategic tool because of constant improvements done to the available techniques to manage business more professionally and also with developments and inventions in information technology field.

2.3.1 Inventory Management and Control (1960) :

In the early 1960s, manufacturing businesses feel that they need to have system which can manage, monitor, and control their inventory. So, the history of ERP started with inventory management and control. To maintain the stock of the product or goods in the warehouse inventory management and control is going to use because it can combine information technology and business processes. There are several activities of inventory management which are as follows :

- ✓ Finding requirements of the inventory.
- ✓ Setting goals.
- ✓ Providing renewal techniques and options.
- ✓ Item usages is monitoring.
- ✓ Merging the inventory balances.
- ✓ Reporting inventory status.

2.3.2 Material Requirement Planning (MRP) (1970) :

After the inventory management and control, in the early 1970s, material requirement planning is developed to fulfill the requirements of the manufacturing industries. It is the second stage of the history of ERP. Material requirements planning (MRP) uses software applications for scheduling manufacture processes, schedules for operations and raw material purchases. Scheduling is created on,

- ✓ Manufacture requirements for complete goods.
- ✓ Structure of the manufacture system.
- ✓ Present inventory levels.
- ✓ Lot–sizing process for each operation.

2.3.3 Manufacturing Resource Planning (MRP–II) (1980) :

The third stage of the history of ERP is Manufacturing Resource Planning. In the early 1980s, to make the process easier and more precise, sellers added more manufacturing procedures to MRP. This new system is known as Manufacturing Resource Planning (MRP–II). Manufacturing Resource Planning or MRP II uses software applications for managing manufacturing processes. Processes from product planning, parts purchasing, inventory control to product distribution.

2.3.4 Enterprise Resource Planning (ERP) (1990) :

The fourth stage of the history of ERP is Enterprise Resource Planning. In the early 1990s, first time, the granter group used the word ERP. ERP is multi–module application software system that can improve the performance of the internal business processes.

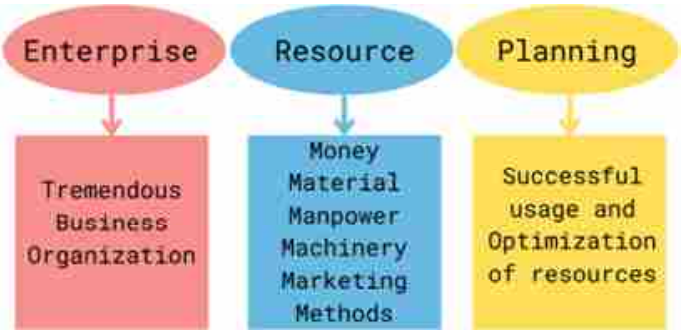
ERP Application

Above figure shows that the ERP supports many application modules which are as follows :

- ✓ Finance
- ✓ Human resources
- ✓ Services
- ✓ Sales
- ✓ Purchase
- ✓ Product Planning
- ✓ MRP

ERP systems integrate business activities across functional departments. Departments including,

- ✓ Product planning
- ✓ Parts purchasing
- ✓ Inventory control
- ✓ Product distribution, fulfillment, to order tracking



ERP System

2.3.5 Web Functionalities with Internet (ERP–II) (2000) :

The fifth stage of the history of ERP is Web Functionalities with Internet also known as (ERP–II). In the early 2000s, ERP interaction with other application which enables ERP II. For example, ERP is integrating with CRM systems. Due to technological advancement, it was possible for users to access the information using internet web–browsers and mobile devices. It also supports Services Oriented Architecture (SOA).

2.3.6 Cloud–Based ERP (2010) :

The sixth stage of the history of ERP is Cloud–Based ERP. In the early 2010s, Business applications are brought as a Software as a Service (SaaS) model. Servers are organized on the cloud and retrieved with the rest APIs. Android, iOS, and browser applications are established for delivering ERP software in the SaaS model.

❑ **Check Your Progress – 2 :**

1. MRP stands for _____.
   a. Material Requirement Planning
   b. Management Requirement Planning
   c. Manufacture Requirement Planning
   d. Movement Requirement Planning
2. SOA stands for _____.
   a. System Oriented Architecture b. Service Oriented Architecture
   c. Structure Oriented Architecture d. Support Oriented Architecture
3. SaaS stands for _____.
   a. System as a Service b. Structure as a Service
   c. Software as a Service d. Support as a Service

2.4 Common ERP Myths :

Enterprise resource planning is a platform of business management and enterprise software that is related to the real–time collection, storage and interpretation of data for fundamental business processes. ERP integrates many organizational systems and enables information flow among all business functions. There are some of the myths of ERP which are as follows :

2.4.1 Myth #1 : ERP is costly :

Due to technical improvements like mobile and cloud computing, advanced ERP software is very costly. Some vendors offer various packages of ERP software based on the usage. Vendors also allows you customization in the ERP package so, organization can select or add the required functionality to the ERP system. Vendors will cost as per the functionality.

2.4.2 Myth #2 : ERP is for large business or enterprise :

In the early days ERP software were used by large business or enterprise. Due to technological innovation and customization options now a days smaller businesses gradually are able to discover enterprise resource planning. ERP solutions come in various shapes and sizes. As per the size of the business customers have to choose the right ERP solution.

2.4.3 Myth #3 : ERP only useful to managers and management :

It is very true; ERP provide information to the management for decision making but the benefits are spread to whole business. These benefits improve operational procedure and increase the employee performance of all levels. As ERP enables sharing of information that increase communication, expand project planning, remove duplication of tasks and lower purchasing costs. Thus, ERP software benefits the whole company.

2.4.4 Myth #4 : ERP used to impress the customers :

ERP software have the potential to impress customers, if implemented properly and used successfully. Providing greater results through improved operational performance, quality of products and services can help companies to boost customer goodwill and support client relationships.

2.4.5 Myth #5 : One ERP solution fits all :

ERP is a single system but provides multi–functionality of all the departments so we can say that one ERP solution fits all. Depending on the business requirements, current trends, functionalities and features it is important to compare ERP solution and have to select the best fit according to the business.

2.4.6 Myth #6 : ERP, SCM, CRM and MRP all are the same :

Enterprise resource planning (ERP), supply chain management (SCM), customer relationship management (CRM) and manufacturing resource planning (MRP) are different systems pointing different business processes. These systems can be implemented and integrated separately or in combination depending on business requirements.

2.4.7 Myth #7 : ERP takes too long to implement :

Depending on the size of the business, expectation of business, the number of users, levels of customization, the scope and technical troubleshoot, and the resource availability the time is required for an ERP implementation. So, for successful implementation require many months to a couple of years.

2.4.8 Myth #8 : ERP is IT system and fits in the IT department :

Enterprise resource planning is a business asset that requires ownership and input from the departments and from hands–on workers to C–suite executives. So, while information technology (IT) is an important part of ERP implementation and maintenance, each and every business function has a role to play in the success of enterprise resource planning.

2.4.9 Myth #9 : ERP enables Enterprise Resource Planning :

An ERP system enables enterprise resource planning. However, qualified experts are required to configure the system to a business' specific needs, which requires exact product knowledge and implementation experience. Furthermore, while ERP solutions can improve efficiency and productivity on many dimensions, there are still business activities that require manual involvement and guidance.

❑ Check Your Progress – 3 :

1. Explain common myth of ERP.

2.5 Advantages of ERP :

ERP systems can generate significant business benefits for a company and found major business value in their use of ERP in several basic ways :

1. **Quality and efficiency :** ERP creates a structure for integrating and improving a company's internal business processes that results in significant improvements in the quality and efficiency of customer service, production, and distribution. As ERP integrates all the functionality of an organization in single system so definitely it will fulfill all the requirement like quality and work efficiently.
2. **Decreased costs :** Many companies report significant reductions in transaction processing costs and hardware, software, and IT support staff compared to the non–integrated inheritance systems that were replaced by their new ERP systems.
3. **Decision support :** ERP provides vital cross–functional information on business performance to managers quickly to significantly improve their ability to make better decisions in a timely manner across the entire business enterprise. Decision plays an important role in the organization so from the all the department we can collect the data and generate the information for the decision making with the help of single ERP system.
4. **Enterprise agility :** Implementing ERP systems breaks down many former departmental and functional walls or "soils (dust, dirty)" of business processes, information systems, and information resources. This results in more flexible organizational structures, managerial responsibilities, and work roles, and therefore a more alert and adaptive organization and workforce that can more easily capitalize on new business opportunities.

2.6 Why ERP Package Now :

As the business grows, the workload of administrators also grows accordingly. Primarily, businesses will work with spreadsheets and e–mail, ultimately it will become tedious. If business is unable to fulfill customer demand, then it will spoil business in it growing phase.

Enterprise Resource Planning (ERP) software can help businesses to integrate different activities in single application. Multi–function ERP software use an integrated database that speeds up response times to clients, increases operational productivity and ensures customer success. There are five major reasons to invest in ERP software which are as follows :

2.6.1 Standardization of Software :

If there is an unorganized system in business, various business processes within an organization uses different applications to manage similar operations. This will lead to unorganized data transfer, time–consuming processes, and security breaks.

An ERP system integrates all these processes with an integrated interface. This makes it easy for users to access data with a centralized control panel and increased data security.

2.6.2 Improved Accounting and Financial Reporting :

In the business it is important to keep track of finance and account to determine the success in a growth phase, but as the business grows it will become difficult to manage the transactions without an effective centralized system.

Manual data entry significantly decreases your efficiency, but an integrated ERP application which keeps track of your incoming and outgoing transactions can deny the duplication of data entry work and increase the visibility of vital operational data through a centralized platform.

2.6.3 Faster Response Times :

As you start getting grip in the market and increases reputation, your ability to improve your service delivery could act as a key differentiator from your competitor. To provide improved customer service, your managers and sales team need maximum access to all information across all departments, the systems need to be combined into one centralized unit.

Although most business today are using accounting software, the inability of the software to be successfully integrated into other business processes reduces many solutions ineffective. Most ERP software today have built–in accounting features that remove the need to do duplicate work and manual data entry.

2.6.4 Regulatory Agreement and Security :

Integrated ERP software ensure that whatever the back–office operations are there is synchronized with the regulatory rules of the manufacturing industry. Most ERP solution providers monitor agreement and regulatory changes and keep updating to meet the new requirements.

ERP not only simplify data processing and restructure of internal processes, but it also enhances your security like structured data use and in–built firewall system. The combination of several processes into one integrated system makes administration easier to control and monitor the software security.

2.6.5 Mobility and Flexibility :

With the help of ERP software, data of several departments of a business is reorganized into an integrated platform. ERP software can process multiple functions by a centralized database which provide accurate information to the user, on any device of the world. Remote access to the database saves times and ensures to provide quality work within time period.

❑ Check Your Progress – 4 :

1. Explain why ERP package now ?

2.7 Let Us Sum Up :

In this unit we have learnt that ERP is the technological backbone of e–business. It gives an integrated real–time view of its core business processes and provides all in one solution. ERP was denoted in 1990 by Gartner group whose concept applies to multi–module application software system that can improve the performance of the internal business processes.

We have seen various myths of the ERP as well as advantages such as quality and efficiency, decreased costs, decision supports and enterprise agility.

It is noted that ERP is an Enterprise Resource Planning system applied to combine information or operations of particular firm to single unit that uses computer hardware and software along with central database.

2.8 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : d **2 :** d **3 :** d

- **Check Your Progress 2 :**

  1 : a **2 :** b **3 :** c

- **Check Your Progress 3 :**

  1 : Refer 2.4

- **Check Your Progress 4 :**

  1 : Refer 2.6

2.9 Glossary :

1. ERP : ERP is the technological backbone of e–business, an enterprise–wide transaction framework with links into sales order processing, inventory management and control, production and distribution planning, and finance.

2.10 Assignment :

1. Discuss the history of ERP.

2.11 Activities :

1. Explain the Advantages Of ERP ?

2.12 Case Study :

1. Study why ERP system required now a days ?

2.13 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 03

MODULES, CHALLENGES, RISK AND BENEFITS RELATED TO ERP

UNIT STRUCTURE

3.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Detail about Various Modules of ERP
- About challenges in implementing the ERP Packages
- Idea about roadmap for successful ERP implementation
- Detail of ERP in India
- Idea about the Risk of ERP
- Details about risk factors in the ERP implementation.

3.1 Introduction :

All kinds of businesses have implemented enterprise resource planning (ERP) systems. ERP serves as a cross-functional enterprise backbone that integrates and automates many internal business processes and information systems within the manufacturing, logistics, distribution, accounting, finance, and human resource functions of a company.

In this unit we will learn about various modules of ERP, Challenges to implement ERP Packages, and Roadmap for successful ERP implementation.

3.2 Various Modules of ERP :

ERP is simply defined as a system or software that is used to manage all the resources of the enterprise. ERP supports all business processes of the organization; it is a cross–functional software. It manages processes of various departments through centralized application.

There are many sellers in the market which provides traditional ERP solutions as well as Cloud–based ERP solutions. However, technologies and implementation platforms are different. As per the requirement of the organization modules are going to integrate into the customized ERP system. There are some common modules are there in ERP system which are as follows :

ERP Modules

3.2.1 Human Resource :

HR module managing employee information, such as Employee_ID, Name, Designation, Salary, Department, Performance reviews, job descriptions, skill, time & attendance tracking.

3.2.2 Engineering/ Production :

The production module managing manufacturing in delivering the product. This includes functionalities such as production planning & scheduling, usage of raw material, forecasting of production, and reports of daily production progress & actual production reporting.

3.2.3 Purchase :

Purchase modules includes the processes of the finding of required items or raw materials for the organization. The includes functionalities such as supplier information, supplier item linking, quotation requests to sellers, maintaining requested quotations, analysis of quotations, making purchase orders, tracking the purchase items, updating stocks & various reports. Purchase module is integrated with Inventory module & Engineering/production module for updating of stocks.

3.2.4 Sales & Marketing :

Sales modules includes processes such as sales inquiry, preparing quotation, accepting sales orders, preparing sales invoices including taxes, shipment of products or service, tracking pending sales orders. Sales module is integrated with Inventory module.

3.2.5 Inventory :

An inventory module is used to manage the stock of products. This includes functionalities such as inventory control, master units, stock utilization reporting, etc. Inventory module is integrated with the purchase & sales modules, because as we are selling the products stock is going to decrease and as we purchase the products or raw materials stock is going to increase.

3.2.6 Finance & Accounting :

Finance & Accounting module includes the incoming & outgoing flow of the money in an organization. This includes transactions such as expenditures, balance sheets, account ledgers, budgeting, bank statements, payment receipts, tax management, etc.

3.2.7 Customer Relationship Management (CRM) :

Name itself represent the meaning that management of relationship with customer and its focuses on the customer satisfaction. It includes sales performance through better customer service and maintain a strong relationship with customers. All customer details of the store are available in the CRM module. It also manages the details such as communication history, calls, meetings, details of purchases made by the customer, contract duration, etc.

3.2.8 Supply Chain Management (SCM) :

SCM module includes the flow of product items from production to customer & customer to production. It includes details such as manufacturer, stockiest, distributors, retailers, etc. SCM involves demand & supply management, sales returns, shipping & transportation tracking, etc.

❑ Check Your Progress – 1 :

1. HR stands for _____.
   a. Human Requirement b. Human Recruitment
   c. Human Resource d. Human Replacement
2. CRM stands for _____.
   a. Customer Relationship Management
   b. Customer Resource Management
   c. Customer Replace Management
   d. Customer Requirement Management
3. SCM stands for _____.
   a. Service Chain Management b. Supply Chain Management
   c. Software Chain Management d. Support Chain Management

3.3 Challenges To Implement ERP Packages :

An ERP implementation is very complex part because it affects business processes of an organization. To understand the benefits of the new system, employee have to replacing the old manual processes with more effective, automated processes.

Biggest challenge is getting employee and functional groups have to change their ways in order to work with the new system. This change needs strong project management and support from senior management. To develop the new system an organization required a project team, so that team can represent ERP platforms to the users or employee. This ensures that system will support the needs and business processes of an organization.

In an organization ERP implementation involves peoples of all the levels as well as technology. There may be challenges related to people like struggle to change, as well as technical difficulties. There are some common challenges to implement ERP packages which are as follows :

3.3.1 Project Management :

Project management include phases such as planning, analysis, design, development, data relocation, testing, deployment, support and updates after introduction of system.

3.3.2 Project Planning :

Project planning is second challenges in the implementation because organization underestimate the time and budget because as the functionalities are added in the system it will also increase the cost of the system, so budget also overrun. If you developing a strong and accurate plan from the beginning then we avoid those issues. An accurate project plan shows estimated time of completion, minor costs if it will overrun which makes decision–making process simple and have the project on track.

3.3.3 Data Integration :

ERP provides a single, accurate source of data for the organization and this is the important advantage of ERP. In ERP implementation data integration is the important step which include movement of the data from old system to the new ERP database. To do that you have to collect the data from all the department of the organization. Well–planned data integration completes the integration of the data on time and according to budget. Data integration includes issues like duplication, incomplete, inaccurate of data.

3.3.4 Data Quality :

After collecting all the data, we can think on the data integration in the ERP system. Here, in the integration of data quality of data is the challenge because there may be possibility that different department works with the same customer, supplier, products and orders so there are chances of data duplications. Data quality includes removing duplication, incomplete data, and validating data. This will give surety of data quality.

3.3.5 Change Management :

ERP implementation is not like a switching the system in the night. It means fixing new system in an organization but, it will also give the advantage of the efficiency and productivity of new system. We have to transform the system step by step like first, a change in mindset and a change in daily work processes for many employees. Organization has to be sure that they will give full training and support to the users so that adoption can be go on smoother way.

3.3.6 Cost Overruns :

Many organizations underestimate the amount of work required to move to a new business system, and that results in spending more money than expected. These cost overruns often show up in a few different areas. Training costs are one other expense to consider–ERP vendors often offer free basic training to customers, but you may need to pay for additional training hours or classes during or after the implementation.

3.3.7 Continuous Improvement :

An ERP implementation is not a thing that ends when the new system goes live. The solution must continue to develop to support new business demands and technology. The project team required to continue to manage the project after implementation, fixing issues and supporting new requirements as they come up.

3.4 Roadmap for Successful ERP Implementation :

We have discussed above the challenges in implementation of ERP system. To implement the ERP successfully you need to have following things :

3.4.1 Work Together :

By gathering top experts and employee in the implementation process, you can ensure that you meet all the requirements possible.

3.4.2 Training :

Training is the activity in which users get awareness regarding all the functionality of system and way to use that system. Give proper training to the employee so that they can get hold on the new system. So, organization have to arrange the required resources for the training.

3.4.3 Assess your Hardware :

Check out the available hardware is enough or not and if you will require extra IT infrastructure for the new system then find out what you will need, how much it will cost, and how you can go about installing it.

3.4.4 Plan Data Transfer :

This is the toughest parts in the ERP implementation process. Find out the location of the data, what data needs to be transferred, what is requires for the data transfer and how you will test that the transfer is successful and complete.

3.4.5 Create Testing Phases :

Creating testing phases ensures that the ERP system will work best in the all aspects. A good implementation process includes testing every aspect of the ERP solution before going live with it.

3.4.6 Figure out the Configuration :

Depending on the ERP system you select to implement into an organization, you will expected customize its features, functions, and interfaces to your current workflows and organizational structure. By working with the ERP seller, you will identify the configuration that is required for ERP implementation.

3.4.7 Note Timelines :

There should be some schedule or timeline for the ERP implementation process, based on that it is much easier to track the progress of the implementation.

❑ Check Your Progress – 2 :

1. Explain roadmap of successful ERP implementation.

3.5 ERP In India :

Today, India is transforming under reality. Small and medium–sized organization also realizing the need of having an enterprise resourcing planning (ERP) system. This software helps in managing the day–to–day business activities like accounting, sales, finance, procurement, planning, and supply chain operations. It removes the duplication of data and automates businesses like never before.

So, instead of having several spreadsheets and separate systems for managing every important organization function, you can consider having an ERP that makes a difference. ERP systems manage the quarterly financial statements, sales records, customer records, bills of sales and purchase, and much more. With a centralized concept, everyone in your organization can stay on the same place. It is impossible to ignore the impact an ERP has in the business world.

ERP system is an IT solution that helps companies to achieve enterprise–wide integration, which results in faster access of data to accurate information required for decision making. ERP become an attractive, dependable and satisfactory model for all business applications and organization. An organization can simply complete the tasks and direct towards more growth and productivity.

Today open–source ERP implementation is in high demand. By using right ERP implementation, the organization can save both money and time. Odoo is an open ERP hence implementation time and cost can be reduced. Another advantage of Odoo ERP implementation is operating cost can be reduced and Return on Investment can be increased.

However, today we are going to deal with the current situation of the Indian business market and ERP. ERP has changed the custom of business around the world. In India, the number of organizations that are implementing ERP or integrating with ERP is increasing day by day. ERP implementation will increase productivity, reduce overall cost, and of course efficiency.

❑ **Check Your Progress – 3 :**

1. _____ is open–source ERP.

   a. Odoo b. Odu c. Adoo d. Redu

2. Explain position of ERP in India.

_____

_____

_____

_____

_____

3.6 Risk of ERP :

Every system suffers from risks. There are also risks in the ERP system like organizational factors, employee skills, software design issues, and technology integration factors. Restructure the organization process is the important risk to match the best practice business process.

The main risk in ERP system is getting the required skills. Improper training and re–skilling of the IT office in new ERP technology, lacking of internal expertise, failure to mix internal and external expertise successfully, and lack of business analysts are all the risks associated with the IT professionals. The risk factor is serious by the shortage of ERP–trained systems developers and the high market demand for their skills. The investment in recruiting, re–skilling, and re–training IT professionals is very high.

Some other risks factors that are unique to ERP implementation are non–faithfulness to standardized specifications, data movement from old systems,

lack of top management support, etc. There is a various risk issues which are as follows :

- **Organizational Issues :** There may be possibility to get fail in restructure business process, and fails in huge amount of data integration.
- **Employee Issues :** There may be possibility of improper training to the employee and lacking of expertise. Some times business analyst is not having knowledge of technology and business.
- **Management Issues :** There may be possibility in lacking of senior management support, improper communication, and proper management control structure.
- **Software Design Issues :** There may be possibility in lacking to follow standard specification, integration of software modules and poor data quality.
- **User Training and Involvement :** There are chances of lacking in training to end–users, proper communication is not going on, absence of full–time commitment to customers for project management and activities.
- **Technology Planning and Integration :** There may be possibility to system get fail to avoid technological blockages.

❑ **Check Your Progress – 4 :**

1. Write a note on Risk of ERP.

3.7 Risk Factors of ERP Implementation :

There are some of the important risk factors in ERP implementation which are as follows :

3.7.1 People Issues :

For any organization people of the organization may consider as risk factors in ERP implementation because of people have to work with new system so there should be strong project team and team members who can provide essential experience, knowledge, and dedication to the project. People should require skills to operate the system and management have to identify the weaknesses of the employee so that organization can provide the training to the end–user. Identifying the weaknesses in advance means it is going to consider in the planning and you can reassign the responsibilities. It's a lot easier to do this in the starting of the project rather than further down the line when problems are encountered.

3.7.2 Process Risks :

In ERP implementation second risk is process risk as the organization is transform form old system to new system means there will be change in the process. It is also important that the work on business processes reengineering is associated with the work being done on benefits realization. Business

processes and procedures will change. End–users may be fearful of what the changes mean for them. It is necessary that change is properly managed to minimize the impact of the associated risks.

3.7.3 Technological Risks :

In ERP implementation third risk is technological risk. Technological risk in the sense whatever end–users is there in an organization may have not technical skills so it is not very easy for end–user to accept the new system. There is a possibility of employee face difficulty in using the technology so an organization cannot take the advantage of the technology.

3.7.4 Implementation Risks :

Implementation risk means how to implement the ERP system in an organization. An organization can implement ERP system step by step partially or fully. If you implementing partially then maybe it will not stop routine work of the organization, while fully implementation will stop the daily work until the full implementation.

3.7.5 Operation and Maintenance Issues :

ERP system implementation is not only one time cost or implementation. It will also lead to operation and maintenance issues. After implementation there may be possibility that you have to add new functionality in the ERP system for future use and you have to keep your system up to date including all features. So, after implementation maintenance issue will be there.

❑ **Check Your Progress – 5 :**

1. Risk factors of ERP implementation includes _____.

   a. Process Risk b. Technological Risk

   c. Implementation Risk d. All of Above

3.8 Let Us Sum Up :

We also discussed about various modules of the ERP system like Human Resource, Engineering/ Production, Purchase, Sales & Marketing, Inventory, Finance & Accounting, Customer Relationship Management (CRM) and Supply Chain Management (SCM). This all modules are come together in single ERP system. Furthermore, we learnt about challenges and roadmap for successful implementation of ERP system.

In each and every system there will be two side, first one is positive side and second one is negative side. As positive side we seen that ERP is all in one system but as negative side there is a various risk associated with ERP system that we have learnt about the various risk associated with the ERP as well as various factors in implementing the system such as process risk, people issue, technological risk, implementation risk and so on.

3.9 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : c **2 :** a **3 :** b

❑ **Check Your Progress 2 :**

1 : Refer 3.3

- **Check Your Progress 3 :**

  1 : a **2 :** Refer 3.4

- **Check Your Progress 4 :**

  1 : Refer 3.5

- **Check Your Progress 6 :**

  1 : d

3.10 Glossary :

1. **CRM :** Name itself represent the meaning that management of relationship with customer and its focuses on the customer satisfaction. It includes sales performance through better customer service and maintain a strong relationship with customers. All customer details of the store are available in the CRM.
2. **SCM :** SCM module includes the flow of product items from production to customer & customer to production. It includes details such as manufacturer, stockiest, distributors, retailers, etc. SCM involves demand & supply management, sales returns, shipping & transportation tracking, etc.
3. **Training :** Training is the activity in which users get awareness regarding all the functionality of system and way to use that system.

3.11 Assignment :

1. Explain risk factors of ERP implementation.

3.12 Activities :

1. Discuss various modules of ERP.
2. Study about challenges to implement ERP packages.

3.13 Case Study :

1. Study about ERP in India.

3.14 Further Reading :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 04

TECHNOLOGY RELATED TO ERP PART–1

UNIT STRUCTURE

4.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Detail about Management Information System
- About Decision Support System

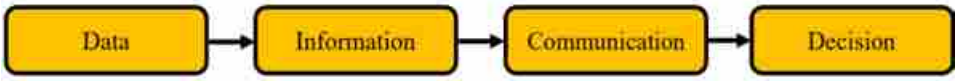
- Idea about Executive Support System
- Detail of Data Warehousing
- Idea about the Data Mining

4.1 Introduction :

There are various technologies are available related to ERP such as Management Information System, Decision Support System, Executive Support System, Data Warehousing, Data Mining and so on this all technologies are going to integrate in single ERP system, work together and achieve the organization's goal. Each technology has its own task. MIS manages the information of organization, DSS help to take the decision in an organization, Data warehousing manages historical data, and Data mining is used to give required data in required format.

4.2 Management Information System (MIS) :

Management Information System (MIS) is basically concerned with processing data into information. Which is then communicated to the various departments in an organization for appropriate decision making.



Management Information System

MIS refers broadly to a computer–based system that provides managers with the tools for organizing, evaluating & efficiently running their departments. It is a computer based planned system of collecting, storing & disseminating data in the form of information needed to carry out the functions of management that provides flexible and speedy access to accurate data to solve business problems.

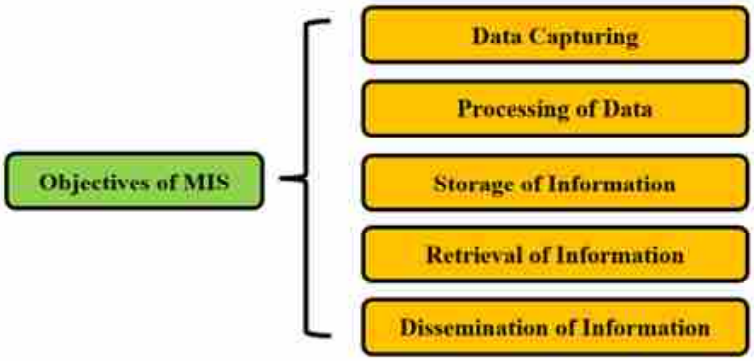
- **Management :** Management is an art of getting things done through & with the people in formally organized groups. It focuses on the ultimate use of such information systems for managerial decision making like to plan, organize, direct and control operations.
- **Information :** Information simply means processed data or the data which can be converted into meaningful and useful form for a specific user.
- **System :** A system is a grouped of interrelated components working together to achieve a common goal by accepting multiple inputs, which are processed through a transformation process to convert into output.

4.2.1 Definition of MIS :

"The MIS is an integrated System of man and machine providing the information to support the operations, the management and the decision–making function of the organization".

Management information system (MIS) is "an integrated user machine system for providing information to support operations, management and decision–making functions in an organization. The system utilizes computers, manual procedures, models for analysis, planning, control and decision making, and a database". – ***David Olson.***

4.2.2 Objectives of MIS :



Objectives of MIS

- **Data Capturing :** MIS captures data from various internal & external sources of organization. Data capturing may be manual or through computer terminals.
- **Processing of Data :** The captured data is processed to convert into required information. Processing of data is done by such activities as calculating, sorting, classifying and summarizing.
- **Storage of Information :** MIS stores the processed or unprocessed data for future use. If any information is not immediately required, it is saved as an organization record, for later use.
- **Retrieval of Information :** MIS retrieves information from its stores as and when required by various users.
- **Dissemination of Information :** Information which is a finished product of MIS is disseminated to the users in the organization. It is periodic or online through computer terminal.

4.2.3 Characteristics of MIS :

- **Systems Approach :** The information system follows a systems approach. Systems approach means taking a comprehensive view or a complete look at the interlocking sub–systems that operate within an organization.
- **Management Oriented :** Management oriented characteristic of MIS implies that the management actively directs the system development efforts. For planning of MIS, top–down approach should be followed. Top–down approach suggests that the system development starts from the determination of management's needs and overall business objective. To ensure that the implementation of systems polices meet the specification of the system, continued review and participation of the manager is necessary.
- **Need Based :** MIS design should be as per the information needs of managers at different levels.
- **Exception Based :** MIS should be developed on the exception based also, which means that in an abnormal situation, there should be immediate reporting about the exceptional situation to the decision –makers at the required level.
- **Future Oriented :** MIS should not merely provide past of historical information; rather it should provide information, on the basis of future projections on the actions to be initiated.

- **Integrated :** Integration is significant because of its ability to produce more meaningful information. Integration means taking a comprehensive view or looking at the complete picture of the interlocking subsystems that operate within the company.
- **Common Data Flow :** Common data flow includes avoiding duplication, combining similar functions and simplifying operations wherever possible. The development of common data flow is an economically sound and logical concept, but it must be viewed from a practical angle.
- **Long Term Planning :** MIS is developed over relatively long periods. A heavy element of planning should be involved.
- **Sub System Concept :** The MIS should be viewed as a single entity, but it must be broken down into digestible sub–systems which are more meaningful.
- **Central database :** In the MIS there should be common data base for whole system.

4.2.4 Example of MIS :

- ✓ Human Resource Management System
- ✓ Accounting Management System
- ✓ Customer Relationship Management System
- ✓ Marketing Management System
- ✓ Operations Management System
- ✓ Project Management System
- ✓ Airline reservations (seat, booking, payment, schedules, boarding list, special needs etc.).
- ✓ Bank operations (deposit, transfer, withdrawal) electronically with a distinguish payment gateways.
- ✓ Integration of department with the help of contemporary software's like ERP.
- ✓ Logistics management application to streamline the transportation system.
- ✓ Train reservation with the help of IRCTC.

❑ Check Your Progress – 1 :

1. MIS stands for _____.
   a. Management Information System
   b. Management Information Software
   c. Management Information Structure
   d. Management Information Service
2. Explain objectives of MIS.

_____

_____

_____

_____

_____

4.3 Decision Support System (DSS) :

Decision support systems (DSS) assist managers who must make decisions that are not highly structured often called unstructured or semi–structured decisions. A decision is considered unstructured if there are no clear procedures for making the decisions. A key factor in the use of decision support systems is determining what information is needed. In well–structured situation it is possible to identify information needs in advance, but in an unstructured environment, it is difficult to do so.

For example, the decisions process followed by banking officers who must decide whether to install automated teller machines or not. It is completely new banking services. Among the many questions to be considered are there :

- ✓ What will each service cost ?
- ✓ How many teller locations will be needed ?
- ✓ How will the competition respond to this ?
- ✓ What limits should be placed on withdrawals at any one time ?
- ✓ Can a charge be imposed for this service ?
- ✓ Will this service result in additional deposits and thus more cash inflow for the bank ?

In such cases, it is impossible to pre–design system report formats and contents. A DSS must have greater flexibility than other information systems. Manager judgment plays a vital role in decision–making where the problem is not structured. The decision support system supports, but not replaces, manager judgment.

A class of systems, which support the process of decision making. The emphasis is on support rather than on automation of decisions. DSS allows the decision maker to retrieve data and test alternative solutions during the process of problem solving.

A set of well–integrated, user friendly, computer–based tools that combine data with various decision–making models –qualitative and quantitative – to solve semi structured and unstructured problems.

4.3.1 Characteristics of a DSS :

- ✓ Support for decision–makers in semi–structured and unstructured problems.
- ✓ Support for managers at various managerial levels, ranging from top executive to line managers.
- ✓ Support for individuals and groups. Less structured problems often require the involvement of several individuals from different departments and organization level.
- ✓ Support for interdependent or sequential decisions.
- ✓ Support for intelligence, design, choice, and implementation.
- ✓ Support for variety of decision processes and styles.
- ✓ DSSs are adaptive over time.

4.3.2 Types of DSS :

- **Status Inquiry System :** It helps in taking operational, management level, or middle level management decisions, for example daily schedules of jobs to machines or machines to operators.

- **Data Analysis System :** It needs comparative analysis and makes use of formula or an algorithm, for example cash flow analysis, inventory analysis etc.
- **Information Analysis System :** In this system data is analyzed and the information report is generated. For example, sales analysis, accounts receivable systems, market analysis etc.
- **Accounting System :** It keeps track of accounting and finance related information, for example, final account, accounts receivables, accounts payables, etc. that keep track of the major aspects of the business.
- **Model Based System :** Simulation models or optimization models used for decision–making are used infrequently and creates general guidelines for operation or management.

❑ **Check Your Progress – 2 :**

1. DSS stands for _____.

   a. Decision Support Service b. Decision Support System

   c. Decision Support Software d. Decision Support Structure

2. What is DSS ? Explain its types.

4.4 Executive Support System (ESS) :

Information systems at the organization's strategic level designed to report the custom decision making through advanced graphics and communications. ESS is designed to help senior managers to make strategic decisions. It gathers analysis and summarizes the data of the internal & external sources. It also used internally as well as outside the organization.

The database maintains in this level is directly stored to the main server of the organization which contains the database of operational level and management level. ESS typically involves lots of data analysis & modelling tools such as "what if" analysis to help strategic decision making.

❑ **Check Your Progress – 3 :**

1. ESS stands for _____.

   a. Executive Support Service b. Executive Support Software

   c. Executive Support System d. Executive Support Structure

2. Write a note on Executive Support System.

4.5 Data Warehousing :

Data are referring to a collection of facts where warehouse is used to store collected data. Data Warehouse is a database used for reporting and data analysis. It is central storeroom of data which is created by integrating data from one or more source. Data Warehouse store current as well as historical data and are used for creating reports for senior management such as annual and quarterly, Weekly, Monthly comparisons.

Data warehousing provides architectures and tools for business managements to systematically organize, understand, and use their data to make strategic decisions. Here we have some definition which are as follows : Data warehouse refers to a database that is maintained separately from an organization's operational databases. "A data warehouse is a subject–oriented, integrated, time–variant, and non–volatile collection of data in support of management's decision–making process".

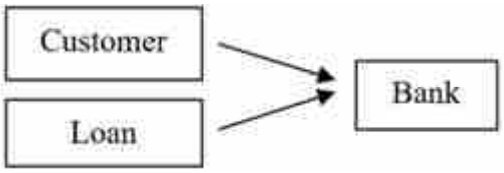
4.5.1 Characteristics of Data Warehouse :

There are four characteristics of Data Warehouse which are as follows :

1. **Subject–oriented :** Data warehouse is organized around major subjects such as sales, product, customer, and supplier. It focuses on modelling and analysis of data for decision makers. It is not focuses on the day–to–day operations and transaction. Data warehouse typically provide a simple and short view of particular subject. For example : Customer loan process of bank.

Subject Oriented

2. **Integrated :** Data warehouse is constructed by integrating multiple heterogeneous sources such as relational databases, flat files, and on–line transaction records. Data cleaning and data integration techniques are applied to ensure consistency. For example : Customer loan process of bank.



Integrated

3. **Time–variant :** Data are stored to provide information from a historical perspective for e.g., the past 5–10 years. For example, one can retrieve data from 3 months, 6 months, 12 months, or even older data from a data warehouse. Every key structure in the data warehouse contains, either implicitly or explicitly, an element of time. In short Historical information is an important component of a data warehouse.

4. **Non–volatile :** A data warehouse is always a physically separate store of data changed from the application data found in the operational environment. Operational update of data does not occur in the data warehouse environment. Due to this separation, a data warehouse does not require transaction processing, recovery, and concurrency control

mechanisms. It usually requires only two operations in data accessing : initial loading of data and access of data.

Data Warehouse is often viewed as an architecture, constructed by integrating data from multiple heterogeneous sources to support structured and/ or ad hoc queries, analytical reporting, and decision making. Based on this information, we view data warehousing as the process of constructing and using data warehouse. The construction of data warehouse requires data cleaning, data integration, and data consolidation.

Data warehousing systems are design to support online analytical processing (OLAP). Data warehouse systems provide users or knowledge workers in the role of data analysis and decision making. Such systems are organized and represent data in various formats as per the requirements of the users.

4.5.2 How organizations are using the information from data warehouse ?

Many organizations use this information to support business decision–making activities, such activities are as follows :

- ✓ Increasing customer focus, which includes the analysis of customer buying patterns such as buying preference, buying time, budget cycles etc.
- ✓ Repositioning products and managing product portfolios by comparing the performance of sales by quarter, by year, and by geographic regions in order to fine–tune production strategies.
- ✓ Analyzing operations and looking for source of profit.
- ✓ Managing customer relationship, making environmental corrections, and managing the cost of corporate assets.

4.5.3 Usage :

Data Warehouse is used in a wide range of applications. Business managers use the data in data warehouse to perform data analysis and make strategic decisions. Data Warehouses are used in banking and financial services, customer goods and retail distribution sectors, and controlled manufacturing, such as demand–based production.

Data Warehouse is mainly used for generating reports and answering queries. It is used to analyze summarized and detailed data, where the results are presented in the form of reports and charts. Later, the data warehouse is used for strategic purpose, which performing multidimensional analysis and sophisticated operations.

Finally, the data warehouse may be working for knowledge discovery and strategic decision–making using data mining tools. There are three kinds of data warehouse applications which are as follows :

1. **Information Processing :** It supports querying, basic statistical analysis, and reporting using tables, charts and graphs. A current trend in data warehouse information processing is to construct low–cost web–based accessing tools that are then integrated to web browsers.
2. **Analytical Processing :** Data Warehouse data supports basic OLAP operations, including roll–up and pivoting. It generally operates on historical data in both summarized and detailed forms. The major strength of on–line analytical processing over information processing is the multidimensional data analysis of data warehouse data.

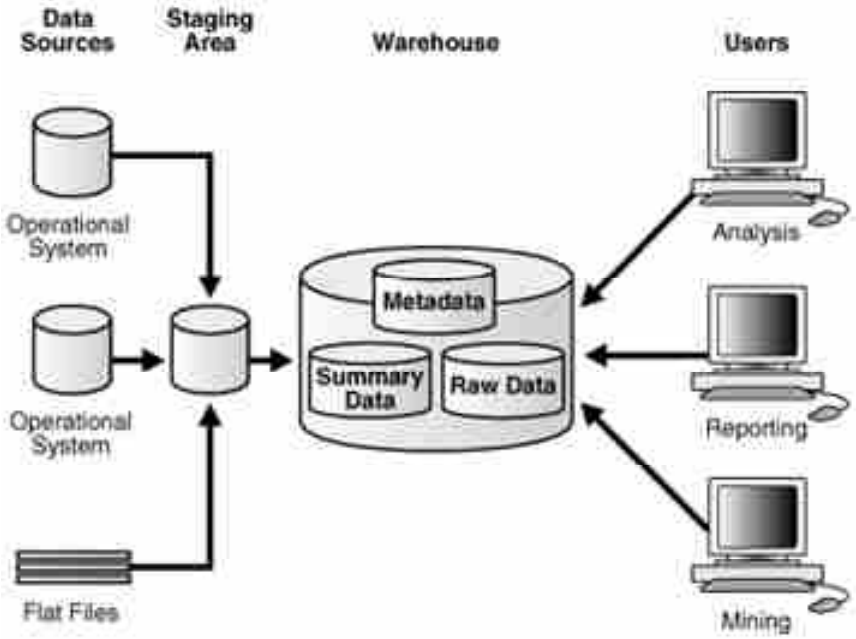
3. **Data Mining :** Data mining supports knowledge discovery from hidden patterns and associations, constructing analytical models, performing classification and prediction, and presenting the mining results using visualization tools.

4.5.4 Trends :

Data warehouse trends is in many areas which are as follows :

- ✓ Implemented application show usage to development from planned and data mart solution to strategic data warehouse.
- ✓ Data warehouse plans continue to face fresh challenges that develop with the changing business and technology environment.
- ✓ Data warehouse have developed new and more sophisticated technologies and have acquired and merged over.
- ✓ The awareness that unstructured data belongs in the data warehouse.
- ✓ Data can block up incrementally in warehouse.
- ✓ Data warehouse is designed to accommodate ad–hoc queries.
- ✓ Data warehouse usually store or support historical analysis.
- ✓ Data warehouse provide retrieval of data without slow process system.
- ✓ Data warehouse with specific loading requirement.
- ✓ Data warehouse requiring data encryption techniques.

4.5.5 Data Warehouse Process & Architecture :



Data Warehouse Process Architecture

A data warehouse can be built using a top–down approach, a bottom–up approach, or a combination of both. The top–bottom approach starts with the overall design and planning. It is useful in cases where the technology is mature and well understood. The bottom–up approach starts with experiments and prototypes. This is useful in the early stage of business modelling and technology development. It allows an organization to move forward at much less expense.

In the combined approach, an organization can make use of planned and strategic nature of top–down approach while retaining the rapid implementation and opportunistic application of the bottom–up approach.

In data warehouse process data source exposes the information being captured, stored, and managed by operational systems. This is information may be documented at various levels of detail and accuracy, from individual data source tables to integrated data source tables.

In data warehouse staging area includes extraction, transformation and load (ETL) of the information. In staging area extraction means reading and understanding the source data and copying data needed for data warehouse into staging area for further manipulation.

In staging area transformation involves data conversion, data cleaning, combining data from multiple sources, and data aggregation. Warehouse involves the raw data, Meta data and summary of data based on that information we can create the analysis and report for strategic decision and data mining for the user access as per the user requirement.

❑ **Check Your Progress – 4 :**

1. OLAP stands for _____.

   a. Online Analytical Processing b. Online Answer Processing

   c. Online Animation Processing d. Online Activity Processing

2. ETL stands for _____.

   a. Extraction, Termination and Load

   b. Extraction, Transformation and Load

   c. Extraction, Transformation and Language

   d. Expansion, transformation and Load

4.6 Data Mining :

Data Mining is the extraction or mining of knowledge from a large amount of data or data warehouse. To do this extraction data mining combines artificial intelligence, statistical analysis and database management systems to fetch knowledge from stored data. Data mining is the process of applying intelligent methods to extract data patterns. This is done using the front–end tools.

4.6.1 What is Data Mining ?

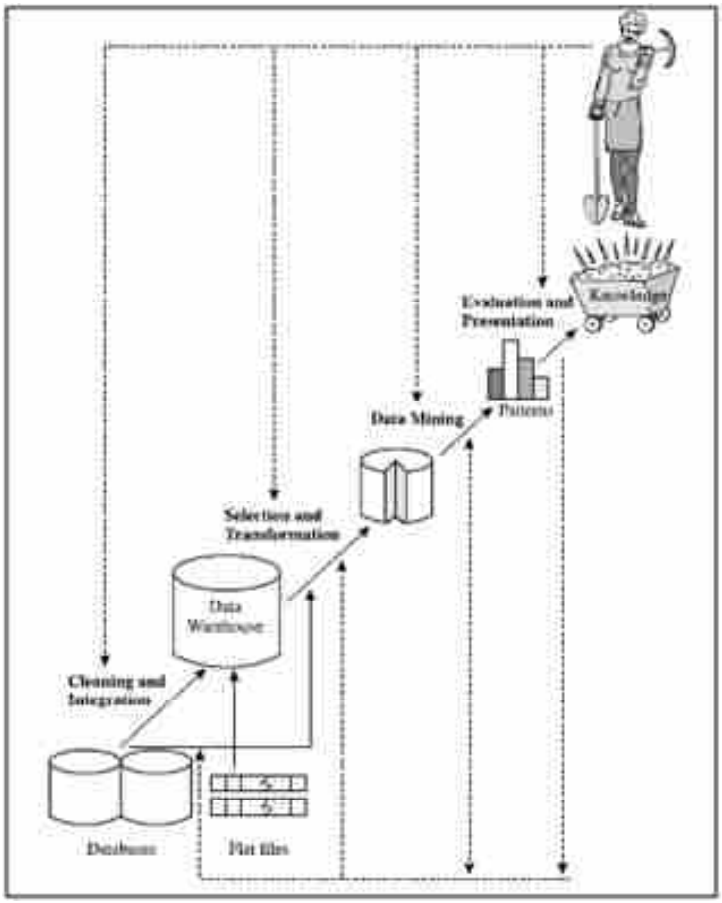
"Data Mining refers to extracting or mining knowledge from large amount of data". Data Mining is the practice of automatically searching large stores of data to discover patterns and trends that go beyond simple analysis. The actual term is misnomer. The mining of gold from rocks or sand is referred to as gold mining rather than rock or sand mining.

Many other terms carry a similar or slightly different meaning of data mining, such as knowledge mining from data, knowledge extraction, data/pattern analysis, data archaeology, and data dredging. Data Mining is also referred to as Knowledge Discovery in Data (KDD).

4.6.2 Knowledge Discovery Process :

This is a view from typical database systems and data warehousing areas, data mining plays an important role in the Knowledge Discovery in Data. Here, some of the steps are available for KDD process which are as follows :

1. **Data Cleaning :** It means to remove noise and inconsistent data.
2. **Data Integration :** Data integration is the place where multiple data sources are combined.
3. **Data Selection :** Data selection means retrieve the data from the database which is required for analysis.
4. **Data Transformation :** Data transformation means data are converted into appropriate form for mining.
5. **Data Mining :** It is an essential process where intelligent methods are applied in order to extract data patterns.
6. **Pattern Evaluation :** Pattern evaluation means to identify the truly interesting patterns from the database, which represent the knowledge based on interestingness.
7. **Knowledge Presentation :** Knowledge presentation means mined knowledge data are provide to user with the help of visualization and knowledge representation techniques.



Knowledge Discovery in Data

4.6.3 Data Mining Techniques :

1. **Association :** Association is one of the best–known data mining techniques. In association, a pattern is discovered based on a relationship between items in the same transaction. Association is based on relationship so

it is also known as relation technique. The association technique is used in market base analysis to identify a set of products that customers frequently purchase together. Retailers are using association technique to research customer's buying habits.

For example, Customers always buy conditioner when they buy shampoo, and therefore they can put shampoo and conditioner next to each other to save time for customer and increase sales. So, this relation is known as association.

2. **Classification :** Classification is used to classify each item in a set of data or in groups. Classification method makes use of mathematical techniques such as linear programming, and statistics. In classification, we develop the software that can learn how to classify the data items into groups.

   For example, you can apply classification on employee's all records based on their departments, cities or by their post and can create the separate groups.

3. **Clustering :** Clustering is a data mining technique that makes meaningful or useful data together which have similar characteristics. The clustering technique defines the classes and puts objects in each class.

   For example, in library we can cluster the books of same subjects which have same cluster.

4. **Prediction :** The prediction is a data mining technique that discovers relationship between independent variable and dependent variable.

   For example, Prediction analysis technique can be used in sales to predict profit for the future if we consider sales is an independent variable, profit could be a dependent variable.

5. **Sequential Pattern :** Sequential Pattern analysis is one of data mining technique seeks to discover similar patterns, regular events or trends in transaction data over a business period. In sales, with historical transaction data, businesses can identify a set of items that customers buy together at different times in a year.

6. **Decision Trees :** Decision tree is one of the most used data mining techniques because its model is easy to understand for users. In decision tree technique, the root of the decision tree is a simple question or condition that has multiple answers.

4.6.4 Data Mining Tools :

Organization that wishes to use data mining tools can purchase mining programs design for existing software and hardware platforms which can be integrated into new products and systems as they are brought online, or they can build their own custom mining solution.

Different types of data mining tools are available in the market, each with their own strengths and weaknesses. Data mining tools can be classified into three categories which are as follows :

1. **Traditional Data Mining Tools :** Traditional data mining programs help companies to establish data patterns and trends by using number of complex techniques. Some of these tools are installed on the desktop

to monitor the data and highlight trends and other capture information residing outside a database.

2. **Dashboards :** It is installed in computers to monitor information in a database; dashboards reflect data changes & update onscreen–often in the form of a chart or table – enabling the user to see how the business is performing. Historical data can be referenced, enabling the user to see where thing have changed.

   This functionality makes dashboards easy to use and particularly appealing to managers who wish to have an overview of the company's performance.

3. **Text Mining Tools :** The third type of data mining tool some time is called a text–mining tool because of its ability to mine data from different kinds of text – from Microsoft word and acrobat PDF documents to simple text files. These tools scan content and convert the selected data into a format that is compatible with the tool's database, thus providing users with an easy accessing data without the need to open different applications.

❑ **Check Your Progress – 5 :**

1. KDD stands for _____.

   a. Knowledge Discovery in Data b. Knowledge Delivery in Data

   c. Knowledge Definition in Data d. Knowledge Database in Data

2. Explain Data Mining Techniques.

_____

_____

_____

_____

_____

4.7 Let Us Sum Up :

In this you learnt about various technology related to ERP such as Management Information System, Decision Support System, Executive Support System, Data Warehousing and Data Mining. We have seen that in MIS data is going to transform into the information, information is going to communicate with upper level and upper level is going to take the decision. So, in MIS data is going to capture, process, storage, retrieval and dissemination.

In DSS we learnt that it helps managers and upper levels to take the decision, while ESS is designed to help senior managers to make strategic decisions. We also seen that data warehouse is the place where all the data of the organization is going to store and from that data mining is going to take place because whenever you required data at that time you are going to extract the required data from large amount of the data.

4.8 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : a **2 :** Refer 4.2.2

- **Check Your Progress 2 :**

  1 : b **2 :** Refer 4.3.2

- **Check Your Progress 3 :**

  1 : c **2 :** Refer 4.4

- **Check Your Progress 4 :**

  1 : a **2 :** b

- **Check Your Progress 5 :**

  1 : a **2 :** Refer 4.6.3

4.9 Glossary :

1. **Management :** Management is an art of getting things done through & with the people in formally organized groups. It focuses on the ultimate use of such information systems for managerial decision making like to plan, organize, direct and control operations.
2. **Information :** Information simply means processed data or the data which can be converted into meaningful and useful form for a specific user.
3. **System :** A system is a grouped of interrelated components working together to achieve a common goal by accepting multiple inputs, which are processed through a transformation process to convert into output.
4. **MIS :** The MIS is an integrated System of man and machine providing the information to support the operations, the management and the decision–making function of the organization.
5. **Data Warehouse :** Data are referring to a collection of facts where warehouse is used to store collected data. Data Warehouse is a database used for reporting and data analysis. It is central storeroom of data which is created by integrating data from one or more source. Data Warehouse store current as well as historical data and are used for creating reports for senior management such as annual and quarterly, Weekly, Monthly comparisons.
6. **Data Mining :** Data Mining refers to extracting or mining knowledge from large amount of data.

4.10 Assignment :

1. Discuss the characteristics of MIS.

4.11 Activities :

1. Explain characteristics of Data Warehouse.

4.12 Case Study :

1. Explain Data Warehouse Process & Architecture.
2. What is Data Mining ? Explain Knowledge Discovery Process.

4.13 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 05

TECHNOLOGY RELATED TO ERP PART–2

UNIT STRUCTURE

5.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Detail about On–Line Analytical Processing
- About Supply Chain Management
- Idea about Customer Relationship Management
- Detail of Business Intelligence
- Idea about the Product Life Cycle Management
- About Geographical Information System

5.1 Introduction :

There are various technologies are available related to ERP such as Online Analytical Processing, Supply Chain Management, Customer Relationship Management, Business Intelligence, Product Life Cycle Management, Geographical Information Systems and so on this all technologies are going to integrate in single ERP system along with previous technologies discussed in unit–4, work together and achieve the organization's goal. Each technology has its own task.

OLAP is used to perform analysis of business data and provides the ability to perform complex calculation on usually low volumes of data. SCM is based on accurate order processing, just–in–time inventory management, and timely order fulfilment. Fundamentally, supply chain management helps a company to get the right products to the right place at the right time, in proper quantity and at an acceptable cost. Today, customers are in charge, it is easier for customers to comparison shop and, with a click of the mouse, to switch companies. As a result, customer relationships have become a company's most valued asset. These relationships are worth than the company's products, stores, factories, Web addresses and even employees.

Similarly, Business Intelligence provides the information related to the business, Product Life Cycle Management gives the detail of product life cycle and Geographical Information System provides the information about geographical location.

5.2 On–Line Analytical Processing (OLAP) :

An OLAP stands for On–line Analytical Processing is a software technology that enables analysts, managers and executives. An OLAP performs analysis of business data and provides the ability to perform complex calculation on usually low volumes of data.

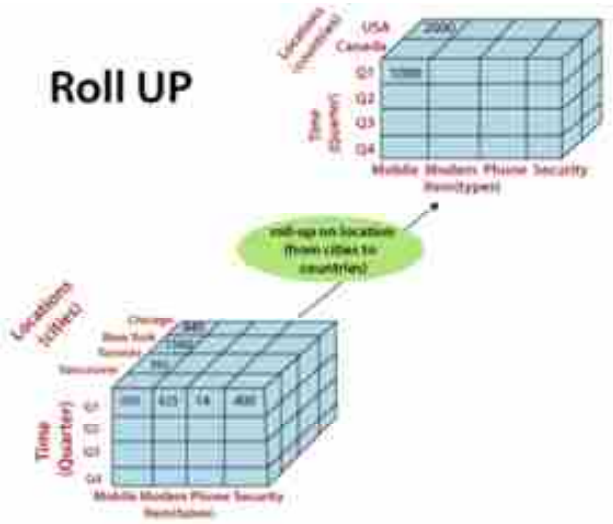
5.2.1 What is OLAP ?

The terms data warehousing and online analytical processing apply to different components of systems often referred to as decision support systems or business intelligence systems. Components of these types of systems include databases and application that provide the tools analysts need to support organizational decision–making.

An OLAP system adopts either a star or snowflake model and subject oriented database design. It is computer processing that enables a user to easily and selectively extract and view data from different points of views.

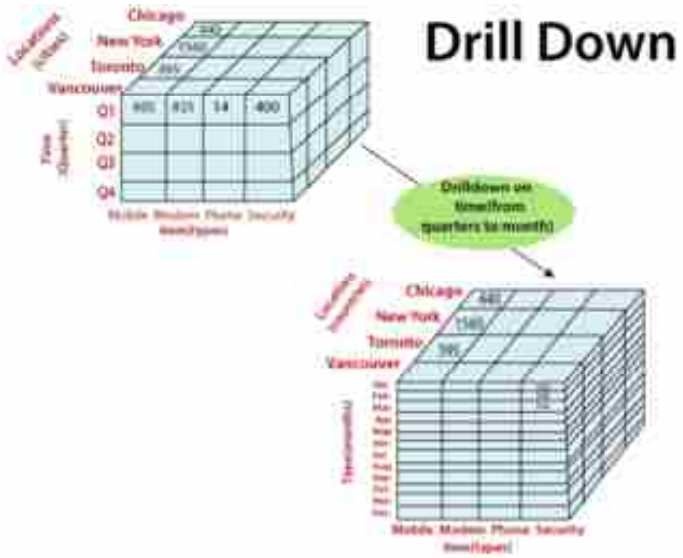
An OLAP data is stored in a multidimensional database. Whereas a relational database can be thought of as two–dimensional, a multidimensional database considers each attribute as a separate "dimension". It enables decision making about future actions. There are four OLAP operations which are as follows :

1. **Roll Up/Drill–Up :** Roll Up performs aggregation on a data cube, either by climbing up a concept hierarchy for a dimension or by dimension reduction. For Example, it will show the information of location from cities to states then it is roll up that you can clearly identify in the below image.



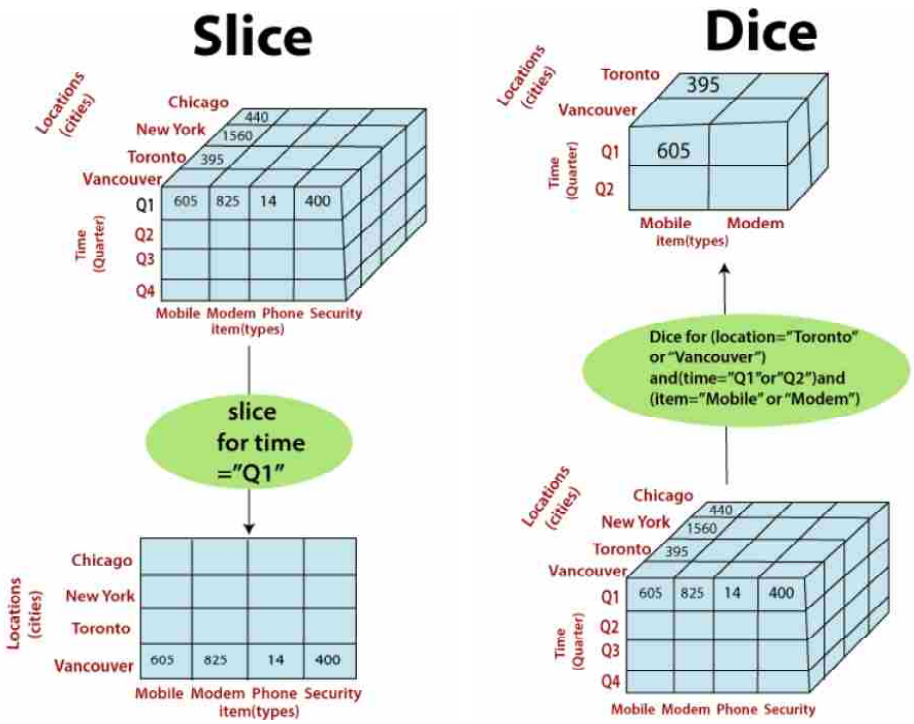
Roll UP

2. **Drill–Down/Roll Down :** It can be realized by either stepping down a concept hierarchy for a dimension or introducing additional dimensions. For Example, it will show the information of time from quarters to months then it is drill–down that is shown in below image.



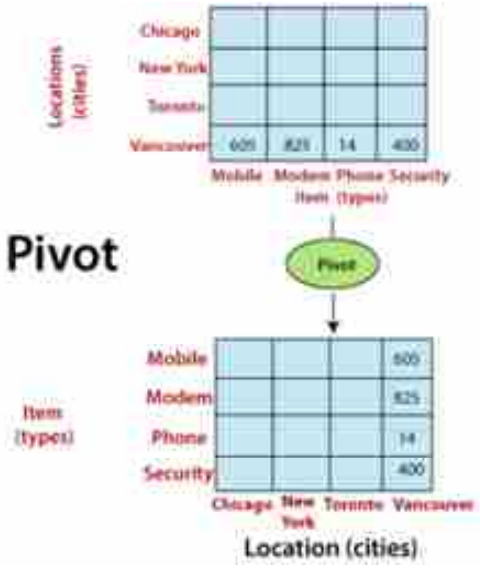
Drill–Down

3. **Slice and Dice :** Slice performs a selection on one dimension of given cube, resulting in a sub cube. Dice define sub cube by performing a selection on two or more dimensions. For Example, in dice it will show the information of location "Toronto" or "Vancouver" and time "Q1" or "Q2" and item "Home Entertainment" or "Computer", while in slice it will show the information for time "Q1".



Slice **Dice**

4. **Pivot :** It's a visualization operation that rotates the data axes in view in order to provide an alternative presentation of the data.



Pivot

5.2.2 Advantages and Disadvantages of OLAP :

➢ **Advantages of OLAP :**

✓ The primary advantage of OLAP is better performance of data storage for multidimensional data.

✓ An OLAP system gives analytical capabilities that are not in SQL.

✓ It is easier to work with multidimensional data in a multidimensional system.

➢ **Disadvantages of OLAP :**

✓ The use of relational design and relational database technology are not possible implementations to support an OLAP design because of the complexity of the quires.

✓ The ETL process can be complicated and time consuming, and with large amounts of data may only occur at monthly or quarterly time intervals.

❑ **Check Your Progress – 1 :**

1. OLAP operations are _____.

   a. Roll Up and Drill Down b. Slice and Dice

   c. Pivot d. All of Above

2. What is OLAP ? Explain its advantages and disadvantages.

_____

_____

_____

_____

_____

5.3 Supply Chain Management (SCM) :

Starting an e–business takes ideas, capital, and technical knowledge. Operating one, however, takes supply chain management skills. A successful SCM strategy is based on accurate order processing, just–in–time inventory management, and timely order fulfilment.

Many companies are making supply chain management as a top strategic objective and major e–business application development initiative. Fundamentally, supply chain management helps a company to get the right products to the right place at the right time, in proper quantity and at an acceptable cost.

The goal of SCM is to manage this process efficiently by forecasting demand; controlling inventory; enhancing the network of business relationships of a company with customers, suppliers, distributors, and others; and receiving feedback on the status of every link in the supply chain. To achieve this goal, many companies today are turning to Internet technologies to Web–enable their supply chain processes, decision making and information flows.

5.3.1 What is SCM ?

Legacy supply chains are closed with unnecessary steps and redundant stocks. For example, a typical box of breakfast spends 104 days getting from factory to supermarket, struggling it through an unbelievable network of wholesalers, distributors, brokers, and consolidators, each of which has a warehouse.

The e–commerce opportunity relaxes in the combining of each company's internal systems to those of its suppliers, partners, and customers. This combination forces companies to better integrate interenterprise supply chain process to improve manufacturing efficiency and distribution effectiveness. So, supply chain management is a cross–functional interenterprise system that uses information technology to help support and manage the links between some of a company's key business processes and those of its suppliers, customers, and business partners.

The goal of SCM is to create a fast, efficient, and low–cost network of business relationships, or supply chain, to get a company's products from concept to market.

What is exactly a company's supply chain ? Suppose a company wants to build and sell a product to other businesses. Then it must buy raw materials and a variety of contracted services from other companies. The interrelationships with suppliers, customers, distributors, and other businesses that are needed to design, build, and sell a product make up the network of business entities, relationships, and processes that is called a supply chain. Because each supply chain process should add value to the products or services a company produces, a supply chain is frequently called a value chain.

5.3.2 The Role of SCM :

SCM Objectives		SCM Outcomes
What ? Establish objectives, policies, and operating footprint	**Strategic**	Objectives Supply policies (Service Levels) Network design
How much ? Organize resources to match supply to demand	**Tactical**	Demand forecast Production, Organization plan Inventory targets
When ? Where ? Schedule, monitor, control, and adjust production	**Operational**	Work center scheduling Order/inventory tracking
Do Build and support	**Execution**	Order cycle Material movement

S

Above table helps us to understand the role and activities of supply chain management in business more clearly. The top three levels Strategic, Tactical, and Operational objectives and outcomes of SCM planning, which are then accomplished by the business partners in a supply chain at the execution level of SCM.

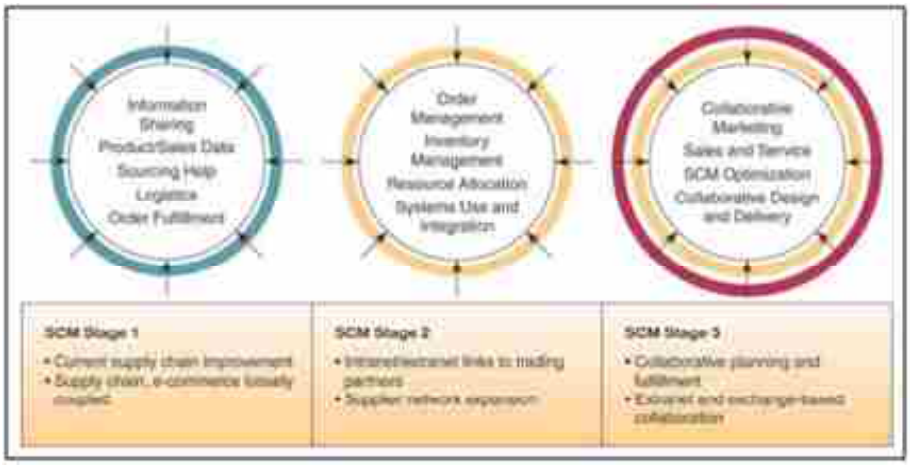
The role of information technology in SCM is to support these objectives with interenterprise information systems that produce many of the outcomes a business needs to manage its supply chain effectively. That's why many companies today are installing SCM software and developing Web–based SCM information systems.

5.3.3 Benefits and Challenges of SCM :

Creating a real–time SCM infrastructure is a hopeless and ongoing issue and quite often a point of failure for several reasons. The chief reason is that the planning, selection, and implementation of SCM solution are becoming more complex as the speed of technological change accelerates and the number of a company's partners increases.

The major business benefits that are possible with effective supply chain management systems. Companies know that SCM systems can provide them with key business benefits such as faster, more accurate order processing, reductions in inventory levels, quicker times to market, lower transaction and material costs, and strategic relationships with their suppliers. All of these benefits of SCM are aimed at helping a company get quickness and responsiveness in meeting the demands of its customers and the needs of its business partners.

5.3.4 Trends in SCM :



SCM Trend

Above figure shows the trends in the use of supply chain management today as three possible stages in a company's implementation of SCM systems.

In the first stage, a company concentrates on making improvements to its internal supply chain processes and its external processes and relationships with suppliers and customers. Its e–commerce Web site and those of some of its trading partners provide access to online catalogs and useful supply chain information as they support limited online transactions.

In stage two, a company accomplishes important supply chain management applications by using selected SCM software program internally, as well as externally via intranet and extranet links among suppliers, distributors, customers, and other trading partners. Companies in this stage also concentrate on expanding business network of Web–enabled SCM capable trading partners in their supply chain to increase its operational efficiency and effectiveness in meeting their strategic business objectives.

In the third stage, a company begins to develop and implement cutting–edge collaborative supply chain management application using advanced SCM software, full–service extranet links, and private and public e–commerce exchanges. Examples include collaborative supply chain planning and fulfilment applications like collaborative product design and delivery, and collaborative planning, forecasting, and replacement (CPFR).

In addition, collaborative marketing sales and service applications with trading partners, including customer and partner relationship management systems, may be developed. Companies in this third stage attempt to optimize the development and management of their supply chains in order to meet their strategic customer value and business value goals.

❑ Check Your Progress – 2 :

1. SCM Stands for _____.

   a. Supply Chain Management b. System Chain Management

   c. Software Chain Management d. Structure Chain Management

2. SCM skills includes _____.

   a. Ideas b. Capital

   c. Technical Knowledge d. All of Above

3. What is SCM ? Explain its benefits and challenges.

5.4 Customer Relationship Management (CRM) :

Today, customers are in charge, it is easier for customers to comparison shop and, with a click of the mouse, to switch companies. As a result, customer relationships have become a company's most valued asset.

These relationships are worth than the company's products, stores, factories, Web addresses and even employees.

The primary business value of customer relationships today is indisputable. That's why we emphasized that becoming a customer–focused business was one of the top business strategies that can be supported by information technology. Thus, many companies are implementing customer relationship management business initiative and information systems as part of a customer–focused or customer–centric strategy to improve their chances for success in today's competitive business environment.

5.4.1 What is CRM ?

Managing the full range of the customer relationship involves two related objectives : one, to provide the organization and all of its customer–facing employee with a single, complete view of every customer at every touchpoint and across all channels; and two, to provide the customer with a single, complete view of the company and its extended channels.

That's why companies are turning to customer relationship management to improve their customer focus. CRM uses information technology to create a cross functional enterprise system that integrates and automates many of the customer customer–serving processes in sales, marketing, and customer services that interact with a company's customers.

CRM systems also create an IT framework of Web–enabled software and databases that integrates these processes with the rest of company's business operations. CRM systems include a family of software modules that provides the tools that enable a business and its employees to deliver fast, convenient, dependable, and consistent service to its customers.

There are various major application components of a CRM systems are there which are as follows :

1. Contact and Accounting Management :

CRM software helps sales, marketing, and service professionals to capture and track relevant data about every past and planned contact with view and customers, as well as other business and life cycle events of customers. Information is captured from all customer touchpoints, such as telephone, fax, e–mail, the company's Web site, retail stores, and personal contact.

CRM systems store the data in a common customer database that integrates all customer account information and makes it available throughout the company

via Internet, intranet, or other network links for sales, marketing, service, and other CRM applications.

2. Sales :

A CRM system provide sales representatives with the software tools and company data sources they need to support and manage their sales activities, and optimize cross–selling and up–selling. Examples include sales view and product information, product configuration, and sale quote generation capabilities.

CRM also gives them real–time access to a single common view of customer, enabling them to check all aspects of customer's account status and history before scheduling their sales calls.

3. Marketing and Fulfilment :

CRM systems help marketing professionals to accomplish direct marketing operations by automating such tasks as qualifying leads for targeted marketing, and scheduling and tracking direct marketing mailings.

Then the CRM software helps marketing professionals to capture and manage view and customer response data in the CRM database, and analyze the customer and business value of company's direct marketing operations.

CRM also assists in the fulfilment or viewpoint and customer responses and request by quickly scheduling sales contacts and providing appropriate information on products and services to them, while capturing relevant information for the CRM database.

4. Customer Service and Support :

A CRM system provides service representatives with software tools and real–time access to the common customer database shared by sales and marketing professionals. It helps customer service managers to create, assign, and manage requests for services by customers.

Call center software routs calls to customer support agent based on their skills and authority to handle specific kinds of service requests. Help desk software helps customer service representatives assist customers who are having problems with a product or service by providing relevant service data and suggestions for resolving problems.

Web–based self–service enable customers to access personalized support information easily at the company Web site, while it gives them an option to receive further assistance online or by phone from customer service personnel.

5. Retention and Loyalty Programs :

Consider the following :

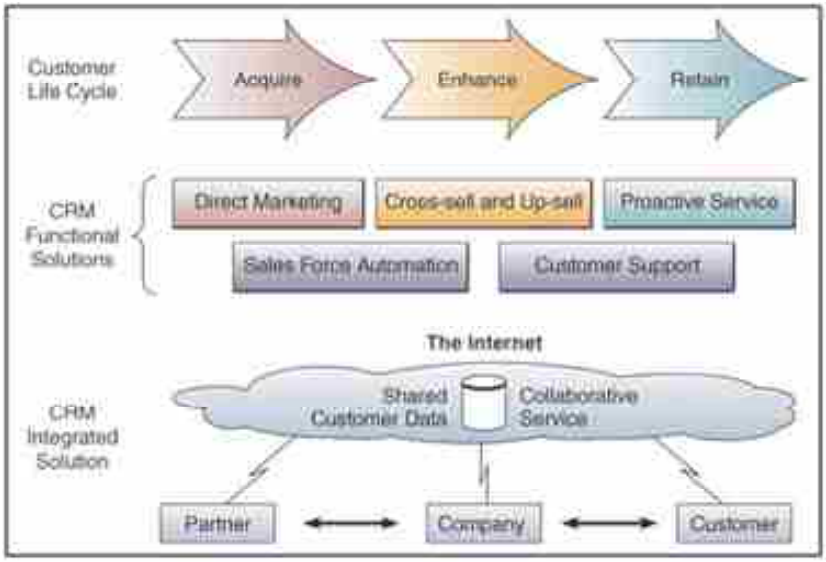
- ✓ It costs six times more to sell to a new customer than to sell to an existing one.
- ✓ A typical dissatisfied customer will tell eight to ten people about his or her experience.
- ✓ A company can boost its profit 85 percent by increasing its annual customer retention by only 5 percent.
- ✓ The odds of selling a product to a new customer are 15 percent, whereas the odds of selling a product to an existing customer are 50 percent.
- ✓ 70 percent of complaining customers will do business with the company again if it quickly takes care of a service problem.

That's why attractive and optimizing customer maintenance and loyalty is a major business strategy and primary objective of customer relationship management. CRM systems try to help a company identify, reward, and market to their most loyal and profitable customers.

CRM analytical software includes data mining tools and other analytical marketing software, while CRM databases may consist of a customer data warehouse and CRM data marts. These tools are used to identify profitable and loyal customers and direct and evaluate a company's targeted marketing and relationship marketing programs toward them.

5.4.2 The Three Phases of CRM :

Below figure shows another way to think about the customer and business value and components of customer relationship management. You can view CRM as an integrated system of Web–enabled software tools and databases accomplishing a variety of customer–focused business processes that support the three phases of the relationship between a business and its customers.



Three Phases of CRM

1. **Acquire :** A business depends on CRM software tools and databases to help it acquire new customers by doing a better job of contact management, sales viewing, selling, direct marketing, and fulfilment. The goal of these CRM function is to help customers to observe the value of a better product offered by an outstanding company.

2. **Enhance :** Web–enabled CRM account management and customer service and support tools help to keep customers happy by supporting better service from a responsive networked team of sales and service specialists and business partners.

   In addition, CRM sales force automation and direct marketing and fulfilment tools to help company's cross–sell and up–sell to their customers, thus increasing their profitability to the business. The value the customers observe is the convenience of one–stop shopping at attractive prices.

3. **Retain :** CRM analytical software and databases help a company proactively identify and reward its most loyal and profitable customers to maintain and expand their business via targeted marketing and relationship marketing programs. The value the customers observe is of a rewarding personalized business relationship with their company.

5.4.3 Benefits and Challenges of CRM :

The potential business benefits of customer relationship management are many. For example, CRM allows a business to identify and target its best customers who are the most profitable to the business so they can be retained as lifelong customers for greater and more profitable services.

It makes possible real–time customization and personalization of product and services based on customer wants needs, buying habits, and life cycles. CRM can also keep track of when a customer contacts the company, regardless of the contact point.

In addition, CRM systems can enable a company to provide a consistent customer experience and better service and support across all the contact points a customer chooses. All of these benefits would provide strategic business value to a company and major customer value to its customers.

5.4.4 CRM Failure :

The business benefits of customer relationship management are not guaranteed and, instead, have proven indescribable at many companies. Surveys by industry research groups include a report that more than 50 percent of CRM projects did not produce the results that were promised. In another research report, 20 percent of business surveyed reported that CRM implementations had actually damaged long–standing customer relationships.

What is the reason for such a high rate of failure or dissatisfaction with CRM initiatives ? Research shows that the major reason is a familiar one : lack of understanding and preparation. Too often, business managers depend on a major new application of information technology (like CRM) to solve a business problem without first developing the business process changes and change management program that are required.

For example, in many cases, failed CRM projects were implemented without the participation of the business stakeholders involved. Therefore, employees and customers were not prepared for the new processes or challenges that were part of the new CRM implementation.

5.4.5 Trends in CRM :

Increasingly, enterprise must create tighter collaborative linkages with partners, suppliers, and customers, squeezing out time and cost while attractive the customer experience and the total value proposition.

Types of CRM	Business Value
Operational CRM	Supports customer interaction with greater convenience through a variety of channels, including phone, fax, e–mail, chat, and mobile devices. Synchronizes customer interactions consistently across all channels. Makes your company easier to do business with.
Analytical CRM	Extracts in–depth customer history, preferences, and profitability information from your data warehouse and other databases. Allows you to analyze, predict, and derive customer value and behavior and forecast demand. Let's you approach your customers with relevant information and offer that are modified to their needs.

Collaborative CRM	Enables easy collaboration with customers, suppliers, and partners. Improve efficiency and integration throughout the supply chain. Allows greater responsiveness to customer needs through sourcing of products and services outside of your enterprise.
Portal–Based CRM	Provide all users with the tools and information that fit their individual roles and preferences. Empowers all employees to respond to customer demands more quickly and become truly customer–focused. Provides the capability to instantly access, link, and use all internal and external customer information.

Above table outlines four types or categories of CRM that are being implemented by many companies today and summarizes their benefits to a business. These categories may also be viewed as stages or trends in how many companies implement CRM applications, and the table also outlines some of the capabilities of CRM software products.

Most business start out with operational CRM systems such as sales force automation and customer service centers. Then analytical CRM applications are implemented using several analytical marketing tools, such data mining, to extract vital data about customers and forecast for targeted marketing operations.

Increasingly, businesses are moving to collaborative CRM systems, to involve business partners and customers in collaborative customer services. This includes systems for customer self–service and feedback, as well as partner relationship management (PRM) systems. PRM applications apply many of the same tools used in CRM systems to enhance collaboration between a company and its business partners, such as distributors and dealers, to coordinate and optimize sales and services to customer across all marketing channels.

Finally, many businesses are building Internet, intranet, and extranet Web–based CRM portals as a common gateway for various levels of access to all customer information, as well as operational, analytical, and collaborative CRM tools for customers, employees, and business partners.

❑ **Check Your Progress – 3 :**

1. CRM Stands for _____.
   a. Customer Reply Management
   b. Customer Relationship Management
   c. Customer Relational Management
   d. Customer Restriction Management
2. Types of CRM include _____.
   a. Operational CRM b. Analytical CRM
   c. Collaborative CRM d. All of Above
3. Define the three phases of CRM.

_____

_____

_____

_____

5.5 Business Intelligence (BI) :

ERP software with BI improve the performance of an organization. ERP systems are important for data analysis, and is divided between necessary functions such as finance, HR, operations and sales. BI sum's information of all functional parts into one. BI cannot be without ERP software. It mines the ERP database graphically with the help of dashboard so that investors across the business can easily understand the business situation. ERP software play important role in planned decision–making when high by BI capabilities. There are seven benefits of BI in ERP which are as follows :

1. **Data Collection and Analysis :** BI collect the large amount of raw data and after analysis define more value from the raw data. BI can define graphical detailed view from ERP data in an organization.
2. **Customization :** An ERP with BI allows customization in which each team of different department to create the report and dashboards as per the requirement to achieve the goal. Because each team in an organization working for the goals.
3. **Analytical Abilities :** BI provide analytical abilities on the organization's data as ERP provides historical data from the data warehouse. So, BI and ERP together provide past, present and possible future to the organization.
4. **Real–Time Decision :** An organization or business can generate the traditional report, but now a days in this dynamic environment organization need to have more analytical report to stay in the market. BI provides data and analyses of the real time data for improved and faster decision–making.
5. **Complete Visions :** With integration of BI and ERP, an organization not need to go back and forth between technologies to measure the performance because BI provides complete visions of the data. All the data is at single place and ready to use. So, from that you can create reports, more predictive model and response to ad–hoc queries.
6. **Productivity :** BI provide productivity because it allows an organization to combine, manage and analyze large amount of real–time data. This will improve the speed and removes the blocks of traditional organization.
7. **Reporting :** BI improves reporting by allowing teams to integrate large amount of data for in–depth analyses and speeding up the process of report–generation. Furthermore, simple and easy to use dashboards make reports accessible to authorized users across the organization, no matter their level of technical expertise.

❑ Check Your Progress – 4 :

1. BI stand for _____.

   a. Business Intelligence b. Business Information

   c. Business Instruction d. Business Infrastructure

2. What is BI ? Explain benefits of it.

_____

_____

_____

_____

5.6 Product Life Cycle Management (PLM) :

Product lifecycle management can be defined as the process of managing the entire lifecycle of a product. It includes from beginning and design to development, launch, service and finally retirement of the product. PLM technology helps an organization to develop the new products as per the market demand and requirement, and bring it to market. You can track and share the data of the product of its life cycle with this software.

PLM plays an important role in manufacturing products for the next generation, at a lower cost, and with faster time to market. There are five phases of product life cycle which are as follows :

Product Lifecycle Management

1. **Concept and Design :** This is the first step in the product life cycle, here product requirements are define based on analysis, market demand and customers requirement.
2. **Develop :** This is the second step where the detailed design of the product is developed as per the analysis. It also develops validation and prototype model to get the feedback from the product users.
3. **Production and Launch :** This is the third sept in which from the product feedback you can adjust the design the components of the product to produce a market–ready version. The production of the new product is followed by launch and distribution to the market.
4. **Service and Support :** This is the fourth sept in which after launching of new product during the warranty period after warranty period the service and support is offered for the product.
5. **Retirement :** This is the last and fifth step of the product where the product life cycle is end and it is going to withdraw from the market.

❑ **Check Your Progress – 5 :**

1. PLM Stands for _____.

   a. Product Lifecycle Management b. Production Lifecycle Management

   c. Project Lifecycle Management d. Profit Lifecycle Management

2. Write a detailed note on PLM.

5.7 Geographical Information Systems (GIS) :

A Geographical Information System is a technical tool for understanding geography and making intellectual decisions. GIS provide geographic data so a person can read that data and select the necessary step for the project. In today's modern business GIS plays an important role in operation and functional location related information such as equipment, work orders, and notifications.

An GIS with ERP integration will improve the measure management, maintenance, logistics, CRM, Real Estate and overall business process execution. Measure management includes inventory, network documentation, connection management. Maintenance includes notifications of work orders, maintenance history and reporting. Logistics includes planning, routing, site location. CRM includes address locations, service requirements and reporting. Real estate includes right of way, lease and facility management. Overall business process execution includes planning, designing and construction.

A GIS integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. GIS allows users to view, understand, question, interpret, and visualize data in many ways like map, reports and charts. So simple A GIS is an organized collection of computer hardware, software, geographic data, and personnel designed to efficiently capture, store, update, manipulate, analyze, and display all forms of geographically referenced information. GIS technology integrates common database operations, such as query and statistical analysis, with the unique visualization and geographic analysis benefits offered by maps.

❑ Check Your Progress – 6 :

1. GIS Stands for _____.
   a. Geographical Instruction System
   b. Geographical Infrastructure System
   c. Geographical Information System
   d. Geographical intellectual System
2. Write a note on GIS.

5.8 Let Us Sum Up :

In this you learnt about various technology related to ERP such as Online Analytical Processing, Supply Chain Management, Customer Relationship Management, Business Intelligence, Product Lifecycle Management and Geographical Information System.

We have seen OLAP enables analysts, managers and executives to analyzed the business data. SCM helps a company to get the right products to the right place at the right time, in proper quantity and at an acceptable cost. CRM informed you how manage and maintain the relationship with the customer. BI sum's information of all functional parts into one. PLM includes overall lifecycle of the product from starting to the end. GIS provides the best graphical information of the things, product or place.

5.9 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : d **2 :** Refer 5.2.1 & 5.2.2

- **Check Your Progress 2 :**

  1 : a **2 :** d **3 :** Refer 5.3.1 & 5.3.3

- **Check Your Progress 3 :**

  1 : b **2 :** d **3 :** Refer 5.4.2

- **Check Your Progress 4 :**

  1 : a **2 :** Refer 5.5

- **Check Your Progress 5 :**

  1 : a **2 :** Refer 5.6

- **Check Your Progress 6 :**

  1 : c **2 :** Refer 5.7

5.10 Glossary :

1. **OLAP :** The terms online analytical processing applies to different components of systems often referred to as decision support systems or business intelligence systems.
2. **CRM :** customer relationship involves two related objectives : one, to provide the organization and all of its customer–facing employee with a single, complete view of every customer at every touchpoint and across all channels; and two, to provide the customer with a single, complete view of the company and its extended channels.
3. **PLM :** Product lifecycle management can be defined as the process of managing the entire lifecycle of a product. It includes from beginning and design to development, launch, service and finally retirement of the product.

5.11 Assignment :

1. Explain operations of OLAP with example.
2. Discuss the role of Supply Chain Management.

5.12 Activities :

1. Discuss the benefits and failure of CRM.
2. Explain Types of CRM.

5.13 Case Study :

1. Define the trend of Supply Chain Management.
2. Explain various application component of CRM.

5.14 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

BLOCK SUMMARY :

In this block, you have learnt and understand about the basic of enterprise, business processes and its functions, Integrated management information, implementation of ERP in enterprise. The block given an idea about the ERP system, history of ERP, common myth of ERP and about different available ERP packages.

The block detailed you about the various modules of ERP, different challenges in implementing ERP, Roadmap for successful implementation of ERP and role of ERP in India. You have also seen risk and risk factors of ERP system in an organization.

The block given a detailed idea about various technology related to ERP such as Management Information System (MIS), Decision Support System (DSS), Executive Support System (ESS), Data Warehousing, Data Mining, On–Line Analytical Processing (OLAP), Supply Chain Management (SCM), Customer Relationship Management (CRM), Business Intelligence (BI), Product Life Cycle Management (PLM), and Geographical Information Systems (GIS).

BLOCK ASSIGNMENT :

❖ **Short Questions :**

1. What is an Enterprise ?
2. Write a note on Business Functions.
3. Write a note on Business Processes.
4. What is ERP ?
5. Explain various modules of ERP.
6. What is Risk ? Explain risk factors of ERP implementation.
7. What is MIS ? Explain objectives of MIS.
8. What is ESS ?
9. Explain Data Warehouse Process & Architecture.
10. Explain Data Mining Techniques.
11. Explain Data Mining Tools.
12. Explain three phases of Customer Relationship Management.
13. Write a note on Business Intelligence.
14. Write a note on Geographical Information System.

❖ **Long Questions :**

1. Explain Integrated Management System.
2. Explain role of enterprise in implementing ERP system.
3. Explain History of ERP.
4. Explain common myth of ERP.
5. Explain challenges to implement ERP packages.
6. Explain roadmap for successful ERP implementation.
7. Explain characteristics of MIS.
8. Write a detailed note on DSS.
9. What is Data warehouse ? Explain characteristics of it.
10. What is Data Mining ? Explain Knowledge Discovery Process.
11. What is OLAP ? Explain its operation.
12. Write a detailed note on Supply Chain Management.
13. Write a detailed note on Customer Relationship Management.
14. Explain Product Lifecycle Management.

❖ **Enrolment No. :** ☐

1. How many hours did you need for studying the units ?

Unit No.	1	2	3	4	5
No. of Hrs.					

2. Please give your reactions to the following items based on your reading of the block :

Items	Excellent	Very Good	Good	Poor	Give specific example if any
Presentation Quality	☐	☐	☐	☐	_____
Language and Style	☐	☐	☐	☐	_____
Illustration used (Diagram, tables etc)	☐	☐	☐	☐	_____
Conceptual Clarity	☐	☐	☐	☐	_____
Check your progress Quest	☐	☐	☐	☐	_____
Feed back to CYP Question	☐	☐	☐	☐	_____

3. Any other Comments

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Dr. Babasaheb Ambedkar
Open University Ahmedabad

BCAR-501

BUSINESS APPLICATION AND INTRODUCTION TO ERP

BLOCK 2 : ERP FUNCTIONAL MODULES AND BUSINESS

ERP FUNCTIONAL MODULES AND BUSINESS

Block Introduction :

In this block, we will detail about various ERP functional modules such as accounting and finance module, manufacturing module, Human Resource (HR) Module, Plant Maintenance Module, Material Management Module, Production Planning and Control, Quality Management Module, Purchase Module, Sales and Distribution (SD) Module, Inventory Management. As we discussed in block as well that ERP is a multi–functionality system and provide many modules, these all modules are going to integrate in single ERP system for an organization to make the things organized. There are various vendors are available in the marker so we will learn about vendor as well.

Production planning provides utilization of manufacturing which involves parameters like capacity, parts, components and material resources with ancient production data and comparing such data with sales aspects. Human Resource Module is an e–resource ERP having unique features that integrate flawlessly with another module.

Furthermore, we will discuss about the ERP and business in which we will see ERP and Business Processes, Potential risks of E–Business/ERP Implementations, Six Sigma for Process Improvement, Process Improvement Models, CMMi Delivery Process, Process Orientation, ERP Vendor comparison, Target Market, and Trends and Orientation.

In this bock we will discuss about the business process re–engineering (BPR) so as a part of this we will see business process re–engineering, characteristics of BPR, Foundation of BPR, Role of IT in BPR, Re–Engineering Computer System and link between reengineering of computer systems and BPR.

Block Objectives :

After learning this block, you will be able to understand :

- Idea about functional module
- About the ERP vendors
- Regarding ERP and Business
- Business Processes
- Potential risk of E–Business
- Six Sigma for Process Improvement,
- Process Improvement Models,
- Business Process Re – Engineering
- Characteristics, Foundation of BPR
- Role of IT In BPR
- Re–Engineering Computer System

Block Structure :

Unit 6 : ERP Functional Modules and Vendors

Unit 7 : ERP and Business

Unit 8 : Business Process Re-Engineering

Unit 06

ERP FUNCTIONAL MODULES AND VENDORS

UNIT STRUCTURE

6.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction of functional modules
- Idea about the different functional modules of ERP software
- Detail of ERP vendors

6.1 Introduction :

ERP software includes various functional modules of an organization such as Accounting and Finance Module, Manufacturing Module, Human Resource module, Plant Maintenance Module, Material Management Module, Production Planning and Control, Quality Management Module, Purchase Module, Sales and Distribution Module, and Inventory Management Module. Business frequently implements the ERP modules that are both economically and technically feasible.

As the ERP system is growing and most of the organization is implementing the system so for ERP system there is a various vendors are available in the

market, they provide the ERP full future software and some vendors also offers customization of ERP software.

6.2 Functional Modules of ERP Software :

It is necessary to have all the above modules in the complete ERP system. Sometimes, an organization prefer customization of modules as per the organization requirement. There are various functional modules of ERP software which are as follows :

6.2.1 Accounting and Finance Module :

Accounting and finance are the first and most important module of ERP software because it allows an organization to identify the current financial condition. Major key features of this module are managing Account Payable (AP) and Account Receivable (AR). It will also manage the documents such as balance sheet, payment receipts and tax statements.

Account payable provide the functionality to enter, monitor, maintain and process for payment of invoices and credit notes that the organization received from its vendors. Account receivable module helps in tracking all the invoices that is awaiting payment from customers.

This module is also managing the automate tasks related to billing, general ledger, trail balance, merchant payments, cash management and account settlement before and on time of financial year so, after the end of the year an organization can identify the profit and loss. There are some of tasks which are carry on by this module and are as follows :

- ✓ General accounting functions.
- ✓ Ledger, payables and receivables.
- ✓ Subsidiary ledgers.
- ✓ Cash–flow management.
- ✓ Loan management.
- ✓ Funds management.
- ✓ Working capital management.
- ✓ Budgeting, planning and control.
- ✓ Balance sheet processing.
- ✓ Tax management status reporting.
- ✓ Assets accounting.
- ✓ Cost accounting : cost center accounting, order accounting, product costing.
- ✓ Bank reconciliation.
- ✓ Letter of credit management.
- ✓ Consolidation of accounts.

6.2.2 Manufacturing/Production Module :

Manufacturing module is the second and important module of ERP software because it deals with manufacture or production of the product. So, if there is a high demand of the product then organization have to plan accordingly to fulfill the demand. Now a days, ERP system is come up with

the manufacturing or production system. This module helps manufacturers to plan production and make sure that they have everything they need for planned production such as raw material and capable machinery.

During the manufacturing process, it can update the status of goods–in–progress and help an organization to track output against forecasted production. It can also calculate the average time to manufacture an item and then compare supply with forecasted demand to plan satisfactory production.

6.2.3 Human Resource (HR) Module :

Human resource module is the third and important module of ERP software which manages complete employee database such as ID, Name, Date of Birth, Date of Joining, Gender, Contact Information, Job Description, Salary, Attendance, Performance and Promotion of all employees. As HRM store all the records of all employee of an organization so it removes a lot of duplicate or inaccurate data of an organization. There are some of key features which are carry on by this module and are as follows :

- ✓ Personnel data management.
- ✓ Personnel attendance system, time management.
- ✓ Payroll accounting : salary, wages, incentives, bonus, income tax and other deductions, and contribution to various public and provident funds.
- ✓ Human resources management : Planning, recruitment, training and up gradation.
- ✓ Personnel cost, projection and planning.

6.2.4 Plant Maintenance Module :

Plant maintenance is the fourth important module of ERP software which includes regular inspections, checking and servicing machinery to ensure the plant is in best working condition with no failure. It also includes repairing or replacing required parts, equipment and machinery. There are some of important tasks which are carry on by this module and are as follows :

- ✓ Workflow
- ✓ Protective Maintenance
- ✓ Asset Tracking
- ✓ Tracking & Purchasing
- ✓ Inspection
- ✓ Repair & Maintenance
- ✓ Reports

There are basically four types of maintenance which are as follows :

- **Corrective Maintenance :** It means repairs carried out after machinery get fail.
- **Scheduled Maintenance :** It means regular inspection, lubrication, repair of machinery to ensure smooth functioning and avoid failure.
- **Precautionary Maintenance :** It involves periodic inspection of machinery to carry out any repairs in initial stages to eliminate chances of machinery failure.

- **Predictive Maintenance :** It means using sensitive instruments to check the Pressure, Temperature, Resistance etc., to predict troubles & fix them before machinery fails.

6.2.5 Material Management Module :

Material management is the fifth important module of the ERP software which is responsible for managing the all types of material of an organization. It manages requirements, finds a possible source of supply, compare all other quotations, create a purchase order, track the status of the purchase order, receive goods, and verify invoices upon receipt of goods.

This module is important and advantageous because it gives effective and structured Material Management. As the customer demand increases for the product at that time well–functioning material is available at the right time in the right place and in the required quantity and quality.

Furthermore, it is also important with regard to the warehouse management because an organization will come to know about the status of raw materials, finished products, and spare parts, etc. are available in warehouse at all the time. There are some of important tasks which are carry on by this module and are as follows :

- ✓ Purchasing and procurement.
- ✓ Goods receipt and issue system.
- ✓ Stock management and valuation.
- ✓ Inventory analysis.
- ✓ Stores ledger, valuation, analysis, and disposal.
- ✓ Excise/customer interface.
- ✓ Data integration with production, accounts systems.
- ✓ Quotation/Enquiry processing.
- ✓ Subcontracting, material accounting and bill passing.
- ✓ Get at Right Price
- ✓ High Turnover
- ✓ Low Procurement and Storage Cost
- ✓ Consistency in Quality
- ✓ Continuity Of Supply
- ✓ Inter–Department harmony
- ✓ New Material and Product
- ✓ Product Improvement

6.2.6 Production Planning and Control :

Production planning and control is the sixth important module of the ERP software because it deals with planning of production and control the production. Production planning improves the use of manufacturing capacity, parts, components and material resources using historical production data and sales forecasting.

It helps to reduce expense of the production and product which furthermore run through market, and get more attention of the customers. Functionalities of production module include the following :

- **Production order control :** This is used to controls the movement of materials during the production process.
- **Production order planning :** This functionality helps in changing or rescheduling operation of a production order. It includes changing the operations, changing sequence of operations means change the structure of routing, changing order sequence means dates and scheduling on a work center, changing the content of the order means for replanning the order and changing material belonging to the order.
- **Production order statistics :** Its purpose shows data viewing as real expense and evaluated expense about processing orders, both decided alongside appreciation for materials expended with hours used.
- **Production order subcontracting :** It is used to manage any subcontracting related to product production.
- **Production material issues :** It is used manage the any material issues related to product.

There are some tasks related to this module which are as follows :

- ✓ Basic master data management.
- ✓ Bill of materials, classification.
- ✓ Process sheet, routing.
- ✓ Work order generation, scheduling and control.
- ✓ Quality systems for data capture, analysis and control.
- ✓ WIP tracking, valuation.
- ✓ Work station/machine center management.
- ✓ Production–Materials interface.
- ✓ Collection of unit data for valuation and costing.

6.2.7 Quality Management Module :

Quality management is the seventh important module of ERP software which deals with managing the quality of the product. Quality management helps the industry to inspect and maintain the quality of manufactured items that match the standards for certification. Quality control management performs checks at various checkpoints to track the quality of the manufactured item. ERP quality management module prevents defects in the manufactured items.

The quality management is also used to set up, manage, and track quality control plan. This module interacts with various modules for assessing the quality of manufactured products. Material management and production planning are two modules from which the quality control management module exchanges information and data. This data is stored centrally so that the modules can easily access the data. ERP for quality management deals constantly with the task or operation of checking and keeping the produced products keep up with the company standards. There are some features of quality management module which are as follows :

- **User Define Testing :** Users can define various aspects and test criteria in the module for testing. The quality control management module can be used to define these criteria. Testing criteria include tolerance percentages, parameter testing, & mapping of test products. These tests are done automatically and results are generated.

- **Quality Inspection :** Basic testing is performed on every product on a production line. The quality control management module also enables the industry to set due dates for the tests. Test results are also linked to the vouchers such as purchase orders or production orders. This makes the system accessible testing results for everyone. The status of the test results can be easily obtained with one click. The test reports are also readily available and stored centrally on the server.
- **Module Integration :** The ERP Software for quality management has to collect an excess of information and data from other modules to help it assess the quality of a product. Module integration makes it possible to integrate quality control management module into other modules and sub–modules. This helps extremely for analysis. Module integration also helps in eliminating data duplication that enriches processes & data flow with accurate and real information. This also helps in approaching with right strategies.
- **Quality Certification :** Quality standards and criteria define the quality of a product. Various standards of quality are applied to a variety of products. These standards have to be matched. Quality certification helps the customers to know about the quality standards of the product. Customers can also view defined standards passed by the product. These standards are listed in the certificate. International organization for Standardization develops various standards for different products that it must pass to obtain an ISO certificate.

6.2.8 Purchase Module :

Purchase module is the eighth important module of ERP software, it deals with the purchase of raw materials, parts and machinery for the manufacture of the product in an organization. It is also known as procurement module. It helps an organization secure the materials or products it required to manufacture and/or sell goods.

An organization can keep a record of approved vendors in this module and tie those suppliers to certain items, helping with supplier relationship management. The module can automate requests for a quote, then track and analyze the quotes that come in. Once a company accepts a quote, the procurement module helps the purchasing department prepare and send out purchase orders. It can then track that purchase order as the seller turns it into a sales order and ships the goods, automatically updating inventory levels once the order arrives.

It automates the processes of identifying potential suppliers, negotiating price, awarding purchase order to the supplier, and billing processes. Purchase module is tightly integrated with the inventory control and production planning modules.

6.2.9 Sales and Distribution (SD) Module :

Sales and distribution are the ninth important module in the ERP software, it deals with the sales and distribution of the final product after the production of the product. Incomes from sales are power for commercial organizations. It implements functions of order placement, order scheduling, shipping and invoicing. It is closely integrated with organizations ecommerce websites. Many ERP vendors offer online storefront as part of the sales module. There are some of the tasks related to this module which are as follows :

- ✓ Basic data (master) management
- ✓ Order processing
- ✓ Dispatching and invoicing
- ✓ Order analysis, forecasting
- ✓ Sales analysis, budgets and controls
- ✓ Finished goods stores management
- ✓ Dealer, distributor management system
- ✓ Receivable analysis
- ✓ Market/ Customer / Product analysis
- ✓ Market research information database
- ✓ Marketing personnel management
- ✓ Sales forecasting and budgeting

6.2.10 Inventory Management :

Inventory management is tenth and very important module of the ERP software, it is strongly integrated with purchase module and sales module. Based on the purchase and sales whatever the stock of the product is there is going to manage. So, in an organization to manage the stock of all the products or raw materials this module plays an important role.

It facilitates processes of maintaining the appropriate level of stock in a warehouse. The activities of inventory control involve in identifying inventory requirements, setting targets, providing replenishment techniques and options, monitoring item usages, reconciling the inventory balances, and reporting inventory status. Integration of inventory control module with sales, purchase, finance modules allow ERP systems to generate vigilant executive level reports.

❑ Check Your Progress – 1 :

1. AP stands for _____.

   a. Account Payable b. Account Plan

   c. Account Profit d. Account Payment

2. _____ provide the functionality to enter, monitor, maintain and process for payment of invoices and credit notes that the organization received from its vendors.

   a. Account Plan b. Account Payable

   c. Account Profit d. None of Above

3. _____ store all the records of all employee of an organization so it removes a lot of duplicate or inaccurate data of an organization.

   a. Account Module b. Purchase Module

   c. Human Resource Module d. Sales Module

4. Plant maintenance module includes _____.

   a. Protective Maintenance b. Asset Tracking

   c. Inspection d. All of Above

5. Material management include _____.

   a. Purchasing and procurement b. Repair & Maintenance

   c. Asset Tracking d. None of Above

6. Write a note on Plant Management Module.

6.3 ERP Vendors :

Now everybody aware of the importance of having ERP solution to run a business effectively in today's competitive market. Since, the market offers a number of ERP packages, the buyer has a choice to make. Each product has its own value and differs in a number of ways in content, scope, an ease of implementation, etc. The selection can be made on three dimensions, viz, the vendor, the technology, the solution scope, and architecture.

- **Vendor Evaluation :**

✓ Business strength of the vendor.

✓ Product share in total business of the vendor.

✓ Business philosophy of the vendor.

✓ Future plans of the vendor.

✓ Market reach and resource strength of the vendor.

✓ Ability to execute the ERP solution.

✓ Strength in the other technology knowledge and the ability to use them.

✓ Perspective plan of the ERP improvement with technology development.

✓ Image in the business and in the information technology world.

✓ Financial strength of the vendor to sustain and handle the business and technology risk.

✓ Organization for product development and support.

✓ The global experience of the vendor and commitment to the product for long term.

- **Technology Evaluation :**

✓ Client server architecture and its implementation–two tier or three tier.

✓ Object orientation in development t and methodology.

✓ Handling of server and client–based data and application logic.

✓ Application and use of standards in all the phases of development and in the product.

✓ Front end tools and back–end data base management system tools for the data, process presentation management.

✓ Interface mechanism; Data transfer, real time access, OLE/ODBC compliance.

- ✓ Use of case tool, screen generators, report writers, screen painter and batch processor.
- ✓ Support system technologies like bar coding, EDI, imaging, communication network.
- ✓ Down loading to PC based packagers, MS–Office, lotus notes, etc.
- ✓ Operating system and its level of usage in the system.
- ✓ Hardware–software configuration management.

• **ERP Solution Evaluation :**

- ✓ ERP fit for the business of the organization in terms of the functions, features and processes, business scope versus application scope and so on.
- ✓ The degree of deviation from the standard ERP product.
- ✓ Ease of use; Easy to learn, implement and train.
- ✓ The ability to migrate to the ERP environment from present status.
- ✓ Flexible design.
- ✓ The level of intelligent usage of help error messages, dictionaries.
- ✓ The ability for a quick start on implementation.
- ✓ Versatility of the solution for implementation on a platform with the project of saving the investment.
- ✓ Rating on performance, response and integration.
- ✓ Product quality in terms of security, reliability, and precision in results.
- ✓ Documentation for system handling and administration.
- ✓ Product rating in its class of products.
- ✓ Solution architecture and technology.

ERP systems typically carry out financial and business planning functions, which might formerly have been carried out by many smaller standalone applications.

Vendor Company Name	**Package**
3i Infotech	ORION Enterprise
3rd Dimension Systems	Manufacturing Management
Abacus Data Systems	ADAMS
ABAS–USA	abas ERP
ABBASOFT Technologies	NetPartner & WebPartner
AccessIG	Pro–III Master
AccountMate Software Corporation	AccountMate for Express
AccountMate Software Corporation	AccountMate for LAN
AccountMate Software Corporation	AccountMate for SQL
AccountMate Software Corporation	Visual AccountMate
Acero Solutions	ACERO Enterprise

Activant	Prelude
Activant	Prophet 21
Adonix	X3
Advanced Business Software	ADaM
AIM Computer Solutions	AIM Vision
Bluebird Software LLC	Bluebird Accounting
BMA Software	BMA
Bowen & Groves	M1
CIMA	CIMA
Cimnet Systems	Paradigm
Cincom Systems	CONTROL
CMS Software	CMSi5
CompuEx	Easy Accounting
CompuEx	Express Accounting
CompuEx Enterprise	Accounting
Computer Generated Solutions	BlueCherry Enterprise
Computer Insights	The BUSINESS EDGE
Consona	DTR Plastics ERP

The methodology of selection will begin first with the study of organization in terms of the business focus, critical application, sensitive business process, etc. Since, the ERP solution is a tool to change the style of business management; it requires thorough understanding of the business, the business issues, the management criticalities, and the socio–cultural factors. Such a study will help find out if the ERP is fit for the organization. It is a very important to find out that the ERP is fit or not, as it is the most important and critical success factor.

The price of the ERP package is difficult to judge and often it is a negotiable point in favor of the buyer in competitive scenario. Since the ERP implementation is a two three year's project, the ERP solution will sustain and be adequate for the current and the future business needs for a period of five to seven years. After that, it would become a platform for the future expansions and growth.

When such a document is ready, the selected ERP vendors should be called for seeking the ERP offer. The document should be given to the vendors, and they should be allowed to study the organization and its business.

All the vendors should be asked to submit a technical proposal explaining the fit of the ERP to the organization. The submission of the vendors should be scrutinized by the committee for short–listing. The short–listed vendors then should be asked to give the product presentation to the selected group of decision makers to seek their opinion on the product.

❑ **Check Your Progress – 2 :**

1. Write a note on ERP vendor.

6.4 Let Us Sum Up :

In this unit we learnt about the various functional modules of ERP system such as Accounting and Finance Module, Manufacturing Module, Human Resource (HR) Module, Plant Maintenance Module, Material Management Module, Production Planning and Control, Quality Management Module, Purchase Module, Sales and Distribution (SD) Module and Inventory Management. These all the modules are going to work together and achieve the goal of an organization. So single ERP system provide the multi–functionality to an organization or business.

We have discussed about the different ERP vendors as well as Vendor Evolution, Technological Evolution and ERP Solution Evolution so you can check the above criteria and select the best vendors from the numerous.

6.5 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : a **2 :** b **3 :** c **4 :** d

5 : a **6 :** Refer 6.2.4

❑ **Check Your Progress 2 :**

1 : Refer 6.3)

6.6 Glossary :

1. **Account Payable :** Account payable provide the functionality to enter, monitor, maintain and process for payment of invoices and credit notes that the organization received from its vendors.
2. **Account Receivable :** Account receivable module helps in tracking all the invoices that is awaiting payment from customers.

6.7 Assignment :

1. Explain Sales and Distribution Module.
2. Explain Production Planning and Control.

6.8 Activities :

1. Write a note on Quality Management Module.
2. Explain Material Management Module.

6.9 Case Study :

1. Define the tasks of all functional modules of ERP.

6.10 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit

07

ERP AND BUSINESS

UNIT STRUCTURE

7.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction of ERP and Business Processes
- About risks of E–business
- Idea about six sigma process
- Detail of Process improvement models
- Idea about the CMMi delivery process
- Detail of Process Orientation.
- Detail of ERP vendors comparison
- Idea about Target Markets
- Idea of Trends and orientation

7.1 Introduction :

All the organization have some business process. Business process means multiple tasks is going to carry on by the multiple persons, so it is difficult to manage the data and coordination between the data. As a solution in this dynamic environment, we are having ERP (Enterprise Resource Planning) which is also known as ERP system or ERP programming. This ERP system is the multi module, multi functionality platform. ERP serves as a cross–functional enterprise backbone that integrates and automates many internal business processes and information systems within the manufacturing, logistics, distribution, accounting, finance, and human resource functions of a company.

7.2 ERP and Business Processes :

ERP also served as the vital software engine needed to integrate and accomplish the cross–fundamental processes that resulted. Now ERP is recognized as a necessary ingredient that many companies need in order to gain the efficiency, quickness, and responsiveness required to succeed in today's dynamic business environment.

The ERP system provides the decision–making capabilities to the higher authority of an organization either built–in or through the decision support systems when it comes to implementation. It provides the database functionalities for data and information management. It then has the front–end tools to develop the application in an exclusive manner.

The ERP solution then handles the interfacing requirement to the third–party systems as a support to the main ERP solution. Using various information technology tools and application development tools, the application logic is developed to the business functionality. The tools are the object–oriented tools, application development tools, interface tools, report tools, database tools, etc.

A business process is referring to a collection of business tasks and activities that is going to perform by people or system and produce the output to achieve the goal of the business. A business process includes five phases such as design, model, implement, monitor, optimize. As per the department business processes are changed like :

Business processes that occur in a typical **Finance department** are :

- ✓ Creating a Customer Account
- ✓ Creating a Vendor Account
- ✓ Creating a Bank Account
- ✓ Creating a General Ledger Account
- ✓ Enhancing Chart of Accounts
- ✓ Receiving Check or Cash from Customers
- ✓ Payments to Vendors by raising Checks or through Cash
- ✓ Journal Entries

Business processes that occur in a typical in **Sales and Marketing department** are :

- ✓ Creating Sales Order
- ✓ Pick and Pack Sales Orders
- ✓ Shipping orders

- ✓ Create Sales Invoice
- ✓ Sales Returns

Business processes that occur in a typical in **Purchase department** are :

- ✓ Purchase Order
- ✓ Purchase Picking Orders
- ✓ Purchase Invoice
- ✓ Purchase Returns

Business Processes that occur in the **Inventory department** are :

- ✓ Creation of items
- ✓ Issues of Items
- ✓ Physical stock adjustment

Business processes that occur in a typical **Manufacturing department** are :

- ✓ Creating Bill of materials
- ✓ Creating Work Orders
- ✓ WIP receipts for recording completed work orders

❑ **Check Your Progress – 1 :**

1. ERP is recognized as _____.
   a. Efficiency b. Quickness
   c. Responsiveness d. All of Above
2. ERP tools are _____.
   a. Object–oriented Tools b. Application Development Tools
   c. Report Tools d. All of Above
3. Business process includes _____ phases.
   a. Three b. Five c. Seven d. Nine

7.3 Potential Risks of E–Business/ERP Implementations :

Due to combination of dynamic environment and technological era business is going to be move to e–business. E–business stands for electronic business means business is going to online. All the business function and business process are going online. Online shops or businesses growing very fast so there is a question that are all processes running efficiently ? There should be successful integration of an e–business and ERP system, this integration goes beyond a simple exchange of data. This is a flawless integration of the complex business process for taking business to the next level.

There are some risks like some of the organization are not clearly able to understand the difficulties essential for a successful ERP integration with E–business/e–commerce. You have to discovered some risk or challenges that you must resolve for completing a successful e–business –ERP integration.

1. **Integrating with a goal in mind :** The goal of the integration process should be clear and concise. Your goals should be quantifiable rather than qualitative. You should have a clear set of quantifiable goals in mind, such as increased revenue, a higher percentage increase, and better

customer service. Prepare a visual representation of your organization's ultimate purpose.

2. **Lack of clarity in the requirements :** Business owners/representatives frequently spend very little time with their integration partners. This is why the business integration needs are frequently misunderstood, potentially resulting in project delays, cost overruns, and increased effort. Successful integration necessitates a thorough understanding of all requirements.

   The integration associates should have a comprehensive understanding of all the problems they must overcome as well as the integration's goal. The mapping of the complete company flow utilizing efficient workflow management is a useful practice for all stakeholders. A visual representation of the business process will help you comprehend the process and its requirements more clearly.

3. **Testing for eCommerce ERP integration is insufficient :** Testing is an important stage, but it's also one of the most overlooked in the process of successful integration. It is usual for projects to be delayed, and testing is the area that suffers the most when this happens. Testing is done to examine if the software is working properly and if the system can meet the business requirements. Testing is done to guarantee that the goal of the entire integration process is met. As a result, adequate planning and execution of the testing phase is critical for successful integration.

4. **Training and assistance :** Management should hold off on implementing the integration system until they have provided enough training to people who will be using it. Training is usually done following the testing phase; therefore, it is a brief period with a tight deadline. This is why end–users find it difficult to operate with the programmed.

   Even if the entire business process is beautifully linked, the technology will be a worthless investment if the users who will be using it are poorly trained. This can also result in the failure of a previously successful undertaking. As a result, sufficient end–user training and support should be required for a successful and long–term integration solution.

5. **Integrate for the forthcoming :** A successful ERP integration requires a long–term perspective. Short–term goals are excellent when they are fulfilled, but this shortsightedness could be detrimental in the long run. You must have a clear plan in place for what should happen after the short–term goals are met.

   Organizations that frequently integrate and function without taking into account prospective occurrences frequently end up in an unfavorable scenario in the future. As a result, preparing for the long term will assist you in determining how effectively the integration will work for the future of your firm.

6. **Integrations that are difficult to work with :** Another component of such an application integration procedure that is sometimes ignored is how entangled an application can be. All of the programs that are tightly integrated with other operating systems remain well–connected, but they are also extremely reliant on one another.

   Performing a migration process for such applications can be tricky. Furthermore, the tightly integrated apps are brittle and costly to develop,

and they do not adapt well to any upgrades or modifications. To avoid future problems, make sure your eCommerce and ERP systems have a few autonomous components.

7. **Capabilities are limited :** Several ERP applications are not adequately integrated with an organization's IT environment. This has a direct impact on how quickly and effectively a business can communicate with its customers. When an employee tries to operate across several systems or business processes that aren't designed to work together, a customer's response time usually delays.

❑ **Check Your Progress – 2 :**

1. E–business stands for _____.

   a. Electronic Business b. Environmental Business

   c. Effective Business d. Enterprise Business

7.4 Six Sigma for Process Improvement :

Many of the world's most successful companies have deployed ERP systems as part of their six–sigma, lean manufacturing, or other business transformation programs. The following are some specific ways in which an ERP system might assist firms in adopting six sigma quality requirements.

- **Data accuracy and consistency :** Six sigma is all about maximizing quantification. Data assists quantification, and measurements at each phase are critical for acquiring correct data and preserving process consistency. ERP projects that are well–planned seek to establish post–live ERP performance in comparison to the present baseline operational performance. This comparison is the key to achieving effective ERP benefits in the future.
- **Waste reduction :** ERP suppliers assist businesses in improving their operations by finding relevant possibilities in each step. The typical approach is to reduce waste and eliminate redundant stages across several operations. This corresponds to the six–sigma goal of decreasing waste and enhancing overall performance.
- **Project Methodology :** According to six sigma standards, a business can implement its projects using two methodologies : DMAIC (Define, Measure, Analyze, Improve, Control) and DMADV (Define, Measure, Analyze, Improve, Control) (Define, Measure, Analyze, Design optimization, Verify). The organization adjusts to the techniques by default when an ERP system is implemented. ERP system installation emphasizes identifying requirements, measuring processes, analyzing data, refining processes based on data, successfully regulating variables to achieve desired output, and adequately confirming it.

When ERP is used as part of a six–sigma initiative, it is critical that the lean process begins with software selection and continues through implementation until the ERP is operational. When everything is designed well in advance with the support of specialists, an ERP system will prove to be an amazing enabler of six sigma.

- **Six Sigma DMAIC :**

The DMAIC method of Six Sigma consists of five steps that are often used to improve an existing process or product. The steps are as follows :

Define the problem – Determine the solution's objectives, resources, and constraints.

Measure the current process – Gather information about the current method or system.

Analyze the data – Determine what is causing the differences or errors.

Improve the process – Reduce or remove the defect by changing the techniques.

Control the process – Provide a system that enables for monitoring and modifications in order to prevent future failures.

- **Six Sigma DMADV :**

Organizations apply the Six Sigma DMADV while developing a new product or service. It can also be used to improve current procedures. The following is how DMADV works :

Define design standards – Create procedures that support the product's and process's objectives.

Measure and identify – Determine which qualities of the product are crucial to its quality.

Analyze the data – Determine potential sources of faults and create alternate designs.

Design changes – Choose an alternative design that eliminates the source of the flaws or faults.

Verify the changes – Determine if the design will meet the project's requirements.

❑ **Check Your Progress – 3 :**

1. Write a note on Six Sigma for Process Improvement.

7.5 Process Improvement Models :

Business process improvement (BPI) is a method by which business leaders examine their processes to identify areas where they may increase accuracy, effectiveness, and efficiency, and then make changes to the processes to achieve these goals.

BPI works by identifying processes, personnel capabilities, and enabling technology that could be enhanced or introduced to promote smoother procedures, more efficient workflow, and overall corporate growth. This method, also known as functional process improvement, is a subset of business process management, a broader management discipline.

- **The goal of business process improvement :**

BPI's main goal is to continually enhance the effectiveness of both formal and informal processes inside a business. Organizations can discover bottlenecks, friction, inefficiencies, and other problems within their processes and take remedial action by engaging in business process improvement, which allows them to perform the following :

- ✓ Minimize expenses
- ✓ Eliminate unnecessary activities
- ✓ Assure continuing adherence to processes and better compliance with laws and regulations
- ✓ Increase product or service quality
- ✓ Reduce errors
- ✓ Speed up output

Furthermore, BPI approaches can assist a company in better meeting client requests and achieving its business objectives. Business process improvement adds value by assisting businesses in fine–tuning their operations so that they can participate in today's technology–driven business climate. Generally, business process improvement entails the following steps :

1. **Determine which processes need to be altered :** This is often accomplished using business process planning or other graphic representations of the process's steps, activities, and workflows.
2. **Examine the sources of discomfort :** Using visualization tools and input from stakeholders, this process involves finding bottlenecks, inefficiencies, redundancies, and other pain points within the workflow.
3. **Perform a root–cause analysis :** These supports in the development of a strategy for improving or eliminating problem areas.
4. **Create and assess :** This could require optimizing processes, retraining employees, or using new technologies such as robotic process automation (RPA). This step should also include analyzing and testing the suggested solution to verify it has no unforeseen negative implications.
5. **Put the new procedure into action :** Techniques for change management can help in the successful acceptance of a new or changed activity or technology.
6. **Assess and quantify :** Metrics can be used to ensure that process changes have occurred and to assess the outcome.

- **Methodologies for improving business processes :**

Managers who are working on improving company processes generally employ one or more of the following methodologies :

1. **Agile management :** This strategy, which comes from the field of software development, brings together cross–functional teams to work in

short manufacture cycles called sprints to upgrade or add technology features and functionalities as a way to improve a business process.

2. **Lean management :** The objective of lean management is to decrease waste and use the fewest resources to accomplish the final product; it also advocates continuous improvement and ways to boost efficiencies within a process. It has its roots in manufacturing, most notably with the manufacturer Toyota.

3. **Six Sigma :** The Six Sigma methodology, which was also established in the manufacturing business, analyses shortcomings and drives improvements using data, empirical and statistical tools. Six Sigma practitioners frequently employ DMAIC (define, measure, analyze, improve, and control) to examine and improve existing processes.

4. **Theory of Constraints :** Managers can use this practice to recognize the most important limitation currently delaying improvements or corporate goals, and then focus on improving procedures until the constraint is no longer an issue.

❑ **Check Your Progress – 4 :**

1. BPI stands for _____.

   a. Business Program Improvement b. Business Planning Improvement

   c. Business Process Improvement d. Business Production Improvement

2. Write a note on Methodologies for Improving Business Processes.

_____

_____

_____

_____

_____

7.6 CMMi Delivery Process :

The Capability Maturity Model Integration (CMMI) is a process and behavioral model for software, product, and service development that helps firms speed process improvement and encourage productive, efficient behaviors that reduce risks.

The CMMI was created by Carnegie Mellon University's Software Engineering Institute as a process improvement tool for projects, divisions, and organizations. The Department of Defense (DoD) and the US Government collaborated on the development of the CMMI, which is now a standard requirement for DoD and US Government software development contracts. The CMMI is presently administered by the CMMI Institute, which the ISACA purchased in 2016.

- **CMMI Model :** The CMMI is intended to help businesses improve performance by giving them everything they need to generate better goods and services on a continuous basis. However, the CMMI is a behavioral model as well as a process model. Businesses can use the CMMI to address the practicalities of improving performance by setting measurable benchmarks, but it can also be used to create a structure for fostering productive, efficient behavior across the firm.

- **CMMI Maturity Levels :** The CMMI model categorizes organizations into five degrees of maturity. The goal for firms who use CMMI is to get to Level 5, which is the "optimizing" maturity level. Businesses aren't finished with the CMMI after they reach this level. Instead, they concentrate on routine maintenance and enhancements.

The CMMI Maturity Levels are as follows :

Level 0 – Incomplete Maturity : Work "may or may not get done" at this point. At this point, no goals have been set, and processes are either incomplete or do not suit the demands of the organization.

Level 1 – Preliminary Maturity : Processes are thought to be unpredictably responsive. "Work is done at this stage, however it is frequently delayed and beyond budget." This is the most dangerous stage for a company to be in : an unpredictably unstable environment that raises risk and inefficiency.

Level 2 – Managed Maturity : A certain level of project management has been achieved. At this stage, projects are "planned, performed, measured, and controlled," yet there are still many difficulties to address.

Level 3 – Defined Maturity : Organizations are more active than responsive at this point. To "offer guidance across projects, initiatives, and portfolios," there is a set of "organization–wide standards." Businesses are aware of their flaws, how to fix them, and what their improvement objectives are.

Level 4 – Quantitatively Managed Maturity : This level is more controlled and measured. Quantitative data is being used by the company to determine expectable developments that are in line with stakeholder needs. With more data–driven awareness about process flaws, the company is ahead of the game.

Level 5 – Optimizing Maturity : The procedures of an organization are both stable and adaptable here. An organization will be constantly improving and replying to changes or other chances at this stage. In a predictable setting, the organization is stable, allowing for more "agility and invention."

Organizations are called high maturity when they reach Levels 4 and 5, when they are "constantly evolving, adapting, and growing to fulfil the requirements of stakeholders and customers."

❑ Check Your Progress – 5 :

1. CMMi stands for _____.
   a. Capability Maturity Model Integration
   b. Capability Maturity Model Instruction
   c. Capability Maturity Model Information
   d. Capability Maturity Model Improvement
2. DoD stands for _____.
   a. Development of Defense b. Department of Defense
   c. Design of Defense d. Data of Defense
3. CMMi is a process and behavioral model for _____.
   a. Software b. Product
   c. Service Development d. All of Above

7.7 What is Process Orientation ?

The process–oriented approach focuses on supporting one or a few essential business processes that span many business units. Those who begin customizing the ERP framework are limited to a purpose that is almost identical to the claimed benefits of business strategies. Process–oriented execution may eventually evolve as a result of the ERP framework's full implementation. This strategy can be applied by a number of small to mid–sized businesses that have a tendency to adopt puzzling internal business procedures.

Although the adoption of methodology is not primarily intended to revolutionize industry, it may be related to the management of commercial organizations. Experiments will show that healing facilities with a supplementary level for procedure introduction are essentially more productive. Medicinal services foundations will almost certainly be required to become secondary performers. To improve secondary performance, the organization must define its execution indicators, measure its performance, infer the execution gap, and then launch actions to close the gap. Methodology control may necessitate surveying strategies by method for execution indicators. Furthermore, it acts as a foundation for simplifying transformation.

Occasionally, business procedures would be fully supported by an agent framework, such as a project asset management framework, which would gather information prior to the methodology execution, allowing the majority of the data to be concentrated – organically and without additional cosset.

2.7.1 SAP :

SAP stands for Systems Applications and Products in Data Processing. By definition, SAP is both the name of the firm and the name of the ERP (Enterprise Resource Planning) software. SAP Software is a worldwide software company based in Europe that was created in 1972 by Wellenreuther, Hopp, Hector, Plattner, and Tschira. They create software to help businesses manage their operations and consumer connections.

With over 75.000 customers and 12 million users, they are the largest ERP system vendor, accounting for roughly 30% of the market. R/3, the flagship solution, is unrivalled in terms of sophistication and reliability. Around 1000 pre–configured business processes are available with R/3 software. This solution is available in all major currencies and languages, as well as a variety of operating systems and databases. SAP has released Business All in One, a solution with industry–specific settings, as a mid–market choice. SAP Business One is SAP's service for smaller businesses. For companies with limited IT resources, SAP offers SAP Business by Design, a hosted solution.

2.7.2 Oracle :

In terms of ERP market size, depth, and share, Oracle comes in second to SAP. It primarily works with channel partners to provide a comprehensive, multilingual, and multi–currency solution. It is the first company to create and deploy its product using the internet computing model. During the year 2000, Oracle acquired PeopleSoft, JD Edwards, Retek (retail industry solution), and Siebel, among other ERP solution vendors (customer relationship management software). It has embarked on Project Fusion (based on Service Oriented Architecture) to integrate multiple products, and the results are eagerly expected.

2.7.3 Oracle's JD Edwards Enterprise One :

JD Edwards Enterprise One is a combined applications collection of full enterprise resource planning software from Oracle that blends commercial value, standards–based technology, and significant industry experience into a low–total–cost–of–ownership business solution. EnterpriseOne is the first ERP solution to support all of Apple's iPad apps. Mobile applications are also available through JD Edwards EnterpriseOne.

❑ **Check Your Progress – 6 :**

1. SAP stands for _____.
   a. Systems Applications and Products
   b. Systems Applications and Production
   c. Systems Applications and Process
   d. Systems Applications and Procedure
2. Explain SAP.

_____

_____

_____

_____

_____

7.8 ERP Vendor Comparison :

The following are some of the ERP's key vendors :

- **SAP :**

They are the largest ERP result provider, with over 75000 clients (a total of 12 million clients) and roughly 30% of the showcase allotment. R/3, the premier solution, is unrivalled in terms of elegance and heartiness. R/3 programming offers a selection of over 1000 pre–configured business form benefits. This outcome is available in all major currencies and dialects, which allowed the development of a few working frameworks and databases. Sap needs to bring out all of the business's benefits as a mid–showcase choice, and provide an answer with business–specific settings. The businessperson's sap benefits may be sap pushing forth to more modest associations. For organizations that use SAP assets, Sap provides a simplified solution, namely sap business by Design.

- **Oracle :**

Forecaster will be following on sap done ERP business breadth, profundity What's more allotment. It offers a comprehensive, multilingual Also multi money solution, basically through its channel accomplices.

It may be those initial should actualize all the web registering model to create and deploy its result. Prophet Additionally took again Different ERP result suppliers Throughout 2000 for example, kin Soft, JD Edwards, Retek (retail industry solution), and Siebel (customer relationship management programming). It need consumed one task combination (based with respect to administration turned Architecture) should coordinate Different products, result about which will be keenly expected.

- **Microsoft Dynamics :**

Microsoft began by acquiring a number of ERP items comparable to Navision, Solomon, Great Plains, and Axapta, despite the fact that it did not require an ERP portfolio. Except for Axapta, which will be strong in terms of manufacturing and suitability for the mid–market, other items will require assistance aimed at smaller businesses. Microsoft is a big deal when it comes to channel partners, not only in terms of deals but also in terms of advising and add–on development. Their findings would almost serve as a basis for their office outfit of reinforcement.

❑ **Check Your Progress – 7 :**

1. Explain ERP vendor comparison.

7.9 Target Market :

Many Open–Source ERP Projects are targeted at SME (Small and Medium Enterprises) because the potential for cost savings is seen to be more appealing to smaller budgets. While this is typically true, any project team of any size should explore several ERP systems in relation to the project's needs. Although there are no perfect solutions, developers' experience or other qualities that may be essential in terms of integration with other systems are often used to make decisions.

Keep in mind that going open–source for your company might have a lot of advantages. There are also a number of system providers who use open source as their foundation and build a feature set that is more appealing to major enterprises on top of it. Typically, fundamental functionality is supplied for free, with extra features costing a fee.

❑ **Check Your Progress – 8 :**

1. SME stands for _____.

   a. Small and Medium Environment

   b. Small and Medium Enterprises

   c. System and Medium Enterprises

   d. Structure and Medium Enterprises

7.10 Trends and Orientation :

Enterprise resource planning (ERP) has aided businesses in decreasing costs by minimizing superfluous data entry and streamlining process. Instead of wasting valuable man–hours, they can be put to better use, increasing efficiency and revenues. It assists businesses in storing and managing data at all stages. Upgrades to ERP systems and new deployments are becoming more common. Why not think about the hottest ERP developments and get ahead of the game ? The following are some of the first that come to mind :

1. **The Amazon effects :** Everywhere you look, Amazon is making a splash. Distribution hubs can be found in close proximity to significant markets. Deliveries are made on Sunday. Publishing has been reimagined. The simple conclusion is that people demand 24/7 access, faster delivery, and exceptional service, and you must figure out how to meet those expectations. As a result, e–commerce is no longer a "nice–to–have" in your ERP system; it is instead a "must–have." Your clients will want to place orders, check the status of their orders, and leave comments at any time of the week.
2. **Cloud–based ERP :** People are growing more accustomed to the concept of cloud–based ERP. While accessibility is better and your capacity to recover from a disaster is improved, there is less complexity, less labor, less expertise, and often times less money. The "big boys," like as SAP and Oracle, are following this road, and they perceive enough benefit to invest.
3. **Big data :** Despite the fact that big data is "old news," it is nevertheless "fresh news" in terms of application and use. We live in an information–overloaded society, and big data principles will be critical to making sense of it all. Who wouldn't think of using business intelligence to better understand customer trends and how to manage inventories and margins ?
4. **Customer Relationship Management :** Because I've always devoted a portion of my practice to ERP because it's such an important tool for manufacturers and distributors, and because I have a unique skill for identifying connection points (which is critical in selecting, designing, and implementing systems), I've noticed that one connection point in particular has emerged as a key contributor to bottom–line business results – CRM (customer relationship management) functionality. To succeed, you must begin with the consumer; consequently, a greater understanding of your customer interactions is an excellent place to begin (CRM).
5. **Adaptability :** Older systems are rarely adaptable. You must be flexible to succeed in the fast–paced new normal corporate climate. Those that can quickly offer new products, adjust capacity, change items on the fly, and so on will prosper. The backbone of your business is your ERP system.
6. **Flexibility :** Do you have any friends who do not own a cell phone ? Even my parents can't recall a time when they didn't have access to a cell phone. They don't keep track of appointments, look up directions, or use advanced functionality, but they are aware that it exists, and they make use of it when necessary (call their kids). Being connected 24 hours a day, seven days a week necessitates It should be a core component of your ERP system.
7. **ERP for small businesses :** ERP is no longer limited to medium and big businesses. According to my recent experience with ERP selection projects, the cost is insignificant when compared to the automation and speed benefits it will give to even a small organization. When they need an order status at 8 p.m. on a Sunday, do customers care if you're big or small ?

7.11 Let Us Sum Up :

We learned that ERP programs serve as a computer model for business that represents products and processes, information flow, procedures, and links among functions and activities while studying this subject. It is clear that in order to successfully deploy ERP, more time, resources, training, and patience are required, so it is necessary to understand the dangers associated with having an ERP.

We can see that business process management is a holistic concept that is used to understand, improve, and organize business processes in accordance with an organization's overall goals and strategy. According to the Software Engineering Institute's Capability Maturity Model Integration, ERP is rated at Level 5.

7.12 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : d **2 :** d **3 :** b

- **Check Your Progress 2 :**

  1 : a

- **Check Your Progress 3 :**

  1 : Refers 7.4

- **Check Your Progress 4 :**

  1 : c **2 :** Refers 7.5

- **Check Your Progress 5 :**

  1 : a **2 :** b **3 :** d

- **Check Your Progress 6 :**

  1 : a **2 :** Refers 7.7.1

- **Check Your Progress 7 :**

  1 : Refers 7.8

- **Check Your Progress 8 :**

  1 : b

7.13 Glossary :

1. **Business Process :** A business process is referring to a collection of business tasks and activities that is going to perform by people or system and produce the output to achieve the goal of the business.

7.14 Assignment :

1. Discuss the risk of ERP implementation in E–Business.
2. Write a detailed note on Six Sigma.

7.15 Activities :

1. Write short note on Process Improvement Models.
2. Explain CMMi Delivery Process.

7.16 Case Study :

1. Collect some information on ERP Vendor.
2. Generalized the basic idea about ERP Trends and Orientation and discuss.

7.17 Further Readings :

1. Bashein, B., Markus, L. and Riley, P. (1994), "Precondition for BPR success", Information Systems Management, Vol. 11 No. 2, pp. 7–13.
2. Caron, J., Jarvenpaa, S. and Stoddard, D. (1994), "Business re–engineering at CIGNA Corporation : experiences and lessons learned from the first five years", MIS Quarterly, Vol. 18 No. 3,pp. 233–50.
3. Champy, J.A. (1996), Reengineering Management : The Mandate for New Leadership, HarperCollins, New York, NY.

Unit 08

BUSINESS PROCESS RE–ENGINEERING

UNIT STRUCTURE

8.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Idea of Business Process Re–Engineering
- Basic of BPR Characteristics
- Idea about the foundation of BPR
- Contribution of IT in BPR
- Idea about Reengineering of Computer Systems
- Steps of BPR

8.1 Introduction :

Process of doing business Re–engineering is a method for rethinking how work is done in order to better support the organization's objective while lowering expenses. A high–level review of the organization's task, strategic goals, and customer requirements is the first step in re–engineering. Basic questions like "Does our task need to be redefined ?" are asked. Are we on the right track ? Is it possible that our strategic aims and our mission are in sync ? "Who are our clients ?" A corporation may discover that it is functioning

on shaky assumptions, particularly when it comes to its consumers' expectations and needs. Only when the organization has rethought what it should be doing can it decide on the best way to do it.

A business process, also known as a business technique, is a collection of related, organized events or tasks that result in the production of a specific service or product for a specific customer or customers. It's commonly portrayed as a series of activities on a flowchart.

8.2 What Is Business Process Re–Engineering (BPR) ?

Business process re–engineering (BPR) is a method of improving business processes within and across businesses by increasing their efficiency and effectiveness. The key to BPR is for companies to look at their business processes from a "blank slate" perspective and figure out how to best construct them to improve how they do business.

BPR, Business Process Redesign, Business Transformation, and Business Process Change Management are all terms used to describe business process re–engineering. It entails a complete overhaul of an organization's procedures, particularly its business processes. Rather than dividing a company into functional specializations such as production, accounting, marketing, and so on and evaluating the duties that each function does, evaluate the entire process from materials procurement to production, marketing, and distribution. Reengineering the company into a series of processes is necessary.

Michael Hammer and James A. Champy were the leading proponents of re–engineering. They claim that far too much time is wasted moving duties from one department to another in a series of works including Re–engineering the Corporation, Re–engineering Management, and The Agenda. They argue that appointing a team to handle all of the responsibilities in the process is significantly more efficient. They broaden the argument to include suppliers, distributors, and other business partners in The Agenda.

BPR is defined by Hammer and Champy (1994) as "fundamental modification and radical restructure of processes to achieve remarkable gains in critical and contemporary efficiency measurements, such as costs, quality, service, and speed." In this BPR definition, the following keywords are used :

1. **Foundational :** What is the company's basic working style ?
2. **Radical :** All present procedures and structures must be abandoned in favor of new ways of working. Changes that are just visible are ineffective. Changes must be made from the ground up.
3. **Remarkable :** Remarkable changes, not incremental improvements, must be discovered.
4. **Processes :** The focus of redesign should be on processes rather than tasks, occupations, people, or structures.

As a result, a company must start again, abandoning old practices, testing work without prejudice, and ignoring previous systems. To put it another way, redesigning is evolving. The processes are at the heart of re–engineering. A process, according to Davenport and Short (1990), is a collection of logically related tasks carried out to achieve a certain business goal. A process is also a collection of activities that, when combined, generate a valuable result for the consumer.

Other techniques, such as continuous development or full quality management, are concentrated on processes and reposition the company's essential responsibilities to meet the expectations of customers. They may, however, be content with their current processes and have no desire to implement new ones.

Business Process Re–Engineering

Productivity, customer service, and the bottom line all benefit from a good BPR deployment. During implementation, there will be pain and problems, as well as instances where BPR efforts do not provide the expected results. Nonetheless, the risk is worthwhile. Otherwise, the chance of being overtaken by participants who develop and development rapidly through BPR will be greater.

❑ **Check Your Progress – 1 :**

1. BPR stands for _____.
   a. Business Process Re–engineering
   b. Business Product Re–engineering
   c. Business Planning Re–engineering
   d. Business Production Re–engineering
2. BPR is combination of _____.
   a. Foundational
   b. Radical & Remarkable
   c. Processes
   d. All of Above
3. What is BPR ?

8.3 How Can BPR Be Applied to An Organization ?

BPR is a concept that involves rethinking and breaking down existing business processes. This enables a business to cut expenses and boost productivity by implementing newer, more efficient processes. It's crucial to remember, too,

that while there are times when business process reengineering is vital, it's not without its drawbacks. As a result, it is critical that you thoroughly consider your options.

Employee morale is one of the most visible negative consequences of a company's decision to reengineer. The majority of individuals are resistant to change and have a difficult time adapting to it. This is something to consider when deciding whether or not to participate in the activity. The measures below can assist BPR in achieving its fundamental principles of customer happiness, lower operating costs, and greater competitiveness.

1. **Business vision and objectives :** Any BPR endeavor should start with goals that are well–defined and measurable. Whether the goal is to reduce expenses, improve product quality, or increase efficiency, the framework for achieving it must be established from the start, in accordance with the company's vision and mission.
2. **Identification and slacking processes :** Once a clear goal has been established, all processes must be examined, and those that are "shirking" or can be improved must be recognized. Those processes that have a direct impact on the company's production or that conflict with the company's objective is added to the "red" list. The success or failure of BPR is determined on this precise identification.
3. **Understand and measure the "red" processes :** With a list of lagging processes in hand, it's critical to figure out how they became that way. Are they taking an excessive amount of time to complete ? Is the outcome's quality being exposed ? Regardless of the issue, each procedure must be objectively assessed against industry standards or ethically obtained competition best practices.
4. **Information system and technology capabilities :** An effective and related IT system is a critical enabler of BPR. It is impossible to keep track of all aspects influencing change without such a system. It's critical to have in place information systems that can handle the degree of change before embarking on a major BPR initiative.
5. **Design, build and test the new prototype :** A prototype is verified before a new product is released. A failure at the testing phase should never be repeated on a wider scale. BPR projects fail for a variety of reasons, but one of the most common is a failure to recognize and accept any constraints during the testing stage. Both the management's attitude toward the new style of working and the employees' outlook on the modification should be thoroughly evaluated, among other things.
6. **Adapting the organization :** The final step in a project's success is to manage the change brought on by BPR operations. Updating documentation, organizational structures, governance models, and authority and responsibility charts leaves minimal space for misunderstanding and allows for a smooth transition into the new method of working.

❑ **Check Your Progress – 2 :**

1. Which among the is not a business goal of re–engineering ?

   a. Reduction in cost b. Reduction in time

   c. Maintainability d. None of Above

8.4 BPR Characteristics :

There are some characteristics of BPR which are as follows :

1. **Orientation to the process : From structure to process :** Business process orientation attempts to address some of the issues identified by Taylorism's structural specialization view. Process orientation shifts the focus from structural ties between headquarters and subsidiaries to interaction processes between them in an international context.
2. **Business process definition :** A process is a set of actions that take place over time and space, have a beginning and an end, and have inputs and outputs. Business processes attempt to produce an output that supports a company's goals and span functions, divisions, and, in certain situations, organizational borders. Informational, operational, and managerial activities are all examples of business activities. Not only does re–engineering involve all three tasks, but it also covers operational operations.
3. **The nature and scope of business processes :** Business processes differ in terms of their substance and boundaries from one company to the next. Designers' experience reveals that a company's continuing activities should be differentiated by a set of ten to twenty business processes. Each business has its own set of procedures. IBM, for example, employs eighteen business processes. Production, customer fulfilment, customer feedback, and hardware development are some examples of these processes.
4. **Owners and responsibilities for business processes :** To achieve optimal management and continual improvement of business processes, top management should assume ownership and thus responsibility for them. A matrix is formed by line responsibility and process ownership.
5. **Worldwide Business practices :** Business processes aren't necessarily multinational. How many business procedures have a worldwide scope is determined by the firm's internationality ? Some business operations, such as global sourcing, global key account management, R&D, new product introduction, and manufacturing, are more likely to be international than others.
6. **A focus on the customer :** BPR is a customer–centric company. Process outputs must not only serve the firm's goals, but also meet the needs of customers. Customers should be included in the redesign process.
7. **Business process re–engineering as a dramatic transformation :** Re–engineering business processes is a major disruption of process structures that carries significant risks. Seventy percent of all BPR projects in which Hammer was involved failed, he admitted. However, there are numerous advantages. Hammer and Champy mention situations of process redesign where process times were reduced by a factor of 100, whereas TQM programs aim for improvements of 30 to 40%.
8. **Business Process Management from the Top–Down Re–engineering :** A top–down strategy works well with a holistic perspective. Top management should start, control, and monitor the re–engineering because of the broad, cross–functional breadth of BPR and the hazards of radical change. In contrast to quality improvement initiatives that follow a bottom–up method, BPR takes a top–down approach.

8.5 Theoretical Foundations of BPR :

The goal of BPR is to drastically increase quality, performance, and productivity by significantly altering organizational processes through the effective use of information technologies (IT).

BPR has been supported by the government as a foundation for enhancing the Civil Service's Result Based Performance Management System since 2004. BPR's theoretical and methodological basis are Scientific Management, Systems Theory, and Operations Management. As a result, during the 1980s and 1990s, most firms used BPR as a transformation tool. Government organizations, on the other hand, have distinct characteristics from corporate organizations. These distinguishing characteristics prevent government entities from replicating corporate BPR experiences. As a result, it's critical to establish a conceptual framework and a functioning model that make BPR easier to apply in a certain public service organization.

❑ Check Your Progress – 3 :

1. Write a short note on foundation of BPR.

_____

_____

_____

_____

_____

8.6 Contribution/Role of IT In BPR :

In the process implementation stage, IT now enters the picture. Automobile manufacturers, for example, used to have design centers in one area, manufacturing centers in another, and marketing offices in a third location. In this situation, the marketing executive must collect the customer's requirements and transmit them to the design center by surface mail. Surface mail is used to send design center draughts to the manufacturing facility. Before the product came out of the factory, it used to take several weeks. With the advancement of information and communication technology, it is now possible to launch a product in a matter of days.

The marketing executive compiles the specifications and transmits them via the Internet to the design center. The design center then sends the designs to the manufacturing plant via the Internet via email. Some businesses went so far as to create distributed systems and databases based on data and voice communication methods. Using information technology, the turnaround time can be lowered in this way. The results of the process reengineering project are fed into the IT implementation team. It is preferable to have IT specialists involved in the process implementation stage of BPR projects.

The benefits of using IT in combination with BPR are listed below.

- ✓ Information Technology can be utilized to speed up a process that previously took a long time utilizing human methods
- ✓ Fraud is less likely
- ✓ If IT systems are effectively deployed, more accuracy and precision are assured

- ✓ Using IT technologies to track progress efficiently
- ✓ Corruption is less likely
- ✓ A greater quantity of reports in a shorter period of time
- ✓ Exceptional job outcomes, services, or products
- ✓ a team that communicates quickly
- ✓ Improved customer and other stakeholder communication

To reap the full benefits of the IT and BPR combo, the organization's team and employees must be adequately taught in IT applications and associated technologies. After the organization's business process reengineering is completed, the redesigned processes must be integrated in the systems. They can be implemented in two ways. It's either a manual or an automated process. If the work is complex and requires precision, it is preferable to automate.

❑ **Check Your Progress – 4 :**

1. Benefits of IT in combination of BPR includes _____.

   a. Fraud is less likely

   b. Corruption is less likely

   c. A team that communicates quickly

   d. All of Above

8.7 Where We Can Apply BPR :

Organizations can become more effective and up–to–date by reengineering their business processes. Business process reengineering changes an organization's performance in a direct way. Process reengineering is the process of rethinking or reinventing how we go about our everyday tasks, and it is a notion that can be applied to any industry, regardless of size, type, or location.

Process reengineering aims to make businesses more adaptable, reactive, effective, and effective for their customers, employees, and other stakeholders. Process reengineering, according to industry experts Michael Hammer and James Champy, entails "basic rethinking and fundamental restructure of business processes to produce major gains in essential, modern performance indicators, such as cost, quality, service, and speed."

In order for process reengineering to succeed, a company's priorities must shift in the following ways :

- ✓ From the perspective of the boss to that of the client
- ✓ From obedient laborer to process owners and decision–makers who are empowered and involved
- ✓ From task–based labor to a focus on outcomes
- ✓ From keeping score to guiding and instructing so that others can evaluate their own performance
- ✓ From keeping score to guiding and instructing so that others can evaluate their own performance
- ✓ From sequential to parallel operations
- ✓ Processes are simplified from complex to simple

- ✓ From empire–building and maintaining the status quo to discovering new systems and procedures and looking to the future, there is a lot to think about.

❑ **Check Your Progress – 5 :**

1. Explain where we can apply BPR ?

8.8 Re–Engineering Computer System :

Software development isn't necessarily a "blank slate" endeavor. New software engineers are frequently appointed to maintain and develop current systems rather than to create new ones. If a new system is to be constructed, it will almost always need to be combined with other "legacy" software systems. Legacy systems are valuable software systems that are still in use but are difficult to continue, alter, or migrate due to the fact that they were designed using outdated technologies and/or were not well engineered.

These systems are frequently created without sufficient documentation, version control, or design. Many of these systems have been subjected to countless modifications by various people, all of which violate the original system design, if one ever existed. As a result, understanding, modifying, and migrating these systems is difficult. Fresh software engineers are rarely prepared with the appropriate abilities or motivated to deal with these "legacies" of software. Software maintenance and reengineering are frequently seen as inferior to new software development.

From a minor restoration to a complete overhaul, reengineering entails a variety of adjustments to a system. The following are some of the common issues that our clients face :

- ✓ We had a system built for us, but we'd like to make a few changes, such as improving the system's functionality, usability, security, stability, and performance; changing the system's architecture; or adapting it to another platform.
- ✓ We have three systems that perform similar functions but run–on different platforms. Users must use all three systems since they complement each other. This complicates their task and adds a lot of additional work to the system administrators' plate.
- ✓ We have a best–selling software solution and have got an order to alter it from a large client. However, no corporation wants to be responsible for its upkeep.
- ✓ A software module was built by someone who is no longer employed by the organization, and no one is qualified to maintain the system.

❑ **Check Your Progress – 6 :**

1. Explain re–engineering computer system ?

8.9 Steps For BPR :

BPR activities can be summarized as a six–step process :

1. **Identify and define business processes :** Draw a diagram of the current situation such as work events, workflows, people and reporting relationships, supportive technology, business rules, etc.
2. **Examine and evaluate business processes :** Recognize gaps, root sources, planned disconnects, and other issues in order to improve organizational effectiveness, operational efficiency, and strategic goals.
3. **Identify and evaluate opportunities for improvement :** Recognize, assess, and validate possibilities to close the gaps and address the root sources discovered through the investigation. This step also entails finding and validating forward–looking improvement possibilities, which are frequently strategic transformative prospects unrelated to current state processes.
4. **Create processes for future states :** Select the above–mentioned improvement possibilities that will have the greatest influence on organizational use, operational productivity, and the achievement of organizational strategic goals. Ensure that opportunities are chosen for which the business has the budget, time, capacity, and other resources to implement within the project period. Create a forward–looking future–state map that includes the opportunities you've chosen.
5. **Plan for future state changes :** This is where the aforesaid chances are operationalized before execution, which is often missed and a primary root cause of failed BPR programs. New workflows and procedures must be created and conveyed, and new/improved functionality must be built and tested, among other things. Changes and opportunities must first be operationalized before they can be implemented.
6. **Put future state changes into action :** Traditional implementation based on change/opportunity dependencies, change management, project management, performance monitoring, and so on.

8.10 Re–Engineering or Re–Developing ?

In general, re–engineering a system from the ground up is a bad idea because the system still has a purpose and its functionality is always changing. What is the point of rewriting a system that does not serve a purpose ? So, if we assume that elements of the system were a good concept and that discarding the system is a poor idea, how can we alter it ?

BPR is improving performance dramatically by radically changing organizational processes and re–engineering business and management processes.

It entails redrawing organizational boundaries, as well as rethinking occupations, responsibilities, and skills. This happens when models are created and used. Engineers create and evaluate models to forecast the performance of designs or to explain the behavior of equipment, whether they are physical, mathematical, computer, or structural models. BPR is defined as the application of scientific methodologies, models, and instruments to bring about a radical reorganization of an organization that results in significant performance improvements.

The primary components of BPR are redesign, retooling, and reorchestrating, which are required for a company to focus on the desired outcome. The desired goal should be aspirational (for example, 24–hour delivery to any consumer anywhere in the world, approval of mortgage loans within 60 minutes of application, or the ability to have on–line access to a patient's medical information from anywhere in the world). These types of aspirational goals necessitate a thorough reconsideration of how most businesses operate, as well as meticulous redesign. They will also require highly sophisticated supporting information systems as well as a transition from a traditional organizational structure to one that is networked.

❑ **Check Your Progress – 7 :**

1. Components of BPR includes _____.

   a. Redesign b. Retooling

   c. Reorchestrating d. All of Above

8.11 Link Between Reengineering of Computer Systems and BPR :

For a long time, the relationship between continuous process improvement and business process reengineering has been a contentious issue. These two techniques, however, are extremely similar in that they both strive to enhance processes. Only the focus is different. Parts of processes and systems perform the system's job, and relationships between the parts specify how the work should be done. A business process, for example, contains personnel as components and processes and directions as relationships. For the system to achieve its goals, both parts and relationships must be functional. Changes in a system's relations frequently represent the greatest opportunity for improvement, according to systems theory, because the relations provide the structure in which the system functions.

According to Hammer and Champy in Reengineering the Corporation, reengineering is the "basic rethinking and radical restructuring of business processes to produce dramatic gains in critical, contemporary measures of performance, such as cost, quality, service, and speed." A focus on relations is required to accomplish such substantial changes since, according to systems theory, relations are what determine system performance.

Take, for example, a standard engineering firm that is organized by functions. Work flows from design through planning to manufacture in general. Within each functional area, an individual completes his or her piece of the task and passes it "over the wall" to the next phase in the process. This is an intricate mechanism. Assume that the results of this method are poor. This improvement effort would be focused on the system's pieces if the corporation merely improved each functional area separately. Positive outcomes would be minor.

❑ **Check Your Progress – 8 :**

1. Explain Link Between Reengineering of Computer Systems and BPR.

8.12 Let Us Sum Up :

We learned in this course that enterprise business process re–engineering frequently involves retiring existing databases in favor of an enterprise data warehouse.

Business process reengineering (BPR) is defined as the process of rethinking and breaking down current business processes. This enables a business to cut expenses and boost productivity by implementing newer, more efficient processes.

8.13 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : a **2 :** d **3 :** Refers 8.2

❑ **Check Your Progress 2 :**

1 : d

❑ **Check Your Progress 3 :**

1 : Refers 8.5

❑ **Check Your Progress 4 :**

1 : d

❑ **Check Your Progress 5 :**

1 : Refers 8.7

❑ **Check Your Progress 6 :**

1 : Refers 8.8

❑ **Check Your Progress 7 :**

1 : d

❑ **Check Your Progress 8 :**

1 : Refers 8.11

8.14 Glossary :

1. **Process :** A process is also a collection of activities that, when combined, generate a valuable result for the consumer.
2. **Business Process Re–engineering :** BPR is a method of improving business processes within and across businesses by increasing their efficiency and effectiveness.

8.15 Assignment :

1. How Can BPR Be Applied to An Organization ?

8.16 Activities :

1. Discuss the various characteristics of BPR.

8.17 Case Study :

1. Explain role of IT in BPR.
2. Discuss the steps of BPR.

8.18 Further Readings :

1. Bashein, B., Markus, L. and Riley, P. (1994), "Precondition for BPR success", Information Systems Management, Vol. 11 No. 2, pp. 7–18.
2. Caron, J., Jarvenpaa, S. and Stoddard, D. (1994), "Business re–engineering at CIGNA Corporation : experiences and lessons learned from the first five years", MIS Quarterly, Vol. 18 No. 3,pp. 233–50.
8. Champy, J.A. (1996), Reengineering Management : The Mandate for New Leadership, HarperCollins, New York, NY.

BLOCK SUMMARY :

In this block, you have learnt and understand about the basic of production planning that caters utilization of manufacturing capacity, parts, components and material resources with production data by analyzing sales. The block gives an idea on the study and concept of business process re–engineering for enterprises. You have been well explained with concepts of implementation of ERP along with features such as time, resources, training and patience with various risks involved.

The block detailed about the basic of Human Resource Module which serves as e–resource ERP with special features. The concept related to Plant and Machine Maintenance providing e–resource ERP with integrated solution handling operational needs of enterprise–wide system will also be explained to you.

BLOCK ASSIGNMENT :

❖ **Short Questions :**

1. Write a note on ERP vendors.
2. Explain ERP and Business Processes.
8. What is CMMi ? Explain CMMi Maturity Levels.
4. Write a note on Process Orientation.
5. Write a note on Target Market.
6. What is Business Process Re–engineering ?
7. Explain foundations of BPR.
8. Explain role of IT in BPR.
9. Where we can apply BPR ?
10. What do you mean by Re–engineering Computer System ?

❖ **Long Questions :**

1. Explain Functional Modules of ERP Software.
2. Explain risk of E–business in ERP implementation.
8. Explain Six Sigma Process Improvement.
4. Explain Process Improvement Model.
5. Explain comparison of ERP Vendors.
6. Explain Trends and Orientation of ERP.
7. How Can BPR Be Applied to An Organization ?
8. Explain characteristics of BPR.
9. Explain steps of BPR.

❖ **Enrolment No. :** ☐

1. How many hours did you need for studying the units ?

Unit No.	6	7	8
No. of Hrs.			

2. Please give your reactions to the following items based on your reading of the block :

Items	Excellent	Very Good	Good	Poor	Give specific example if any
Presentation Quality	☐	☐	☐	☐	_____
Language and Style	☐	☐	☐	☐	_____
Illustration used (Diagram, tables etc)	☐	☐	☐	☐	_____
Conceptual Clarity	☐	☐	☐	☐	_____
Check your progress Quest	☐	☐	☐	☐	_____
Feed back to CYP Question	☐	☐	☐	☐	_____

3. Any other Comments

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Dr. Babasaheb Ambedkar
Open University Ahmedabad

BCAR-501

BUSINESS APPLICATION AND INTRODUCTION TO ERP

BLOCK 3 : ERP IMPLEMENTATION AND SUCCESS & FAILURE

ERP IMPLEMENTATION AND SUCCESS & FAILURE

Block Introduction :

ERP software requires a vendor for supply, and most businesses will follow agreements with vendors for product supply and contract documentation. In order to simplify and automate business operations without requiring extensive application or data structure changes, corporate apps do not share common data.

This block will go through the fundamentals of ERP system implementation as well as numerous tools such as planning, support, and managed system. The study and notion of the function of the vendor in supplying product and documents while signing a contract will be the emphasis of this block. You'll acquire a sense of the reasons for installing ERP.

You will learn and grasp the features of web e–resource ERP and its approaches in this block. You will also learn about the concept of a web–based e–resource ERP solution for accelerating company. You will be educated about ERP's future prospects. Furthermore, you will come to know about different success and failure factors of an ERP implementation. As well will come to know about the present and future of the ERP.

Block Objectives :

After learning this block, you will be able to understand :

- Idea of ERP Implementation
- Detail of Risks in ERP Implementation
- Role of Technology in the ERP selection
- Idea regarding Responsibilities of ERP Vendors,
- Detail of Enterprise Application Integration
- Idea of Implementation Methodology
- Detail of Web Based ERP Software
- ERP life cycle
- Current Trends in ERP
- Success & Failure Factors of an ERP Implementation
- Present and Future

Block Structure :

Unit
09

ERP IMPLEMENTATION

UNIT STRUCTURE

9.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction about the ERP Implementation
- Detail of Risk in ERP Implementation
- Role of Technology in the ERP selection
- Various Responsibilities of ERP vendors
- Idea about Enterprise Application Integration
- Detail of Implementation Methodology
- Idea about the Web Based ERP software

9.1 Introduction :

ERP systems are implemented in the hopes of improving an organization's performance on a number of key performance metrics, such as profitability, efficiency, and data and report accuracy. ERP suppliers frequently guarantee increases of 10 to 15% in revenue, customer happiness, and other value indicators. Building these systems takes a lot of time and work. According to Meta Group, the average ERP implementation takes 23 months and costs $15 million to own.

It is common for businesses to have a period of little improvement after implementing ERP. For a time, some businesses may even see a drop in performance. Failure to carefully re–engineer business processes, organization errors in system configuration, failure to map changes to the system resulting from changing business needs, errors in estimating processing power and data storage requirements, and insufficient end–user training are among the major causes of such declines. In an ideal world, all of these factors would have been taken into account during planning and addressed before to coming live. It is impossible to anticipate every element in practice.

Implementing an ERP system should be a simple process with adequate design and execution, and it should boost efficiency across your company immediately. Implementing Enterprise Resource Planning (ERP) can be a difficult undertaking, taking months to complete and costing more than the software and gear involved. However, if you are prepared and have the appropriate resources to assist with the process, ERP framework implementation may be completed on time, on budget, and with a spectacular profit margin.

9.2 Risks in ERP Implementation :

ERP framework implementation may be a difficult move for an organization if it is not properly planned, backed, and managed, with more executed by an encouraged cross–functional fewer group with senior supervised economy support. The new framework may provide those devices and industry–proven best polishes that will take your organization to the next level in terms of performance and life span benefit.

ERP stands for Enterprise Resource Planning, and it is a combination of benefits from business administration and operations for contemporary engineering. At the same time, ERP provides a variety of benefits. Furthermore, in order to move an organization into the twenty–first century, it requires assistance. There are numerous risks associated with ERP implementation. It takes a substantial amount of time, resources, planning, and patience to lawfully implement all of the ERP, which is why recognizing these pitfalls is critical. Recognizing the use of ERP in any firm.

- **Insufficient Training :** Customers who are insufficiently equipped in the use of ERP will be one of the most significant dangers of using the framework. When customers don't understand how to properly use ERP software, two things can happen. They may reject it because of a lack of comprehension. Another possibility is that such employees embrace the framework but use it incorrectly. This leads individuals to fully implement the ERP architecture that isn't working in terms of illustration. As a result, the ERP system as a whole will not perform as well as it could.
- **Software Stability :** ERP, like other computer software, is prone to stability difficulties. A large percentage of the risk can be avoided by thoroughly researching and picking a trustworthy ERP software developer with experience designing solutions for businesses in your industry. This is why an ERP system should be thoroughly tested before a final decision is made on whether or not to use it. Unfortunately, this is an ongoing risk that may manifest years down the line when new, incompatible software or hardware is installed.

- **Commitment :** ERP solutions, when effectively deployed, require a lengthy time to get up and running. Before any evident good effects can be noticed, ERP must be appropriately selected, analyzed, and tested, then installed and used for a period of time. If the organization isn't totally dedicated to seeing the process through, it can become a very dangerous position.
- **Software Selection :** Unfortunately, ERP outcomes aren't universal. Beneficial ERP programming will have a chance to be specifically designed for the industries or fields in which they will be used. This is critical because if you use the wrong programming for your firm, you risk hosting a completely useless and even disturbing ERP outcome. Clearly defining what your firm's parts require Previously, an ERP framework will significantly reduce the chance of your organization being exposed to this risk.
- **Method :** When it comes to ERP implementation, there are two standard techniques. The primary technique will be referred to as "The Big Bang." This is where an organization attempts to quickly implement all of the ERP results. Making huge sections progressions with necessary organization and a limited amount of time from claiming time, on the other hand, increases the risk of things going wrong. Instead, consider phasing in your ERP system. Use On Periods allows you to pay close attention to a specific case perspective of ERP execution rather than attempting to pay close attention to a large number of them at once.

❑ **Check Your Progress – 1 :**

1. ERP implementation includes _____ risks.

   a. Insufficient Training b. Software Stability

   c. Commitment d. All of Above

2. Explain risks in ERP implementation.

_____

_____

_____

_____

_____

9.3 The Role of Technology in the ERP Selection Criteria :

Today's modern ERP system provides Makers with the tools they need to continue to earn the rewards of business execution. Business intelligence, dashboard reporting, mobile access, continuing information access, integrated stock control, quality, MRP, and other offers could help businesses worth of work make smarter decisions, aggravate educated decisions, and improve the benefits of business techniques. When carefully chosen, ERP frameworks assist firms in succeeding and flourishing in changing settings, allowing them to stand out from competitors.

We discovered that the majority of businesses require an innovation management solution that is favored by top level executives. You'll also notice that ERP vendors require their engineering management system. Despite the fact that the majority of merchants state that they would open systems, the

truth is that each merchant has their own innovation sweet spot. Understand the innovation organization stage and structural engineering for each merchant and compare it to your system.

There may have been a time when the underlying engineering of an ERP framework was not given the same level of importance. When choosing another framework, the product goal trumped all other considerations. However, the innovation organization moves at a breakneck speed. Those who believe that developing an ERP framework includes a lot more than the value of the software also include the benefits of business interruption and training that is lost in the long run.

❑ **Check Your Progress – 2 :**

1. Explain role of technological criteria in ERP selection.

9.4 Responsibilities of ERP Vendors :

First and foremost, as soon as the agreement is signed, the vendor should deliver the product and associated documentation. The company can only develop the training and testing environment for the employment team after the program has been delivered. Any software issues that the installation team encounters are the responsibility of the suppliers. As a result, the vendor should have a liaison officer that communicates with the implementation team on a regular basis.

Another function for the vendor is that of the trainer, who will give primary training for the company's key users, who will play essential roles in the system's implementation. These important users will define how the software will benefit the firm, in collaboration with the experts. To put it another way, these in–house functional experts will decide how the features will be applied, as well as how to use or adjust the product to meet the company's specific needs.

As a result, it's vital that these key users receive full training on the package's features. The goal of vendor training should be to show key users how the package works, what the major components are, how data and information moves across the system, what is flexible and what is not, what can be organized and what cannot, what should be modified and what should not, what are the limitations, strengths and weaknesses, and so on.

ERP vendors tasks and responsibilities do not end with the training. The vendor must also provide critical project assistance and maintain quality control over how the product is installed. Vendors are familiar with the product's finer points and operations and can give useful suggestions and modifications that could improve the system's performance.

ERP suppliers can assist their clients in a variety of ways. To support their market, larger companies have huge support ecosystems. All of a buyer's support systems should be evaluated, including the following :

- ✓ Consultancy business
- ✓ Methodology for implementation
- ✓ Education
- ✓ Methodology for ERP implementation
- ✓ Phone support and maintenance
- ✓ User communities
- ✓ A network of collaborators

❑ **Check Your Progress – 3 :**

1. The vendor should deliver the product and associated documentation, as soon as _____.

   a. Agreement is signed b. Training Deliver

   c. Product Order d. None of Above

2. _____ will give primary training for the company's key users.

   a. Developer b. Admin c. Trainer d. All of Above

3. Discuss the responsibilities of ERP vendors.

9.5 How to Prepare an Organization for ERP Implementation ?

When it comes to introducing a new ERP system into a company, preparation is essential. It's critical to take all required procedures to ensure that your new software is successfully deployed.

1. Define the issues, as well as the goal, scope, and objectives :

Today's enterprise resource planning tools can address a wide range of difficulties that your company is dealing with. However, as indicated in the article Why ERP Implementations Fail, determining the true goal, scope, and objectives for your installation is critical. It is critical to first identify the problem or exact requirement, and then to focus the organization on addressing these challenges and requirements. The more accurate and specific you can be up front, the more precise and detailed your implementation will be.

More and more companies are opting for a phased approach to ERP systems rather than the "big bang" strategy that was popular in previous years. This is frequently a lower–risk and more prudent approach to the cutover, with potential benefits such as the ability to work out defects and bugs before going company–wide.

2. Collect teams early on :

Designate a core project or team lead to lead your implementation efforts, and ensure sure your purpose, scope, and aim are communicated and documented in a clear and simple manner. Obtain early support for these goals, scopes, and objectives, as well as alignment with corporate decision–makers. Having the correct people involved in the process could be vital to the project's success.

You are not seeking for ordinary or available players for your squad; you want to pick the best team imaginable. Give the members the authority, autonomy, and time they need to accomplish the project correctly.

3. Develop a Change Management Plan :

While employees of any organization are familiar to the same types of tasks or their daily routines, ERP implementations are often associated with significant change, and these changes are often difficult to accept. That is when change management becomes critical, and it must be woven into the implementation's fabric.

This includes incorporating employees in the preparation of a compelling business case for change, as well as the project's purpose, scope, and objective, as well as why you're doing it. Everyone involved in the project must be on the same page and understand the business case, vision, and goals. Unfortunately, this crucial and essential step is frequently overlooked. Change affects everyone, thus management must be the advocates for the new ERP system and introduce a positive outlook among the users.

4. Documentation, training, and consideration of the human component are all important :

End–user training is a vital success aspect, as we learned from the unsuccessful ERP project part. Similarly, end–user documentation is crucial in defining expectations for the ERP implementation. Your staff will need to adjust to new procedures, software, navigation, and technology, and you will need to plan and prepare them for this shift if you want them to take it in stride. Although preparing people for change is the most abstract term in the ERP implementation process, don't overlook it just because it's difficult to measure. A project can be derailed before it ever gets off the ground if user training and preparedness are neglected.

5. Identify your vendor's procedures :

ERP companies have developed particular ERP implementation methodology to structure their installation processes since they understand what it takes to execute their software. Work with your ERP vendor or installation partner to fine–tune the system to fit your needs. Having a thorough grasp of your vendor's philosophy and verifying that it is in line with your objectives can put you on the road to success.

6. Make a post–implementation strategy :

ERP deployment efforts frequently fail after go–live. When the implementation team hands off post–go–live support to internal and external support, a lot of things can change. Users will know how to report difficulties, and the vendor will know what is expected of them after deployment, if you have a clear post–deployment support strategy in place. It's also crucial to have appropriate technical support in place before, during, and after the go–live to rapidly handle any user difficulties and keep your workers from becoming upset with the system.

❑ **Check Your Progress – 4 :**

1. What preparation an organization required for ERP implementation _____.

   a. Collect teams early on

   b. Develop a change management plan

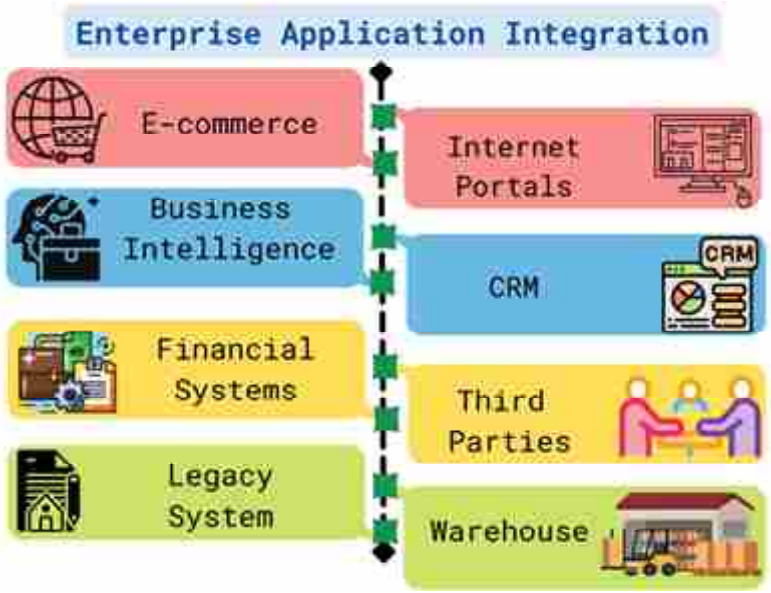
   c. Identify your vendor's procedure

   d. All of Above

9.6 Enterprise Application Integration :

The employment of technologies and services throughout a business to facilitate the integration of software applications and physical systems is known as enterprise application integration (EAI). EAI solutions are supported by a number of private and open projects. Middleware technologies are linked to EAI. Web service integration, service–oriented architecture, content integration, and business processes are some of the other emerging EAI technologies.

Enterprise Application Integration (EAI) allows an organization's many systems to share data and business operations. It's about integrating corporate procedures and systems to operate together seamlessly, not just linking two program to communicate data. Where inventory control, human resources, sales automation, and database administration were meant to run independently and without intervention, this is especially important.

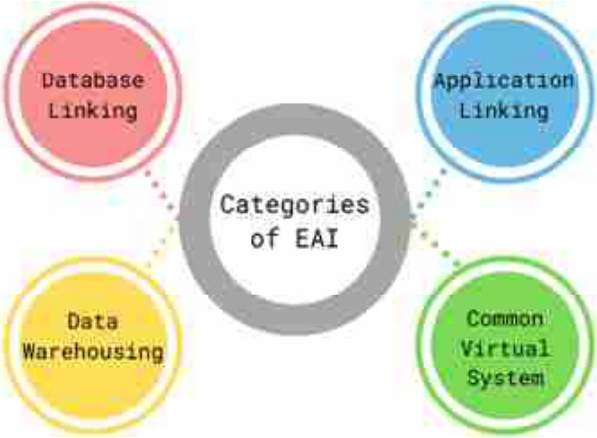


Enterprise Application Integration

Enterprise application integration (EAI) ties together various databases and procedures utilized by business applications. This is done so that the business may use data consistently and that changes to fundamental data made by one application are accurately reflected in other applications. EAI lowers errors, removes unnecessary data entry, and encourages system–to–system communication.

Companies can use a variety of strategies to connect their systems, including message protocols, middleware, and database replication. Data can also be shared utilizing databases that store data in several places, necessitating the use of synchronization procedures when the same record is changed at each location.

- **Categories of Enterprise Application Integration :**



Categories of EAI

There are four major categories of EAI.

1. **Database Linking :** As needed, databases will exchange and duplicate information.
2. **Application Linking :** Two or more applications exchange business processes and data throughout the organization.
3. **Data Warehousing :** Data is gathered from several sources and focused into a single database for analysis.
4. **Common Virtual System :** The topmost of workplace application integration; all parts of company computing are linked together to seem as a single application.

- **Objectives of EAI :**

1. **Seller independence :** Even if one of the business apps is replaced with a new vendor's application, the rules of specific business applications or business policies do not need to be re–implemented.
2. **Integration of data :** Ensures that data is consistent across many platforms.
3. **Mutual entry :** Because it delivers a compatible software application access boundary, users do not need to learn multiple software programs.

- **Advantages of EAI :**

✓ It improves the communication speed between Enterprise programs.

✓ On–premises, the firm might host it in its own data center or in a private cloud server.

✓ Information can move across different software systems within a firm thanks to EAI. As a result, it unifies data and eliminates the need for data collection and storage to be repeated.

✓ It makes it easier to find complete, up–to–date information in less time.

✓ It enables individuals and departments to work together efficiently.

✓ It enables the organization to recognize and respond swiftly to opportunities by allowing new apps to operate well with existing applications.

- **Disadvantages of EAI :**

✓ It fails when the person in charge of the EAI implementation isn't dynamic.

- ✓ More technical and competent personnel are required.
- ✓ It is a system, not a tool, and it should be executed as such.
- ✓ You must put extra work into mapping across systems data requirements due to an absence of permission on interface design.
- ✓ Because each department has its own set of standards, clear accountability is essential.

❑ **Check Your Progress – 5 :**

1. EAI stands for _____.
   a. Enterprise Application Instruction
   b. Enterprise Application Integration
   c. Enterprise Application Information
   d. Enterprise Application Intelligence
2. EAI categories includes _____.
   a. Database Linking b. Application Linking
   c. Data Warehousing d. All of Above

9.7 Implementation Methodology :

A strategy is a road map to an execution that serves as the rationale for a procedure that can deliver usage through time, as determined by decisions and internal planning. Many vendors, especially in the programming sector, have to develop their own methodology. Consulting firms developed their own strategies for connecting to a product. When higher management is recognizing the actualization of a real programming request, vendors basically use methods as a marketing device about in place to soothe their concerns.

ERP approaches have progressed beyond merely displaying gadgets these days. They'd work straight away as a direct result of what suppliers have learned via experience, and these approaches have existed for several generations. Methodologies are now linked, and they're geared more at project managers. Furthermore, their teams. A protocol can be thought of as a road map that must be followed. The purpose of a procedure could be to deliver a usage on time, as determined by decisions made inside the plan. A huge number of vendors, mostly in the product market, require processes to be created. Consulting firms have also developed their techniques in the past, with a connection to a product.

When admitting the actualization of a big product offering, vendors frequently use approaches for illustrating a marketing apparatus in place to soothe the apprehensions of higher management. ERP techniques now require more than just exhibiting devices. They require immediate assistance. Since suppliers began with experience, these approaches have been passed down through several generations. Methodologies are immediately linked, and they are also applied to project managers and their teams.

After you've decided on an ERP, you'll usually go through five stages of implementation :

- Design
- Implementation
- Stabilization

- Continuous improvement
- Transformation

The organized implementation program might help you get your system up and running faster and get a better return on your investment. This can be accomplished in the following way :

- Conducting a thorough gap analysis
- Technical and business procedures
- Organizational controls
- Clean–up and conversion of data
- Agreeing on implementation parameters
- Project sponsorship and management

People, processes, and product are the cornerstones of the implementation approach.

❑ **Check Your Progress – 6 :**

1. Write a note on Implementation Methodology.

9.8 Things to Check While Implementing ERP :

On the basis of necessity, those key decisions should be supported further, and those ERP you require assistance selecting should have a chance to be item–fit. Similarly, you are aware that there are numerous ERP products on the market, each of which is tailored to a specific industry. As a result, you must ensure that those items are aimed at your type of association. Small, territorial discrete manufacturers, for example, do not purchase all of an item predicted to make, as large organizations like as oil refineries do.

The ERP programming, on the other hand, may need to fit methodology. After completing a rough–cut Investigation to ensure result fit, it may be required to look at your identities or requirements in detail and compare them to the ERP result you selected. Check that the programming is compatible with all of the modules you're looking for, and that it's well–designed to meet your needs.

You should also look into the consistency of the result providers. Because ERP is a long–term investment, progressing help and support is critical. Those product companies that you require help managing must have the necessary assets, and Technicolor should be in charge of the complete operation. Additional upkeep is also required. What's more, effectively prepare. You must also consider whether their usage process is both effective and practical. When it comes to ERP implementation, your main focus is on :

1. **Training :** When it comes to software implementation, the most important aspect is training. If you have trainers, it's a good idea for them to be on–site during implementation so they can fully grasp their area of

expertise. Your provider will be in charge of teaching your end–users once they've moved off–site. Consider generating a business practice manual that explains how to do activities with your new software if necessary.

2. **Infrastructure Preparation :** It's a good idea to assess all of your software and analyze any difficulties with compliancy when you start planning for your installation. Furthermore, if your software requires communication with your ERP solution, have a conversation with these sellers and your ERP provider so that everyone is on the same page during and after the transition.

❑ **Check Your Progress – 7 :**

1. Explain things to check while implementing ERP.

9.9 Web Based ERP Software :

A web–based ERP system must be hosted by a reputable web hoster in order for the application to be secure and available at all times. In comparison to a client–server system, web–based ERP software requires less in–house IT infrastructure.

A web–based ERP software eliminates the need for server administration software and associated licensing. Many businesses are increasingly seeing the advantages of a web–based ERP system over a client–server system.

Data, like as sales orders, can be input from any location, as an example. When a web–based ERP system is deployed, the necessity for IT professionals to maintain an in–house ERP infrastructure is greatly reduced. Training employees on a web–based ERP system is much easier because training sessions may be conducted on any computer with an internet connection at any place.

Web–based ERP systems are easy to upgrade and install from a maintenance standpoint because the installation is done in one location and is accessible to all users, and there are no registry changes to be made as there are with a client–server system. Only the web server needs to be changed.

9.10 Let Us Sum Up :

We learned in this unit that implementing an ERP system causes a tough shift for a firm, and that a well–planned, well–supported, and well–managed system is essential. We can see that in today's world, ERP systems give manufacturers with the tools they need to boost their business performance.

It should be mentioned that the vendor should first and foremost provide a long product with documentation prior to signing the contract. It should be mentioned that enterprise apps do not share common data in order to simplify and automate business processes without making significant changes to the application or data structure.

9.11 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : d **2 :** Refers 9.2

- **Check Your Progress 2 :**

  1 : Refers 9.3

- **Check Your Progress 3 :**

  1 : a **2 :** c **3 :** Refers 9.4

- **Check Your Progress 4 :**

  1 : d

- **Check Your Progress 5 :**

  1 : b **2 :** d

- **Check Your Progress 6 :**

  1 : Refers 9.7

- **Check Your Progress 7 :**

  1 : Refers 9.8

9.12 Glossary :

1. **The Big Bang :** When it comes to ERP implementation, there are two standard techniques. The primary technique will be referred to as "The Big Bang." This is where an organization attempts to quickly implement all of the ERP results.
2. **Trainer :** The trainer, who will give primary training for the company's key users, who will play essential roles in the system's implementation.
3. **Data Warehousing :** Data is gathered from several sources and focused into a single database for analysis.

9.13 Assignment :

1. How to Prepare an Organization for ERP Implementation ?

9.14 Activities :

1. Study about implementing ERP.

9.15 Case Study :

1. Explain Enterprise Application Integration in detail.

9.16 Further Reading :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit
10

MORE ABOUT ERP IMPLEMENTATION

UNIT STRUCTURE

10.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Introduction about the ERP Implementation
- Detail of successful ERP Implementation
- Idea about the software selection
- Detail about plan to get succeed
- Idea about getting ready for ERP Implementation
- Detail of ERP life cycle
- Detail of best practice for ERP Implementation
- Idea about Do's and Don'ts during the ERP Implementation

10.1 Introduction to ERP Implementation :

ERP execution planning necessitates ERP experts who think about the industry, understand the ERP product chosen in practice, and research the strategy. Finding ERP gurus that have what it takes to ensure your organization comprehends the total potential benefits of business reductions might be a key part of the equation. The engineering organization aids the benefits of the business convert under those thick, as best form from claiming itself. Display will be that level of ERP master as ERP usage arranging administration will

not best serves guarantee as those frameworks may be actualized effectively but all that the engineering organization aides the benefits of the business convert under those thick, as best form from claiming itself. In addition, our technology–agnostic administration putting forth joins our identity or utilization arranging strategy for finest hones Furthermore devices beginning with specific ERP outcomes.

Implementing a new ERP system is one of the most significant investments a company will make in terms of time, money, and resources. The number of modules being installed, customizations necessary, data conversion, and project management resources available all influence the ERP implementation process, phases, timeline, and complexity.

10.2 Successful ERP Implementation the First Time :

Choosing and implementing a new ERP system, as well as the procedure changes that go along with it, is undeniably a difficult task. Regardless of your level of experience with defined resources, ERP implementation may not be something that should be attempted without a great deal of careful planning.

One of the most significant difficulties to ERP implementation is a misunderstanding of what ERP is all about, as well as an underestimation of the resources required to successfully implement it. Senior working administration cannot delegate basic decision–making to faculty who may or may not require those foundations, or the behavior for such decision–making.

Assessing and selecting ERP software will be a difficult task. It must be a fact–based process that provides you with a perspective from which you can make a confident, well–informed decision. Those changes necessitate a more extensive method and should benefit you in the decision–making process. This does not apply to you if you fill out lengthy pre–designed questionnaires that do not account for your specific demands. Rather, it implies that your evaluation and decision–making approach should be based on your own methodology and business transformation model. A detailed method of planning, aided by additional control exertion, is required for those emotional savings.

ERP implementation that works to begin with, chance is a requirement. A structured method that is strategy– and process–oriented. This is the most effective way to keep an eye on those dangers. When the unexpected occurs, as it inevitably does, you will be prepared to handle these exceptions without severe negative consequences if you follow a good procedure. You stopped offering on that one, particularly because the botch is not hosting your people who are prepared to use the new forms and assist the supportive network. The end result may be close to collective failure, but they will require avoidable assistance.

Examine your business strategy. Furthermore, in the past, you submitted an ERP arrangement that included programming, procurement, and installation. The only cost–benefit research path on trial is to complete it correctly the first time. Many people wish they had paused to think about where they were going.

The following questions do not cover every possible scenario, but they should serve as a starting point for conversation and thought.

- ✓ How would we like to run our company ?
- ✓ What business issues must be resolved ?

- ✓ Do we comprehend and know what our priorities are ?
- ✓ Do we truly comprehend our current state versus our processes that could/ should be ?
- ✓ Have we created a detailed action plan for pre–implementation planning activities ?
- ✓ When and how will duties be completed ?
- ✓ What are the gaps in our present system and our preferred software ?
- ✓ What will the true costs, benefits, and timeline be ?
- ✓ Do we have an ERP advocate at the executive level who can provide the essential connectivity to top management ?
- ✓ Who will put ERP in place and make it work ?

❑ **Check Your Progress – 1 :**

1. Write a note on successful ERP Implementation.

10.3 Software Selection is Not Easy :

Those quick and dirty regarding product determination began in the recent past, and it is a superb clue to oversee economy with understand how current strategy, procedures, and supporting frameworks contrast with what they may be for the new framework.

In fact, if this disclosure method is carried out every couple of years, the oversaw economy will be able to determine where the company's shares are located, as opposed to a previous interest in the ground. This provides a foundation for assessing chances. Many people avoid looking into the system for extra benefits of the business methods. Also, while looking at how a product performs with qualities, it bounces well. Product vendors frequently sway this because they want to move you forward quickly in the sales cycle, bringing you closer to agreeing to their outcome.

A chance to be especially doubtful of supposed evidence from claiming specific idea provides, in which the merchant executes its goods at a webpage that gives various guarantees. This act entails throwing the product selection process into turmoil, especially for the uninformed. Obviously, ERP programming providers are in the industry of providing results, and they require their absolute best persons to work the offers cycle. This will assist your organization in achieving their distinct best result for all of your concerns.

A chance to be especially suspicious of alleged evidence from claiming specific idea provides, in which the merchant executes its goods at a webpage that gives various guarantees. This act entails throwing the product selection process into turmoil, especially for the uninformed. Obviously, ERP programming providers are in the industry of providing results, and they require their absolute best persons to work the offers cycle. This will assist your organization in achieving their distinct best result for all of your concerns.

Those processes necessitate an objective with a broad strategy to assist you in determining techniques. This isn't to say you shouldn't supplement your research with lengthy pre–designed surveys that don't take into account your specific requirements. Rather, it is meant to be evaluated by you. Furthermore, if your technique is based on your own, choose a methodology and a business procedure model. A complete approach for planning, assisting, and controlling effort is required to allow for emotional savings, as well as the most important benefit : avoiding big errors.

ERP may be trusted entirely to the IT Branch in some firms when management is distracted with other, ostensibly more important tasks. The implication that this is a thoroughly engineering undertaking because programming may be included is incorrect, and will, in fact, be a leading cause of ERP dissatisfaction. Those at work will not be well–positioned to judge those business meanings for various choices, but will instead determine their sway for typical working outcomes vs crucial expectations. Obviously, this should not be the case when it comes to illustration employment options having a space for senior working administration. When an ERP framework is chosen, it is amazing for a firm to reduce its losses. Furthermore, shelve the project until large numbers have been reached and a significant amount of time has passed.

The most common uncertain block is the political fallout. Nobody wants to inform higher management that a multibillion–dollar ERP investment may have been a mistake and that the transformation should be restarted. When a business has been in operation for a long period with a bad ERP selection or implementation, the costs continue to rise and the savings do not materialize. Those who lose money by citing missed opportunities have a chance to become monster. This risk will be reduced by using ERP for product search, evaluation, and choice transformation.

Despite the fact that it is a charming concept, the clean–sheet–of–paper strategy has been a massive disaster for a lot of businesses. The clean–sheet business procedure change and subsequent ERP framework configuration is time–consuming and difficult. As a result, businesses have had to accept the trade–offs that industry–specific best–practice templates demand. Pre–configured templates make it easier to organize your structure and make more money.

Camwood is given the opportunity to be refined after the fact. This isn't to claim that it'll be fine if you just hammer. Furthermore, place predetermined techniques on the spot. On the contrary, before proceeding, selected format techniques must be evaluated for appropriateness, at the very least in the short term. The demand for quick ERP implementation will be unpredictable. This could have been the driving force behind the development of off–the–shelf templates designed to speed up and improve the product customization process.

Those templates, by their very nature, combine specific best practices that aid cross–functional business forms. On the surface, this may appear to be nirvana, but only a few enterprises take the time to examine how they should also operate their businesses. These organizations end up with a generic, albeit industry–specific, purpose as a result of bringing those straightforward ways out.

❑ **Check Your Progress – 2 :**

1. Why ERP software selection is not easy ?

10.4 Plan to Succeed :

There must be clear and measurable objectives if an ERP implementation is to be successful. This includes precise product functionality enhancements, a complete project plan blueprint, improved company processes, measurable financial gains, and, of course, a detailed budget.

Almost all ERP implementation efforts will be exposed if a company is not organized for success. Inadequate communication between executives and the rest of the company is one example. In many circumstances, executives desire to be in charge of every area of the company. Executives will also be ready to claim credit for anything positive while simultaneously avoiding doing any real work or admitting accountability when things go wrong. If your leaders ostensibly accept an ERP implementation project but do not actively participate in the development of corporate plans and objectives, the ERP deployment is doomed to fail.

Each member of an organization contributes to the organization's success. Whether people who have any interaction with the company oversaw economy product require assistance that is not included in the ERP usage process, particularly those who understand the meaning of requirements, the vast majority of data may be overlooked. It's possible that the concepts presented here are fundamental. There will be no reason for them to back the result if you don't include someone clinched alongside an approach that directly motivates them. Imperviousness to this sort of thing could doom an ERP implementation if it fails. Those processes for evaluating business management programming and business supervised economic product implementers may be a single arrangement from claiming events/tasks that would convey insane again at some point in the future.

❑ **Check Your Progress – 3 :**

1. Plan for successful ERP implementation includes _____.

   a. Project Plan Blueprint b. Improved Company Processes

   c. Detailed Budget d. All of Above

10.5 Getting Ready for ERP Implementation :

One of the most typical blunders companies make when preparing for an ERP system adoption is thinking of it as just another IT project. This couldn't be further from the truth : implementing an ERP system is a significant period of change for any company, and preparation is the key to a successful installation.

There are some crucial things you must do to prepare your firm for the systemic redesign of core operational processes before any software is deployed or any training is given. A firm can prevent obvious mistakes and make the

adoption process more seamless by anticipating frequent difficulties. These four actions will assist you in achieving ERP success :

1. Take the time to plan :

This is the method a company should take when preparing to adopt an ERP system. Most businesses aim to get through the planning phase as quickly as possible to avoid doing more talking than doing. The truth is that an extra week or two of planning could mean the difference between a smooth procedure and one marred by blunders that could have been avoided. One week of planning for every month of projected deployment time is a fair rule of thumb.

2. Assign internal ownership to the project :

The ERP system will have an impact on every aspect of the organization, thus everyone from senior management to middle management and front–line employees must be involved throughout the process. That's why the first thing a corporation can do to prepare is form an internal team with the power and influence to persuade the rest of the organization to join in.

3. Establish metrics to track progress :

ERP solutions are used by businesses to improve important operations and key performance indicators (KPIs), such as efficiency and cost reduction. However, if these aren't stated at the start of the project, it will be impossible to evaluate whether the implementation met the objectives.

All stakeholders should be aware of the project's expectations and use them as a guide throughout the process to ensure that everything is moving in the right direction. Business leaders will be able to utilize those data to determine Return on Investment (ROI) and whether or not the new system was a success once the project is completed.

4. Make ERP deployment a top priority for the company :

The adoption of an ERP system is a collaborative effort between the company and the vendor, but just because the firm has a reliable partner doesn't mean it can relax. Deploying an ERP system entails a comprehensive overhaul of every functional area's essential operational process, not merely the installation of new software.

Enough human resources should be dedicated completely to the new system's day–to–day implementation. If staff are unable to connect with the new system because they are preoccupied with other tasks, the project may take much longer than expected. Furthermore, workers who perform too many things at once are more likely to make mistakes that must be corrected later. As a result, firms should postpone big initiatives until the new system is fully operating. If you're working on a significant project, it's preferable to wait until it's over before implementing an ERP system. Planning for an ERP system deployment entails more than just selecting a vendor and delegating all of the work to them. Businesses may reduce risk, avoid frequent traps, and reap the full spectrum of financial and operational benefits that the system can provide by following a difficult planning approach.

❑ Check Your Progress – 4 :

1. KPI stands for _____.

   a. Key Performance Indicators b. Key Performance Instruction

   c. Key Performance Information d. Key Performance Industries

2. ROI stands for _____.

a. Reward on Investment b. Return on Investment

c. Return on Information d. Return on Instruction

10.6 Issues :

Implementing ERP solutions presents a number of challenges. Though it is not entirely a technical job, ERP implementation across the enterprise requires a great deal of planning and communication. There are a number of obstacles that businesses face when using ERP systems :

- ✓ It is critical that implementation takes place in stages. Attempting to execute everything at the same time will result in a great deal of confusion and disorder.
- ✓ Adequate training is critical both during and after implementation. Staff must feel at ease with the application, or it will backfire, resulting in unnecessary effort and functional inefficiencies.
- ✓ A lack of effective requirement analysis will result in the non–availability of certain critical functions. This could have a long–term impact on operations, lowering productivity and profitability.
- ✓ A lack of support from senior management will cause unneeded workplace frustrations. It will also cause operational delays and ineffective decisions. As a result, it is critical to ensure that Senior Management is on board with the transition.
- ✓ Compatibility Issues with ERP modules cause problems with module integration. Companies work with a variety of providers to implement various ERP modules, depending on their expertise. It's critical that there's a mechanism to deal with compatibility difficulties.
- ✓ If requirements are not appropriately reviewed and decided during the planning process, cost overruns will occur. As a result, a detailed strategy with a complete breakdown of needs should be worked out prior to execution.
- ✓ It is critical to invest in infrastructure. ERP application components will want a high processing speed as well as sufficient storage. Reduced application speed and other software issues will come from not assigning adequate cash for infrastructure. Security of both hardware and software is critical.

❑ Check Your Progress – 5 :

1. Write a note on Implementation Issue.

_____

_____

_____

_____

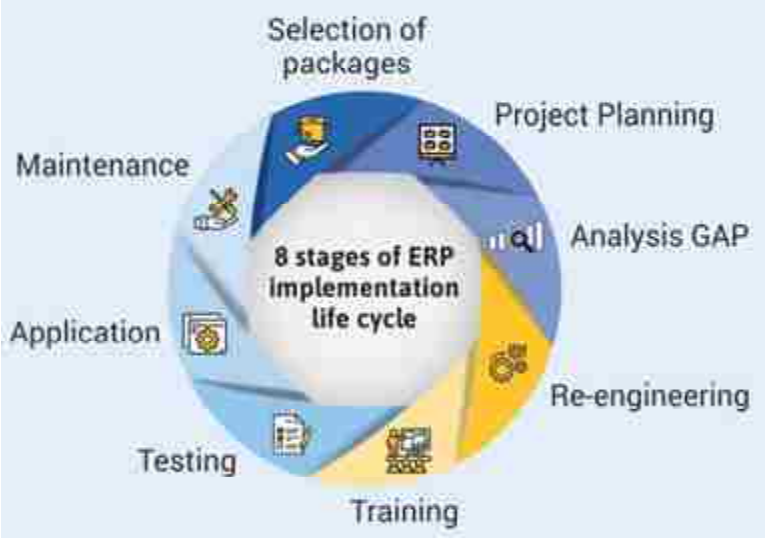
_____

10.7 What is the ERP Life Cycle ?

ERP deployment, also known as enterprise resource planning, is a critical step that helps businesses simplify processes and cut costs. ERP implementation

life cycle refers to the process of implementing it to automate corporate activities. It involves a number of phases and stages, beginning with project planning, analysis, design, execution, transition, and operations.

ERP implementations are not a one–day process because they include eight key steps. It improves the efficiency with which you operate your business and greatly contributes to profitability by merging numerous aspects of it. Consider the following eight stages of the ERP deployment life cycle :



ERP Life Cycle

1. **Selection of Package :** Every organization is unique, as are its requirements. As a result, the first and most crucial step is to select the appropriate ERP software for your company. It might be difficult to pick the appropriate match for your business operations with so many options available on the market. As a result, ERP modules that do not meet your requirements are deleted at this step.
2. **Project Planning :** When starting a project, it must be meticulously prepared so that there are no surprises during implementation. Planning is essential for achieving successful ERP installation, from selecting the right resources to allocating responsibilities to the appropriate team members.
3. **Analysis GAP :** Another key element in the ERP deployment life cycle is GAP analysis, which is used to evaluate and compare the organization's existing system and its future position as needed. This manner, you can quickly discover the ERP operations that require the greatest attention.
4. **Re–engineering :** Re–engineering is used to make a process more efficient and worthwhile, as it entails various adjustments and alterations based on planning and gap analysis.
5. **Training :** Because there is an innovative system in place, staff will need to receive sufficient training so that they can begin using the product immediately.
6. **Testing :** This is an important step in the ERP deployment process. It is mostly used to assess faults and attempt to rectify them prior to the application process.
7. **Application :** This is the phase at which the ERP system is actually implemented. The new implementation is applied when all of the data

has been collected, analyzed, and transformed to be fed into the system, and the old system is discarded.

8. **Maintenance :** Maintenance is the last and most important step in the ERP life cycle. Now that the new system is up and running, it is up to the personnel who are working on it to keep up with the latest technological developments. Employees must also understand how to keep the system operational whenever it is required.

❑ **Check Your Progress – 6 :**

1. ERP life cycle includes _____.

   a. Selection of Package & Project Planning

   b. Re–engineering

   c. Testing & Training

   d. All of Above

10.8 The Best Practice for ERP Implementation :

Realizing an ERP outcome is a more serious matter. Camwood has a wide methodology that affects just about every aspect of your organization. Due to the sweeping character of the situation, a great deal of assistance is required from claiming ranges where setbacks can occur on your ERP utilization. So, in order to avoid these setbacks and the associated expenditures that may be associated with them, if methodology, ERP utilization task for a couple of ways best as :

1. **Executive Involvement :** Finally, focusing on official buy–in with additional help in organizational planning will ensure that one task can be completed within the constraints of the project's triangle of constraints : time, scope, and budget. Furthermore, formal involvement in the planning process displays buy–in from the organization's leadership, which will influence client buy–in and also blacks.

2. **Engage All Team Members :** Encourage team members by involving them in a structured internal discussion about best practices and how each team member will use the system. Employees that work on the ERP implementation are more likely to make the necessary behavioral changes to ensure the project's success.

3. **Training is Essential :** Failure of the ERP execution task will be certain if clients are not well prepared on another ERP framework. However, if clients are satisfied with how the framework performs with entryway, they may use the framework to fill in more effectively, and they should embrace and use the product in the most persuasive way possible. This trust in the framework has a chance to be instilled in the clients, and this trust is finally perused appropriately by ERP execution transformation.

4. **Prioritize Project Management :** The lack of smoothness in one task director camwood's position leads to disastrous effects. This may not be possible for someone who lacks the necessary credentials. Furthermore, based on previous experience, this post should be addressed as if it were a skilled player in the final analysis.

5. **Managing Risk and Contingency Planning :** From the beginning to the end of the project, leaders should be involved in risk management.

Because no project will go off without a hitch, contingency planning, as a subset of risk management, is essential.

6. **Plan for Maintenance :** Maintaining ERP framework for enough assets will improve functional framework aggregation. Neglecting to deliver these assets, on the other hand, will reduce system aggregation, as well as present additional challenges and blacks. Despite the fact that these reserve funds may not appear on the accounting report, the organization recovers money each time a preventable issue is not license with develop. As a result, it may be critical that you consider those ongoing costs as well as the additional commitments required to operate your ERP system in order to ensure long–term success.

❑ **Check Your Progress – 7 :**

1. Best practice for ERP implementation includes _____.

   a. Executive Involvement b. Engage all Team Members

   c. Plan for Maintenance d. All of Above

2. Write a note on best practice for ERP Implementation.

_____

_____

_____

_____

_____

10.9 Do's and Don'ts During ERP Implementation :

ERP systems are difficult, time–consuming, and costly to implement. There are numerous examples of ERP project failures, including some high–profile failures such as Hershey (the world's largest chocolate maker), which abandoned an SAP implementation after three years. The success or failure of an ERP implementation is influenced by a number of Do's and Don'ts. The following are some essential success criteria that necessitate dedicated initiative :

1. **Sponsor's commitment to the project :** Project sponsors are typically from the organization's upper tier. They must show a strong commitment and active participation, as mere monitoring and oversight may not be sufficient. Their active participation should entice other executives to join them. One of their most significant responsibilities will be to resolve any inter–departmental conflict that will inevitably arise during the implementation process. They should also make certain that the most knowledgeable executives are involved in the project and that they are relieved of regular duties as needed.

2. **Assurance of resources :** A large financial assurance and budgetary help are required for an ERP implementation. Expenditure includes not only direct costs related to the ERP package, but also a slew of indirect costs such as integration with other software, data gathering and cleaning, data archiving from legacy systems, hiring an expert/consultant, additional support requirements, contingency planning, and so on.

3. **Package and consultant selection :** The ERP product should be chosen solely on the basis of business requirements, as specified in a prior business requirement study. Extraneous aspects, such as the glitter

associated with large ERP packages, should not affect the selection process. The selection of a consultant, who will afford information independent of the vendor's interests and guide the entire implementation process, should be done with care and diligence. The consultant should be completely objective and unaffiliated with any particular ERP vendor. This is also true of consultants from large consulting firms, who may have a proclivity to promote a sophisticated product that necessitates additional advising effort during the implementation phase.

4. **Project Management :** The success of ERP deployment depends on an empowered project manager who is supported by IT and functional specialists and uses the right project management technique. Project management includes the formation of a project team, resource allocation, milestones, and deliverables, among other things. A customized training program for various types of users, as well as a well–defined change management approach, are also essential.

5. **Data from the past :** Data from the past is kept manually, in excel files, or in a legacy system. The collection of historical data must be carefully organized to avoid the "garbage in, garbage out" issue, which will damage confidence in the system after adoption. Before importing data into an ERP system, it is required to clean the data by removing duplicate and irrelevant information.

6. **Additional functionality creeps in :** Additional functions that were not anticipated earlier in the deployment process are frequently demanded. This may result in a disagreement with the ERP vendor. Dealing with the change management process adds to the cost and time of the project and should be avoided as much as feasible.

7. **Unrealistic expectations :** An ERP system isn't a solution for all ills. Users want to see results right away after installing software. There will almost certainly be an initial period of frustration, which may cascade and undermine trust in the system.

8. **Information overload :** Hundreds of reports and inquiries are available in an ERP system. There is a lot of misunderstanding among users when there is too much information. Despite the information overload, consumers frequently feel duped when the system fails to generate the same reports that they are used to.

9. **Resistance to Change :** All of the system's new features have overwhelmed users. Some of the older employees may be hesitant to change their working habits. Some people may be uneasy about the fact that their boss will now keep a closer eye on what they're doing.

10.10 Let Us Sum Up :

We learned in this course that selecting and deploying an ERP system, as well as processes, is a difficult task. The success of ERP deployment is considered as having defined and measurable objectives, such as product functionality, project plans, process enhancements, and measurable budget improvements.

We can see that there are many crucial factors to consider before installing software in order to prepare the firm for systemic key operational procedures. ERP solution implementation is a time–consuming and complicated procedure that affects all aspects of a company's operations.

10.11 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : Refers 10.2

- **Check Your Progress 2 :**

  1 : Refers 10.3

- **Check Your Progress 3 :**

  1 : d

- **Check Your Progress 4 :**

  1 : a **2 :** b

- **Check Your Progress 5 :**

  1 : Refers 10.6

- **Check Your Progress 6 :**

  1 : d

- **Check Your Progress 7 :**

  1 : d **2 :** Refers 10.8

10.12 Glossary :

1. **Re–engineering :** Re–engineering is used to make a process more efficient and worthwhile, as it entails various adjustments and alterations based on planning and gap analysis.
2. **Training :** Because there is an innovative system in place, staff will need to receive sufficient training so that they can begin using the product immediately.
3. **Testing :** This is an important step in the ERP deployment process. It is mostly used to assess faults and attempt to rectify them prior to the application process.

10.13 Assignment :

1. Discuss what we required to get ready for ERP implementation ?

10.14 Activities :

1. Collect some information on ERP Life cycle.

10.15 Case Study :

1. Generalized the basic best practice of ERP implementation.
2. Differentiate Do's and Don'ts during ERP implementation.

10.16 Further Reading :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 11

ERP AND COMPETITIVE ADVANTAGES

UNIT STRUCTURE

11.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Detail of ERP and SMEs
- Detail of Indian ERP system
- Idea about web–based ERP
- Detail of current trends in ERP
- Idea about predicting the future of ERP

11.1 Introduction :

Enterprise Resource Planning (ERP) is a standout amongst those concentrated preferences to enterprises all over the world, as well as the increasing compulsion pushing the transformation from claiming global joining through data. Governmental organizations would broaden their acceptance of these frameworks to include a variety of reductions, such as more synchronized current information, improved administration, and result–based management. At the most basic level, about a global corporation, associations are concerned with this request by investing resources in this project for a long time and, as a result, assist the organization in lowering its costs while increasing its viability.

11.2 An Affordable ERP for SMEs :

E–resource ERP, which is flexible, moderate, and more comprehensively expandable, may be the ideal gas solution for newly emerging and smaller businesses, as well as growth–oriented Small and Medium Enterprise (SMEs) that require multi–site and multi–currency capabilities. It will be especially useful in bringing forward engineering–to–order, make–to–order, and high–volume make–to–stock production procedures in the automotive, electronics, capital equipment, and discrete outcomes commercial companies.

E–resources is a cost–benefit analysis and web–based ERP result that combines for e–resources adaptable and reasonable estimating structures suitability for SMEs for an innovative organization will the total purpose and profits of a large organization for a small investment and risk.

The e–resource ERP to SMEs outcome is based on e–resource Infotech Pvt. Ltd.'s rich innovation organization legacy and deep industry adroitness. What's more, it's required. A historical background of industrial achievement, with far–reaching benefits that would be used by the world's leading manufacturing companies.

Licensing, implementation, upgrades, and support will all be done quickly and easily, without the need for excessive equipment or a slew of expenses. This also helps the SMEs section avoid further financial burdens. Once executed, the end result is the highest quality with the least amount of risk. Makers can benefit from E–resource ERP's powerful ERP result. Also, A secondary approval plan for SMEs who would rather invest in expanding their business's exceptional benefits.

The modules are as follows :

- **Management of Products :**
  - ✓ Costing
  - ✓ Engineering
  - ✓ Change in Engineering
  - ✓ Estimating
- **Manufacturing :**
  - ✓ Orders for work
  - ✓ Inventory
  - ✓ Create a Master Production Schedule (MPS)
  - ✓ Planning for material requirements
  - ✓ Inventory of physical items
  - ✓ Manufacturing that is repetitive
- **Financial/Accounting :**
  - ✓ Accounts Payable (AP)
  - ✓ Accounts Receivable (AR)
  - ✓ Billing
  - ✓ Financial Integration Management (FIM)
  - ✓ General Ledger

- **Customer Management :**
  - ✓ Bid Process Management (BPM)
  - ✓ Agreement Management
  - ✓ Sales Orders
  - ✓ Sales Quotes
- **Supplier Management :**
  - ✓ Supplier Quotes
  - ✓ Purchase Orders
- **Project Management :**
  - ✓ Project Accounting
  - ✓ Project Definition
  - ✓ Project Resource planning (PRP)

❑ **Check Your Progress – 1 :**

1. SME stands for _____.
   a. Small and Medium Enterprise
   b. System and Maintenance Enterprise
   c. Structure and Manage Enterprise
   d. System and Member Enterprise
2. MPS stands for _____.
   a. Master Production System b. Master Production Schedule
   c. Master Production Structure d. Master Production Service
3. FIM stands for _____.
   a. Financial Instruction Management
   b. Financial Information Management
   c. Financial Integration Management
   d. Financial Investigation Management
4. BPM stands for _____.
   a. Basic Process Management b. Big Process Management
   c. Business Process Management d. Bid Process Management
5. MPS stands for _____.
   a. Project Resource planning b. Program Resource planning
   c. Problem Resource planning d. Process Resource planning

11.3 Why Indian ERP System is Best Suited for Indian Industries ?

Enterprise Resource Planning (ERP) Solution software addresses all of an organization's needs within the social context of the country in which it operates. This could imply that local accounting rules and generally applicable tax reduction legislation must be strictly followed while using those various business approaches.

Large percentages of foreign ERP product frameworks must incorporate India–specific characteristics in recent usage. Likewise, for each of its client's

decisions, the location as an Indian ERP outcome must now be programmed to serve the national industry's interests.

Another feature of an ERP created in India, such as the e–resource ERP programming framework, is its setup. It must be planned to meet the needs of Indian clients in thoroughly comprehending their working environment and requirements.

Commercial firms also consider ease of approachability with their outcome suppliers while selecting the right ERP for their businesses. It was also mentioned that e–resource treats all of our customers equally, as opposed to overseas sellers who have a strategy for serving the most important consumers.

The expense section is also a standout among the reasons why Indian ERP results are best suited for Indian commercial organizations. Several times over the long haul, the massive cosset incorporated fastened beside it scares commercial firms away from implementing ERP solutions, robbing the framework of revenues. To overcome this precarious situation, e–resource ERP must develop a competitive ERP that is tailored to the needs of Indian industries, particularly small and medium–sized businesses.

❑ **Check Your Progress – 2 :**

1. Why Indian ERP system is best suited for Indian industries ?

_____

_____

_____

_____

_____

11.4 Why ERP is Considered to be the Backbone of E–Business ?

Due to globalization and deregulation of the Indian economy, as well as fundamental changes in business models due to the introduction of Information Technology–based business practices, Indian business companies are undergoing a substantial shift.

The majority of businesses in developing nations, such as India, are using ERP systems in conjunction with organizational transformation and re–engineering programs. ERP systems promise a variety of advantages, including better efficiency, quality, production, and profitability.

However, its adoption brings with it some unforeseen organizational obstacles and adjustments, both structural and cultural. ERP not only aids in the establishment of world–class best business practices and increases organizational transparency, but it also necessitates empowerment and flexibility in the decision–making process.

The most compelling argument is that, in order to succeed in the e–commerce era, businesses must modernize their internal business processes by implementing an ERP system. As a result, ERP is regarded as the backbone of e–business.

E–commerce is the most advanced method of selling things at a low price. Do you, however, have a successful e–commerce site that is linked to

an ERP system ? Business owners frequently use their e–commerce platform and ERP system distinctly, resulting in information silos and missing out on the benefits of an integrated solution. Imagine collecting e–commerce data directly from your ERP system without having to deal with anyone; it has a lot of advantages.

Let's take a look at seven important advantages of integrating your ERP system with your eCommerce storefront :

1. **Enhances Self–Service Capabilities :** Customers can monitor available inventory, order status, and follow shipments with tracking numbers thanks to the availability of real–time data from the ERP system on the storefront. This lowers your operating costs and improves the customer experience with your storefront.
2. **Having up–to–date sales information can help you save money on inventory :** All web sales data will appear in your ERP system right away. These web transactions will also update the ERP item inventory. As a result of having the most up–to–date web sales information and inventory, ERP users can appropriately plan purchases, lowering inventory costs.
3. **Using Web Transactions, create financial reports in ERP :** Financial reports on sales can be generated by e–commerce software. However, integrating with ERP allows the merchant to generate financial reports such as a balance sheet, profit and loss report, trial balance, cash flow, and so on, ensuring that financial data is transparent throughout the organization.
4. **Increased internal productivity :** The integrated system has reduced human resource engagement in various activities since it simplifies many business processes. Web sales orders will be connected into the ERP system in real time, allowing back–office ERP users to track the order and begin processing immediately. As a result of this integration, the order fulfilment cycle is shortened.
5. **Reduced Human Involvement, Data Redundancy and Error :** Web customer information, web orders, payment, and shipping information will all be connected into the ERP system, and item and inventory information will be posted from the ERP to the e–commerce portal, so this integration will remove the need to reenter data in any way. As a result of the integration solution, human participation, data redundancy, and error will be reduced across two systems.
6. **Increase Customer Satisfaction :** Customer satisfaction rises dramatically as a result of the ease of accessing the most up–to–date product data, inventory availability details, order tracking details, and other information on the web from the ERP system.
7. **Gaining a Better grip on Your Business :** Integration of e–commerce and ERP business processes gives business owners more control over their operations, giving them a competitive advantage.

❑ **Check Your Progress – 3 :**

1. Why ERP is considered to be the backbone of e–business ?

11.5 Web–based ERP more ideal than server–based solution :

The internet and computers are in a golden age, with trends like mobility, social networking platforms, diverse apps specialized in specific jobs, and cloud computing changing the way humans and machines interact. Not only that, but the way information is stored, consumed, and shared has also changed dramatically. It becomes critical to take use of all of the advantages that the internet domain has to offer. ERP systems are no exception.

An ERP system streamlines numerous corporate activities, but it takes a lot of time, effort, and money to implement. The process of purchasing a license, installing the application, finding the necessary individuals to teach your staff, and paying for upkeep isn't simple. A web–based ERP program is preferable to a server–based solution for overcoming these issues. Self–service portals in a web–based ERP make communication between vendors and the firm seamless and convenient.

Instead of purchasing and maintaining an ERP system, a corporation can rent it out on a monthly basis with a web–based ERP system. Web based ERP is more perfect because it cuts down on resources because the server is located with the vendor and the end user accesses the application through the internet. Aside from this benefit, there are five other reasons why web–based ERP solutions are superior to server–based ERP solutions.

1. **Enhanced Security :** Security is something that must not be exposed under any circumstances. When opposed to a server–based ERP system, a web–based ERP system provides a higher level of security. For security and protection, the data is encrypted. Passwords can be introduced at the appropriate stages, further safeguarding the data. A server–based ERP system would necessitate a complex and expensive security system.
2. **Resources Management :** The implementation and operation of a server–based solution system takes a long time. Managing a large number of resources involved in the system is a difficult task. A web–based ERP system, on the other hand, makes it simple to manage resources. Additionally, it lowers overall long–term costs.
3. **Accessibility :** The capacity to retrieve data as needed is one of the most crucial characteristics of any business program. The benefit of a web–based ERP solution is the same. A major advantage of a web–based ERP system over a server–based solution is the simplicity with which data can be accessed. All of the data can be saved and updated in a single location, reducing the possibility of data duplication.
4. **Compatible :** Every few days, new software solutions are developed, and any organizational system must be compatible with them. If there

is no compatibility, the aim is defeated. Because web–based ERP solutions are built to adapt and update to any 'new' software, this issue will never emerge. This guaranteed that all of your data–transfer incompatibilities were fully handled. If a server–based solution is incompatible with any program, it may need to be completely rewritten, costing additional expenditures.

5. **Upgrading :** To deal with design modifications that are made to increase its functionality, any software/solutions must be upgraded. Upgrading a server–based ERP system is difficult and time–consuming, and there's a good possibility you'll run into problems. A web–based ERP, on the other hand, will not present such an issue because it is much easier to upgrade. It's also unlikely that you'll become stuck owing to unavoidable faults.

❑ **Check Your Progress – 4 :**

1. Why web–based ERP more ideal than server–based solution ?

11.6 Current Trends in ERP :

Those associations that include a large number of people the benefits of business downtime, as well as on–unit and help staff, are important reasons for ventures to transition away from universal vendors and traditional ERP suppliers. Today's main drivers for ERP would be agility, receptivity to changing benefits of business scenarios, and, more importantly, quick effects. Legacy ERPs are unable to meet these requirements.

Those businesses who use cloud ERP may benefit from the business stage, despite the fact that more widespread ERP is on the decline. The cloud–based ERP will undoubtedly improve in quality, resulting in greater profitability for clients. When it comes to ERPs, organizations would look for outcomes rather than guesses. Furthermore, the vast majority of commercial clients are interested in cloud ERP.

1. **ERP on the Cloud :** The use of cloud–based solutions is becoming more common. Companies are increasingly selecting cloud–based systems over traditional options for CRM, finance management, HRM, and asset management. Cloud computing has become a critical commercial driver for ERP systems. Companies are weighing their alternatives for implementing systems in order to reduce infrastructure expenses associated with ERP implementation.

2. **Increasing Business :** There is a growing demand for business–driven automation. The work flow is automated, and the software schedules crucial events. When a client raises an escalation, for example, it is processed in the back office. The person in charge of the notification and his manager receives automatic notifications. ERP controls events such as customer escalations, procurement, and other business sectors.

To obtain improved accuracy and self–driven business tasks, manual efforts are minimized.

3. **Enhancements to Business Processes :** Analysis of core business processes, including interconnections, performance, cost, and relevance to the organization's objectives. The goal is to reduce bottlenecks and establish a system that can produce the intended goals efficiently.
4. **A User–Centered Approach :** Iterative development and installation of the system are part of a user–driven ERP methodology. The user is able to observe the process, use systems effectively, and make changes for the best results. The user feedback is an important aspect of the implementation phase.
5. **Customer Service :** Companies are using ERP to better serve their customers in the face of rising competition and global business strategies. The ERP's main requirement is to improve customer service and make it visible to top executives with real–time data. ERP aids organizations in improving customer service by simplifying procedures, improving operations, and reducing time to market.
6. **Analytical Thinking :** Today's business settings are more complex and demanding than they've ever been. Companies are under pressure to maintain steady growth, manage escalating customer expectations, and adapt to changing market conditions. Systems that can analyze data, analyze client behavior patterns, and predict new business prospects are in high demand. Business outcomes are linked to data analytics. These technologies can unearth latent business prospects and serve as growth platforms for companies.
7. **Mobility Assistance :** Today's enterprise software must be compatible with mobile devices. The sales crew, top executives, and a variety of other personnel require a mobile–friendly solution. The ability to move around allows the sales team to be more aggressive in their pursuit of new business. Executives are also given access to information when they need it to make important business choices. Mobility assistance in an ERP system is becoming a must–have feature.
8. **Customized Deployment & Implementation :** Organizations are shifting away from the old strategy of trying to incorporate outdated solutions into their existing processes. With custom–made solutions for businesses, the complexity of operations and interconnections can be reduced. This guarantees that key business areas are efficiently converted to ERP and implemented according to the organization's priorities. The module priority and deliverables plan are adaptable and reactive to the needs of the businesses.
9. **State–of–the–art technologies for streamlining corporate processes :** The ERP should be equipped with sophisticated technical tools to create compelling results, whether it's managing a virtual team, reaching prospects using advanced VOIP technologies, or simplifying organizational asset management with RF tags and GPS enabled devices. An organization's bottlenecks are caused by a generic system that isn't up to date with the latest technologies. The ERP system must keep up with technological changes and make them available to users in a seamless manner.

10. **Model of Express Delivery :** Customers no longer have to wait years for ERP implementation. They now require speedy and customized ERP system delivery. Clients may now get up and operating in a matter of weeks thanks to cloud–based ERP systems. Long ERP implementations cannot cause business functions to be disrupted. The most important factors are the implementation's timing, adaptability, and ability to satisfy corporate objectives.

ERP installation is more of a business enabler than a technological advancement. The transformation of key business areas in an optimized, advanced method for better tracking, visibility, and results is vital to a successful ERP installation. An efficient ERP will provide value, boost performance, increase transparency, streamline procedures, and aid in the transformation of your company.

❑ **Check Your Progress – 5 :**

1. Current trends in ERP includes _____.

   a. ERP on the Cloud
   b. Enhancement to Business Processes
   c. A User–Centered Approach
   d. All of Above

11.7 Challenges to watch for in the future of Enterprise Resource Planning :

Implementing an ERP system is a crucial part of the puzzle for businesses looking to compete in the business supply chain. When it comes to managing ERP frameworks under the industry, the test will show that this is not the case. An issue that concerns businesses is whether or not they will implement all of these frameworks. However, the item that benefits they desire from ERP, and the thing that features they have from these frameworks.

Despite the fact that there is a need for assistance, there are specific requirements that must be met by each and every one of the food organizations – for example, ensuring traceability. Choosing unquestionably terminated parts requires assistance that is never offered – features vary depending on whether the company is a small–and–medium enterprise (SME) or a large multinational.

Larger organizations, for the most part, have more unpredictable ERP framework requirements for a variety of reasons, including the likelihood that they will cross more geographic boundaries, resulting in stock management, legal compliance, and obtaining and correspondence between various organizations, levels, functions, and areas requiring additional testing.

Because larger firms tend to offer more confusing requirements, the ERP frameworks that can best supply these are typically thick, as bewildering as they are... They'll need to be highly versatile in terms of customizations, and they'll need to be able to offer a variety of finishing approaches. The disadvantage of these complex ERP frameworks, of course, is that they are extremely difficult to implement and manage, as well as necessitate elevated consideration planning.

This is why speculations must be thoroughly examined to ensure that the best possible return on investment is realized before the investment is made. Regardless of whatever ERP framework a food company ultimately chooses, whether it is in–house; in the cloud; with more customized; or alternatively nonexclusive, any organization acknowledging upgrading or actualizing an ERP framework must follow a relatively similar approach, he demonstrates.

With detach, organizations must "take a difficult, objective look at the current ERP situations in such a way that all current pain–points and critical operational change opportunities are identified and grasped." Organizations must also conduct research. In addition, keep an eye out for sentiment in the area. Different frameworks will figure out how to address their individual requirements with more challenges, and finally, choose an ERP framework based on functionality, fit, cost, and complexity. At the same time, the great majority of ERP frameworks on the market today boast heartiness. Also, according to the 2012 ERP report card by US–based display consulting solutions, it will not be until programming utilization really gets going those enterprises will start to run into problems.

Distinct methods will represent all of the arrangements in the thick, as the center for ERP roll–out. Furthermore, it is vital for businesses to pay attention to the benefits. What's more, in the recent past, every system chooses how to try over sending.

According to Panorama, the first model to roll–out is the "big bang" strategy, in which all modules attempt to go live at the same time in all places, along with representatives who are forced to use the new framework and have no choice but to stop offering on the old one.

Different firms may use a phased strategy, in which modules are executed crosswise across multiple areas or offices at different periods, which can help avoid business disruptions while also ensuring accurate safety on change within offices.

❑ **Check Your Progress – 6 :**

1. Explain Challenges to watch for in the future of ERP.

11.8 Predicting the future of ERP :

1. ERPs that are the best–of–breed in 2021–2023 :

ERP will become a specialized or best–of–breed offering in the future. As industry–driven suppliers grow more ubiquitous on the market, clients expect more from vendors. As a result, customers understand that universal software does not always fit their demands. Software is being developed to help suppliers' procedures as they grow more specific. A generic software product would not be sufficient to suit the specialized and stringent criteria of consumers.

2. Blockchain :

Blockchain technology is being adopted by a growing variety of business applications. It will be included in addition to the ERP. Blockchain technology is an excellent platform for ensuring the security of transactions. Although it is still in its early phases.

However, blockchain will be included in a future edition of ERP. Businesses can utilize blockchain to make certain organizational activities more efficient. Collaboration between supply chain management and customer acquisition

teams is facilitated by the usage of this technology. Blockchain consulting firms provide a wide range of services, including shipping and tracking.

3. Smaller businesses can benefit from talent infusion :

Several ERP experts are looking into the possibility of developing specialty apps in areas where they have expertise. They collaborate with smaller software companies as well as larger software organizations. These businesses have grown in popularity as a result of their capacity to cater to specific customer needs. Businesses can tailor software to satisfy the needs of specific clients as well as industry–specific products. As clients want for customized applications, the ability to cater to their demands is critical. Because of this, best–of–breed ERPs will continue to lead the sector in 2021.

4. The Digital World is Transforming :

ERP will see more firms analyze legacy, bespoke applications in 2021, and take the required actions to correct them. The freedom of working from home leads to new digital assets being invested in by legacy IT departments, and it is projected that more firms will make purchasing decisions next year than ever before.

5. The Digital World is Changing :

More businesses will analyze legacy, customized apps in 2021, and take the required actions to correct them. The freedom of working from home leads to innovative digital resources being invested in by legacy IT departments, and it is expected that more firms will make purchasing decisions next year than ever before.

11.9 Let Us Sum Up :

We learned in this lesson that web e–resource ERP is versatile, inexpensive, and completely expandable, making it suitable for new and smaller businesses looking to implement multi–site and multi–currency capabilities. Although there are many existing and new market trends that affect potential ERP customers and implementers, it appears that predicting the future of ERP with 100% accuracy is difficult.

It's worth noting that during ERP deployment, the participation of too many people in support and business downtime causes businesses to abandon traditional vendors and legacy ERP providers. It is expected that a web–based e–resource ERP solution will aid in the acceleration of any organization by increasing productivity and reliability while providing excellent customer service.

11.10 Answers for Check Your Progress :

- **Check Your Progress 1 :**

  1 : a **2 :** b **3 :** c **4 :** d **5 :** a

- **Check Your Progress 2 :**

  1 : Refer 11.3

- **Check Your Progress 3 :**

  1 : Refer 11.4

- **Check Your Progress 4 :**

  1 : Refer 11.5

- **Check Your Progress 5 :**

  1 : d

- **Check Your Progress 6 :**

  1 : Refer 11.7

11.11 Glossary :

1. **ERP :** Enterprise Resource Planning (ERP) Solution software addresses all of an organization's needs within the social context of the country in which it operates.
2. **E–Commerce :** E–commerce is the most advanced method of selling things at a low price.
3. **Blockchain :** Blockchain technology is being adopted by a growing variety of business applications. It will be included in addition to the ERP.

11.12 Assignment :

1. Explain an affordable ERP for SMEs.

11.13 Activities :

1. Generalize the predicting the future of ERP.

11.14 Case Study :

1. Study about why ERP is considered to be the backbone of e–business ?
2. Study about Why web–based ERP more ideal than server–based solution ?

11.15 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

Unit 12 SUCCESS & FAILURE FACTORS OF AN ERP IMPLEMENTATION, PRESENT & FUTURE

UNIT STRUCTURE

12.0 Learning Objectives :

After learning this unit, you will be able to understand :

- Detail of Success Factors
- Detail of Failure Factors
- Idea about present and future ERP
- Detail of ERP and e–business
- Idea about Internet and WWW – ERP–II

12.1 Introduction :

In this unit we will learn about the success & failure factors of an ERP implementation, Present & Future, ERP & E-Business, and ERP, Internet & WWW – ERP II

12.2 Success & Failure Factors of an ERP Implementation :

A crucial step is using an Enterprise Resource Planning (ERP) system. Large companies currently frequently employ ERP. Integrating new software into a company's core operational processes involves several intricate components. However, not all businesses benefit financially from implementing the ERP system.

Numerous factors determine whether an ERP implementation is successful or not. According to recent polls, over half of all ERP initiatives end in failure, with costs significantly outpacing budgets, timelines not being reached, and results falling short of expectations. To successfully adopt ERP, you must first and foremost implement change management practices.

12.2.1 Success Factors :

1. **Complete attention to business needs :** The successful operation of a business should be given top importance. Once your needs have been clearly identified, choosing an ERP program will be lot easier. It will result in the efficient operation of your firm.
2. **Software selection :** The most frequent mistake is choosing the incorrect program. At least some individuals carry it out while using an ERP system. Priority should be given to selecting the ideal ERP once the needs have been fully understood. You will be better able to predict your requirements, urgencies, merchants, sales, and other factors.
3. **The project's scope :** A project's progress, intricate details, required tasks, etc., will all be clearly communicated by stating the project's scope in full. since not all of your requirements may be met by the ERP system. You can only precisely use the tools and components related to it by designing the strategies and understanding the modules.
4. **Return on Investment (ROI) :** These concepts are neither novel nor very original, but they need to be implemented carefully if you want to turn a profit and use the ERP system. Performance, goals, models, deadlines, etc., for a business, should be thoroughly measured because they have a direct impact on the business's profitability.
5. **Budget :** Every business must produce a compelling budget. The entire cost, such as software, hardware, and personnel resources for the execution, are included in the budget. To get a return on an ERP project, all of these must be completed.

12.2.2 Failure Factors :

1. **A lack of management involvement :** Lack of management support is one of the main reasons why ERP implementations fail. Since ERP requires the active involvement of all employees, delays or failures are always possible if management doesn't make it obvious that ERP adoption is a top priority.
2. **Poor Planning :** Companies either construct a high–level plan based on broad assumptions or misjudge the scope of the required business change. Numerous unforeseen issues may arise as a result of poor planning, leading to the failure of ERP deployment. A particular, comprehensive, and realistic plan is required for a successful ERP installation.

3. **Uncertain business goal :** Business should be very clear about what success means to them. Having a clear destination involve outlining crucial business procedures, cash gains, and completion dates in advance and ensuring that parties are in agreement on how to handle them. Without a defined terminus, the target becomes a moving object that is more difficult to hit.

4. **Ignoring to budget for necessary resources :** The most frequent error is with resources estimated. It's crucial to have a clear awareness of the internal and external resources required to finish the project. To prevent ERP deployment failure, the necessary resources must be accurately estimated.

5. **Unfounded Expectation :** The business may become more efficient if ERP is implemented properly, but reasonable expectations should be set; ERP shouldn't be expected to work wonders. Vendors should inform management of the benefits that might be anticipated following a successful ERP implementation.

6. **Thoughtful Customization :** Because most businesses lack established procedures, the ERP system needs to be heavily customized. Over–customization can be time– and labor–intensive, and it makes installing the following release expensive and challenging. Therefore, the organization's business processes should be in place before starting the ERP selection process to prevent ERP deployment failure.

7. **ERP's lack of flexibility :** Businesses constantly adjust their operational procedures in response to the dynamic marketplace. Many ERP systems aren't adaptable enough to handle it, which could lead to failure.

8. **Inadequate testing :** The goal of testing in an ERP project is to determine whether the system satisfies your business goals and generates the output you require, not to test the software's functionality. Reducing testing may not prevent flaws from being found, but it raises the possibility that crucial features will be missing from the ERP system or that it won't be properly received by users.

9. **A lack of training :** It is highly challenging for users to receive the training they require to grasp the system when training is left until a brief phase at the end of the project. All users must understand the fundamentals of ERP, an overview of the system's operation, and how an employee's action might cause a variety of events to occur across the business because ERP encompasses several departments.

10. **Unsuitable Post–Implementation services :** The journey doesn't finish when something goes live. ERP must be updated to reflect the constant changes in business. ERP adoption calls for regular assessments and adjustments.

11. **Ineffective transition phase management :** ERP's advantages won't be apparent right first. After ERP adoption, there may be a significant shift in the company, particularly in terms of how employees perform their jobs. Performance may temporarily suffer as a result, but if the implementation is handled correctly and the transition period is managed well, the company will eventually become more effective than before.

❑ **Check Your Progress – 1 :**

1. ROI stands for _____.
   a. Return on Investment b. Return on Information
   c. Return in Instruction d. Return on Implementations
2. In ERP implementation success factor includes _____.
   a. Software Selection b. The Project's Scope
   c. Budget d. All of Above
3. In ERP implementation _____ is failure factor.
   a. Budget b. Uncertain Business Goal
   c. Software Selection d. None of Above

12.3 Present and Future :

In order to fulfil a significant commercial promise–complete enterprise integration–companies have invested billions of dollars in enterprise resource planning (ERP) systems. ERP has been a dream come true for businesses struggling with mismatched information systems and uneven operating procedures. ERP gives businesses the chance to standardize and automate business processes throughout the whole organization, boosting output and cutting cycle time.

Despite the fact that ERP systems have been beneficial, it is becoming increasingly obvious that the ERP model, which unifies organizational operations into a single end–to–end application, may no longer be adequate for today's quick–moving, expanded companies. The corporate climate has undergone a significant transformation as a result of the Internet's explosive growth. Global commerce now permeates the entire planet. The global market for business–to–business (B2B) transactions is expanding and will do so at an exponential rate.

Enterprise systems now have a different meaning because to e–business. E–business pushes ERP from the internal core of the organizations to the network edge, beyond the essential business functions it has historically concentrated on. Companies are learning that expanding ERP to achieve B2B and Business–to–Consumer (B2C) solutions is the most difficult aspect of e–business initiatives rather than creating a Web shop. By combining ERP and e–business, a new extended enterprise system is created, which is more competitive, focused, and agile than traditionally structured business and close B2B relationships. These technologies include business intelligence, data warehousing, data mining, customer relationship management (CRM), supply chain management (SCM), electronic data interchange (EDI), electronic funds transfer (EFT), and on–line analytical processing (OLAP).

12.3.1 ERP and eBusiness :

ERP is a methodical strategy for streamlining an organization's internal value chain. The software connects the various parts of the enterprise through logical data sharing and transmission when completely integrated across the entire organization. ERP systems gather the data for analysis and transform it into useful information that businesses can use to support business decision–making when customers and suppliers ask for information that has been fully integrated throughout the value chain or when executives need integrated strategies and tactics in fields like manufacturing, inventory, procurement, and

accounting. If properly implemented, ERP systems improve and reorganize business processes to get rid of non–value–added tasks and let businesses concentrate on their core, truly value–added tasks.

The term "e–business" refers to transactions and conversations carried out electronically over the Internet. E–business is the use of networks with electronic capabilities for communication, which enables businesses to send and receive information. The value chain connections between businesses (B2B) and customers can be strengthened, which can greatly boost business performance (B2C). E–business accomplishes efficacy through enhancing customer service, cutting expenses, and streamlining business procedures in addition to increasing efficiency in selling, marketing, and purchasing.

A strategic, customer–focused company environment is also created through e–business for shared business improvements, reciprocal advantages, and shared rewards. Businesses utilize the Internet to deploy capabilities such as supply chain management (SCM) and customer relationship management (CRM), which allow them to connect their operations with customers and suppliers smoothly.

Salespeople can track sales and promotions online using Oracle's ERP system and e–business platform, and they can also receive support and tips to improve their performance. Sales representatives and distributors can monitor and modify sales orders and have access to commission information. The company avoids out–of–stock and incomplete shipments by combining its financial, compensation, sales, and depletion data into a single report. By integrating ERP systems with e–business, the previously anticipated requirement for 50% more labor force to manage customer service concerns was eliminated.

Traditional ERP systems handle the internal value chain by definition and according to their particular functions, whereas e–businesses construct the value chain across the market and industries. More and more businesses are integrating ERP systems with e–business to build the architecture of their systems. They integrate with external organizations through Web–based interfaces corporate portals as well as add–on modules like CRM, SCM, etc.

- **eBusiness – Supply Chain Integration :**

Here, we'll go through the roles that various technologies play in this transition as well as the integration and operation of the supply chain. When e–business and ERP are combined, the expanded system as a whole offers a view of business operations that cut across many businesses and enterprises.

In a perfect world, businesses would be able to link various platforms, program, and data formats throughout the value chain, including both suppliers and customers. Companies should also maintain the ability to modify and add features to applications as business requirements change. Companies must be able to modify their ERP systems to the nascent e–business environment.

- **The eBusiness Process Model :**

After a customer order is received, the information about the order moves from department to department through order entry, manufacturing, warehousing, distribution, and finance until the product is delivered to the customer and the money is collected, according to a standard business process. The main components of the value chain have historically been managed by various, dissimilar information systems that were unable to connect with one another. The businesses not only did not perceive their own business processes holistically,

but they also had a hazy grasp of how their own systems interacted with those of their suppliers, rivals, business partners, distributors, and clients. As a result, these transactions are frequently completed using little or no shared business processes.

Systems planning and design have undergone a transformation in recent years. Management creates an ERP system that unifies the fundamental business activities of a complete organization into a single software and hardware system, taking a combined business extensive view of its IT investments and choices. Clients, sellers, and business partners are intentionally involved in the development, operation, and management of business processes and systems.

An ERP system is comparable to a company's internal technological core. It can be viewed as the company's core repository once fully established as an integrated suite. A typical ERP system consists of five main processes : finance, human resources, logistics, manufacturing, sales, and marketing. ERP systems place a strong emphasis on the efficacy and efficiency of internal processes. It provides a mechanism to improve operational efficiencies, align and streamline company processes, and create order from disorder.

E–businesses operate similarly to their conventional counterparts by interacting with their clients and suppliers. The manufacture of a product or the provision of a service, along with providing the product, service to the customers, constitute the business process, which begins with the suppliers.

It entails gathering information on customers and suppliers as well as soliciting input from customers and suppliers. Additionally, it entails receiving payments from clients, paying suppliers, and gathering information regarding these financial transactions. It entails gathering data on clients, vendors, rivals, the marketplace, technological changes, and other factors and using that data to make more informed decisions.

These procedures are all carried out in conventional commercial organizations as well. They do not, however, occur in an e–business environment. For instance, in an e–business, clients use electronic methods to pay. Purchase orders are transmitted online. Over an EDI network, business–to–business communication takes place. Enterprise solutions are used to automate and streamline the processes. Information is integrated to a degree that is unheard of in conventional corporate processes.

So, when a consumer places an order with an organization, the order will automatically set off many actions further down the supply chain – the customer will receive an email confirming receipt of the purchase, and the payment information will be transmitted to the bank for authentication and verification. Following the verification of the payment, the inventory is examined to determine whether the items that will be supplied are in stock. In order to provide the required documents and update the organization's central database, they are referred to the customer, if they are available, and the sales and finance departments update their records at the same time. The suppliers are notified via EDI of the required raw materials if the item is out of stock.

The shop level administration system computes the needs in terms of the machines and personnel needed to complete the task after the production planning has been completed. Therefore, the facility and its workforce are prepared for production when the raw ingredients arrive from the vendors. The products are supplied to the consumer after the material is manufactured. The

system's beauty is that a single consumer order will immediately start the majority of these procedures, and because information can span organizational and departmental borders, everyone identifies what to suppose and how to proceed.

The system is accessible to customers via the Internet, and after an item has been ordered, they may trace the package until it is sent. What makes the e–business model such a big success is the automation and combination of the business activities up and down the supply chain. As the firm begins to conduct business in an e–business manner, the increases in productivity, operational efficiency, and customer satisfaction as well as the reductions in cost, cycle times, and overheads can be dramatic.

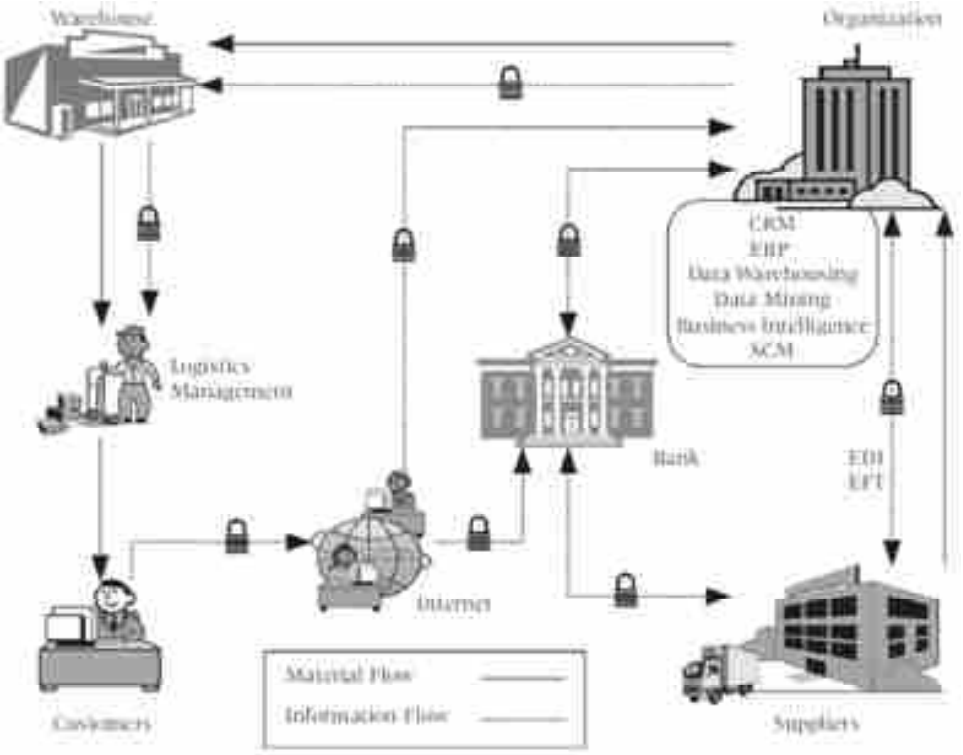
Efficiency and usefulness of external, cross–enterprise procedures are the main focuses of e–business. Although e–business creates new strategic options, ERP technology still supports company strategy. This requires ERP to go beyond the single ERP system architecture and into the long ERP system model.

E–business is made feasible by Web technology, which serves as a link between businesses and their trading partners. E–business also increases the openness and transparency of the ERP system. We might consider the ERP system along the value chain of businesses within the same industry or across industries, as opposed to thinking about it within a single organization. With the aid of the Internet and web–based technology, businesses are now looking outward to conduct business with clients, suppliers, and business associates. Since most of the key business procedures are conducted online, ERP functionality must be moved there. A number of separate businesses would now handle the earlier example of the flow of a client order and the steps in the procedure across the boundaries of the organizations while acting as though they are one.

A company needs to be able to access and share data among departments, supervisors, and employees if it decentralizes autonomous business units. A business only requires to be entered once in ERP systems. The transaction can be processed by the system using a variety of software modules, producing extremely detailed and integrated information. A Web–enabled ERP system compels businesses to consider processes that cut across various enterprises, even while an ERP system can be seen as a storehouse for data, information, and knowledge that extends beyond functional boundaries.

- **ERP / eBusiness Integration :**

Because it offers a strong basis and information support for e–business, most firms view ERP as their most significant and strategic platform. When ERP and e–business are integrated correctly, they complement one another quite well. The best way to share company data with partners and establish significant B2B synergies is through e–business. Accurate, consistent, and timely relevant data will be collected and produced by a fully joined ERP system, which will also support wise business decisions. ERP/e–business integration has a significant impact, affecting everything from lower inventory and staffing levels to better order and cash management. Additionally, it lowers IT expenses, improves customer responsiveness, and makes resources available for value–added tasks.



Supply Chain Management

Every corporation must simplify its processes, maximize production, decrease expenses, eliminate waste, improve customer service, and other factors in order to thrive in the current business environment. The most profitable businesses are those who are always developing new and better ways to serve their clients while also increasing their profit margins. To do this, businesses must use contemporary technology to strongly integrate the supply chain, ensuring that data, materials, and money move smoothly and quickly up and down the chain at all times. Businesses must also provide clients with individualized service.

Customer loyalty is continually changing in this day of fierce competition since customers can now choose the businesses that provide the greatest goods and services online. In order to discover client preferences, buying patterns, and other information, a company needs gather information about its customers and evaluate it. It must have a strong CRM system to accomplish this.

Maintaining client satisfaction and providing individualized service will be ineffective if the business's operational efficiency is subpar. Businesses should implement an ERP system to increase efficiency and have better information integration. Productivity can reach previously unheard–of heights with the help of an effective and properly designed ERP system. Every firm creates enormous volumes of data, as we have already seen, including financial statements, information about purchases and sales, facts about the environment, information about the competition, and more.

If this information is used, the organization stands to gain significantly. Data warehousing, data mining, OLAP, and other knowledge discovery and business intelligence tools and processes aid the firm in gathering, assembling, and analyzing this data in order to provide business intelligence that can be used by directors to make more informed decisions. Well business intelligence will give any organization an advantage over rivals in the information era.

It's important to have a solid awareness of locations and distances in order to deliver goods to customers and obtain raw materials and replacement parts from suppliers. If the business is utilizing a solid Geographic Information System (GIS), tasks like determining the optimal route for a delivery vehicle or locating the closest supplier can be automated. To increase the effectiveness of purchase and delivery, the GIS could be connected into the supply chain or more particularly, with the logistics management system.

Traditional firms invest a lot of time, energy, and paper into distributing information about their operations and in processing payments. E–businesses operate in the same way through online networks. The time, effort, and error reduction savings are fairly significant. EDI communications assist businesses in automating the supply and procurement processes. Trading partners can accept and send payments using EFT. The businesses can accept payments online using credit cards, virtual currency, etc. The use of electronic media for financial transactions and information transfer significantly reduces the amount of time needed to complete a transaction while also automating the related business procedures. Above figure depicts a high–level view of supply chain integration for e–businesses.

Businesses that have adopted ERP systems effectively will become experts at guiding extra sellers to integrate ERP and e–business to build a Web–based extended ERP ecosystem. The whole value chain will become extremely powerful with a well–run ERP system that is Web enabled.

12.3.2 ERP, Internet and WWW – ERP II :

Since the early 1990s, Enterprise Resource Planning (ERP) systems have swept through business, assisting organizations in reducing costs and improving operations. Department heads may now examine and manage their data more simply thanks to ERP. Additionally, it has streamlined a variety of production and distribution procedures, including product creation, order processing, and product categorization.

However, there are a few crucial areas where traditional ERP falls short in meeting modern corporate needs. First, its range is constrained. ERP aids in departmental automation, but it has not been extended to the front office to assist organizations in managing staff, workloads, and supply chain concerns. Second, it has not consistently provided control over all business processes. Globalization and competitive pressures have made it very evident that the business sector still requires more complete, effective enterprise solutions.

Only 15 to 20 % of a business has typically been affected by traditional ERP systems. The initial expectation that such a solution would affect all organizational processes has proven to be overly optimistic. Organizations have had to install many systems to store different types of data, and questions regarding how businesses may combine and use their information warehouses to provide better products and services while preserving profit margins still linger. Integration has emerged as the key concern. Currently, most organization's knowledge is kept in silos by a small number of people and is unable to be distributed throughout the organization.

- **ERP, Internet and WWW :**

We have observed the necessity and significance of ERP and other business technology integration to bring productivity increases and maintain competitiveness. In order to benefit from this potent tool, ERP must be tightly connected through the Internet and World Wide Web. Since the majority of business transactions now take place online and the majority of information is retrieved and shared through an organization's web site, these two media are more crucial for businesses. Internet security and encryption technology improvements have made it safer to conduct business online. Therefore, the next obvious step for enterprises is to expand the ERP systems to the Internet and WWW. Additionally, compared to pricey private networks and devoted broadcast lines, the Internet is less expensive for information dissemination and data transfer. The majority of ERP companies are integrating their ERP services with the Internet or Web, taking cues from the rising acceptance of the Internet and WWW.

Internal manufacturing, financial, distribution, and human resource processes are all integrated and optimized through ERP systems. The integration of business processes that span an organization and its trading partners is the focus of ERP II, in contrast. ERP II is the cornerstone of collaborative commerce and Internet–enabled e–business.

The necessity to find a means to give clients and collaborators accessibility to planning, supply, stock, manufacturing, invoicing, and scheduling information was the primary driver behind the creation of ERP II. Systems like Customer Relationship Management (CRM) and Supply Chain Management (SCM) have been utilizing the Internet to support these operations over the past few years. They are all included in ERP II as a single unit.

A company must be approachable and open to its partners in order to be globally competent. By offering information online and bringing genuine value to companies of all sizes and types, ERP II helps firms to compete. With ERP II, functional advancements in SCM and CRM are possible. All of these frequently promote working with organizations or businesses other than the initial business that implemented ERP.

A manufacturing facility that permits access to planned information by some other unit or its clients is an example of how ERP II might offer access to that information by parties outside the business or original entity. Software that permits external access has more rigorous security measures and is designed to prevent access to specific company data. In general, ERP refers to a model system that is installed on a company computer and accessible only through a secure company network. One method for enabling outside users to access ERP is through Web–based or Web connection through an Internet browser, which ERP II may enable.

In a business strategy where the same software version is utilized for numerous clients, "Software as a Service" (SaaS) typically refers to a provider providing the software and data. ERP II, if implemented in this manner, is the SaaS version of ERP, which was very recently released.

The availability of information must increase for today's corporate leaders. They desire real–time views into their companies so that choices can be made wherever they are, whenever they are needed. They require this information as well, but without taking additional effort to track data and provide reports. Although ERP was a fantastic beginning, the market now demands more.

One general result is that ERP must now encompass the entire organization, providing measurable, consistent processes and up–to–the–minute data that enables profitable decision–making regardless of the user's location. Here, the Internet, the World Wide Web, and mobile apps come into play and increase the power of ERP by providing users with 24/7 access to corporate data and business analytics, regardless of their location, empowering them to make well–informed decisions quickly.

- **ERP to ERP II – Bringing ERP to the ERP Enterprise :**

To aid in the production process, ERP solutions were created to bring automation across numerous organizational units. The limitations of ERP prevented it from being extended to other functional areas of the business, such as sales, marketing, and services. ERP addressed the difficulties of raw materials, inventory, order entry, and distribution. Additionally, non–transactional connections with outside partners and vendors as well as other non–inventory, non–order processes were not adequately served by ERP. Below table shows how ERP evolved into ERP II.

ERP (1990–1999)	Extended ERP (2000–2005)	ERP-II (2005 Onwards)
Materials Planning	Scheduling	Project Management
Order Entry	Forecasting	Knowledge Management
Distribution	Capacity Planning	Workflow Management
General Ledger	e-Commerce	Customer Relationship Management
Accounting	Warehousing	Human Resource Management
Shop Floor Control	Logistics	Portal Capability
		Integrated Financials
		Internet and WWW Integration

The Evolution of ERP to ERP–II

ERP did not integrate with any CRM features that would enable businesses to collect customer–specific data, nor did it function with websites or platforms used for order processing or customer service. The ERP solution was inaccessible to call center or quality assurance workers, and it was unable to handle document management tasks like cataloguing agreements and purchase orders. If technologies are to live and thrive, they must adapt to shifting business environments.

The ERP industry is no different. Businesses experimented with the concept of extended ERP as they entered the twenty–first century, integrating functionality that was available outside of the ERP system. Integration challenges were and still exist because companies have historically had to use a variety of "middleware" solutions to address certain IT issues.

The next phase of extended ERP is called ERP II. The basic functions of materials planning, distribution, and order entry are included in this system, but they are supplemented by features like CRM, HRM (Human Resources Management), KM (Knowledge Management), and workflow management. A system like this can efficiently, precisely, and consistently run a whole company. It instantly provides information to those who require it. By setting security roles and rates that specify which employees can use particular pieces of information, it controls access to that information. By creating the solution Web–based, it also tackles the issue of different office locations by enabling employees to access the system from anywhere.

Businesses are increasingly using the Internet. It is now more than just a tool of analysis, e–mail, and one–off purchases. It is swiftly becoming into a tool for corporate globalization – one that enables a company to connect its employees, suppliers, and clients. The subsequent development of solution will be based on it and can facilitate the open flow of information.

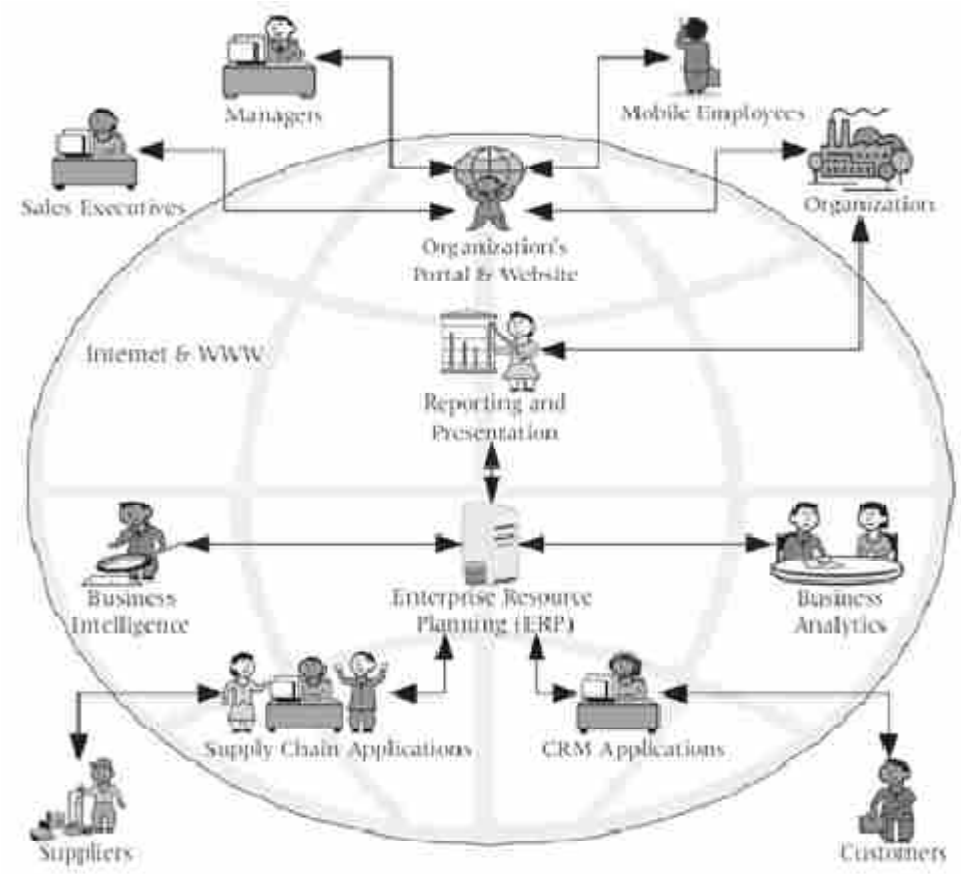
The ERP system can be used well beyond the confines of your company with Web enabled B2B. You can pair it with CRM or SCM to deepen your engagement with your customers and suppliers, and you can link it with business intelligence to evaluate your data. These cross–functional reforms are being implemented by numerous businesses.

ERP II systems were created in response to the demand for more advanced processing capabilities to increase competitive edge. In order to provide access to integrated processing to clients, suppliers, and other trade partners, many firms are looking to enhance and expand processes. This is accomplished through ideas like self–service functionality and attempts to create more cost–effective and efficient procedures. Collaborative commerce (C–commerce) has emerged thanks to enablers like ERP II.

C–commerce is the internet communication between firms, whether they are part of a supply chain or a specific sector. Enterprise boundaries have changed and now encompass clients and vendors from outside the company. With ERP II, the company, vendor, supplier, and customer all cooperate. ERP II's web–centricity and designed–to–integrate frameworks are its strongest strengths.

Access to the Internet was made easier and integrated into functioning component by ERP II. Even though ERP was a web–friendly application, it only partially utilized the Internet; rather, it was used as a support system. This behavior is equivalent to owning technology but not using it. However, ERP had its own concerns about making extensive use of the Internet. As a result of their work, ERP II became an entirely Web–friendly program.

C–commerce permits trading of information from e–commerce exchanges amongst business partners from different companies. By exchanging data on online marketplaces, for instance, businesses and suppliers might create new goods. Organizations can identify new partners through collaborative commerce to resolve ad hoc design issues. Your organization's competitive advantage in this scenario will be your ability to take sound information, post it online, and allow users to collaborate on it.



ERP–II, Technologies, Internet and WWW

ERP II will integrate all company activities, including customer relationship management, and more conventional tasks like finance and human resource management, in contrast to older ERP. ERP II will also be useful to all industries, not just the ones where ERP was concentrated finance, manufacturing, and distribution. ERP II encompasses more than just online purchasing and selling. The inquiries "whom are you working with" and "who is your focus" are primarily directed at business interactions. In c–commerce, intellectual capital is important.

Advanced ERP II feature control systems integrate many software packages in a way that is fluid and transparent to users. Information from several systems is loaded into a single interface where it may be changed and saved again. A sequence of events can start with a single action and spread throughout the entire organization and value chain.

Software companies must offer means of integrating front office procedures with standard ERP features. The ability to unite the people, processes, and knowledge that are most important to a business must be provided to companies. Customers may establish an accurate, current perspective of the extended organization to improve decision–making, analysis, situation planning, and current management of the value cycle by integrating traditional ERP with cutting–edge business management solutions. The ability to clearly understand where processes intersect, how they affect one another, and the workflow that drives them gives businesses the advantage of producing a comprehensive image of the business, which results in cost savings and operational efficiencies.

Organizations are able to communicate information with the ERP system thanks to solutions that fill the informational gap between the back and front

offices. They also integrate extra functionality, such as facilitating inside– and outside–of–the–company Web–based access for selected personnel to data that is essential to their job role in the life cycle. The outcome is a significant competitive advantage.

❑ **Check Your Progress – 2 :**

1. EDI stands for _____.
   a. Electronic Data Interchange b. Electronic Data Instruction
   c. Electronic Data Information d. Electronic Data Implementation
2. EFT stands for _____.
   a. Electronic Funds Transport b. Electronic Funds Transfer
   c. Electronic Funds Transaction d. Electronic Funds Technology
3. GIS stands for _____.
   a. Geographic Information Service b. Geographic Information Structure
   c. Geographic Information System d. Geographic Information Selection
4. SaaS stands for _____.
   a. Software as a Service b. Software as a System
   c. Software as a Structure d. Software as a Selection
5. C–Commerce stands for _____.
   a. Consolidated Commerce b. Collaborative Commerce
   c. Communicative Commerce d. Customer Commerce

12.4 Let Us Sum Up :

You have gained knowledge and understanding of the fundamentals of ERP system implementation and how it relates to businesses in this block. The module provides a general overview of the process involved in the selection and implementation of an ERP system. The fundamentals of the numerous ERP system tools that manufacturers need to enhance business performance have been thoroughly described to you.

The block went into detail into the fundamentals of web–based ERP techniques. You will be given an explanation of the idea behind ERP deployment that involves using extra people as assistance. You will see a practical demonstration of a web–based e–resource ERP solution.

12.5 Answers for Check Your Progress :

❑ **Check Your Progress 1 :**

1 : a **2 :** d **3 :** b

❑ **Check Your Progress 2 :**

1 : a **2 :** b **3 :** c **4 :** a **5 :** b

12.6 Glossary :

1. **Budget :** Every business must produce a compelling budget. The entire cost, such as software, hardware, and personnel resources for the execution, are included in the budget.
2. **SaaS :** "Software as a Service" (SaaS) typically refers to a provider providing the software and data.

3. **C–Commerce :** C–commerce is the internet communication between firms, whether they are part of a supply chain or a specific sector.

12.7 Assignment :

1. Explain ERP and e–Business.

12.8 Activities :

1. ERP, Internet and WWW – ERP II

12.9 Case Study :

1. Study the success and failure factors of an ERP implementation.

12.10 Further Readings :

1. Needleman, T., "AlliedSignal Turbocharges its Systems", Beyond computing, September 1998.
2. Radding, A., "The Push to Integrate — Packaged Applications Promise to Speed Integration and Cut Costs", InformationWeek, No. 671, March 2, 1998.
3. Schwartz, K., "Putting Consultants on Your Team", Beyond computing, Vol. 7, No.6, August 1998.
4. Stedman, C., "Global ERP Rollouts Present Cross–Border Problems", Computerworld, Vol. 32, No. 47, November 1998, p. 10.

BLOCK SUMMARY :

You have gained knowledge and understanding of the fundamentals of ERP system implementation and how it relates to businesses in this block. The module provides a general overview of the process involved in the selection and implementation of an ERP system. The fundamentals of the numerous ERP system tools that manufacturers need to enhance business performance have been thoroughly described to you.

The block went into detail into the fundamentals of web–based ERP techniques. You will be given an explanation of the idea behind ERP deployment that involves using extra people as assistance. You will see a practical demonstration of a web–based e–resource ERP solution.

BLOCK ASSIGNMENT :

❖ **Short Questions :**

1. What is the role of technology in the ERP selection ?
2. Explain responsibilities of ERP Vendors.
3. Write a note on getting ready for ERP Implementation.
4. Write a note on ERP Implementation issues.
5. Explain an affordable ERP for SMEs.
6. Explain success factors of ERP Implementation.
7. Explain failure factors of ERP Implementation.
8. Explain ERP and E–Business.

❖ **Long Questions :**

1. Explain Risk in ERP Implementation.
2. What preparation an organization required for ERP Implementation ?
3. Explain enterprise application integration with its categories and objectives.
4. Explain Software selection.
5. Explain ERP Life Cycle.
6. Do's and Don'ts during ERP implementation
7. Why ERP is considered to be the backbone of e–business ?
8. Why Web–based ERP more ideal than server–based solution ?
9. Explain current trend in ERP.
10. ERP, Internet and WWW – ERP II

❖ **Enrolment No. :** ☐

1. How many hours did you need for studying the units ?

Unit No.	9	10	11	12
No. of Hrs.				

2. Please give your reactions to the following items based on your reading of the block :

Items	Excellent	Very Good	Good	Poor	Give specific example if any
Presentation Quality	☐	☐	☐	☐	_____
Language and Style	☐	☐	☐	☐	_____
Illustration used (Diagram, tables etc)	☐	☐	☐	☐	_____
Conceptual Clarity	☐	☐	☐	☐	_____
Check your progress Quest	☐	☐	☐	☐	_____
Feed back to CYP Question	☐	☐	☐	☐	_____

3. Any other Comments

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Dr. Babasaheb Ambedkar
Open University Ahmedabad

BCAR-501

BUSINESS APPLICATION AND INTRODUCTION TO ERP

BLOCK 4 : CASE STUDIES

CASE STUDIES

Block Introduction :

In order to advance their findings and assist potential clients in researching various aspects for improvement and establishment, ERP case studies investigations fundamentally want assistance that is conveyed and read by numerous businesses.

An ERP research project begins with a detailed understanding of cost-saving analysis, testing of the specific organization that has various advantages of business techniques that happen to company, nitty-gritty seller evaluation system, basic requirement study, implementation methodology including those date-insightful steps and customization issues, and final closing consider. Supposed organizations oversee intensifying case investigations Additionally, completion is translated under prior activities and their upcoming ERP discharges.

Organizations that required an efficient ERP execution or a neglected usage may be the focus of ERP body of proof investigations. Investigations into such cases point out the components of ERP that are valuable, and they also enable people to learn from their mistakes and prevent them in the future.

Block Objectives :

After learning this block, you will be able to understand :

- About different case studies
- Features of case studies

Block Structure :

Unit 13 : Case Studies

Unit 14 : Case Studies

Unit 15 : Case Studies

Unit
13

CASE STUDIES

UNIT STRUCTURE

13.1 Case Study – 1 SAP R/3 at Tata Steel :

A steely decision was made by Tata Iron and Steel Company Limited (TISCO) to transform into a customer–driven business in the Internet economy. To help their resolution succeed, it adopted an ERP, SAP R/3, and is already reaping tremendous operational and financial rewards.

Since the ERP solution was implemented, excellent results have been obtained. Ramesh C. Nadrajog, vice president of finance, stated that Tisco invested close to ₹ 40 crores on its implementation and made ₹ 33 crores in savings in a short period of time. From more than $200 per ton two years ago to roughly $140 per ton in 2000, the cost of labor has decreased.

By June 2000, the amount of past–due debt has decreased from ₹ 5,170 million to ₹ 4,033 million. The cost of carrying inventory per ton has dropped significantly from ₹ 190 to ₹ 155. Additionally, SAP deployment has resulted in significant cost reductions through resource management.

It almost has a utopian feel to it. But because TISCO's ERP system was finished in just eight months, it is precisely the outcome. India's largest integrated steel business, TISCO, is the first in Asia. It can satisfy the most demanding requirements of its customers worldwide because to its cutting–edge 3.5–million–ton steel factory.

The business implemented ERP technology to gain an edge in the cutthroat steel market, and through ongoing learning, innovation, and business operations improvement, it has smoothly transitioned from a production–driven business to a customer–driven one. The technology at the time was merely a copy of the manual system. Not only did it function as isolated information islands, but the technology itself was also completely out of date. The management and staff of TISCO had a difficult time exchanging and locating information in the system.

Due to inaccuracy and duplication of data from other departments, the veracity of the information obtained was also in doubt. Additionally, no built–in integrity check was available for different data sources. Additionally, it was frequently discovered that crucial pieces of information were missing.

A prompt answers :

Beginning in 1991 with a cost competitiveness analysis and formal business strategy, the company began to adapt to changing client expectations. Next came ISO 9002 certification and benchmarking programs. TISCO made the decision to choose a new, robust solution after realizing the need to further support the re–engineered core processes and swiftly align the business operations to significant changes in the marketplace.

Design :

A small internal cross–functional team, IBM Global Services (BPR Consultants), Arthur D. Little (Strategy Consultants), and other consultants rebuilt the two key business processes in 1998–1999: order generation and fulfilment and marketing development. This was done to increase customer focus, enable better credit control, and encourage stock reduction.

Selecting the technology and platform :

The management at TISCO wanted the software to be compatible with future implementations as well as smoothly connect with its current information system. SAP came out on top of the list of competitors after a thorough analysis of capability, cost, time, compatibility, esteem, operability, support, and future organizational requirements.

Several strategic objectives were in mind when SAP was implemented. TISCO aimed to establish a culture of ongoing learning and development through this implementation. By doing this, TISCO would be able to raise the capacity of its goods and services and solidify its position as the market leader. In addition, TISCO intended the software to promote quick decision–making, data reliability, transparency, and enhanced customer responsiveness in all areas.

The Real Obstacle :

The diminishing success rate of ERP implementations globally makes it difficult for a business to implement any ERP system, according to B Muthuraman, MD (Designate). However, at Tata Steel, the true issue was not in integrating SAP successfully or in quickly deploying it to all 46 of our locations across the nation using a big–bang strategy. The true problem was creating a setting where SAP could become ingrained in the minds and hearts of TISCO's employees and clients.

Technology and Business Process Mapping :

To attain the targeted levels of ERP success, a road map was developed. All branches that had a high volume of sophisticated transactions were classified as "hubs". The consignment agents and lesser branches were referred to as the "spokes" that were connected to the larger branches. Achieve Success via SAP Enabled Transformation, or TEAM ASSET, was established by TISCO in January 1999.

Two basic axioms made up the TEAM ASSET:

1. Go–Live date: November 1st, 1999
2. Each day is only 24 hours long.

Core business processes were mapped to SAP modules as part of preparatory task force efforts. Within the corporation, a parallel endeavor named "Change Management" was started. The main goal of "Change Management" was to inform those who were not directly involved in the project of the changes that were occurring.

Tata Steel intended to launch all of the modules simultaneously using a "big–bang" strategy. On November 1, 1999, Tata Steel completed a big–bang rollout of all SAP modules at 46 locations across the nation in just eight months. The objective was accomplished on time.

The Outcome :

Tata Steel has improved customer service, decreased expenses, increased productivity, expedited transaction times, workflow management, and reduced the amount of credit management errors as a result of implementing SAP solutions. Additionally, there have been considerable labor, inventory, and resource management savings.

Customer management has improved thanks to TISCO's ability to give regular updates and seamless services across the nation. The accessibility of information online has made trend analysis for effective decision–making easier and more dependable. Along with providing standard business practices across sites and an excellent audit trail of all transactions, the streamlined business process also lowers the levels of legacy systems.

The outcomes have been fantastic since the SAP solution was introduced. According to Vice President Ramesh C. Nadrajog, the company invested close to 40 crores on the SAP deployment and has already saved 33 crores (Finance). From more than $200 per ton two years ago to roughly $140 per ton in 2000, the cost of labor has decreased. By June 2000, the amount still owing had decreased from '5170 millions in 1999 to '4033 millions. The carrying cost of goods has dropped significantly from $190 per ton to $155 per ton. Additionally, SAP deployment has resulted in significant cost reductions through resource management.

Tata Steel can now give daily updates to customers and seamless services across the nation thanks to SAP's solution, which also improves customer management. The accessibility of information online has made trend analysis for effective decision–making easier and more dependable. Along with providing standard business practices across sites and an excellent audit trail of all transactions, the streamlined business process also lowers the levels of legacy systems. "Now, I cringe to consider how we managed for so many years without a renowned ERP system. The rewards of the implementation's success came along with the challenges we faced, said Mr. K. V. Srinivasan, Member, Team ASSET at TISCO.

Using SAP to Achieve Business Efficiency :

Moving forward, SAP R/3 will soon support the web. It appears that anyone would be able to access our SAP R/3 via the Internet. The ramifications, however, go much deeper because it would lead to information exchange with important clients and business accounts. A thorough deployment is anticipated as follows since the success in marketing and sales has spurred a review of the current system in development.

1. Phase – I – SAP in Works extension with Finance (FI), Controlling (CO), Material Management (MM), Production Planning (PM), and Quality Management (QM).
2. Phase – II – To incorporate SAP modules like Plant maintenance, Human Resources, Production Optimizer, Asset Management & Budget Management sub–modules of FICO
3. Phase – III – SEM (Strategic Enterprise Management)

In order to improve its customer interactions now and eventually accomplish its goal of becoming the most effective and competitive business in its industry, the company also intends to use the mySAP Customer Relationship Management solution.

13.2 Case Study – 2 Oracle at Qualcomm CDMA Technology :

The Business :

Code division multiple access (CDMA), the basis for third–generation (3G) communications devices, was invented by Qualcomm, Inc. in 1985. Qualcomm, Inc. also continues to create new voice, data, and wireless Internet products and solutions. In order to offer manufacturers hardware, software, tools, training, and technical support for CDMA wireless products, the company established Qualcomm CDMA Technologies (QCT) in 1995. The bulk of commercially available 3G devices are powered by Qualcomm CDMA Technologies' chipsets, which have been supplied to more than 50 clients and are the world's leading supplier of 3G chipsets and software technologies.

The issue or situation :

The company's supply chain has grown more complicated as more and more manufacturers around the world use Qualcomm's CDMA standard. Chips are produced all over the world and then shipped to consumers all around the world thanks to QCT's production methodology. QCT made the decision to assess its supply chain applications to make sure they could still meet the needs of the organization in the face of this complexity and anticipated growth.

QCT need a low–cost method of communicating with its clients and partners. The systems QCT had been using had previously been highly customized, and the method of client interaction was manual and far too sluggish to be effective. The system was extremely difficult to upgrade and scaling was prohibitively expensive due to the substantial customization. Oracle was chosen by QCT after evaluating the alternatives to its outdated software in order to control complexity and improve customer and supplier interaction.

The Planning & Execution :

Prior to looking for solutions to its outdated software, QCT first outlined its plan for enhancing its interactions with both consumers and suppliers. The business promised prompt answers to price inquiries, purchase commitments, and status updates from customers. Additionally, QCT made the decision to increase supply chain visibility, increase flexibility, and shorten lead times. "We were solely concerned with finding the ideal fit because the value proposition and the business case were so obvious. Lisa Henderson, director of QCT information technology, stated that Oracle was the only genuine solution to our needs.

The Oracle E–Business Suite applications are already integrated, so QCT didn't need to invest in time–consuming integration projects. This allowed for quick and inexpensive upgrades in the future and allowed QCT to add more applications as needed.

The Advantages :

The automation of procedures via QCT has raised productivity. Oracle Procurement, for instance, has done away with manual procedures. employing Oracle Warehouse Management's attribute–based picking criteria, the organization has optimized its warehouse operations.

The company's supply chain is now better understood and under its control. In addition to reducing inventory throughout the supply chain and improving its understanding of supply and demand, QCT has integrated Oracle

applications. In addition, with its applications integrated, QCT models supply forecasts much more successfully now.

Customers of QCT have 24/7 access to online collaboration tools thanks to Oracle E–Business Suite Applications. QCT is now able to react to customer quote requests more swiftly because to improvements in internal workflow. Due to the integration of applications for many functional areas, QCT is able to make quicker, more precise judgments about customer issues like credits. QCT is now better equipped to manage its anticipated growth. In conclusion, the Oracle solution gave QCT the capacity to:

1. Made forecast simulation easier and more efficient.
2. Better chain supply control
3. Enhanced efficiency in warehousing and shipping management

13.3 Case Study – 4 ERP Implementation at NASTLE :

The phrase, ERP implementation has come to mean in the recent years. horror. High–profile failures frequently make the news, and businesses are frequently worried not only by the heavy price but also by the potential harm such implementations may cause to their operations. Vendors like SAP are trying hard to change this perception and have achieved a lot of their objectives. In 1996, a user may anticipate paying consultation fees that were six to ten times the cost of the license. These days, based on how much process re–engineering the user conducts, the external consulting cost is often one to two and a half times the software costs.

Fortunately, there has been enough work done in the past that there are opportunities to learn from others' triumphs and errors for businesses considering an ERP installation. Don't strive to make the product fit exactly how you would prefer to operate, or, on the other side, don't anticipate that people would entirely adapt their processes to match the package, according to one of the main principles of a successful implementation. The first takes years and costs a lot, while the second encounters significant resistance.

For the majority of firms, there needs to be a medium ground where people understand that not all organizational issues can be solved by the software and not all business processes can be redesigned to fit the software. Whatever the case, shrewd project managers with previous ERP implementation expertise will let you know that there are a number of traps to watch out for. The first is not making an ERP software choice based solely on a demo. Pick your package carefully, do your research, acquire references, and ask questions. Choosing the right ERP solution for your firm is important because it is a significant financial commitment. Obtain management support is the next. Project failure is certain if top management buy–in cannot be obtained.

The level of management commitment is frequently at its highest at the start of a project but starts to decline as time goes on. Maintaining management interest in, involvement in, and support for the project is crucial. Third, stay away from too customized products. It is simple and alluring to modify ERP software to meet your unique requirements. Unfortunately, over–customization will cause the project to take longer than expected and increase maintenance costs.

Avoiding the third ERP implementation error involves not underestimating the value of training. Users frequently undergo many days of training on a

new system before not using it for several weeks. Users require comprehensive training that is ongoing, and if at all possible, they should participate in system testing.

Unfortunately, Nestle USA did not learn from the mistakes of others. Nestle USA committed a number of significant errors throughout the installation that nearly ended the project. To create a set of best practices for all Nestle USA divisions, a team of 50 top management and 10 top IT professionals was put together when the project first started.

Creating these best practices for all organizational functions was the aim. At some point, every department, from production to sales, would have to abandon their outdated methods and start using the newly formed best practices. A technical team was tasked with creating a standard data format across the entire organization at the same time. Nestle already had issues with the system's acceptance among its employees by the time the implementation process started in 1999. Because none of the groups that were going to be directly affected by the new procedures and systems were represented on the key stakeholder's team, the project team was able to attribute the majority of the resistance they encountered to this.

The issues for Nestle USA didn't end there. The implementation had become a fiasco by the start of 2000. Employees did not comprehend the new system's operation or the new work procedures they were required to employ. Due to their exclusion from the conception and development of the new system, regional executives were just as perplexed as their staff members and were reluctant to help sort out the confusion that had arisen. Morale suffered as a result, and turnover increased dramatically. In actuality, "turnover among the staff who forecast demand for Nestle products reached 77%."

Employee problems were only the beginning of Nestle USA's implementation troubles. The rollout also saw the emergence of technical issues. The project team had forgotten the interconnections between the modules in their haste to meet the Y2K deadline. As a result, the various components were unable to communicate with one another. Therefore, the accounts receivable section of the system was unaware of any discounts given to customers even if the salesperson put them into the system. As a result, even when the consumer would pay their invoice, it would still show as partially paid.

The deployment had to be stopped by Nestle USA by June 2000, and the project manager had been fired and transferred to Switzerland. Nestle USA assembled 19 important stakeholders, and executives went on a three–day off–site retreat to talk about the project's future. The meeting led to the realization that the project's business needs would need to be revised, and that the project timeline should be created around the revised requirements rather than a predetermined finish date.

This procedure lasted until April 2001 and produced a thorough roadmap that the project team could follow. To serve as a point of contact between the project team and the various functional divisions, a director of process transformation was hired. The project could proceed if all of these issues had been settled. Initial plans called for the last rollouts to be finished in the first quarter of 2003.

Result :

Although there were some hiccups throughout the ERP implementation at Nestle USA, it appears to be paying for itself. Nestle USA stated that as of 2002, they had already saved more than $325 million. The majority of these reductions were realized through supply chain optimization, particularly demand forecasting. The demand planner would receive a number from a salesperson and respond, "Those guys don't know what the hell they are talking about; I'm going to give them this figure," according to the previous procedure. When the demand planner hands the manufacturer [that number], the factory responds that the demand planner has no idea what he is talking about. The factory then modifies the number once more. SAP has enabled more reliable demand projections for the numerous Nestle goods thanks to shared databases and business procedures. Additionally, because Nestle USA as a whole uses the same data, it is capable of predicting down to the level of distribution centers.

Nestle USA has been able to unite as a single entity in addition to saving money. Due to shared databases, the issue of 29 different vanilla brands has been resolved, and all factories now refer to vanilla in the same way. Additionally, they make use of standardized procedures that streamline operational operations and permit the centralization of tasks like creating training protocols. No longer is it necessary to tailor training to each factory. Training materials only need to be created once because they are the same everywhere. Additionally, any Nestle USA employee might transfer to another factory without having to learn the peculiarities of the new location.

Comments :

Due to the fact that it includes both triumphs and failures, the Nestle USA instance is a great case study for ERP installations. Although there were undoubtedly problems throughout the project's planning stages, the integrated system they currently have in place and the money they are saving as a result of the ERP implementation allow us to view the overall outcome as successful. Other businesses can benefit greatly from studying Nestle USA's experiences by doing the same for their own rollouts. Some of these insights are taken directly from Nestle USA management, while others result from an analysis of the situation.

The correct people have to be participated in the process from the start if an ERP implementation is to be successful, which is the first learning that can be drawn from the Nestle USA example. Nestle had to stop its rollout after learning this lesson the hard way. Redesigning work processes without engaging some of the individuals who carry out the task is just not possible. Although there may be "too many cooks in the kitchen" issues with ERP installations, it is better to have more personnel than is necessary than not enough when the company's future is at stake. Trimming the project team while it is still in progress is simpler on the project timeline than adding new team members and having to spend time training them on all of the nuances of the project.

In conclusion, ERP implementations are distinct from every other system implementation a business would ever go through. Despite the negative reputation that ERP systems and the rollouts that accompany them face, a successful rollout is still feasible. Organizations frequently experience significant failures and challenges throughout the implementation but are still able to salvage a successful project, as was the case with Nestle USA.

The key lesson here is that firms must complete their research before starting an ERP project and that plans must be adaptable enough to adjust in the middle of a project to address challenges that arise. There are lots of lessons to be gained if firms are ready to embrace the counsel of others because enough businesses have gone through implementations.

ERP implementations integrate various data sources, re–engineer workflows, and involve a sizable user base and geographic distribution. In projects of this complexity, it is practically difficult to plan for every eventuality. The ability of a corporation to come together and cooperate during trying times to accomplish a goal that will ultimately make everyone's job simpler and the business more competitive is the difference between winning and losing.

Unit
14

CASE STUDIES

UNIT STRUCTURE

14.1 Case Study – 1 Optimizing the Supply Chain: Baan's Perspective :

This study attempts to highlight the significance of planning in the supply chain process since creating successful supply networks has the potential to save huge amounts of money. Business processes are streamlined and integrated for this using ERP (Enterprise Resource Planning) solutions. But the majority of these programs include flaws including a sequential planning approach, a failure to recognize constraints, a lack of visibility, a use of lead times that are static, and a degree of detail that is too fine for capacity planning. The APS (Advanced Planning and Scheduling) family of planning software, which utilizes well–liked constraint–based methodologies, addresses these issues.

Introduction :

The supply chains of today are astoundingly complicated. To compete in the global market, one must skillfully balance and integrate sales, supply, production, and distribution. These supply chains, however, are by no means effective; instead, they are holding back billions of dollars' worth of potential savings. The best chance for growing sales, cash flow, and profits is through intelligent supply chain management. You may use it to make well–informed decisions at every stage of the supply chain, from purchasing raw materials to producing items to distributing them to customers.

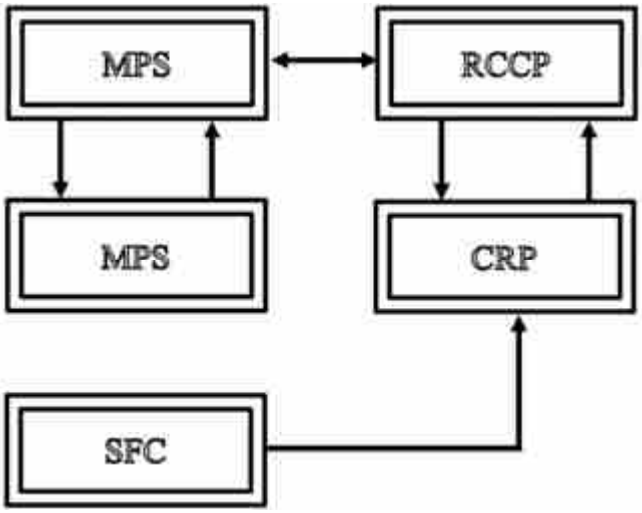
Various strategies have been used by businesses looking to re–engineer their supply networks. ERP (enterprise resource planning) software are frequently used by businesses to address this issue. These programs offer features including inventory control, material scheduling, order processing, purchasing, shop floor management, and accounting. By enhancing the flow and velocity of information with trading partners as well as internally with a company's supply chain, ERP systems enable businesses to combine and streamline business processes.

Beyond ERP : Supply Chain Solutions :

The demand fulfilment process, which includes acquiring raw materials, processing them into completed goods, and delivering those goods to clients, is impacted in every way by planning, which is a basic process that occurs along the whole supply chain. However, the planning environment for the majority of ERP systems has a number of drawbacks.

Traditional ERP systems create a plan in a sequential manner. Following the creation of a Master Production Schedule (MPS), which serves as the foundation for Material Requirements Planning (MRP), attempts are made to carry out Capacity Requirements Planning (CRP). Unfortunately, this strategy treats resources and capacity as independent variables at each level, which yields

an impractical strategy. MRP's logic suggests repeatedly iterating this process to reflect changes made at each phase to resolve this. Due to the intricacy of the planning problem and the extent of the product–mix being planned, these actions quickly become quite ambiguous. As a result, the planner begins his planning with more leeway to ensure that his strategy is feasible.



The Traditional ERP Planning Framework

The main drawbacks of traditional methods are :

1. **Inability to identify and optimize constraints :** The traditional approach to planning makes no assumptions about material or capacity restrictions. The resulting strategy does not make the most of the important resources.
2. **Lack of visibility :** The planner is not given adequate insight into the effects of their decisions by the current systems. Final designs as a result are either not practical or do not make the best use of the essential resources in the production environment.
3. **Conceptual differences between distribution and production planning :** Despite the fact that the ideas of DRP and MRP are quite similar, they are frequently implemented as separate systems. In actuality, supply chains are frequently made up of interconnected distribution and manufacturing networks.
4. **Excess inventory or deficiencies :** Rather than being determined dynamically, lead times are frequently static and manually given. As a result, there are either shortages or excess inventories, which makes the environment particularly reactive.
5. **Insufficient information :** The capacity planning process uses too little information to allow for sound decision–making.

The APS Challenge :

There is now a new kind of smart planning software that addresses the issues raised above. The name of this application class is APS (Advanced Planning and Scheduling). APS systems tackle the aforementioned planning issues as well as manage complicated manufacturing operations involving numerous resources and functional steps in real time.

In order to achieve manufacturing objectives such as improving due–date performance, reducing lead times, improving throughout, and lowering inventory and operating costs, they use constraint technique to develop an intelligent and practical production plan that reflects real–world manufacturing conditions and

constraints. Contrary to the standard ERP system's iterative planning logic, APS solutions concurrently take into account all restrictions, including material, capacity, operators, and tools, and produce a workable operational plan in a single pass. Plans that come from this are improved to satisfy the customer's delivery needs and business goals.

Up until recently, different suppliers than ERP providers offered APS systems. The cost to adopt such systems ranges from a million dollars for a mid–sized manufacturing to about tens of millions of dollars for a Fortune 500 corporation. To implement the plans generated by an APS system, such platforms still need to be connected with the internal ERP systems. Up until now, the costs associated with purchasing, implementing, and connecting an APS system have been high.

Baan's Advanced Planning Solution :

Baan has created its own APS system, which can be purchased either as a stand–alone product to operate with another ERP system or completely integrated with the Baan ERP system. The popular constraint–based methodologies are used by Baan's APS solution, BaanSCS Planner and BaanSCS Scheduler, to give the same features as described above at a significantly cheaper cost of ownership. Users of Baan ERP benefit from pre–integrated APS functionality, which further reduces the cost of ownership.

The performance, constraints technology, and simulation abilities of BaanSCS Planner are integrated with the depth of the materials management ideas offered by the Baan ERP planning system to create a combined planning solution that offers a best–in–class planning environment. Therefore, it is now possible to apply constraint–based planning and simulation ideas to mixed mode manufacturing environments, such as Engineer–to–Order (ETO), Make–to–Order (MTO), Assemble–to–Order (ATO), or Make–to–Stock (MTS).

ERP Planning Engine	APS Engine	APS Engine
Mixed-mode Manufacturing	Constraint Based	Baan's Integrated Approach Provides abilities from two technologies in one scheduling environment.
Planning Perceptions	Memory Resident	
ATP Abilities	Wealthy Decision Support	
Prediction/Sales Integration	Wealthy Interactive Interface	

Key capabilities of the BaanSCS Planner :

The following functional depth of BaanSCS Planner supports BaanERP's planning abilities :

1. Bottleneck detection in constraint–based planning
2. Complete incorporation of BaanERP
3. Capabilities for High Performance Planning
4. Advanced Tools and User Interaction for Analysis
5. Advanced Simulation Environment

1. Bottleneck detection in constraint–based planning :

Across the supply chain, BaanSCS Planner synchronizes procurement, production, and distribution tasks in a way that maximizes overall throughput and reduces inventory and throughput times.

Planning under restrictions is clearly linked to optimization. The planning engine considers restrictions and optimization goals to create a supply plan that will maximize plant throughput and reduce manufacturing cycle times across the whole supply chain. It takes capacity and material limits into account at the same time in order to synchronize manufacturing processes and sub–assemblies. The BaanSCCS Planner Engine algorithm is known for using:

- ✓ Processing done in RAM (memory resident) for speed.
- ✓ Optimization of throughput under constraints in line with the theory of constraints.
- ✓ A sorting engine that converges on the best solution through iterative backward–leveling and forward–compression phases.
- ✓ Simulation of resource allocation based on rules.

Operation predecessor/successor linkages, firm assignments, resource capacity, availability of materials, operation overlaps, set–up optimization rules, planning buffers, and order priority are among the parameters taken into consideration during a Planning Engine run. An overall supply chain operations plan that has been optimized is the end outcome. In doing so, the Planning Engine chooses the specifics of the product's manufacturing process and location.

Net change engines are also a part of BaanSCS Planner. These Net Change Engines are customized algorithms that, in accordance with organizational business rules, optimize particular performance metrics. They are event–driven engines that are used repeatedly throughout the day as specific events take place. One of a number of net change engines introduced, for instance, is the Order Insertion Engine. Its goal is to swiftly incorporate fresh supply demands into the strategy in order to support order promises and cover fresh client demands.

2. Complete incorporation of BaanERP :

Since tight integration has been challenging due to con?ict in the process and data models, APS and ERP system integration efforts have up until now accepted a loose integration framework. Because of this, the combined planning functionality made possible by the two systems' integration has been less than the combined ability of the two products.

BaanSCS Planner is fully incorporated with BaanERP using communication technology and has been created to be suitable with BaanERP in data and process models. By enhancing the order–promising capabilities, this integration not only enables the BaanSCS Planner to supplement current BaanERP planning capabilities. Therefore, based on current inventory and production status, customer service agents can now safely provide exact delivery times in seconds or assess the status of a client order in real–time. The next software feature exemplifies the depth of the combined BaanERP and BaanSCS Planner environment.

It is preferable for the planning system to calculate the earliest delivery time the supply chain can support as soon as a customer service agent receives a new order. This objective is achieved through the Order Insertion Engine.

An ATP check is performed every time BaanSCS Planner gets client order to see if there is enough inventory on hand or predicted to meet the demand. If not, a new supply order, such as a production, purchasing, or distribution order, is immediately created by the MRP / DRP Engine. The current plan is then updated by the order Insertion Engine while taking into consideration any present limitations.

The Order Insertion Engine's goal is to add new orders into the schedule in a way that ensures delivery as near as feasible to the customer's requested date, while avoiding adding to the already planned order delays.

Orders can be inserted using any of the two models to give the user flexibility. Non–disruptive order insertion is the first mode. It doesn't change the start and end times of activities that have already been scheduled because its purpose is to quickly enter fresh orders. It encourages the plan's overall stability, but it might not fully take advantage of any potential slack time that may be present across the planning horizon. Disruptive order insertion is the second mode.

In order to maximize timely deployment of new orders, especially those recognized as high priority orders, the start and completion times of orders that have previously been planned may be modified. It does not, however, delay any pending orders that might already be late. And it won't put off any additional orders past the deadlines that the customers desired. These modes are designed to give the planner freedom to achieve various business objectives while partially stabilizing the plan.

3. Capabilities for High Performance Planning :

A memory–resident planning engine in BaanSCS Planner is roughly 50–100 times better than the planning engines used in conventional database–driven ERP systems. As a result, in contrast to typical ERP systems, the time it takes to respond to plan modifications might be measured in seconds or minutes. The planning environment becomes richer because to memory–resident planning technology, which also enables simulation and dynamic order providing abilities practical.

4. Advanced Tools and User Interaction for Analysis :

The customer decision support system for BaanSCS Planner offers the planner a highly comprehensive set of graphical visualization and problem identification features.

It has a performance monitoring tool that evaluates a plan's quality and notifies the planner of issues that need to be fixed. As a result, the planner may be proactive in controlling possible issues before they have a chance to materialize into actual issues. It focuses on planned future performance. The monitor's main analysis tools are as follows:

Delivery Performance – provides information about delivery performance.

- ✓ **Demand –** Forecasted total client demand and non–consumed demand.
- ✓ **Client Orders –** Total sales, delivery efficiency, average and maximum delay.
- ✓ **End Supply Orders –** Supply orders' average and maximum delay.
- ✓ **Causes of Delay –** Rating of the ten most significant restrictions.

Resource–Utilization Performance – shows information on resource use.

- ✓ **Capacity Utilization** – Total amount of capacity, amount used in hours and percentage, average, and maximum.
- ✓ **Overload** – Overloaded resources, durations, average, and maximum.
- ✓ **Causes of Delay** – Listing of the top 10 most significant resource limitations.

Inventory Performance – details about inventory performance are displayed.

- ✓ **Inventory Value** – Variation, average, minimum and maximum inventory values.
- ✓ **Days Coverage** – Average, minimum, and maximum.
- ✓ **Difficulties** – Aeras when predicted inventory balances are negative, with safety stock.
- ✓ **Causes of Delay** – Ranking of the top 10 raw material restrictions.

Financial Performance – details about financial performance are showed.

- ✓ **Profitability** – Revenue, costs, and overall profit.
- ✓ **Synchronize Indicators** – Inventories, costs of operations, turnover, and productivity.
- ✓ **Income** – Forecasted, total, and sales.
- ✓ **Expenditures** – Operating, buying, and overall.

BaanSCS Planner also includes a variety of important graphics. The issue that occupies the majority of planner's work is "delay": detecting it, figuring out what causes it, and trying to avoid it proactively by improving plan visualization. Part of a larger sub–system that supports these tasks is the Order Delay Graph. The goal is to reduce or completely stop the plant's expediting efforts while maintaining a high level of customer delivery service.

Analysis of the Supply Network The graph displays a time–phased network of supply orders that are connected to a specific customer order or end–level supply order. The supply orders are represented as colored blocks on the graph. Its goal is to pinpoint delays by using block colors to highlight factors like capacity or raw materials, or perhaps both.

One of the main duties of the planner is to manage the utilization of production resources effectively. The Resource Utilization Graph shows the percentage of a resource's capacity that has been used over time. The planner might designate resources as entirely constrained, constrained within a temporal fence, or uncontrolled at all. The Planning Engine estimates infinite capacity if unrestricted. If limited, the Planning Engine level loads the resource according to the capacity that is available. The planner can examine crucial bottleneck resources in an unrestricted mode at the start of any project to see if there is sufficient overall capacity to satisfy the goals of the company's production plan. The planner can monitor in depth the orders loaded for a specific time period and control variances in capacity use once the plan has been levelled.

The Descriptive Resource Utilization Graph uses a bar chart to show the capacity utilization rate over time for a particular resource. Here, a thorough

capacity analysis may be done, and there are possibilities to dive down or move to other pages to alter the timetable or the capacity that is available.

The planner must monitor the total expected inventory levels as changes are made to the plan to address resource usage issues. Future inventory balances that can be anticipated as a result of chosen planning policies, such as minimum, maximum, and lot sizing factors, are shown on the Inventory Profile by Item Graph. A single site's inventory can be examined along with many items or families of items at once.

The Profitability Graph identifies any possible issues by summarizing expected cash inflows and outflows, or operating revenues and expenses. This graph is a useful tool for managing net profit and overall cash flow, and the data may be compared to the company's annual cash flow budget.

5. Advanced Simulation Environment :

BaanSCS Planner creates an extremely detailed simulation environment by fusing its graphical decision support features with quick–memory resident processing. The planner may simply control and manage "scenarios" in this setting. As an illustration, let's say the planner wishes to assess how accepting an abnormally big customer order will affect the production plan in real time in terms of resource usage, inventory levels, and cash flow. A scenario can be quickly set up, a new order entered, the Planning Engine run against it, and the outcomes can be easily seen by the planner by looking at the appropriate graphical views. The "Actual Plan" in real life can then be compared to the scenario.

In a separate scenario, the planner wants to assess the various production strategies that would emerge from various sales forecasting hypotheses. In order to provide optimized plans, the planner might build various scenarios, each of which is based on a distinct prediction assumption. Each scenario can have multiple views linked to it to support graphical analysis.

The goal of any scenario modelling is to provide speedy response. There is no restriction on how many different situations a user can construct, and practically every parameter can be altered. The planner assesses the effects of his activities along various dimensions after creating a new recommended plan, giving him clear visibility on the effects pertaining to, for example, the stock levels, the financial impact, and the levels of customer service. The planner will be able to clearly see the effects from the initial raw material purchase to the final shipment in addition to controlling the planning problem using a simulation tool.

Conclusion :

BaanSCS Planner's functional depth in the following areas enhances the planning skills of ERP systems:

1. Bottleneck detection in constraint–based planning
2. Complete incorporation of BaanERP
3. Capabilities for High Performance Planning
4. Advanced Tools and User Interaction for Analysis
5. Advanced Simulation Environment

BaanSCS Planner is designed to work alongside any ERP system and already includes out–of–the–box interaction with BaanERP. The Baan Company

will be able to fulfil its promise of investing in technology in a cost–effective way to optimize a manufacturer's supply chain thanks to the combined BaanERP and BaanSCS Planner environment.

14.2 Case Study – 2 Implementation of SAP Supply Chain Performance Management Solution

At ITC Infotech, we are aware that the majority of firms today confront two challenges in the market. Operations must be nimbler and planning must be more responsive in response to external obstacles like volatile market circumstances. Internal supply chains, on the other hand, are longer and more intricate, making it challenging to implement changes. ITC Infotech produced recommendations for the deployment of the SCPM system and used prebuilt Supply Chain Data Models in Supply Chain Performance Management (SCPM) for the collecting, integration, and transformation of pertinent data. Our customer was able to integrate business objectives into the supply chain and establish benchmarks for comparison and analysis thanks to our clearly defined standards and personalized measurements.

Greater supply chain information and performance enabled our customer to more effectively manage its supply and demand sides, reducing risks and potential business losses.

By providing more visibility and more in–depth research into the data from various departments, ITC Infotech's installation of SAP's SCPM tools and methodologies reduced internal silos and provided a set of balanced key performance indicators (KPIs) across all departments.

To optimize supply chain performance for the healthcare leader, ITC Infotech developed a department–neutral view of corporate objectives and turned this knowledge into pertinent KPIs. Our "big picture" approach, which provides end–to–end supply chain visibility and adheres to the industry–standard Supply Chain Operations Reference (SCOR) model to enable both departmental and organizational performance management, was essential for applying performance management techniques holistically across supply chain processes rather than focusing only on individual departments.

Benefits :

- ✓ Made constancy, automation, and useful information possible.
- ✓ Better integration exercise process performance monitoring.
- ✓ Comparing customer–specific metrics with industry–standard SCPM SCOR metrics to identify areas for improvement and alter business executioners' mindsets.
- ✓ Ensure that the supply chain's entire business procedures are tightly integrated.
- ✓ Make use of data from the supply chain to further the overall objectives of the customer.
- ✓ Make use of technology to expand on current investments and empower supply chain departments.

Unit
15

CASE STUDIES

UNIT STRUCTURE

15.1 Case Study – 1 Quality of ERP Implementation: Bhilai Steel Plant :

The Bhilai Steel Plant, a division of Steel Authority of India Ltd., was established in accordance with the Indo–USSR Treaty during the second five–year plan. This was in line with the previous administration's objective of enhancing the economy and national independence through the expansion of the core sector. The factory is roughly 40 kilometers from Raipur, the capital of Chhattisgarh, and is situated in one of India's major iron belts in the country's center. Iron ore and lime stone were previously available from the captive mines of Nandini at the facility in Dalli–Rajahara. Limestone is currently purchased from outside sources.

Coal, the other important raw material, is also bought from outside sources, either through imports or local markets. An integrated steel works with a manufacturing capacity of 1.0 million tonnes of steel, Bhilai Steel Plant, was put into operation in 1959. Capacity was increased in stages, reaching 2.5 and 4.0 million tonnes in 1962 and 1984, respectively. A variety of items are produced at the Bhilai Steel Plant. Rails, wire rods, plates, and merchant products fall under this category. The Bhilai Steel Plant intends to increase its output to 7.0 MT by 2011–2012.

Need of ERP :

Bhilai Steel Plant has chosen to use ERP solutions in order to be competitive in the market and to integrate diverse company activities. They were dealing with the issues listed below, according to official sources.

- ✓ An appropriate definition of products.
- ✓ Variant configuration for finished goods and raw materials.
- ✓ WIP visibility for products defined at intermediate tiers.
- ✓ Product grouping to support reporting and planning.
- ✓ Upgrading and re–engineering supporting systems to make it easier to supply necessary data to ERP systems.

BSP has finally chosen to move forward with the Utkarsh ERP project. Production planning, plant maintenance, finance and costing, quality management, material management, and sales and distribution are the six broad areas of Utkarsh.

ERP and Business Process :

Approximately 300 man–years were expended on the ERP implementation. About 2500 End Users were trained in SAP to ensure the success of ERP.

SAP has seventeen separate modules that span the six main business areas of BSP. Existing processes are matched with future activities in ERP to ensure proper integration of the old system with the new ERP system. 174 cases were tested during software integration testing to verify correct integration. From April 1, 2009, ERP was in use.

ERP makes management reporting, analysis, and interpretation of business data easier at Bhilai Steel Plant. Data can be gathered from various business sectors. Web access is made possible through the creation of Enterprise Portal. Only a user name and software definitions are necessary to enable user access. It gives the user access at various levels. To report or address any problem, a communication desk has been set up. The importance of the training and documentation has been given top priority. To make things clearer, user manuals are developed.

Benefits of ERP :

2009 saw the implementation of ERP at Bhilai Steel Plant. It might take some additional time to evaluate the true benefits brought about by its deployment. However, the following significant advantages have been noted as a result of ERP implementation:

- ✓ The primary objective of ERP Online is the integration of company activities. Stock availability in the system aids in keeping proper inventory levels.
- ✓ Online access to timely data in the form of standard reports is provided by the system for making decisions.
- ✓ Greater accountability and visibility due to everyone having access to the same data in business operations.
- ✓ Order–based manufacturing enables total integration of the operations of marketing, production, quality assurance, inventory, and finance.
- ✓ One central database contains information on all the masters, including finished, semi–finished, stores & spares, raw materials, vendors–suppliers & customers, and services.

15.2 Case Study – 2 Analyzing Progress and Success Factors for ERP Implementation in Indian Power Industry – A Case Study On HPPCL :

Introduction :

ERP, which manages fundamental company processes, is an integrated collection of software modules connected to a shared database. In an effort to serve the unique needs of various departments, such as planning, manufacturing, accounting, distribution, sales, human resource, inventory management, service and maintenance, transportation, and e–business, the company tries to integrate all departments and functions into a single computer system. ERP can be seen as a software system that fulfils business requirements while considering the organization's processes, achieving organizational objectives, and tightly integrating all business functions.

One of the most significant commercial information technologies to develop in the past ten years is enterprise resource planning (ERP) systems, commonly referred to as enterprise systems (ES). The fundamental idea of ERP systems is focused on information standardization and synchronization, which

leads to increased productivity. However, no two industries' ERP systems are exactly alike.

Three characteristics set ERP systems apart from earlier, extensive Information Technology (IT) implementations:

- ✓ The influence of ERP on the entire organization.
- ✓ In addition to learning new software, employees can also be learning new business procedures.
- ✓ Rather of being an IT–led endeavor, ERP is frequently business–led.

Challenges in the scope of ERP project execution represent significant pitfalls that, if not solved, may result in the project's failure. Therefore, it's crucial to fully comprehend the implementations, issues, and related circumstances that actually occur in real life.

This study's goal was to identify and evaluate the crucial elements that must be taken into account for the Power Industry's ERP system adoption to be effective. This study examines the variables that affect the effectiveness of ERP systems and offers metrics to measure their performance. The study creates a model to examine the connections between variables and success metrics. On the basis of the examination of these elements, the paper concludes by offering suggestions for the implementation of ERP systems. This study will assist senior management and IT managers in making wiser decisions when contemplating ERP systems in their organizations by identifying and assessing key success criteria for the power industry's ERP system adoption.

Background of the Company :

The Himachal Pradesh State Government (GoHP) and the Himachal Pradesh State Electricity Board (HPSEB) in Himachal Pradesh commissioned Himachal Pradesh Power Corporation Limited (HPPCL) to plan, promote, and coordinate the development of all hydroelectric power–related activities. HPPCL was established in December 2006 under the Companies Act of 1956. In HPPCL, the GoHP holds a 60 percent stake, followed by HPSEB with a 40 percent stake. With all the organizational and technological capabilities on par with other generating corporations like NTPC, NHPC, etc., HPPCL is a rapidly emerging power generating utility.

Hydel Projects for Implementation :

The following hydro projects are being worked on by HPPCL right now :

Sainj HEP

Renukaji Dam

Sawra Kuddu HEP

Integrated Kashang HEP

Shongtong Karcham HEP

Chirgaon Majhgaon HEP

Thana Palun and Nichli Brri

Surgani Sundla HEP

With the basic goal of having a long–term Corporate Plan for planned implementation of Power Projects to meet the growing energy demand, ensure the environment and ecological balance, and contribute to the progress and

prosperity of the State, HPPCL intends to diversify its Power Development activities beyond Hydro Power Development into other areas such as Thermal, renewable sources of energy, particularly solar power, etc. For this reason, HPPCL must rise to the difficulties of dynamically changing business and the environment in order to develop a lasting connection with the stakeholders for the benefit of all parties and economic progress.

Mission : To generate enough power to promote growth and prosperity in Himachal Pradesh.

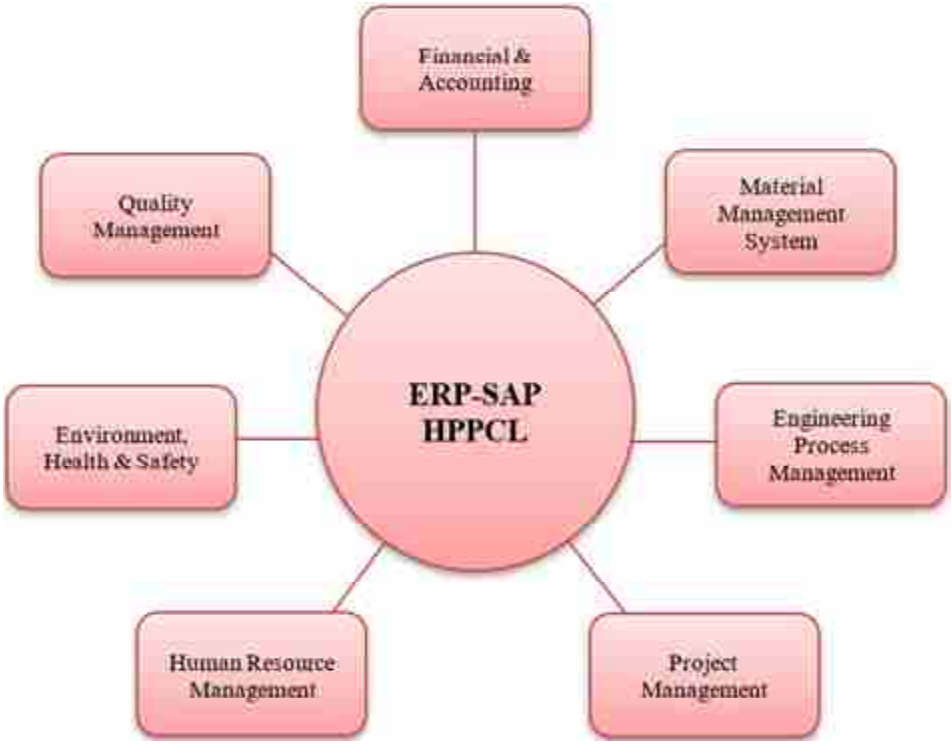
Goal : To establish myself as a significant power generating firm in India with strong managerial and technical skills.

Target : To build 5000 MW of power generation capacity by the year 2022, and 3000 MW by the month of March 2017.

Implementation of ERP–SAP in HPPCL :

According to the Big Bang hypothesis, HPPCL has successfully introduced seven modules of SAP's (Systems Applications and Products in Data Processing) ERP. On April 25, 2012, Sh. Deepak Sanan, Principal Secretary (MPP & Power), Government of Himachal Pradesh, and Sh. K. Sanjay Murthy, Managing Director, HPPCL, officially launched the ERP Go Live of HPPCL at its Corporate Office in Shimla. With this, HPPCL's Corporate Office and Field Offices have implemented SAP (System Application Programming) ERP. Through an integrated SAP–ERP–based on–line IT system, all business operations pertaining to human resources, finance, procurement, project monitoring, and quality management must be carried out.

To provide the hardware framework for the ERP, HPPCL constructed its own cutting–edge data Center and secured network connections across various sites. The infrastructure at the Data Center is best–in–class. To conduct online business utilizing ERP, every HPPCL employee will be able to access remote to this Data Center through encrypted communication lines.



Implemented ERP–SAP modules in HPPCL

Research Objective :

The purpose of this study

- ✓ To determine the most important success factors for a successful ERP product adoption.
- ✓ To pinpoint how the organization is affected by the most important CSFs in order to prevent any implementation–related bottlenecks and boost output, productivity, and organizational effectiveness.

Research Design :

A research design in a case study is a technical strategy that aims to connect the start and finish of a research study, assisting the researcher in moving from "here" to "there", as Yin (1989) points out. A research design should take five factors into consideration:

1. The inquiry–based research
2. If any, its propositions
3. its analytical units
4. The reasoning relating the facts to the claims
5. The standards for interpreting the results

Study–I	Deriving the Base Lines	
	Interview	AGM, Sr. Managers and IT staff
	Analysis of process & documentation	System handbooks, manuals & internet
	Derivation of shortcomings and Problem areas	Selection of critical success factors
Study–II	Detailed Analysis of selected Issues	
	Cross–Organizational Survey involving ERP professional	
Study–III	Analysis of Critical Success Factor	Findings, Conclusions & Implications

Research Design

Previous research on Information System Models and Success Factors :

Understanding the adoption of ERP systems is aided by prior research on user acceptance models for information systems (IS). The technological adoption model (Davis, 1986) and the DeLone and McLean (DM) IS success model serve as the foundation for this study DeLone and McLean 1992. To pinpoint the elements influencing ERP implementation projects, previous research on project management success factors is analyzed.

- **Technology Acceptance Model :**

In order to model user acceptance of information systems, Davis (1986) updated the theory of reasoned action (TRA) and established the technology acceptance model (TAM). TAM aims to explain the factors influencing user behavior in relation to the adoption of computers across a wide range of end user computing technologies and user populations. TAM also offers a framework

for determining how external factors affect one's own thoughts, feelings, and intentions (Davis et al. 1989)

The lack of subjective norm in TAM is the primary distinction between TRA and TAM. The definition of a subjective norm is "the person's judgement that most of the important people in his life believe he should or should not engage in the activity in question" (Fishbein and Ajzen 1975)

- **DeLone and McLean IS Success Model :**

DeLone and McLean (1992) developed a taxonomy and an interactive model as a framework for structuring the concept of IS success in acknowledgment of the significance of defining the IS–dependent variables and IS success metrics. System quality, information quality, utilization, user happiness, individual impact, and organizational impact were the six key aspects of IS success that they identified.

- **Project Management Success Factors for ERP Implementation :**

Ferratt et al. (2006) formed the following four success indicators for ERP installation out of the best practice questions:

✓ Support from senior management, planning, instruction, and group efforts

✓ The selection of software

✓ Involvement in the information–systems sector

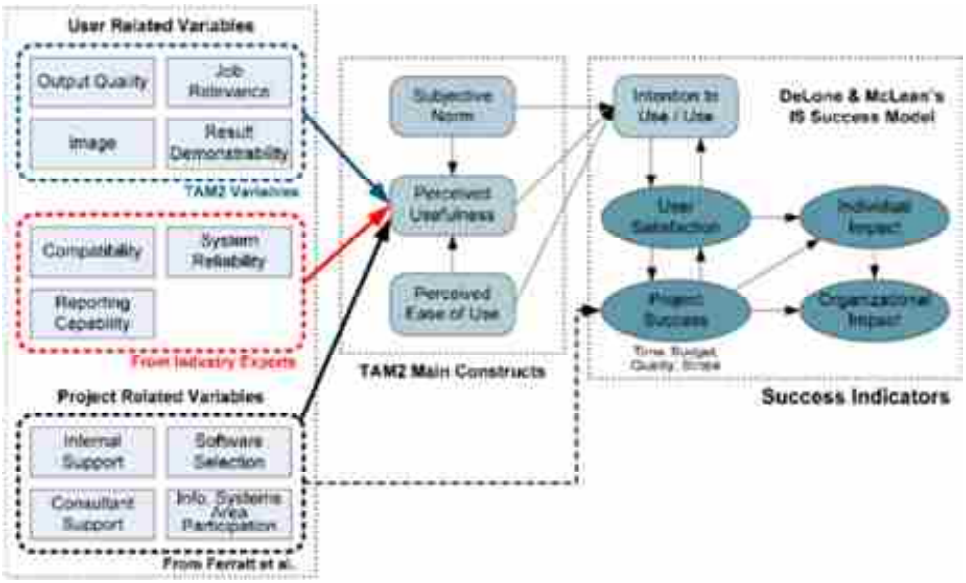
✓ Support and capability for consulting

These success variables were verified by Ferratt et al. (2006) using an empirical analysis of ERP projects. Additionally, they offered five outcome questions that, due to their substantial correlation, should be combined to generate a single outcome component called efficacy. Their regression analysis demonstrated that each success element can have a considerable impact on results, and we have included these factors in our study of the adoption of ERP (Ferratt et al. 2006).

Conceptual ERP Success Model :

Two types of ERP system success can be distinguished: ERP adoption success and ERP implementation success. This study uses the IS success model, TAM success model, and DM success model as the foundation for effective ERP deployment. Based on these integrated theoretical underpinnings, the model hypothesizes the reasons for the correlations between variables and includes three primary dimensions relevant to the effectiveness of ERP systems: success factors, intermediate constructs, and success indicators.

Based on evaluations of the foundations of project management, the model also takes the success of ERP adoption into account. The model includes the Ferratt et al. (2006) identified project management–related success variables. According to the research, these project management–related characteristics have a direct impact on perceived usefulness, which determines whether an ERP succeeds or fails.



Proposed conceptual ERP success model

Data Collection and Analysis :

Context–related factors sporadically show up among the CSFs for ERP deployment that have been found in previous studies. The case study approach aims to convey the reality of certain surroundings at a specific period (Jenkins, 1985). Walsham (1995) asserts that interviews serve as the main data sources in interpretive case studies when an outside observer is involved because they provide the most access to the respondents' interpretations and points of view.

The majority of the data used in an interpretive study are qualitative. The depth of interpretation, which is crucial in interpretive case studies, may be lost if the interviews are too strictly guided, perhaps leading to the loss of crucial data. On the other hand, being overly submissive, such as by failing to offer the researcher's own ideas or by failing to prompt with questions in response to a new direction taken by the interviewee, may cause the interviewees to draw the following conclusions: (1) The researcher is not interested in the interview; and (2) The researcher has no unique perspective on the topic at hand.

Walsham (1995) made the following statement about interview recording: "Interview subjects may be reticent on the sight of a tape–recorder regarding sensitive or confidential topics". Tape–recording interviews can offer a comprehensive transcript of what was said. The time required to write down the interviews or to glean anything valuable from them is a drawback of comprehensive tape recording. Making extensive notes during the interview and writing them out completely as soon as possible following is an alternative to tape–recording. Semi–structured interviews were used to collect only qualitative data for this study. According to written interview guide notes, the respondents were asked a few open–ended questions, although they were free to build on their own ideas.

The interviewees for HPPCL were chosen to represent a cross–section of management and users from various departments as well as their level of ERP system involvement. The managers of HPPCL were allowed to ask a few questions and provide answers to the questions they chose. The interview questions were based on identifying the CSFs in the implementation of SAP and ERP.

22 Critical Success Factors (CSFs) related to project/system implementation have been provided by Somers and Nelson. These CSFs were generated through a process that includes the discovery and synthesis of critical requirements suggested by practitioners and academicians. Below is the average for the 22 CSFs, listed in descending order of severity (5=critical, 4=very high, 3=high, 2=moderate, and 1=low).

No.	Critical Success Factor	Mean
1	Top Management Support	4.29
2	Project Team Competence	4.20
3	Interdepartmental Cooperation	4.19
4	Clear Goals and Objectives	4.15
5	Project Management	4.13
6	Interdepartmental Communication	4.09
7	Management of Expectations	4.06
8	Project Champion	4.03
9	Vendor Support	4.03
10	Careful package selection	3.89
11	Data Analysis & Conversion	3.83
12	Dedicated Resources	3.81
13	Use of Steering Committee	3.79
14	User Training on software	3.79
15	User Training on software	3.76
16	Business Process Reengineering	3.68
17	Minimal Customization	3.68
18	Architecture Choices	3.44
19	Change Management	3.43
20	Partnership with vendor	3.39
21	Use of Vendor's Tools	3.15
22	Use of Consultants	2.90

Conclusion :

The most CSFs that executives in the departments of people, finance, civil, electrical, and IT identified and believed were important for the adoption of ERP at the HPPCL Corporate Office and Field Office are included. This is how the importance of Critical Success Factors is expressed.

According to the information provided above from the HPPCL Corporate Office, among the top ten critical success factors, which include top management, change management, vendor support, user training and education, customization, careful package selection, project team competence, business process reengineering, use of consultants, and interdepartmental communication and cooperation, change management was most frequently emphasized by executives.

BLOCK SUMMARY :

Frameworks for enterprise resource planning (ERP) have the potential to be the solution to each company's problems. Utilizing an ERP framework all at once gives a firm the chance to re–engineer business processes, connect data, coordinate frameworks across geographically dispersed places, and enable clients to gain access to all of the company's information gradually. Of course, the value of these possibilities is unpredictable. Regular usage fails badly in terms of budgetary expense, usage nightmares, and human problems since they fall behind schedule and budget when at other times, they would be effective. Regardless of the outcome, every ERP implementation contains crucial lessons about the opportunity that businesses may earn by acknowledging their ERP usage.

❖ **Enrolment No. :** ☐

1. How many hours did you need for studying the units ?

Unit No.	13	14	15
No. of Hrs.			

2. Please give your reactions to the following items based on your reading of the block :

Items	Excellent	Very Good	Good	Poor	Give specific example if any
Presentation Quality	☐	☐	☐	☐	_____
Language and Style	☐	☐	☐	☐	_____
Illustration used (Diagram, tables etc)	☐	☐	☐	☐	_____
Conceptual Clarity	☐	☐	☐	☐	_____
Check your progress Quest	☐	☐	☐	☐	_____
Feed back to CYP Question	☐	☐	☐	☐	_____

3. Any other Comments

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