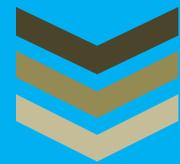


# Referencer for Quick Revision



## Intermediate Course Paper-7: Enterprise Information Systems and Strategic Management



A compendium of subject-wise capsules published in the  
monthly journal "The Chartered Accountant Student"

**Board of Studies  
(Academic)  
ICAI**

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## PAPER 7A: ENTERPRISE INFORMATION SYSTEMS

The capsule on Intermediate Paper 7A: Enterprise Information Systems that covers the “Chapter 1- Automated Business Processes” and “Chapter 2- Financial and Accounting Systems” of the subject is another step of Board of Studies in its endeavour to provide quality academic inputs to the Intermediate students of Chartered Accountancy Course. This capsule intends to assist students in their quick revision and should not be taken as a substitute for the detailed study of the aforesaid two chapters. Students are advised to refer to the relevant Study Material and Revision Test Paper for comprehensive study and revision.

### CHAPTER 1: AUTOMATED BUSINESS PROCESSES

This chapter deals with the basic concepts of Business Process, its automation and implementation; risks and controls associated with various business processes, and provide the comprehensive knowledge about the specific regulatory and compliance requirements of The Companies Act, 2013 and The IT Act, 2000.

An **Enterprise Information System (EIS)** may be defined as any kind of information system which improves the functions of an enterprise business processes by integration. This means classically offering high quality services, dealing with large volumes of data and capable of supporting some huge and possibly complex organization or enterprise. All parts of EIS should be usable at all levels of an enterprise as relevant. A **Business Process** is an activity or set of activities that will accomplish a specific organizational goal.

#### Categories of Business Processes

Operational Processes	Supporting Processes	Management Processes
<b>Operational or Primary Processes</b> deal with the core business and value chain. These processes deliver value to the customer by helping to produce a product or service. Operational processes represent essential business activities that accomplish business objectives.	<b>Supporting Processes</b> back core processes and functions within an organization. Examples of supporting or management processes include Accounting, Human Resource (HR) Management and workplace safety.	<b>Management processes</b> measure, monitor and control activities related to business procedures and systems. Examples of management processes include internal communications, governance, strategic planning, budgeting, and infrastructure or capacity management.
Example- Order to Cash (O2C) cycle.	Example- Human Resource Process.	Example – Budgeting.

#### BUSINESS PROCESS AUTOMATION

**Business Process Automation (BPA)** is the tactic a business uses to automate processes to operate efficiently and effectively.

##### CONFIDENTIALITY

- To ensure that data is only available to persons who have right to see same.

##### INTEGRITY

- To ensure that no unauthorized amendments can be made in data.

##### BPA Objectives

##### AVAILABILITY

- To ensure that data is available when asked for.

##### TIMELINESS

- To ensure that data is made available in at the right time.

#### Benefits of Business Process Automation

##### QUALITY & CONSISTENCY

- Ensures that every action is performed identically - resulting in high quality reliable results and stakeholders consistently experience the same level of service.

##### TIME SAVING

- Automation reduces the number of tasks employees would otherwise need to do manually, thus allowing innovation and increasing employees' levels of motivation.

##### VISIBILITY

- Automated processes are controlled and consistently operate accurately within the defined timeline. It gives visibility of the process status to the organization.

##### IMPROVED OPERATIONAL EFFICIENCY

- Automation reduces the time it takes to achieve a task, the effort required to undertake it and the cost of completing it successfully.
- Automation not only ensures systems run smoothly and efficiently, but that errors are eliminated and that best practices are constantly leveraged.

##### GOVERNANCE & RELIABILITY

- The consistency of automated processes means stakeholders can rely on business processes to operate and offer reliable processes to customers, maintaining a competitive advantage.

##### REDUCED TURNAROUND TIMES

- Eliminate unnecessary tasks and realign process steps to optimize the flow of information throughout production, service, billing and collection.
- This adjustment of processes distills operational performance and reduces the turnaround times for both staff and external customers.

##### REDUCED COSTS

- Manual tasks, given that they are performed one-at-a-time and at a slower rate than an automated task, will cost more. Automation allows us to accomplish more by utilizing fewer resources.

#### Steps involved in the Implementation of BPA

**Step 1:** Define why we plan to implement BPA?

- The answer to this question will provide justification for implementing BPA.

**Step 2:** Understand rules/ regulation under which it needs to comply with?

- The underlying issue is that any BPA created needs to comply with applicable laws and regulations.

**Step 3:** Document the process, we wish to automate.

- The current processes which are planned to be automated need to be correctly and completely documented at this step.

**Step 4:** Define the objectives/goals to be achieved by implementing BPA.

- This enables the developer and user to understand the reasons for going for BPA. The goals need to be precise and clear.

**Step 5:** Engage business process consultant.

- Once the entity has been able to define the above, the entity needs to appoint an expert, who can implement it for the entity.

**Step 6:** Calculate the RoI for project.

- The answer to this question can be used for convincing top management to say 'yes' to the BPA exercise.

**Step 7:** Development of BPA.

- Once the top management grant their approval, the right business solution has to be procured and implemented or developed and implemented covering necessary BPA.

**Step 8:** Testing the BPA.

- Before making the process live, the BPA solutions should be fully tested.

Risk is defined as any event that may result in a significant deviation from a planned objective resulting in an unwanted negative consequence.

### Types of Business Risks

<b>Strategic</b>	Risk that would prevent an organization from accomplishing its objectives.
<b>Financial</b>	Risk that could result in a negative financial impact to the organization.
<b>Regulatory (Compliance)</b>	Risk that could expose the organization to fines and penalties from a regulatory agency due to non-compliance with laws and regulations.
<b>Operational</b>	Risk that could prevent the organization from operating in the most effective and efficient manner or be disruptive to other operations.
<b>Hazard</b>	Risks that are insurable, such as natural disasters; various insurable liabilities; impairment of physical assets; terrorism etc.
<b>Residual</b>	Any risk remaining even after the counter measures are analyzed and implemented is called Residual Risk.

### Risk Management and related terms

**Asset** can be defined as something of value to the organization.

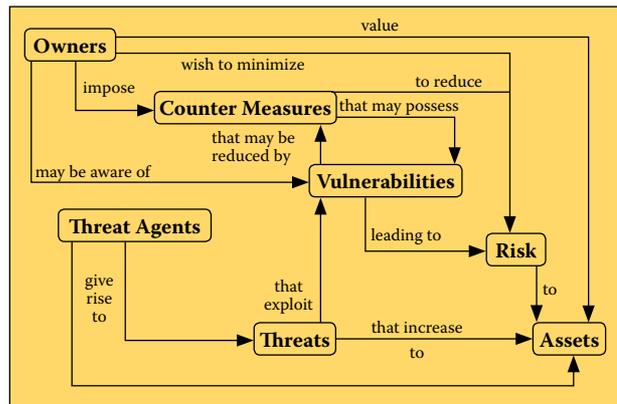
**Threat** is an action, event or condition where there is a compromise in the system, its quality and ability to inflict harm to the organization.

**Likelihood** of the threat occurring is the estimation of the probability that the threat will succeed in achieving an undesirable event.

**Attack** is an attempt to gain unauthorized access to the system's services or to compromise the system's dependability.

**Exposure** is the extent of loss the enterprise has to face when a risk materializes.

**Vulnerability** is the weakness in the system safeguards that exposes the system to threats.



### Risk Management Strategies

**Tolerate/ Accept the risk**

- In this case, consciously accepting the risk as a cost of doing business is appropriate, as well as periodically reviewing the risk to ensure its impact remains low.

**Terminate/ Eliminate the risk**

- The risk can be eliminated by replacing the technology with more robust products and by seeking more capable suppliers and vendors.

**Transfer/Share the risk**

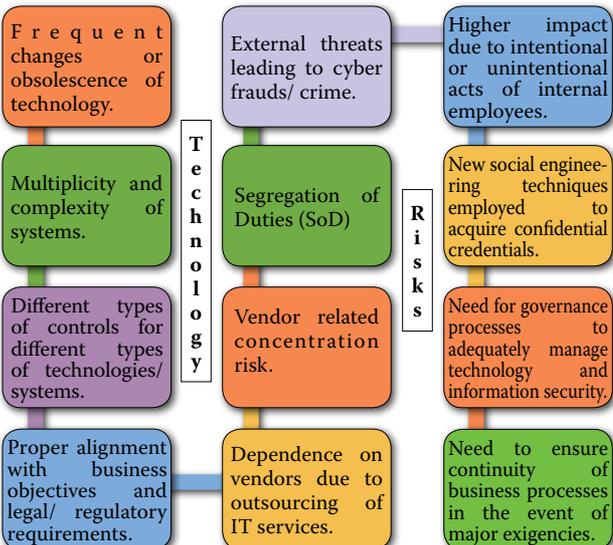
- Risk mitigation approaches can be shared with trading partners and suppliers.
- Risk also may be mitigated by transferring the cost of realized risk to an insurance provider.

**Treat/Mitigate the risk**

- Where other options have been eliminated, suitable controls must be devised and implemented to prevent the risk from manifesting itself or to minimize its effects.

**Turn back**

- Where the probability or impact of the risk is very low, then management may decide to ignore the risk.



# ENTERPRISE INFORMATION SYSTEMS

- Control**
  - Defined as policies, procedures, practices and organization structure that are designed to provide reasonable assurance that business objectives are achieved and undesired events are prevented or detected and corrected.
- Internal Controls**
  - These are a system consisting of specific policies and procedures.
  - Designed to provide management with reasonable assurance that the goals and objectives it believes important to the entity will be met.
- Internal Control System**
  - Facilitates the effectiveness and efficiency of operations.
  - Helps ensure the reliability of internal and external financial reporting.
  - Assists compliance with applicable laws and regulations.
  - Helps safeguarding the assets of the entity.

- Information and Communication**

**Information** is necessary for the entity to carry out internal control responsibilities in support of the achievement of its objectives. **Communication** is the continual, iterative process of providing, sharing, and obtaining necessary information.
- Monitoring of Controls**

Ongoing evaluations, separate evaluations, or some combination of two are used to ascertain whether each of five components of internal control, including controls are present and functioning.

**ENTERPRISE RISK MANAGEMENT (ERM)**  
 It may be defined as a process, effected by an entity's Board of Directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.

**IT Control objectives** is defined as: "A statement of the desired result or purpose to be achieved by implementing control procedures within a particular IT activity".  
 Classification of IT controls is as follows:

<b>General Controls:</b> Also, known as Infrastructure Controls, these are pervasive controls and apply to all systems components, processes, and data for a given enterprise or systems environment.	<b>Application Controls:</b> These are implemented in an application to prevent or detect and correct errors. Application controls ensure that all transactions are authorized, complete and accurate.
General Controls include, but are not limited to: <ul style="list-style-type: none"> <li>Information Security Policy;</li> <li>Administration, Access, and Authentication;</li> <li>Separation of key IT functions;</li> <li>Management of Systems Acquisition and Implementation;</li> <li>Change Management;</li> <li>Backup, Recovery &amp; Business Continuity;</li> <li>Proper Development and Implementation of Application S/w;</li> <li>Confidentiality, Integrity &amp; Availability of Software &amp; data files; and</li> <li>Incident response and management.</li> </ul>	Some examples of Application controls are as follows: <ul style="list-style-type: none"> <li>Data edits (editing of data is allowed only for permissible fields);</li> <li>Separation of business functions (e.g., transaction initiation versus authorization);</li> <li>Balancing of processing totals (debit and credit of all transactions are tallied);</li> <li>Transaction logging (all transactions are identified with unique id and logged);</li> <li>Error reporting (errors in processing are reported); and</li> <li>Exception Reporting (all exceptions are reported).</li> </ul>

### Components of Internal Control System

- Control Environment**

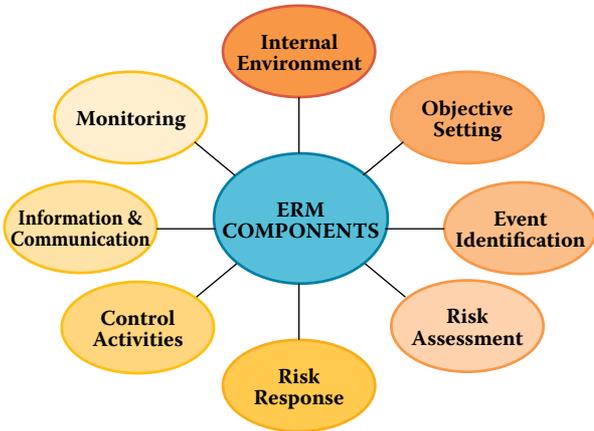
Set of standards, processes and structures that provide the basis for carrying out internal control across the organization.
- Risk Assessment**

This forms the basis for determining how risks will be managed. A precondition to risk assessment is establishment of objectives, linked at different levels of entity.
- Control Activities**

Actions established through policies and procedures that help ensure that management's directives to mitigate risks to the achievement of objectives are carried out.

### Benefits of Enterprise Risk Management (ERM)

- Align risk appetite and strategy**
  - Risk appetite is degree of risk, on a broad-based level that an enterprise is willing to accept in pursuit of its goals. Management considers the entity's risk appetite first in evaluating strategic alternatives, then in setting objectives aligned with the selected strategy and in developing mechanisms to manage the related risks.
- Link growth, risk and return**
  - Entities accept risk as part of value creation and preservation, and they expect return commensurate with the risk. ERM provides an enhanced ability to identify and assess risks, and establish acceptable levels of risk relative to growth and return objectives.
- Enhance risk response decisions**
  - ERM provides the rigor to identify and select among alternative risk responses - risk avoidance, reduction, sharing and acceptance. ERM provides methodologies and techniques for making these decisions.
- Minimize operational surprises and losses**
  - Entities have enhanced capability to identify potential events, assess risk and establish responses, thereby reducing the occurrence of surprises and related costs or losses.
- Identify and manage cross-enterprise risks**
  - Every entity faces a myriad of risks affecting different parts of the enterprise. Management needs to not only manage individual risks, but also understand interrelated impacts.
- Provide integrated responses to multiple risks**
  - Business processes carry many inherent risks, and ERM enables integrated solutions for managing the risks.
- Seize opportunities**
  - Management considers potential events, rather than just risks, and by considering a full range of events, management gains an understanding of how certain events represent opportunities.
- Rationalize capital**
  - More robust information on an entity's total risk allows management to more effectively assess overall capital needs and improve capital allocation.



## Diagrammatic Representation of Business Processes

**Flowcharts**

- These are used in designing and documenting simple processes or programs. Like other types of diagrams, they help visualize what is going on and thereby help understand a process, and perhaps also find flaws, bottlenecks, and other less-obvious features within it.

**Data Flow Diagrams (DFDs)**

- DFD basically provides an overview of
  - (a) What data a system processes;
  - (b) What transformations are performed;
  - (c) What data are stored; and
  - (d) What results are produced and where they flow.

- Internal Environment**
  - Encompasses the tone of an organization, and sets the basis for how risk is viewed and addressed by an entity's people, including risk management philosophy and risk appetite, integrity and ethical values, and the environment in which they operate.
- Objective Setting**
  - ERM ensures that management has a process in place to set objectives and that the chosen objectives support and align with the entity's mission/vision and are consistent with the entity's risk appetite.
- Event Identification**
  - Event identification includes identifying factors - internal and external - that influence how potential events may affect strategy implementation and achievement of objectives.
- Risk Assessment**
  - Identified risks are analyzed to form a basis for determining how they should be managed. Risks are associated with related objectives that may be affected.
- Risk Response**
  - Management selects an approach or set of actions to align assessed risks with the entity's risk tolerance and risk appetite, in the context of strategy and objectives.
- Control Activities**
  - Policies and procedures are established and executed to help ensure that the risk responses management selected, are effectively carried out.
- Information and Communication**
  - Relevant information is identified, captured and communicated in a form and time frame that enable people to carry out their responsibilities.
- Monitoring**
  - Monitoring is accomplished through ongoing management activities, separate evaluations of the ERM processes or a combination of the both.

**In Computer systems, Controls should be checked at three levels**

### Configuration

- Refers to the methodical process of defining options that are provided.
- Defines how software functions and what menu options are displayed.

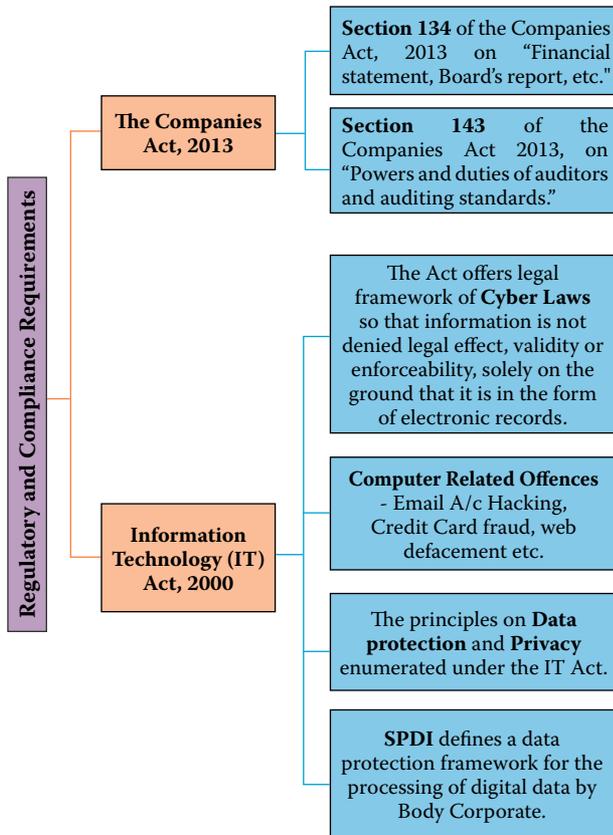
### Masters

- Refers to the way various parameters are set up for all modules of software like Purchase, Sales, Inventory, Finance etc.
- Set up first time during installation and these are changed whenever the business process rules or parameters are changed.
- Examples are Vendor Master, Customer Master, Material Master, Accounts Master, Employee Master etc.

### Transactions

- Refers to the actual transactions entered through menus and functions in the application software, through which all transactions for specific modules are initiated, authorized or approved.
- For example: Sales transactions, Purchase transactions, Stock transfer transactions, Journal entries and Payment transactions.

# ENTERPRISE INFORMATION SYSTEMS



**Section 134 of the Companies Act, 2013** on "Financial statement, Board's report, etc." states inter alia: The Directors' Responsibility Statement referred to in clause (c) of sub-section (3) shall state that:

the Directors had taken proper and sufficient care for the maintenance of adequate accounting records in accordance with the provisions of this Act for safeguarding the assets of the company and for preventing and detecting fraud and other irregularities;

the directors, in the case of a listed company, had laid down internal financial controls to be followed by the company and that such internal financial controls are adequate and were operating effectively.

**Section 143(3)(i)** contains the **Auditor's Report** which shall state that:

"Whether the company has adequate internal financial controls system in place and the operating effectiveness of such controls";

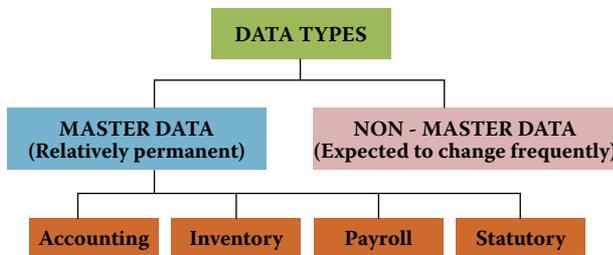
When we talk in terms of "adequacy and effectiveness of controls"; it refers to the adequacy of the control design and whether the control has been working effectively during the relevant financial year.

## CHAPTER 2: FINANCIAL AND ACCOUNTING SYSTEMS

This chapter provides an overview of the concept of **Financial and Accounting Systems, Integrated and Non-integrated Systems** and further acquaint the students about **Regulatory and Compliance requirements with Financial and Accounting systems**.

From a business perspective, a **Process** is a coordinated and standardized flow of activities performed by people or machines, which can traverse functional or departmental boundaries to achieve a business objective and creates value for internal or external customers.

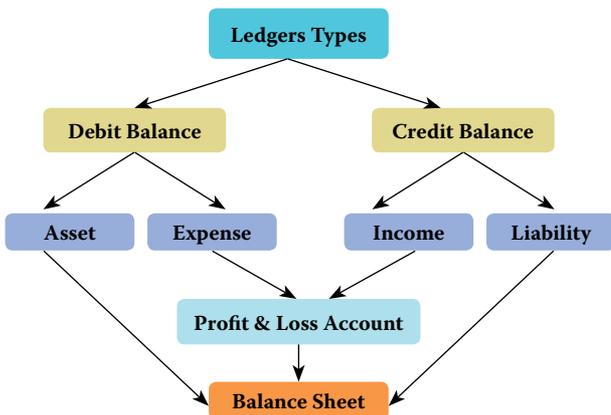
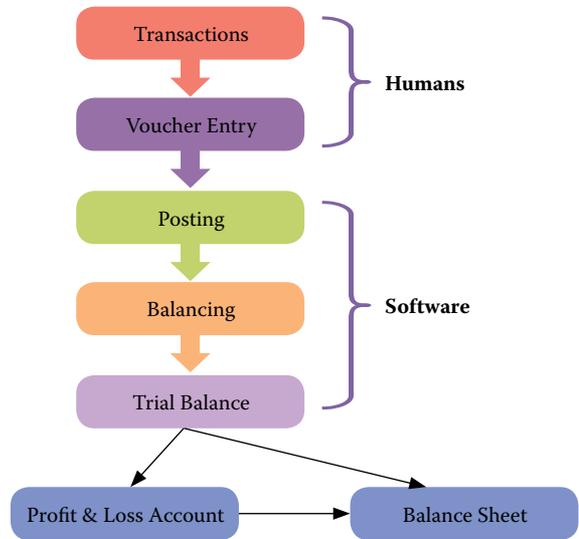
In accounting language, a **Voucher** is a documentary evidence of a transaction. There may be different documentary evidences for different types of transactions.



Voucher Types			
1	Contra	Accounting	For recording of four types of transactions as under. <ul style="list-style-type: none"> <li>Cash deposit in bank.</li> <li>Cash withdrawal from bank.</li> <li>Cash transfer from one location to another.</li> <li>Fund transfer from our one bank account to our own another bank account.</li> </ul>
2	Payment	Accounting	For recording of all types of payments. Whenever the money is going out of business by any mode (cash/bank).
3	Receipt	Accounting	For recording of all types of receipts. Whenever money is being received into business from outside by any mode (cash/bank).

4	Journal	Accounting	For recording of all non-cash/bank transactions. E.g. Depreciation, Provision, Write-off, Write-back, discount given/received, Purchase/Sale of fixed assets on credit, etc.
5	Sales	Accounting	For recording all types of trading sales by any mode (cash/bank/credit).
6	Purchase	Accounting	For recording all types of trading purchase by any mode (cash/bank/credit).
7	Credit Note	Accounting	For making changes/corrections in already recorded sales/purchase transactions.
8	Debit Note	Accounting	For making changes/corrections in already recorded sales/purchase transactions.
9	Purchase Order	Inventory	For recording of a purchase order raised on a vendor.
10	Sales Order	Inventory	For recording of a sales order received from a customer.
11	Stock Journal	Inventory	For recording of physical movement of stock from one location to another.
12	Physical Stock	Inventory	For making corrections in stock after physical counting.
13	Delivery Note	Inventory	For recording of physical delivery of goods sold to a customer.
14	Receipt Note	Inventory	For recording of physical receipt of goods purchased from a vendor.
15	Memorandum	Accounting	For recording of transaction which will be in the system but will not affect the trial balance.
16	Attendance	Payroll	For recording of attendance of employees.
17	Payroll	Payroll	For salary calculations.

### Steps involved in the Accounting Flow



Installed Applications vs. Cloud Based Applications		
Particulars	Installed Application	Cloud Based Application
<b>Installation &amp; Maintenance</b>	As software is installed on hard disc of the computer used by user, it needs to be installed on every computer one by one.	Installation on user computer is not required. Update and maintenance are defined responsibility of service provider.
<b>Accessibility</b>	The user needs to go the computer only, i.e. computer where software is installed, to use the software.	As software is available through online access, to use the software a browser and an internet connection is needed.
<b>Mobile Application</b>	Using the software through mobile application is difficult in this case.	Mobile application becomes very easy as data is available 24x7 and makes cloud based application future oriented.
<b>Data Storage</b>	Data is physically stored in the premises of the user, i.e. on the hard disc of the user's server computer.	Data is stored on a web server and ownership of data is defined in Service Level Agreement (SLA).
<b>Data Security</b>	As the data is in physical control of the user, user shall have the full physical control over the data and he/she can ensure that it is not accessed without proper access.	Data security is a challenge in this case as the data is not in control of the user or owner of data.
<b>Performance</b>	A well written installed application shall always be faster than web application.	Access is dependent on speed of internet. Slow internet slows access to information and may slow operations.
<b>Flexibility</b>	Installed applications shall have more flexibility and controls as compared to web application.	The cloud based applications allow flexibility against both capital expenditure (CAPEX) and Operating Expense (OPEX) to the user.

# ENTERPRISE INFORMATION SYSTEMS

## Enterprise Resource Planning (ERP)

An ERP system is based on a common database and a modular software design. The common database can allow every department of a business to store and retrieve information in real-time. The information should be reliable, accessible, and easily shared. An ERP system supports most of the business system that maintains in a single database the data needed for a variety of business functions such as Manufacturing, Supply Chain Management, Financials, Projects, Human Resources and Customer Relationship Management.

### Benefits of an ERP System

- Information Integration
- Reduction of lead-time
- On-time Shipment
- Reduction in cycle Time
- Improved Resource utilization
- Better Customer satisfaction
- Use of latest Technology
- Improved Supplier Performance
- Increased Flexibility
- Reduced Quality costs
- Better Analysis and Planning Capabilities
- Improved information accuracy and decision making capability

The successful implementation of ERP depends on the following parameters:

### Risks and Controls associated with ERP related to People Issues

Aspect	Risk Associated	Control Required
Change Management	Change will occur in the employee's job profile in terms of some jobs becoming irrelevant and some new jobs created.	Practical hands on training of the ERP System should be provided so that the transition from old system to ERP system is smooth and hassle free.
	The way in which organization functions will change, the planning, forecasting and decision-making capabilities will improve, information integration happening etc.	The project requirements are to be properly documented and signed by the users and senior management.
	Changing the scope of the project is another problem.	This requires clear defining of change control procedures and holds everyone to them.
Training	Since the greater part of the raining takes place towards the end of the ERP implementation cycle, management may curtail the training due to increase in the overall cost budget.	Training is a project-managed activity and shall be imparted to the users in an organization by the skilled consultants and representatives of the hardware and package vendors.
Staff Turnover	As the overall system is integrated and connected with each other department, it becomes complicated and difficult to understand.	This can be controlled and minimized with help of proper staff training system, having help manuals, having backup plans for staff turnover, etc.

Aspect	Risk Associated	Control Required
Top Management Support	ERP implementation will fail if the top management does not provide the support and grant permission for the availability of the huge resources that are required during the transition.	The ERP implementation shall be started only after the top management is fully convinced and assure of providing the full support.
Consultants	These are experts in the implementation of the ERP package and might not be familiar with the internal workings and organizational culture.	The consultants should be assigned a liaison officer - a senior manager - who can familiarize them with the company and its working.

### Risks and Controls associated with ERP related to Process Risk

Aspect	Risk Associated	Control Required
Program Management	There could be a possibility of an information gap between day-to-day program management activities and ERP-enabled functions.	This requires bridging the information gap between traditional ERP-based functions and high value operational management functions.
Business Process Reengineering (BPR)	BPR means not just change - but dramatic change and dramatic improvements.	This requires overhauling of organizational structures, job descriptions, performance measurements etc.

### Risks and Controls associated with ERP related to Technological Risk

Aspect	Risk Associated	Control Required
Software Functionality	Implementing all the functionality and features just for the sake of it can be disastrous for an organization.	Care should be taken to incorporate the features that are required by the organization and supporting additional features and functionality that might be required at a future date.
Technological Obsolescence	With the advent of more efficient technologies every day, the ERP system also becomes obsolete as time goes on.	This requires critical choice of technology, architecture of the product, ease of enhancements, ease of upgrading, quality of vendor support.
Enhancement and Upgrades	ERP Systems are not upgraded and kept up-to-date. Patches and upgrades are not installed and the tools are underutilized.	Care must be taken while selecting the vendor and upgrade/support contracts should be signed to minimize the risks.
Application Portfolio Management	These processes focus on the selection of new business applications and the projects required delivering them.	By bringing to the light the sheer number of applications in the current portfolio, IT organizations can begin to reduce duplication and complexity.

Risks and Controls associated with ERP related to implementation issues		
Aspect	Risk Associated	Control Required
<b>Lengthy implementation time</b>	Due to technological developments happening every day, the business and technological environment during the start and completion of the project will never be the same.	Care must be taken to keep the momentum high and enthusiasm live amongst the employees, so as to minimize the risk.
<b>Insufficient Funding</b>	The budget for ERP implementation is generally allocated without consulting experts and then implementation is stopped along the way, due to lack of funds.	It is necessary to allocate necessary funds for the ERP implementation project and then allocate some more for contingencies.
<b>Data Safety</b>	As there is only one set of data, if this data is lost, whole business may come to stand still.	Back up arrangement needs to be very strong. Also, strict physical control is needed for data.
<b>Speed of Operation</b>	As data is maintained centrally, gradually the data size becomes more and more and it may reduce the speed of operation.	This can be controlled by removing redundant data, using techniques like data warehousing and updating hardware on a continuous basis.
<b>System Failure</b>	As everybody is connected to a single system and central database, in case of failure of system, the whole business may come to stand still may get affected badly.	This can be controlled and minimized by having proper and updated back up of data as well as alternate hardware / internet arrangements.
<b>Data Access</b>	Data is stored centrally and all the departments access the central data. This creates a possibility of access to non-relevant data.	Access rights need to be defined very carefully and to be given on "Need to know" and "Need to do" basis only.

Risks and Controls associated with ERP related to post-implementation issues		
Aspect	Risk Associated	Control Required
<b>Lifelong commitment</b>	Even after the ERP implementation, there will always be new modules/versions to install, new persons to be trained, new technologies to be embraced, refresher courses to be conducted and so on.	This requires a strong level of commitment and consistency by the management and users of the system.

**Role-Based Access Control (RBAC)** is an approach to restricting system access to authorized users. RBAC sometimes referred to as Role-Based Security, is a policy neutral access control mechanism defined around roles and privileges that lets employees having access rights only to the information they need to do their jobs and prevent them from accessing information that doesn't pertain to them. It is used by most enterprises and can implement **Mandatory Access Control (MAC)** or **Discretionary Access Control (DAC)**. The components of RBAC such as role-permissions; user-role and role-role relationships make it simple to perform user assignments. While assigning access to Master Data, Transaction Data and Reports to different users; following options are possible.

- (i) Create – Allows to create data;
- (ii) Alter – Allows to alter data;
- (iii) View – Allows only to view data; and
- (iv) Print – Allows to print data.

### Audit of ERP Systems

When evaluating controls over ERP systems decisions must be made regarding the relevance of operational internal control procedures to Information Technology (IT) controls. Controls are divided into **General Controls** and **Application Controls**.

• **General Controls** include controls over Information Technology management controls addressing the information technology oversight process; Information Technology infrastructure security management and software acquisition; monitoring and reporting information technology activities; business improvement initiatives; and development and maintenance. General controls can be further divided into **Management Controls** and **Environmental Controls**.

• **Application Controls** pertain to the scope of individual business processes or application systems. Individual applications may rely on effective operation of controls over information systems to ensure that interface data are generated when needed, supporting applications are available and interface errors are detected quickly.

Auditing aspects in case of any ERP system can be summarized as under:

- (i) **Auditing of Data**
  - **Physical Safety** – Ensuring physical control over data.
  - **Access Control** – Ensuring access to the system is given on "need to know" and "need to do basis".
- (ii) **Auditing of Processes**
  - **Functional Audit** – This includes testing of different functions/features in the system and testing of the overall process or part of process in the system and its comparison with actual process.
  - **Input Validations** – This stands for checking of rules for input of data into the system.



# ENTERPRISE INFORMATION SYSTEMS

- Financial Accounting Module** { This module is the most important module of the overall ERP System and it connects all the modules to each other.
- Controlling Module** { This module facilitates coordinating, monitoring, and optimizing all the processes in an organization. The key fetures of this module are- element accounting, cost center accounting, activity based acconting, internal orders, product cost controlling , profitability analysis and profit center accounting.
- Sales and Distribution Module** { This is used by organizations to support sales and distribution activities of products and services, starting from enquiry to order and then ending with delivery.
- Human Resource Module** { This module enhances the work process and data management within HR department of enterprises.
- Production Planning (PP) Module** { PP module is another important module that includes software designed specifically for production planning and management.
- Material Management (MM) Module** { MM module as the term suggests manages materials required, processed and produced in enterprises.
- Quality Management Module** { Quality Management module helps in management of quality in productions across processes in an organization. The process of quality management module includes quality planning, control, Assurance, Improvement etc.
- Plant Maintenance Module** { This is a functional module which handles the maintaining of equipment and enables efficient planning of production and generation schedules.
- Project Systems** { These are used for planning and managing projects.
- Supply Chain Module** { This module provides extensive functionality for logistics, manufacturing, planning, and analytics.
- Customer Relationship Management (CRM)** { Customer Relationship Management is a system which aims at improving the relationship with existing customers, finding new prospective customers, and winning back former customers.

Management Information Systems (MIS) Report	
It is a tool that managers use to evaluate business processes and operations.	<p>An MIS report for this would likely contain data such as:</p> <ul style="list-style-type: none"> <li>• The number of calls your staff takes;</li> <li>• The number of emails that come in each day;</li> <li>• The average amount of time it takes to answer a phone call or email; and</li> <li>• The number of questions that your staff answers correctly vs. the number that are incorrect.</li> </ul>

The information must meet following criteria to become useful for the user:

Relevant	Timely	Accurate	Structured
MIS reports need to be specific to the business area they address. This is important because a report that includes unnecessary information might be ignored.	Managers need to know what's happening now or in the recent past to make decisions about the future.	It's critical that numbers add up and that dates and times are correct. Financial information is often required to be accurate to the dollar.	Try to break long passages of information into more readable blocks or chunks and give these chunks meaningful headings.

**Data Analytics** { **Data Analytics** is the process of examining data sets to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software.

**Business Intelligence (BI)** { **BI** encompasses a wide variety of tools, applications and methodologies that enable organizations to collect data from internal systems and external sources, prepare it for analysis, develop and run queries against the data, and create reports, dashboards and data visualizations to make the analytical results available to corporate decision makers as well as operational workers.

- Business Reporting** {
- It is the public reporting of operating and financial data by a business enterprise, or the regular provision of information to decision-makers within an organization to support them in their work.
  - **XBRL (eXtensible Business Reporting Language)** is a freely available and global standard for exchanging business information. XBRL allows the expression of semantic meaning commonly required in business reporting.
  - **Who uses XBRL?** Regulators; Companies; Governments; Data Providers; Analysts and investors and Accountants.
  - **Important features of XBRL**
    - Clear Definitions
    - Testable Business Rules
    - Multi-lingual Support
    - Strong Software Support

**Regulatory Compliance** describes the goal that organizations aspire to achieve in their efforts to ensure that they are aware of and take steps to comply with relevant laws, policies, and regulations. This approach is used to ensure that all necessary governance requirements can be met without the unnecessary duplication of effort and activity from resources. Violations of regulatory compliance regulations often result in legal punishment, including interest, penalty and prosecution in some cases.

The compliance and regulatory requirements can be categorizes in two types as under:

- a. **General** – Applicable to all irrespective of anything.
- b. **Specific** – Applicable to specific type of businesses only.

Most of the regulatory Compliance requires accounting data and accounting data comes from accounting systems. There may be two approaches for making compliances requiring accounting data.

- a. Using same software for accounting and tax compliance; and
- b. Using different software for accounting and tax compliance.

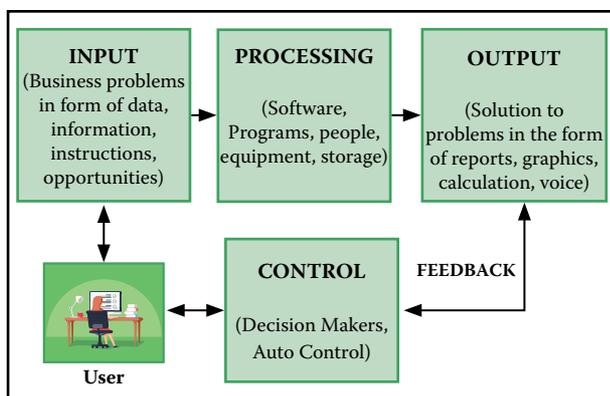
## INTERMEDIATE: PAPER 7A - ENTERPRISE INFORMATION SYSTEMS

The capsule on Intermediate Paper 7A: Enterprise Information Systems that covers the "Chapter 3 - Information Systems and its Components" of the subject is another step of Board of Studies in its endeavour to provide quality academic inputs to the Intermediate students of Chartered Accountancy Course. This capsule intends to assist students in their quick revision and should not be taken as a substitute for the detailed study of the aforesaid chapter. Students are advised to refer to the relevant Study Material and Revision Test Paper for comprehensive study and revision.

### CHAPTER 3: INFORMATION SYSTEMS AND ITS COMPONENTS

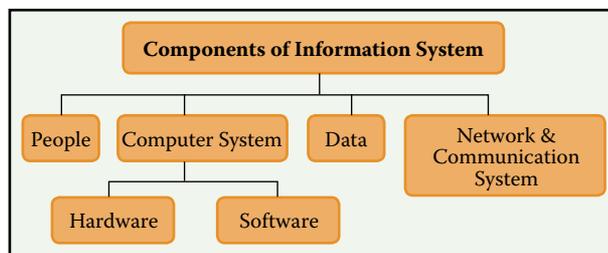
This chapter provides a deep understanding about various components of an Information system and its working, types of threats and their mitigating controls and audit aspects of various components of Information Systems.

An **Information System** is a combination of people, hardware, software, communicating devices, network and data resources that processes (can be storing, retrieving, transforming information) data and information for a specific purpose.

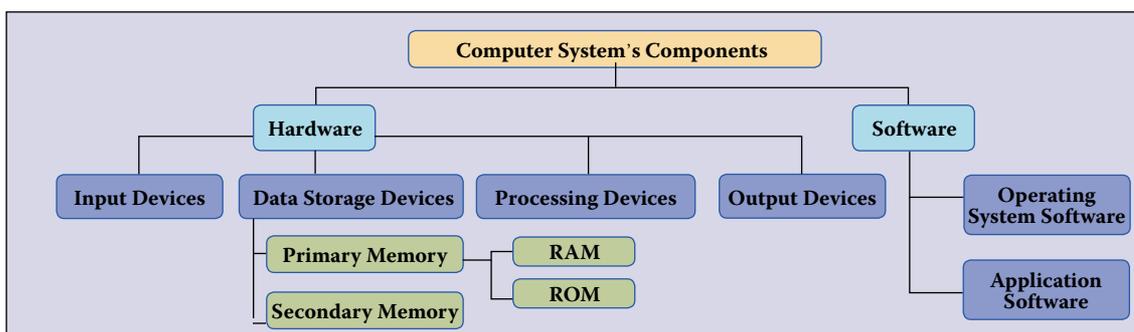


Functions of an Information System

<b>Input</b>	Data is collected from an organization or from external environments and converted into suitable format required for processing.
<b>Process</b>	A process is a series of steps undertaken to achieve desired outcome or goal.
<b>Output</b>	Then information is stored for future use or communicated to user after application of respective procedure on it.
<b>Feedback</b>	Apart from these activities, information systems also need feedback that is returned to appropriate members of the enterprises to help them to evaluate at the input stage.



<b>People</b>	The people involved include users of the system and information systems personnel, including all the people who manage, run, program, and maintain the system.
<b>Computer System</b>	<p><b>Hardware:</b> Information Systems hardware is the part of Information Systems that we can touch-the physical components of technology. Computers, keyboards, hard drives, iPads and flash drives are all examples of Information Systems hardware.</p> <p><b>Software:</b> Software is a set of instructions that tells the hardware what to do. Software is not tangible it cannot be touched. Software can be divided into following two categories:</p> <ul style="list-style-type: none"> <li>• An <b>Operating System (OS)</b> is a set of computer programs that manages computer hardware resources and acts as an interface with computer applications programs.</li> <li>• <b>Application software</b> includes all that computer software that causes a computer to perform useful tasks beyond the running of the computer itself.</li> </ul>
<b>Data</b>	Data are the raw bits and pieces of information with no context. Data can either be Quantitative which is numeric or Qualitative data which is descriptive.
<b>Networking and Communication Systems</b>	These consist of both physical devices and software, links the various pieces of hardware and transfers the data from one physical location to another. Computers and communications equipment can be connected in networks for sharing voice, data, images, sound and video.



## Input Devices

- These are the devices through which we interact with the systems and include devices like keyboard, mouse, scanners, Barcode reader and webcam etc.

## Output Devices

- Output devices are devices through which system responds. Visual output devices like a display device visually conveys text, graphics, and video information. Information shown on a display device is called soft copy. Some types of output are textual, graphical, tactile, audio, and video.

## Processing Devices

- These are used to process data using program instructions, manipulate functions, perform calculations and control hardware devices. It consists of three functional units—Control unit, Arithmetic and logical unit and Processor Registers.

## Data Storage Devices

- These refer to memory where data and programs are stored. It is categorised as Primary/Main memory and Secondary memory. The Primary memory is further divided in two types—RAM and ROM.

### RAM Vs ROM—Types of Primary Memory

Aspect	Random Access Memory (RAM)	Read Only Memory (ROM)
<b>Data Retention</b>	Volatile in nature means information is lost as soon as power is turned off.	Non-volatile in nature (contents remain intact even in absence of power).
<b>Persistence</b>	Purpose is to hold program and data while they are in use.	Used to store small amount of information for quick reference by CPU.
<b>Information Access</b>	Information can be read as well as modified.	Information can be read not modified.
<b>Storage</b>	Responsible for storing the instructions and data that the computer is using at that present moment.	Generally used by manufacturers to store data and programs like translators that is used repeatedly.
<b>Impact</b>	Volatile memory such as RAM has high impact on system's performance.	Non-volatile memory has no impact on system's performance.
<b>Cost</b>	Volatile memory is costly per unit size.	Non-volatile memory is cheap per unit size.
<b>Speed</b>	RAM speed is quite high.	ROM speed is slower than RAM.
<b>Capacity</b>	RAM memory is large and high capacity.	ROM is generally small and of low capacity.

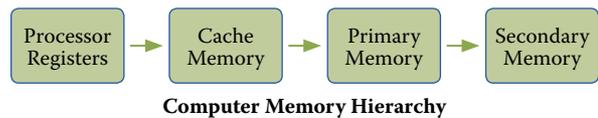
## Processor Registers

- These are high speed memory units within CPU for storing small amount of data. The Registers are the only things most processors can operate on directly.

## Cache Memory

- It is fast memory built into a computer's used to reduce the average time to access data from the main memory. Cache memory is just a pool between CPU and main storage.

Aspect	Primary/Main Memory	Secondary Memory
<b>Basic</b>	Primary memory is directly accessible by Processor/CPU.	Secondary memory is not directly accessible by CPU.
<b>Data</b>	Instructions or data to be currently executed are copied to main memory.	Data to be permanently stored is kept in secondary memory.
<b>Volatility</b>	Primary memory is usually volatile.	Secondary memory is non-volatile.
<b>Formation</b>	Primary memories are made of semiconductors.	Secondary memories are made of magnetic and optical material.
<b>Access Speed</b>	Accessing data from primary memory is faster.	Accessing data from secondary memory is slower.
<b>Access</b>	Primary memory is accessed by the data bus.	Secondary memory is accessed by input-output channels.
<b>Size</b>	The computer has a small primary memory.	The computer has a larger secondary memory.
<b>Expense</b>	Primary memory is costlier than secondary memory.	Secondary memory is cheaper than primary memory.
<b>Memory</b>	Primary memory is an internal memory.	Secondary memory is an external memory.



In the memory hierarchy Registers are placed inside the CPU (small capacity, high cost, very high speed). Cache memory is placed next in the hierarchy. Primary memory is placed next in the hierarchy. Secondary memory is the farthest from CPU (large capacity, low cost, low speed).

## SOFTWARE

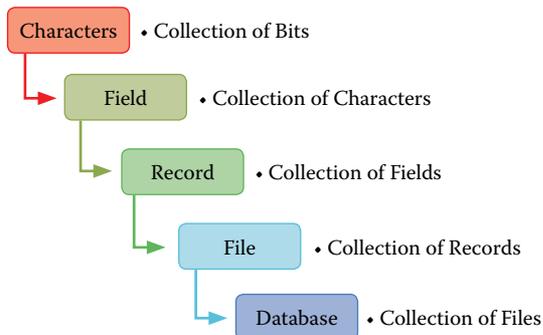
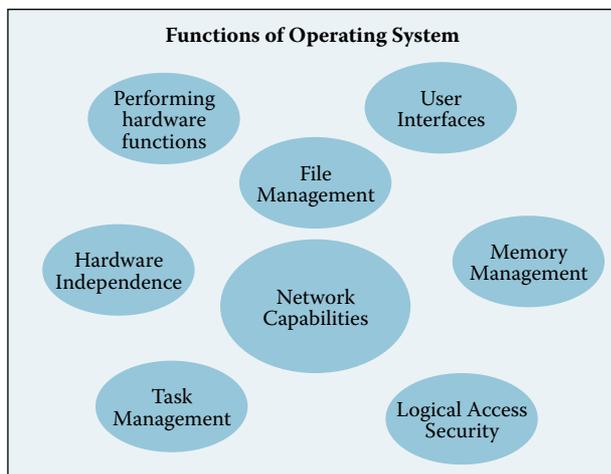
It is defined as a set of instructions that tell the hardware what to do. It is created through the process of programming.

### Operating Systems Software

It is a set of computer programs that manages computer hardware resources and acts as an interface with computer applications programs. Some prominent Operating systems used nowadays are Windows 7, Windows 8, Linux, UNIX, etc.

### Application Software

It is the category of programs that do some useful processing or task for the user. Application Suite like MS Office 2010 which has MS Word, MS Excel, MS Access, etc.; Enterprise Software like SAP; are some examples of Application Software.



**Hierarchical Database Model:** In this, records (also known as Nodes) are logically organized into a hierarchy of relationships in an inverted tree pattern.

**Network Database Model:** A network database structure views all records in sets; wherein each set is composed of an owner record and one or more member records thus allowing the network model to implement the various relationship types.

### DATABASE MODELS

**Relational Database Model:** It allows the definition of data and their structures, storage and retrieval operations and integrity constraints that can be organized in a Table structure.

**Object Oriented Database Model:** This Model is based on the concept that the world can be modeled in terms of objects and their interactions. This model provides a mechanism to store complex data such as images, audio and video, etc.

### Advantages of DBMS

#### Permitting Data Sharing

- In DBMS, the same information can be made available to different users.

#### Minimizing Data Redundancy

- In a DBMS, duplication of information or redundancy is, if not eliminated, carefully controlled or reduced.

#### Integrity can be maintained

- Data integrity is maintained by having accurate, consistent, and up-to-date data. Updates and changes to the data only have to be made in one place in DBMS ensuring Integrity.

#### Program And File Consistency

- The file formats and programs are standardized. This makes the data files easier to maintain because the same rules and guidelines apply across all types of data.

#### User-friendly

- DBMS makes the data access and manipulation easier for the user and also reduces the reliance of users on computer experts to meet their data needs.

#### Improved Security

- DBMS allows multiple users to access the same data resources which could lead to risk to an enterprise if not controlled. Security constraints can be defined.

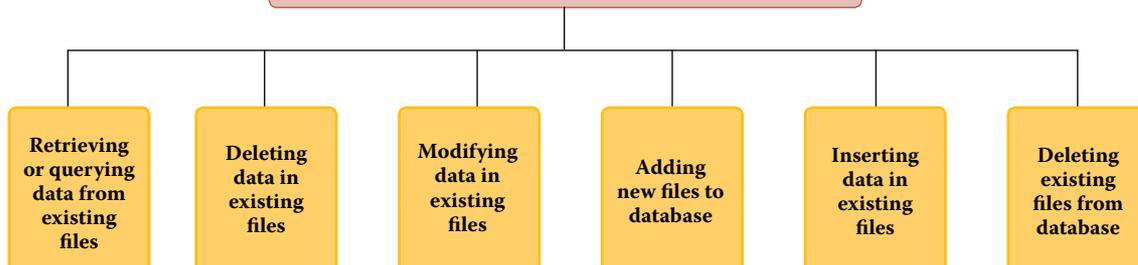
#### Achieving Program/Data Independence

- In a DBMS, data does not reside in applications but data bases program & data are independent of each other.

#### Faster Application Development

- In the case of deployment of DBMS, as the data is already therein databases, application developer has to think of only the logic required to retrieve the data in the way a user needs.

### Database Management System (DBMS) Operations



## Some Related Concepts of Database

**Big Data** refers to such massively large data sets that conventional database tools do not have the processing power to analyze them.

**Benefits of Big Data Processing are as follows:**

- (a) **Ability to process Big Data brings in multiple benefits-** Businesses can utilize outside intelligence while taking decisions, access to social data from search engines and sites and early identification of risk to the products/services, if any.
- (b) **Improved customer service**
- (c) **Better operational efficiency**

**Data Warehouse-** The concept of the Data Warehouse is simple: **Extract** data from one or more of the organization's databases and **Load** it into the data warehouse (which is itself another database) for storage and analysis. It uses non-operational and standardized data.

**Benefits of Data Warehouse**

- Data Warehouse benefits the organization to understand the data that it is currently collecting and, equally important what data is not being collected.
- It provides a centralized view of all data being collected across the enterprise.
- It provides a means for determining data that is inconsistent.
- Snapshot of data can be taken over time by using data warehouse. This creates a historical record of data, which allows for an analysis of trends.
- It provides tools to combine data, which can provide new information and analysis.

**Data Mining** is the process of analysing data to find previously unknown trends, patterns, and associations to make decisions. The steps involved in the Data Mining process are as follows:

- a. **Data Integration:** The data are collected and integrated from all the different sources.
- b. **Data Selection:** The data are selected which we think useful for data mining.
- c. **Data Cleaning:** Different techniques are applied to get rid of anomalies like missing values or inconsistent data.
- d. **Data Transformation:** The data needs to be transformed into an appropriate form for mining using different techniques like – smoothing, normalization etc.
- e. **Data Mining:** Various mining techniques are applied on the data to discover the interesting patterns.
- f. **Pattern Evaluation and Knowledge Presentation:** This step involves visualization, transformation, removing redundant patterns etc. from the generated patterns.
- g. **Decisions / Use of Discovered Knowledge:** This step helps user to make use of the knowledge acquired to take better decisions.

**Networking and Communication Systems: Computer Network** is a collection of computers and other hardware interconnected by communication channels that allow sharing of resources and information. Each component, namely the computer in a computer network is called a 'Node'.

### Benefits of a Computer Network

**Distributed nature of information**

**Resource Sharing**

**Computational Power**

**Reliability**

**User communication**

## Types of Computer Network

### Connection Oriented Networks

- Wherein a connection is first established and then data is exchanged like it happens in case of telephone networks.

### Connectionless Networks

- Where no prior connection is made before data exchanges. Data which is being exchanged in fact has a complete contact information of recipient and at each intermediate destination, it is decided how to proceed further like it happens in case of postal networks.

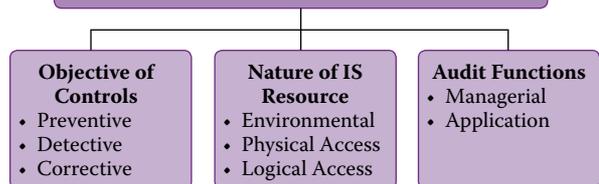
## Important Definitions Related to Computer Network

- **Routing** { Refers to the process of deciding on how to communicate the data from source to destination in a network.
- **Bandwidth** { Refers to the amount of data which can be sent across a network in given time.
- **Resilience** { Refers to the ability of a network to recover from any kind of error like connection failure, loss of data etc.
- **Contention** { Refers to the situation that arises when there is a conflict for some common resource in a network.

## Information Systems Controls

- The basic purpose of IS controls in an organization is to ensure that the business objectives are achieved and undesired risk events are prevented, detected and corrected.
- This is achieved by designing an effective information control framework, which comprise policies, procedures, practices and organization structure that gives reasonable assurances that the business objectives will be achieved.

### Classification of Information Systems' Controls



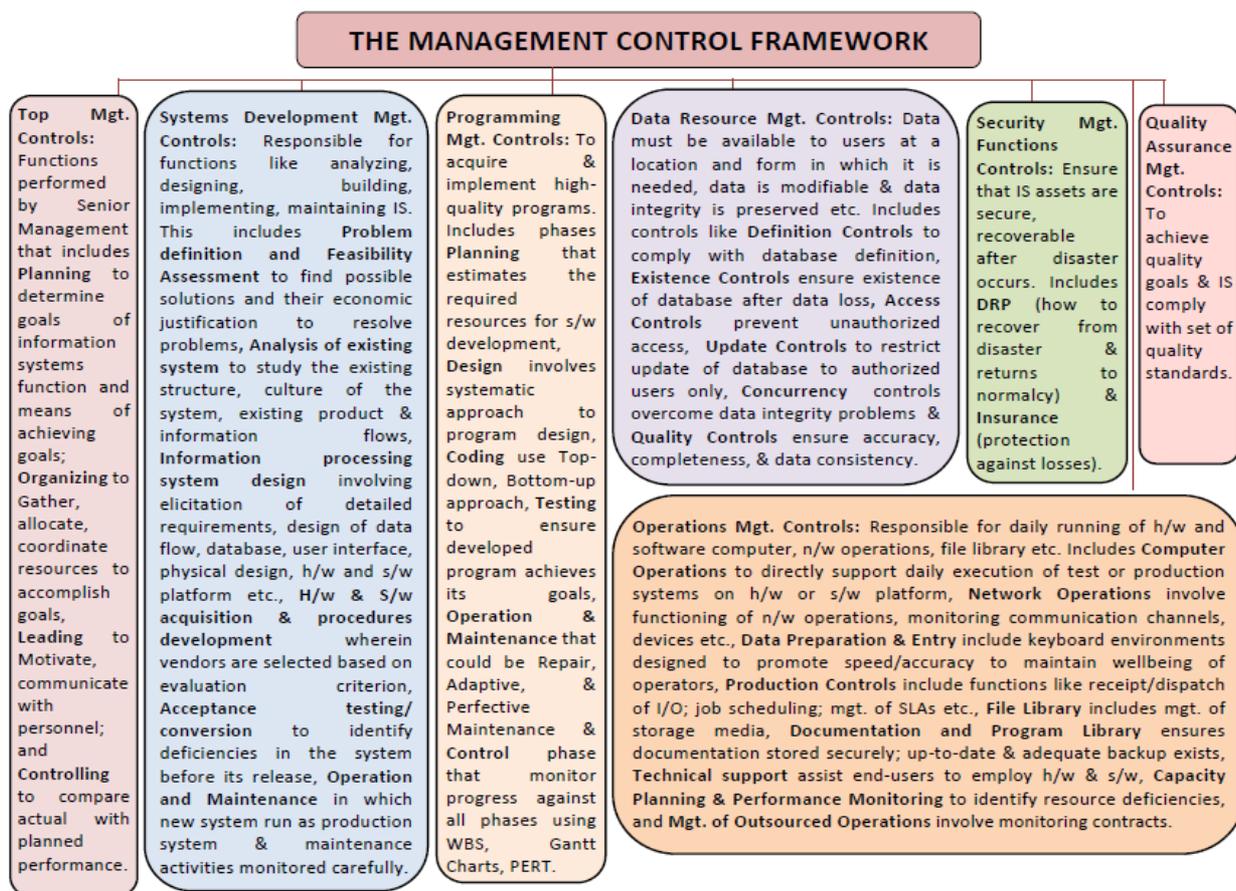
### Objectives of Controls

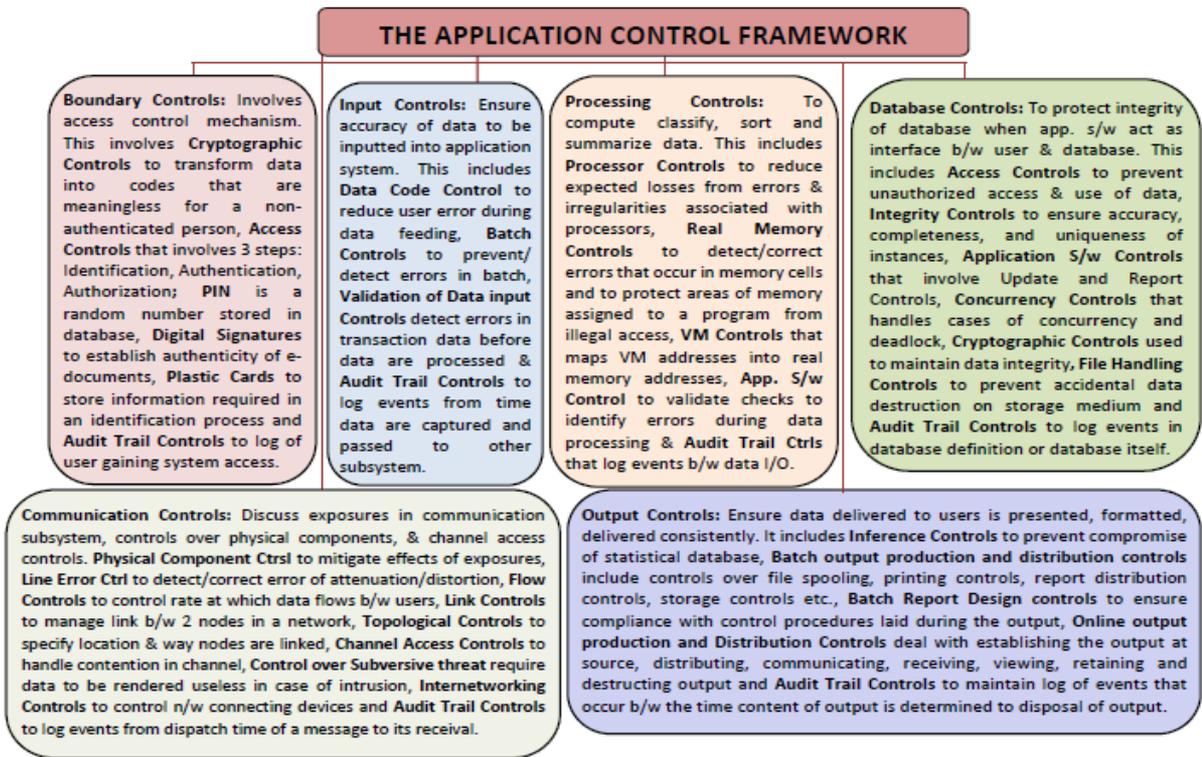
<b>Preventive Controls</b>	These controls prevent errors, omissions, or security incidents from occurring. Examples include simple data-entry edits that block alphabetic characters from being entered in numeric fields, access controls that protect sensitive data/ system resources from unauthorized people, and complex and dynamic technical controls such as antivirus software, firewalls, and intrusion prevention systems.
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# ENTERPRISE INFORMATION SYSTEMS ||

<b>Detective Controls</b>	These controls are designed to detect errors, omissions or malicious acts that occur and report the occurrence. Detect errors or incidents that elude preventive controls. For example, a detective control may identify account numbers of inactive accounts or accounts that have been flagged for monitoring of suspicious activities.
<b>Corrective Controls</b>	These controls correct errors, omissions, or incidents once they have been detected. They vary from simple correction of data-entry errors, to identifying and removing unauthorized users or software from systems or networks, to recovery from incidents, disruptions, or disasters.
<b>Nature of Information System Resources</b>	
<b>Environmental Controls</b>	These are the controls relating to IT environment such as power, air-conditioning, Un-interrupted Power Supply (UPS), smoke detection, fire-extinguishers, dehumidifiers etc.
<b>Physical Access Controls</b>	These are the controls relating to physical security of the tangible IS resources and intangible resources stored on tangible media etc. Such controls include Access control doors, Security guards, door alarms, restricted entry to secure areas, visitor logged access, CCTV monitoring etc.
<b>Logical Access Controls</b>	These are the controls relating to logical access to information resources such as operating systems controls, application software boundary

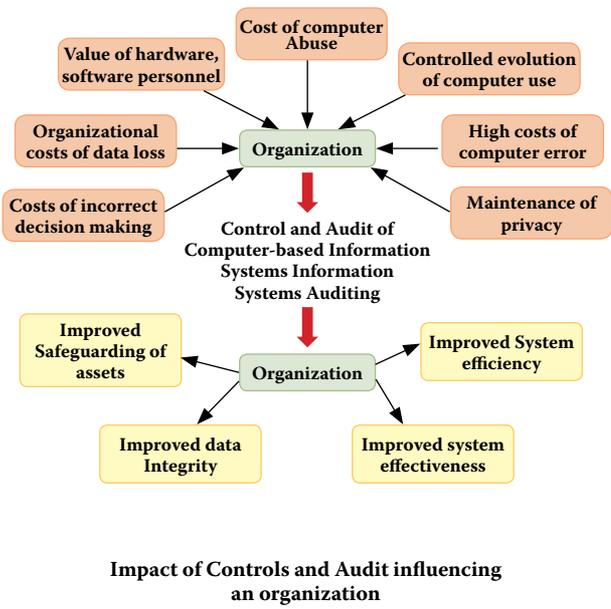
	controls, networking controls, access to database objects, encryption controls etc. The key factors considered in designing logical access controls include confidentiality and privacy requirements, authorization, authentication and incident handling, reporting and follow-up, virus prevention and detection, firewalls, centralized security administration, user training and tools for monitoring compliance, intrusion testing and reporting.
<b>Audit Functions</b>	
<b>Managerial Controls</b>	The controls over the managerial functions that must be performed to ensure the development, implementation, operation and maintenance of information systems in a planned and controlled manner in an organization. The controls at this level provide a stable infrastructure in which information systems can be built, operated, and maintained on a day-to-day basis.
<b>Application Controls</b>	These include the programmatic routines within the application program code. The objective of application controls is to ensure that data remains complete, accurate and valid during its input, update and storage. The specific controls could include form design, source document controls, input, processing and output controls, media identification, movement and library management, data back-up and recovery, authentication and integrity, legal and regulatory requirements.





**Information System's Auditing**

It is defined as the process of attesting objectives (those of the external auditor) that focus on asset safeguarding, data integrity and management objectives (those of the internal auditor) that include effectiveness and efficiency both.



NEED AND CONTROL OF INFORMATION SYSTEMS' AUDIT	
<b>Organisational Costs of Data Loss</b>	Data is a critical resource of an organisation for its present and future process and its ability to adapt and survive in a changing environment.
<b>Cost of Incorrect Decision Making</b>	Management and operational controls taken by managers involve detection, investigations and correction of the processes.
<b>Value of Computer Hardware, Software and Personnel</b>	These are critical resources of an organisation, which has a credible impact on its infrastructure and business competitiveness.
<b>Costs of Computer Abuse</b>	Unauthorised access to computer systems, malwares, unauthorised physical access to computer facilities and unauthorised copies of sensitive data can lead to destruction of assets.
<b>Controlled evolution of computer Use</b>	Use of Technology and reliability of complex computer systems cannot be guaranteed and the consequences of using unreliable systems can be destructive.
<b>High Costs of Computer Error</b>	In a computerised enterprise environment where many critical business processes are performed, a data error during entry or process would cause great damage.
<b>Maintenance of Privacy</b>	Data collected in a business process contains private information about an individual that needs to be maintained.

INFORMATION SYSTEMS' AUDIT OBJECTIVES	
<b>Asset Safeguarding Objectives</b>	The information system assets (hardware, software, data information etc.) must be protected by a system of internal controls from unauthorised access.
<b>Data Integrity Objectives</b>	Data integrity is important from the business perspective of the decision maker, competition and the market environment.
<b>System Effectiveness Objectives</b>	Effectiveness of a system is evaluated by auditing the characteristics and objective of the system to meet business and user requirements.
<b>System Efficiency Objectives</b>	This is to optimize the use of various information system resources along with the impact on its computing environment.

## IS AUDIT TOOLS

### Snapshots

- Tracing a transaction in a computerized system can be performed with the help of snapshots or extended records. The snapshot software is built into the system at those points where material processing occurs which takes images of the flow of any transaction as it moves through the application. These images can be utilized to assess the authenticity, accuracy, and completeness of the processing carried out on the transaction.

### Integrated Test Facility (ITF)

- The ITF technique involves the creation of a dummy entity in the application system files and the processing of audit test data against the entity as a means of verifying processing authenticity, accuracy, and completeness. This test data would be included with the normal production data used as input to the application system.

### System Control Audit Review File (SCARF)

- The SCARF technique involves embedding audit software modules within a host application system to provide continuous monitoring of the system's transactions. The information collected is written onto a special audit file- the SCARF master files. Auditors then examine the information contained on this file to see if some aspect of the application system needs follow-up.

### Continuous and Intermittent Simulation (CIS)

- This is a variation of the SCARF continuous audit technique. This technique can be used to trap exceptions whenever the application system uses a database management system.

### Audit Hooks

- These are audit routines that flag suspicious transactions. For example, internal auditors at Insurance Company determined that their policyholder system was vulnerable to fraud every time a policyholder changed his or her name or address and then subsequently withdrew funds from the policy.

**Audit Trails** are logs that can be designed to record activity at the system, application, and user level. When properly implemented, audit trails provide an important detective control to help accomplish security policy objectives.

- The **Accounting Audit Trail** shows the source and nature of data and processes that update the database.
- The **Operations Audit Trail** maintains a record of attempted or actual resource consumption within a system.

Managerial Controls	Scope	Audit Trails
<b>Top Management and Information Systems Management Controls</b>	Discusses the top management's role in planning, organizing, leading and controlling the information systems function.	<ul style="list-style-type: none"> <li><b>Planning:</b> Auditors need to evaluate whether top management has formulated a high-quality IS's plan that is appropriate to the needs of an organization or not.</li> <li><b>Organizing:</b> Auditors should be concerned about how well top management acquires and manages staff resources.</li> <li><b>Leading:</b> Auditors examine variables that often indicate when motivation problems exist or suggest poor leadership.</li> <li><b>Controlling:</b> Auditors must evaluate whether top management's choice to the means of control over the users of IS services is likely to be effective or not.</li> </ul>
<b>System Development Management Controls</b>	Provides a contingency perspective on models of the information systems development process that auditors can use as a basis for evidence collection and evaluation.	<ul style="list-style-type: none"> <li><b>Concurrent Audit:</b> Auditors assist the team in improving the quality of systems development for the specific system they are building and implementing.</li> <li><b>Post-implementation Audit:</b> Auditors seek to help an organization learn from its experiences in the development of a specific application system.</li> <li><b>General Audit:</b> Auditors seek to determine whether they can reduce extent of substantive testing needed to form an audit opinion about management's assertions relating to financial statements for systems effectiveness and efficiency.</li> </ul>

Managerial Controls	Scope	Audit Trails
<b>Programming Management Controls</b>	Discusses the major phases in the program life cycle and the important controls that should be exercised in each phase.	<ul style="list-style-type: none"> <li>• <b>Planning:</b> Auditors must evaluate how well the planning work is being undertaken.</li> <li>• <b>Control:</b> Auditors must evaluate whether the nature of and extent of control activities undertaken are appropriate for different types of s/w that are developed or acquired.</li> <li>• <b>Design:</b> Auditors should find out whether programmers use some type of systematic approach to design.</li> <li>• <b>Coding:</b> Auditors should seek evidence to check whether programmers employ automated facilities to assist them with their coding work.</li> <li>• <b>Testing:</b> Auditor's primary concern is to see that unit testing; integration testing of the system testing has been undertaken appropriately.</li> <li>• <b>Operation and Maintenance:</b> Auditors need to ensure effectively &amp; timely reporting of maintenance needs occurs &amp; maintenance is carried out in a well-controlled manner.</li> </ul>
<b>Data Resource Management Controls</b>	Discusses the role of database administrator and the controls that should be exercised in each phase.	Auditors should determine what controls are exercised to maintain data integrity. They might employ test data to evaluate whether access controls and update controls are working.
<b>Quality Assurance Management Controls</b>	Discusses major functions that quality assurance management should perform to ensure that development, implementation, operation, and maintenance of information systems conform to quality standards.	Auditors might use interviews, observations and reviews of documentation to evaluate how well Quality Assurance (QA) personnel perform their monitoring role.
<b>Security Management Controls</b>	Discusses major functions performed by operations security administrators to identify major threats to IS functions and to design, implement, operate, and maintain controls that reduce expected losses from these threats to an acceptable level.	Auditors must evaluate whether security administrators are conducting ongoing, high-quality security reviews or not.

Managerial Controls	Scope	Audit Trails
<b>Operations Management Controls</b>	Discusses the major functions performed by operations management to ensure the day-to-day operations of the IS function are well controlled.	Auditors should pay concern to see whether the documentation is maintained securely and that it is issued only to authorized personnel.

## APPLICATION CONTROLS AND THEIR AUDIT TRAILS

Auditing Boundary Controls
<ul style="list-style-type: none"> <li>• Auditors need to determine how well the safeguard assets are used and preserve data integrity.</li> <li>• For any application system in particular, auditors need to determine whether the access control mechanism implemented in that system is sufficient or not.</li> <li>• Auditors need to ensure that careful control must be exercised over maintenance activities, in case of hardware failure.</li> <li>• Auditors need to address three aspects to assess cryptographic key management -               <ul style="list-style-type: none"> <li>• How keys will be generated?</li> <li>• How they will be distributed to users?</li> <li>• How they will be installed in cryptographic facilities?</li> </ul> </li> <li>• Auditors need to understand which approach has been used to implement access control so that they can predict the likely problems they will encounter in the application systems they are evaluating.</li> </ul>
Auditing Input Controls
<ul style="list-style-type: none"> <li>• Auditors must understand the fundamentals of good source document design so as to analyze what and how the data will be captured and by whom, how the data will be prepared and entered into the computer systems and how the document will be handled, stored and filed.</li> <li>• Auditors must be able to examine the data-entry screens used in an application system and to come to judgement on the frequency with which input errors are likely to be made and the extent to which the screen design enhances or undermines effectiveness and efficiency.</li> <li>• Auditors must evaluate the quality of the coding systems used in application system to determine their likely impact in the data integrity, effectiveness, and efficiency objectives.</li> <li>• Auditors need to comprehend various approaches used to enter data into an application system and their relative strengths and weaknesses.</li> <li>• Auditors need to check whether input files are stored securely and backup copies of it are maintained at an offsite location so that recovery remains unaffected in case system's master files are destroyed or corrupted.</li> </ul>
Auditing Output Controls
<ul style="list-style-type: none"> <li>• Auditors should determine what report programs are sensitive, who all are authorized to access them and that only the authorized persons are able to execute them.</li> <li>• Auditors should review that the action privileges that are assigned to authorized users are appropriate to their job requirement or not.</li> <li>• Auditors must evaluate how well the client organizations are provided controls in terms of alteration of the content of printer file, number of printed copies etc.</li> <li>• Auditors should determine whether the report collection, distribution and printing controls are well executed in an organization or not.</li> </ul>

## Auditing Communication Controls

- Auditors shall adopt a structured approach to examine and evaluate various controls in the communication subsystem.
- Auditors need to collect enough evidence to establish a level of assurance that data transmission between two nodes in a wide area network is being accurate and complete.
- Auditors need to look whether adequate network backup and recovery controls are practiced regularly or not. These controls may include automatic line speed adjustments by modems based on different noise-levels, choice of network topology, alternative routes between sender and receiver etc., to strengthen network reliability.
- Auditors must assess the implementation of encryption controls to ensure the protection of privacy of sensitive data.
- Auditors must assess the topological controls to review the logical arrangement of various nodes and their connectivity using various internet working devices in a network.

## Auditing Processing Controls

- Auditors should determine whether user processes are able to control unauthorized activities like gaining access to sensitive data.
- Auditors should evaluate whether the common programming errors that can result in incomplete or inaccurate processing of data has been taken care or not.
- Auditors should assess the performance of validation controls to check for any data processing errors.
- Auditors need to check for the checkpoint and restart controls that enable the system to recover itself from the point of failure. The restart facilities need to be implemented well so that restart of the program is from the point the processing has been accurate and complete rather than from the scratch.

## Auditing Database Controls

- Auditors should check for the mechanism if a damaged or destroyed database can be restored in an authentic, accurate, complete, and timely way.
- Auditors should comprehend backup and recovery strategies for restoration of damaged or destroyed database in the event of failure that could be because of application program error, system software error, hardware failure, procedural error, and environmental failure.
- Auditors shall evaluate whether the privacy of data is protected during all backup and recovery activities.
- Auditors should check for proper documentation and implementation of the decisions made on the maintenance of the private and public keys used under cryptographic controls.
- Auditors should address their concerns regarding the maintenance of data integrity and the ways in which files must be processed to prevent integrity violations.

The structure of an organisation is called an **Organisation Chart (org chart)**. Organising and maintaining an organisation structure requires that many factors be considered like Market conditions, Regulation and Available talent.

### Individual Roles and Responsibilities

<p><b>Executive management</b> The most senior managers and executives in an organization are responsible for developing the organization's mission, objectives, and goals, as well as policy.</p>	<p><b>Owner</b> An owner is an individual who is the designated owner-steward of an asset.</p>
<p><b>Manager</b> A manager is, in the general sense, responsible for obtaining policies and procedures and making them available to their staff members.</p>	<p><b>User</b> Users are individuals who use assets in the performance of their job duties.</p>

**Segregation of Duties (SoD)** ensures that single individuals do not possess excess privileges that could result in unauthorized activities such as fraud or the manipulation or exposure of sensitive data. Segregation of Duties (SoD) Controls are Preventive and Detective controls that should be put into place to manage segregation of duties matters. Some examples of SoD Controls are Transaction Authorization, Split custody of high-value assets, workflow and periodic reviews.

## CA INTERMEDIATE - PAPER 7A: ENTERPRISE INFORMATION SYSTEMS

The capsule on Intermediate Paper 7A: Enterprise Information Systems that covers the Chapter 4 - “E-Commerce, M-Commerce and Emerging Technologies” and Chapter 5 - “Core Banking Systems” of the subject is another step of Board of Studies in its endeavour to provide quality academic inputs to the students of Intermediate Level of Chartered Accountancy Course. This capsule intends to assist students in their quick revision and should not be taken as a substitute for the detailed study of the aforesaid chapters. Students are advised to refer to the relevant Study Material and Revision Test Paper for comprehensive study and revision.

### Chapter 4: E-Commerce, M-Commerce And Emerging Technologies

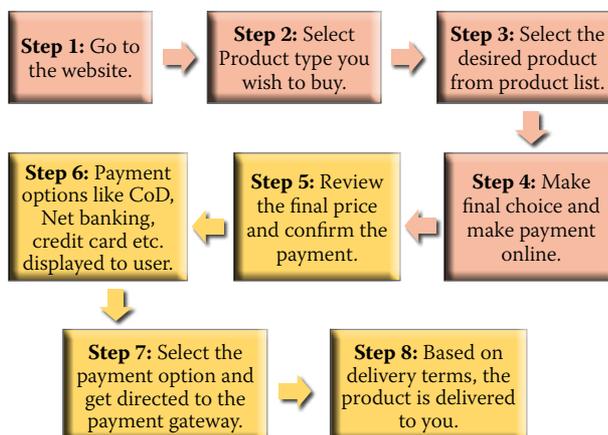
This chapter provides an insight about meaning, components and architecture of E-Commerce, various risks and controls associated with e-commerce and applicable laws and guidance governing e-commerce. The chapter further deals with the emerging technologies like Cloud Computing, Mobile Computing, Green Computing, Internet of Things etc. and their perspectives.

**E-Commerce** is the process of doing business electronically. It refers to the use of technology to enhance the processing of commercial transactions between a company, its customers and its business partners. In e-commerce, the buyers and sellers interact electronically using telecommunication networks rather than through physical contact or exchange.

BASE FOR COMPARISON	TRADITIONAL COMMERCE	E-COMMERCE
<b>Definition</b>	Traditional commerce includes all those activities which encourage exchange, of goods / services which are manual and non-electronic.	E-Commerce means carrying out commercial transactions or exchange of information, electronically on the internet.
<b>Location</b>	It requires a marketplace to operate.	It requires market-space.
<b>Size</b>	Type of items, size of items, and the number of customers influence the size of the store. Stores expecting heavy traffic need to choose a location with adequate parking and entrances and walkways large enough to accommodate such traffic.	Size of business model is influenced by products and customers. Online stores expecting heavy traffic need enough bandwidth, processing power, and data storage capacity to provide proper service to their customers. Performance of online stores is affected by the bandwidth capacity.
<b>Marketing</b>	As stores have a physical presence known to potential customers, no need to spend much to acquire new customers as compared to online companies. This is also called as One-way marketing.	To acquire a new customer, they have to invest more money, time and effort to advertise their presence more aggressively on internet. This is also called as One-to-one marketing.
<b>Transaction Processing</b>	Manual	Electronically
<b>Availability for commercial transactions</b>	For limited time.	24×7×365

<b>Nature of purchase</b>	Goods can be inspected physically before purchase.	Goods cannot be inspected physically before purchase.
<b>Customer interaction</b>	Face-to-face	Screen-to-face
<b>Business Scope</b>	Limited to particular area	Worldwide reach
<b>Information exchange</b>	No uniform platform for exchange of information.	Provides a uniform platform for information exchange.
<b>Resource focus</b>	Supply side	Demand side
<b>Payment</b>	Cash, Cheque, Credit card, etc.	Credit card, fund transfer, Cash in Delivery, Payment Wallets, UPCI application etc.
<b>Delivery of goods</b>	Instantly	Takes time depending upon the address.
<b>Fraud</b>	Relatively lesser as there is personal interaction between the buyer and the seller.	Lack of physical presence in markets and unclear legal issues give loopholes for frauds.
<b>Process</b>	Because of manual processing of business transactions, chances of clerical errors are high.	Automated processing of business transactions minimizes the clerical errors.
<b>Profit Impact</b>	The cost incurred on the middlemen, overhead, inventory and limited sales reduces the profit of the organization.	By increasing sales, cutting cost and streamlining operating processes; the profits margin of manufacturers is increased, and customers get better prices.

#### Illustration of E-Commerce Transaction



## Benefits of E-Commerce

### A. Benefits to Customer / Individual / User

- |   |                      |
|---|----------------------|
| • Convenience                           | Time saving          |
| • Various products and services Options | Easy to find reviews |
| • Coupon and Deals                      | Anytime Access       |

### B. Benefits to Business / Sellers

- |                           |                               |
|---------------------------|-------------------------------|
| • Increased Customer Base | Recurring payments made easy  |
| • Instant Transaction     | Provides a dynamic market     |
| • Reduction in costs      | Efficiency improvement        |
| • Creation of new markets | Easier entry into new markets |
| • Better quality of goods | Elimination of Time Delays    |
| • Low barriers to entry   |                               |

### C. Benefits to Government

- Instrument to fight corruption
- Reduction in use of ecologically damaging materials

### Disadvantages of E-business

- Internet Connection
- High start-up costs
- Legal issues
- Some business processes may never lend themselves to e-commerce
- Cultural impediments to e-business
- Security Concerns

S. No.	e – Market models	Description
7	<b>e-procurement</b>	e-procurement is the management of all procurement activities via electronic means. E-procurement infomediaries specialize in providing up-to-date and real-time information on all aspects of the supply of materials to businesses.
8	<b>e-distribution</b>	e-distributor is a company that supplies products and services directly to individual business. An example of a firm specializing in e-distribution is www. wipro.com that uses the internet to provide fully integrated e-business-enabled solutions that help to unify the information flows across all the major distribution processes including sales and marketing automation, customer service, warehouse logistics, purchasing and inventory management, and finance.

## Various e-Market models

S. No.	e – Market models	Description
1	<b>e - Shops</b>	Practical hands on training of the ERP System should be provided so that the transition from old system to ERP system is smooth and hassle free.
2	<b>e -Malls</b>	The e-mall is defined as the retailing model of a shopping mall, a conglomeration of different shops situated in a convenient location in e-commerce. e.g., Yahoo! Stores.
3	<b>e-Auctions</b>	Electronic auctions provide a channel of communication through which the bidding process for products and services can take place between competing buyers. E-auction has become an increasingly popular tool for the buyer to access the lowest price the suppliers are willing to charge. Example – www.onsale.com, www.ebay.com.
4	<b>Portals</b>	Portal is a website that serves as a gateway or a main entry point on the internet to a specific field of interest or an industry. It is a website that is positioned as an entrance to other sites on the internet. Some major general portals include Yahoo, Excite, and Netscape.
5	<b>Buyer Aggregators</b>	The Buyer Aggregator brings together large numbers of individual buyers so that they can gain the types of savings that are usually the privilege of large volume buyers. Example - www.zomato.com.
6	<b>Virtual Communities</b>	Virtual Community is a community of customers who share a common interest and use the internet to communicate with each other. Amazon.com provides websites for the exchange of information on a wide range of subjects relating to their portfolio of products and services.

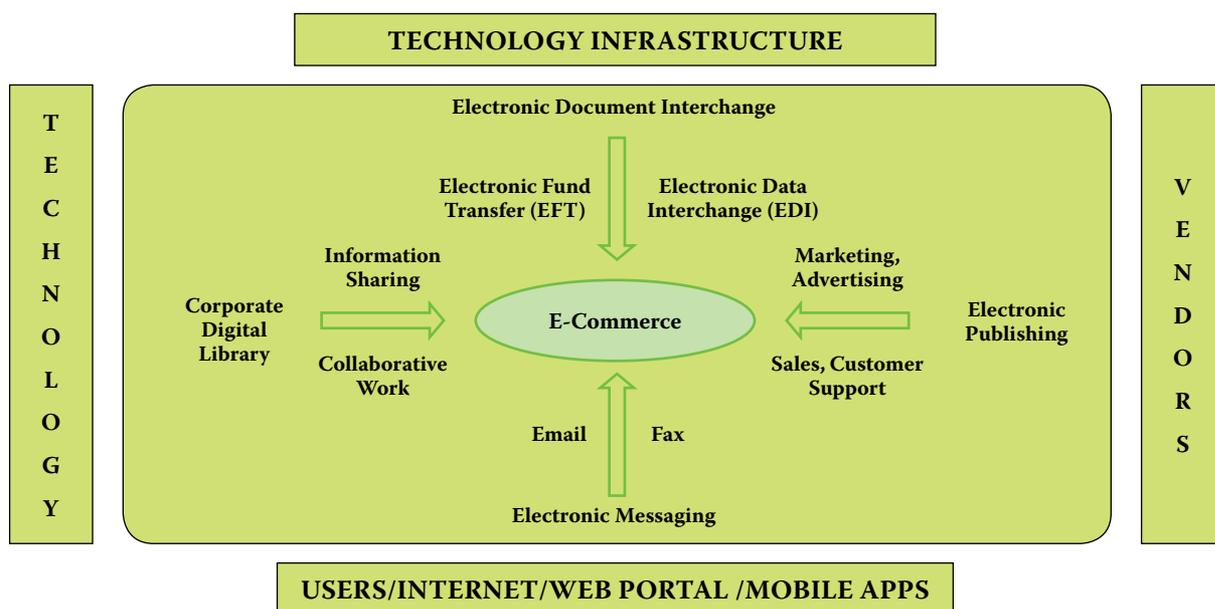
## Some Business Models for E-Commerce

Models	Definition	Examples
<b>Business-to-Consumer (B2C)</b>	B2C is typically used to refer to online retailers who sell products and services to consumers through the Internet. Generally, this supports the activities within the consumer chain that focuses on sell-side activities.	This may involve Direct Sellers like www. cisco.com; Online intermediaries like www.amazon.com.
<b>Business-to-Business (B2B)</b>	This supports the supply chain of organizations that involves commerce between a company and its suppliers or other partners. A website sells its products to an intermediate buyer who then sells the product to the final customer.	A wholesaler places an order from a company's website and after receiving the consignment, sells the end-product to the final customer who comes to buy the product at one of its retail. Example - www.indiamart.com.
<b>Consumer-to-Consumer (C2C)</b>	With C2C e-business model, consumers sell directly to other consumers via on-line classified ads and auctions, or by selling personal services and expertise on-line. C2C e-commerce allows unknown, untrusted parties to sell goods and services to one another.	A consumer selling his/her asset like residential property, cars, motorcycles etc. or rent a room by publishing their information on the relevant website. Example - www.eBay.com.

# ENTERPRISE INFORMATION SYSTEMS ||

Models	Definition	Examples
<b>Consumer to Business (C2B)</b>	In this model, consumers set prices and companies bid to offer products and services.	The comparison of interest rates of personal loan/car loan provided by various banks via websites. A business organization who fulfills the consumer's requirement within the specified budget, approaches the customer and provides its services. Example- www.bankbazar.com
<b>Consumer to Government (C2G)</b>	This covers all the e-commerce transaction between consumers and government.	www.incometaxindia.gov.in
<b>Government to Consumer (G2C)</b>	This allows consumers to provide feedback or ask information about government authority from public sector. The aim is to reduce the average time for fulfilling citizen's requests for various government services.	Services including land searches, and vehicle ownership searches and disputes such as non-payment of tax or tax refunds are resolved through online support on the government platforms. Example – e-Seva (Andhra Pradesh)
<b>Business to Government (B2G)</b>	B2G model is a variant of B2B model. Such websites are used by governments to trade and exchange information with various business organizations.	Such websites are accredited by the government and provide a medium to businesses to submit application forms to the government. For example – Business pay taxes, file reports, or sell goods and services to Government agencies.

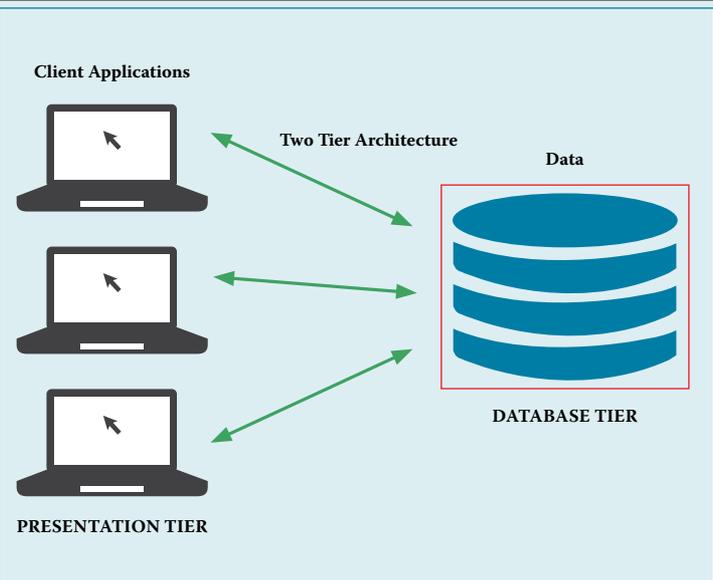
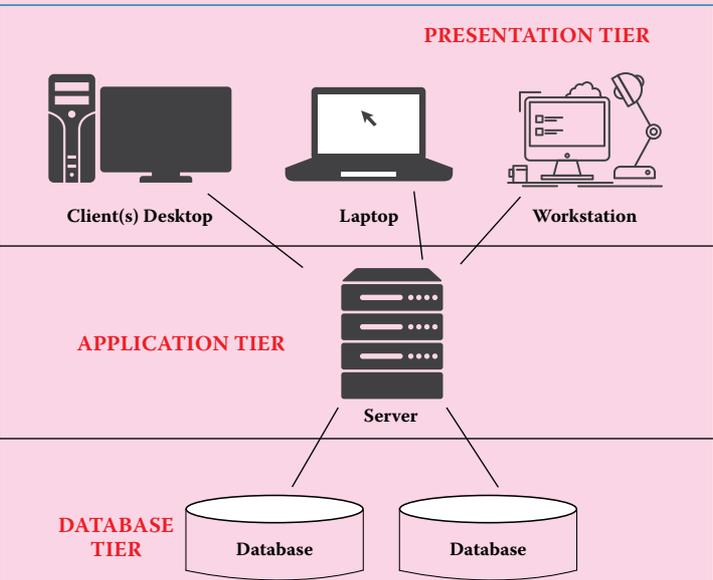
## Components of E-Commerce



- **User:** The user may be individual / organization or anybody using the e-commerce platforms.
- **E-Commerce Vendors:** This is the organization / entity providing the user, goods/ services asked for. E-commerce vendors further needs to ensure Supply Chain Management, Warehouse operations, shipping and returns. E-commerce catalogue and product delivery, Marketing and loyalty programs, Showroom and offline purchase, different ordering methods, guarantees, privacy policy and security for better, effective and efficient transaction.
- **Technology Infrastructure:** E-commerce is technology driven. The components of technology infrastructure may include computer, servers and database, mobile apps, digital library and data interchange.
- **Internet/Network:** This is the critical enabler for e-commerce. The faster net connectivity leads to better e-commerce. The success of e-commerce trade depends upon the internet capability of organization.
- **Web Portal:** This shall provide the interface through which an individual/organization shall perform e-commerce transactions.
- **Payment Gateway:** Payment gateway represents the way e-commerce/m-commerce vendors collect their payments. It is a system of computer processes that authorizes, verifies, and accepts or declines credit/debit card transactions on behalf of the merchant through secure Internet connections.

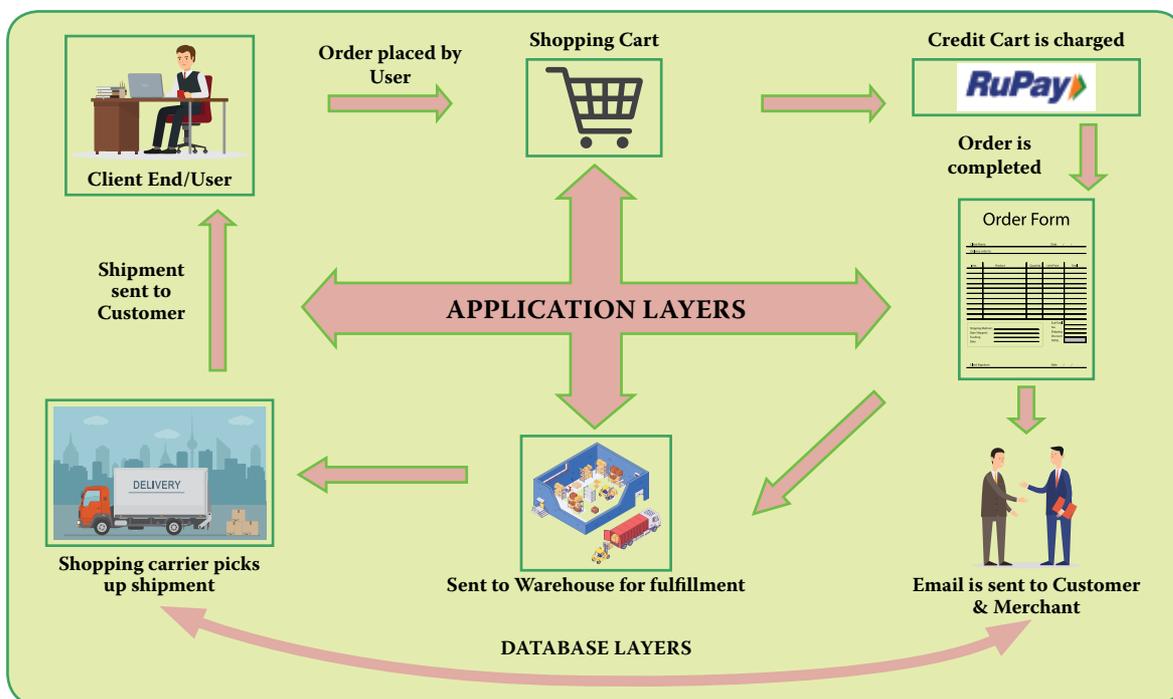
**Architecture of Networked Systems**

**Architecture** is a term to define the style of design and method of construction, used in general, for buildings and other physical structures. In e-commerce, it denotes the way network architectures are build.

Advantages	Two-Tier Architecture	Disadvantages
<ul style="list-style-type: none"> <li>The system performance is higher because business logic and database are physically close.</li> <li>More users could interact with system.</li> <li>It is easy to setup and maintain entire system smoothly.</li> </ul>	 <p style="text-align: center;"><b>Two Tier Architecture</b></p>	<ul style="list-style-type: none"> <li>Performance deteriorates if number of users increases.</li> <li>There is restricted flexibility and choice of DBMS since data language used in the server is proprietary to each vendor.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Presentation Tier (Client Application/Client Tier):</b> This is the interface that allows user to interact with the e-commerce / m-commerce vendor.</li> <li><b>Database Tier (Data Tier):</b> The product data / price data / customer data and other related data are kept here.</li> </ul>	
Advantages	Three Tier Architecture	Disadvantages
<ul style="list-style-type: none"> <li>Clear separation of user-interface-control and data presentation from application-logic.</li> <li>Dynamic load balancing possible if bottlenecks in terms of performance occurs.</li> <li>Change management is easy and faster.</li> </ul>	 <p style="text-align: center;"><b>PRESENTATION TIER</b></p> <p style="text-align: center;"><b>APPLICATION TIER</b></p> <p style="text-align: center;"><b>DATABASE TIER</b></p>	<ul style="list-style-type: none"> <li>Increased need for network traffic management, server load balancing, and fault tolerance.</li> <li>Current tools relatively immature and more complex.</li> <li>Maintenance tools currently inadequate.</li> </ul>
	<ul style="list-style-type: none"> <li><b>Presentation Tier:</b> Occupies the top level and displays information related to services available on a website.</li> <li><b>Application Tier:</b> Also, called the Middle Tier, Logic Tier, Business Logic or Logic Tier; it controls application functionality by performing detailed processing.</li> <li><b>Database Tier:</b> This tier houses the database servers where information is stored and retrieved.</li> </ul>	

# ENTERPRISE INFORMATION SYSTEMS ||

## E-Commerce Architecture Vide Internet

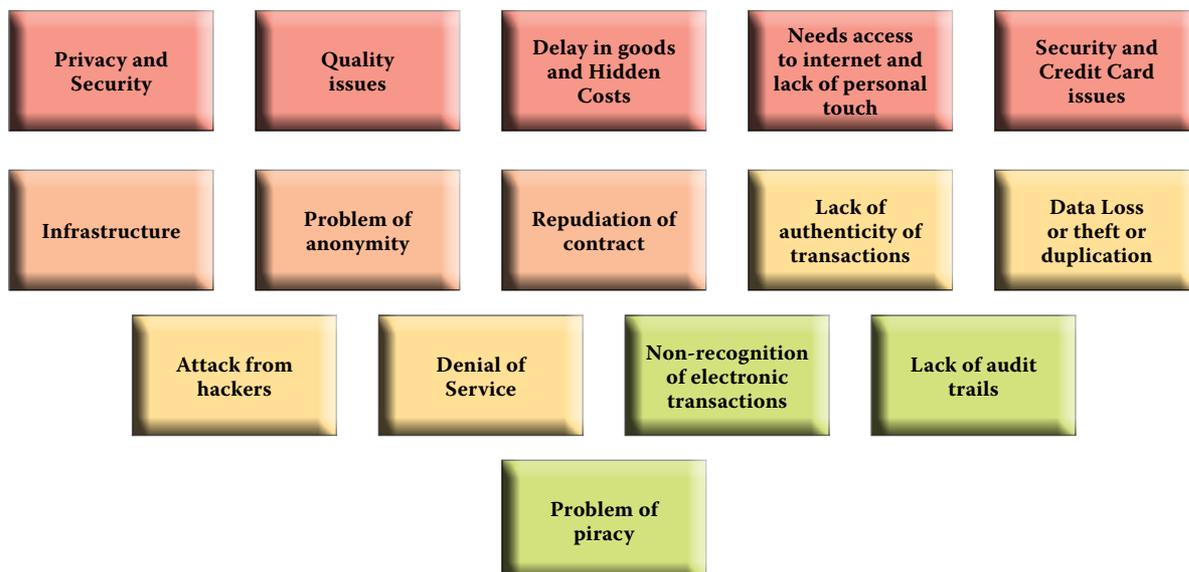


- **Client / User Interface:** This layer e-commerce connects to help the customer e-commerce merchant.
- **Application Layer:** Through these application's customer logs to merchant systems. This layer allows customer to check the products available on merchant's website.
- **Database Layer:** This layer is accessible to user through application layer.

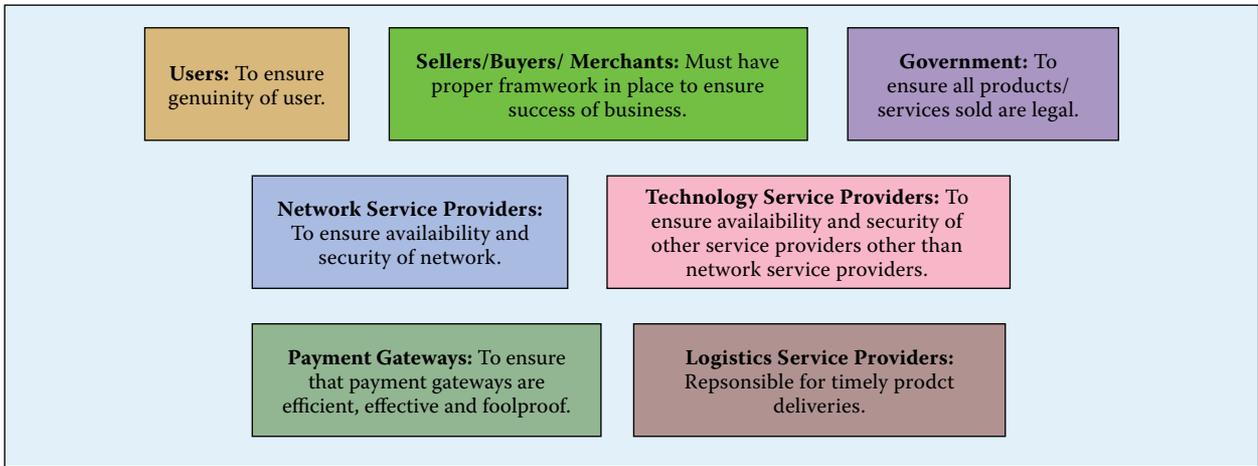
### E-Commerce Architecture Vide Mobile Apps

**M-Commerce (Mobile Commerce)** is the buying and selling of goods and services through wireless handheld devices such as cellular telephone and personal digital assistants (PDAs). M-commerce enables users to access the Internet without needing to find a place to plug in. The layers of e-commerce architecture vide internet is similar to architecture vide Mobile Apps except client/user interface includes mobile web browser and internet in later.

**Risk** is possibility of loss. The same may be result of intentional or un-intentional action by individuals. Risks associated with e-commerce transactions are high compared to general internet activities. These include the following:



**Controls** are necessary for all persons in an e-business environment. These include the following:



**Guidelines for E-Commerce:** All entity going for e-commerce / m-commerce business needs to create clear policy guidelines for the following:

## Billing

The issues are - Format of bill, the details to be shared in bills, applicable GST.

## Product guarantee/ warranty

Proper display of product guarantee / warranty online as well as documents sent along with the products.

## Shipping

The shipping time, frequency of shipping, the packing at time of shipping, all these needs to be put in policy documents.

## Delivery

Policy needs to be defined for which mode of delivery to be chosen, when deliveries to be made and where deliveries to be made?

## Return

Policy for return of goods needs to be put in place defining: Which goods to be accepted in return, and the number of days within which returns can be accepted.

## Payment

Policy guidelines need to be created for the issues related to mode of payment and for which product specific payment shall be made.

## Commercial Laws Governing E-Commerce

Income Tax Act, 1961	Companies Act, 2013
Foreign Trade Act, 1992	The Factories Act, 1948
The Customs Act, 1962	The Goods and Services Tax Act, 2017
Indian Contract Act, 1872	The Competition Act, 2002
Foreign Exchange Management Act, 1999	Consumer Protection Act, 1986

## Special Laws governing E-Commerce

### I. Information Technology Act, 2000

The objectives of IT Act, 2000 can be summarized as follows:

- To grant legal recognition for transactions carried out by means of electronic data interchange or electronic commerce in place of paper based method of communication.
- To give legal recognition to digital signature for authentication of any information or matter, which requires authentication under any law.
- To facilitate electronic filing of documents with Government departments.
- To facilitate electronic storage of data.
- To provide legal sanction to transfer fund electronically to and between banks and financial institutions.
- To provide legal recognition for keeping books of account in electronic format by bankers.
- In order to amend the Indian Penal Code, Indian Evidence Act, 1972, Bankers Book Evidence Act, 1891 and RBI Act, 1934.
- To provide legal infrastructure to promote e-commerce and secure information system.
- To manage cyber-crimes at national and international levels by enforcing laws.
- This Act governs all internet activities in India and is applicable to all online transactions in India, and provides for penalties, prosecution for non-compliances.

### II. Reserve Bank of India Act, 1934

**Reserve Bank of India (RBI)**, from time to time, frames guidelines to be followed by e-commerce / m-commerce merchants allowing online payments through various modes.

**Digital Payment** is a way of payment which is made through digital modes. In digital payments, payer and payee both use digital modes to send and receive money. It is also called electronic payment. No hard cash is involved in the digital payments.

Advantages of Digital Payment	Drawbacks of Digital Payment
<ul style="list-style-type: none"> <li>• Easy and convenient</li> <li>• Pay or send money from anywhere</li> <li>• Discounts from taxes</li> <li>• Written record</li> <li>• Less Risk</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult for a Non-technical person</li> <li>• Risk of data theft</li> <li>• Overspending</li> <li>• Disputed transactions</li> <li>• Increased business costs</li> <li>• The necessity of internet access</li> </ul>

### Traditional Methods of Digital Payment

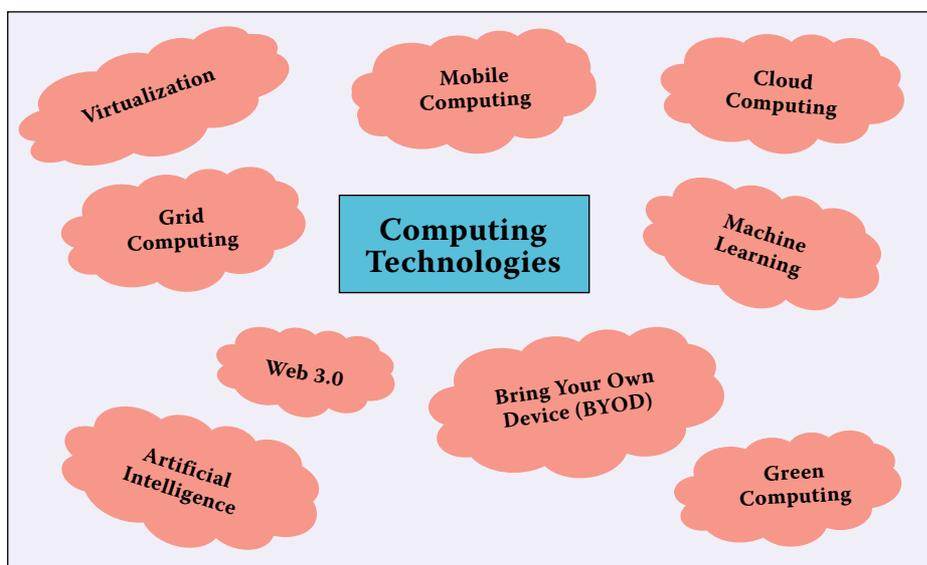
I. **Cards** are provided by banks to their account holders. These have been the most used digital payment modes till now. Various types of cards are as follows:

- **Credit Cards:** A small plastic card issued by a bank, or issuer etc., allowing the holder to purchase goods or services on credit. Credit Card issuer charge customers per transactions / fixed amount as transaction fees.
- **Debits Cards:** It is also a small plastic card with a unique number linked with bank account number. It is required to have a bank account before getting debit card from bank. It enables cardholder to pay for his/her purchases directly through his/her account.
- **Smart Cards:** Smart card is a prepaid card that has a small microprocessor chip embedded in it. It has capacity to store customer's personal information such as financial facts, private encryption keys, credit card information, account information, and so on.

II. **Net Banking:** In this mode, the customers log to his / her bank account and makes payments. All public sectors, large private sector banks allow net banking facilities to their customers.

## New Methods of Digital Payment

- **UPI Apps**
  - **Unified Payment Interface (UPI)** is a payment mode which is used to make instant fund transfers from the sender's bank account to the receiver's bank account through the mobile app.
- **IMPS**
  - **Immediate Payment Service (IMPS)** is an instant interbank electronic fund transfer service through mobile phones.
- **Mobile Apps**
  - **Mobile Apps** such as Bharat Interface for Money (BHIM) is a Mobile App that facilitates e-payments directly through banks and supports all Indian banks which use that platform.
- **Mobile Wallet**
  - A **mobile wallet** is a type of virtual wallet service that can be used by downloading an app on smartphone and registering for the service. There are mobile wallets like Paytm, Freecharge, Buddy, Mobikwik, State bank buddy etc.
- **AEPS**
  - **Aadhar Enabled Payment Service (AEPS)** is an Aadhaar based digital payment mode. AEPS allows bank to bank transactions. Customers will need to link their AADHAR numbers to their bank accounts.
- **USSD**
  - **Unstructured Supplementary Service Data (USSD)** is a revolutionary idea, where to make payments through mobiles; there is neither any need for internet nor any smart phone.
- **Mobile Banking**
  - **Mobile banking** is a service provided by a bank or other financial institution that allows its customers to conduct different types of financial transactions remotely using a mobile device such as a mobile phone or tablet.
- **Crypto-currency**
  - A **cryptocurrency** is a medium of exchange wherein records of individual coin ownership are stored in a computerized database using strong cryptography.



I. Virtualization		
<p>Virtualization means to create a virtual version of a device or resource, such as a server, storage device, network or even an operating system where the framework divides the resource into one or more execution environments. This refers to technologies designed to provide a layer of abstraction between computer hardware systems and the software running on them.</p>	<p><b>Application Areas</b></p> <ul style="list-style-type: none"> <li>• Server Consolidation</li> <li>• Disaster Recovery</li> <li>• Testing and Training</li> <li>• Portable Applications</li> <li>• Portable Workspaces</li> </ul>	
Types of Virtualization		
Hardware Virtualization	Network Virtualization	Storage Virtualization
<p>This refers to the creation of a virtual machine that acts like a real computer with an operating system. The basic idea of Hardware virtualization is to consolidate many small physical servers into one large physical server so that the processor can be used more effectively. For example, a computer that is running Microsoft Windows may host a virtual machine that looks like a computer with the Linux operating system; based software that can be run on the virtual machine.</p>	<p>It is a method of combining the available resources in a network by splitting up the available bandwidth into channels, each of which is independent from the others, and each of which can be assigned (or reassigned) to a particular server or device in real time. It is intended to optimize network speed, reliability, flexibility, and security.</p>	<p>It is the apparent pooling of data from multiple storage devices, even different types of storage devices, into what appears to be a single device that is managed from a central console. It helps the storage administrator perform the tasks of backup, archiving, and recovery more easily and in less time by disguising the actual complexity of a Storage Area Network (SAN).</p>

II. Grid Computing: It is a computer network in which each computer's resources are shared with every other computer in the system. It is a distributed architecture of large numbers of computers connected to solve a complex problem. In the grid computing model, servers or personal computers run independent tasks and are loosely linked by the Internet or low-speed networks.		
Benefits	Types of Resources	Security
<ul style="list-style-type: none"> <li>• Making use of Underutilized Resources.</li> <li>• Resource Balancing.</li> <li>• Parallel CPU Capacity.</li> <li>• Access to additional resources.</li> <li>• Virtual resources and virtual organizations for collaboration.</li> <li>• Reliability.</li> <li>• Management.</li> </ul>	<ul style="list-style-type: none"> <li>• Computation.</li> <li>• Storage.</li> <li>• Communications</li> <li>• Software and Licenses.</li> <li>• Special equipment, capacities, architectures, and policies.</li> </ul>	<ul style="list-style-type: none"> <li>• Single Sign-on.</li> <li>• Protection of Credentials.</li> <li>• Interoperability with local security solutions.</li> <li>• Exportability</li> <li>• Support for secure group communication.</li> <li>• Support for multiple implementations.</li> </ul>

III. Cloud Computing: Cloud Computing is both, a combination of software and hardware-based computing resources delivered as a networked service. This model of IT enabled services enables anytime access to a shared pool of applications and resources. These applications and resources can be accessed using a simple front-end interface such as a Web browser, and thus enabling users to access the resources from any client device including notebooks, desktops and mobile devices.			
<p><b>Characteristics</b></p> <ul style="list-style-type: none"> <li>• Elasticity &amp; Scalability</li> <li>• Pay-Per-Use</li> <li>• On-demand</li> <li>• Resiliency</li> <li>• Multi-Tenancy</li> <li>• Workload Movement</li> </ul>		<p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Achiever economies of scale</li> <li>• Reduce spending on technology infrastructure</li> <li>• Globalize the workforce</li> <li>• Streamline business processes</li> <li>• Reduce capital costs</li> <li>• Pervasive accessibility</li> <li>• Monitor projects more effectively</li> <li>• Less personnel training is needed</li> <li>• Minimize maintenance &amp; licensing software</li> <li>• Improved flexibility</li> </ul>	
Types of Cloud			
Private Cloud	Public Cloud	Community Cloud	Hybrid Cloud
<p>It resides within the boundaries of an organization and is used exclusively for the organization's benefits. Private Clouds can either be private to the organization and managed by the single organization (On-Premise Private Cloud) or can be managed by third party (Outsourced Private Cloud).</p>	<p>It is the cloud infrastructure that is provisioned for open use by the general public. It may be owned, managed, and operated by a business, academic, or government organizations, or some combination of them. Typically, public clouds are administrated by third parties or vendors over the Internet, and the services are offered on pay-per-use basis.</p>	<p>It is the cloud infrastructure that is provisioned for exclusive use by a specific community of consumers from organizations that have shared concerns (e.g. mission security requirements, policy, and compliance considerations). It may be owned, managed, and operated by one or more of the organizations in the community, a third party or some combination of them, and it may exist on or off premises.</p>	<p>This is a combination of both at least one private (internal) and at least one public (external) cloud computing environments - usually, consisting of infrastructure, platforms and applications. The usual method of using the hybrid cloud is to have a private cloud initially, and then for additional resources, the public cloud is used.</p>
Cloud Computing Service Models			
Infrastructure as a Service (IaaS)	Platform as a Service (PaaS)	Software as a Service (SaaS)	
<p>IaaS, a hardware-level service, provides computing resources such as processing power, memory, storage, and networks for cloud users to run their application on-demand.</p>	<p>PaaS provides the users the ability to develop and deploy an application on the development platform provided by the service provider.</p>	<p>SaaS provides ability to the end users to access an application over the Internet that is hosted and managed by the service provider.</p>	

**IV. Mobile Computing:** This refers to technology that allows transmission of data via a computer without having to be connected to a fixed physical link.

Components	Limitations	Benefits
<ul style="list-style-type: none"> <li><b>Mobile Communication:</b> Refers to infrastructure put in place to ensure that seamless and reliable communication goes on.</li> <li><b>Mobile Hardware:</b> This includes mobile devices/device components that range from Portable laptops, Smart Phones, Tablet PCs, and Personal Digital Assistants (PDA).</li> <li><b>Mobile Software:</b> It is the actual programme that runs on the mobile hardware and deals with the characteristics and requirements of mobile applications.</li> </ul>	<ul style="list-style-type: none"> <li>Insufficient Bandwidth</li> <li>Security Standards</li> <li>Power consumption</li> <li>Transmission interferences</li> <li>Potential health hazards</li> <li>Human interface with device.</li> </ul>	<ul style="list-style-type: none"> <li>Mobile workforce with remote access to work order details.</li> <li>Enables mobile sales personnel to update work order status in real-time.</li> <li>Facilitates access to corporate services and information at any time.</li> <li>Provides remote access to the corporate knowledge base at job location.</li> <li>Enables to improve management effectiveness by enhancing information quality, information flow, and ability to control a mobile workforce.</li> </ul>

**IV. Green Computing:** Green computing or Green IT refers to the study and practice of environmentally sustainable computing or IT. In other words, it is the study and practice of establishing / using computers and IT resources in a more efficient and environmentally friendly and responsible way.

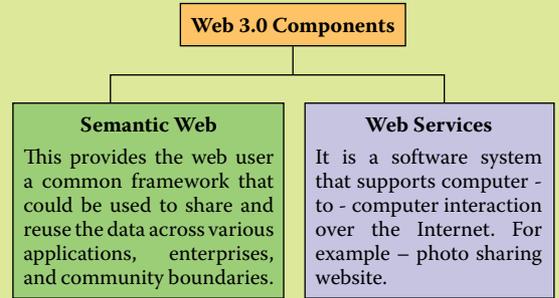
Best Practices
<ul style="list-style-type: none"> <li>Develop a sustainable Green Computing plan</li> <li>Recycle</li> <li>Make environmentally sound purchase decisions</li> <li>Reduce Paper Consumption</li> <li>Conserve Energy</li> </ul>

**V. BYOD (Bring Your Own Device):** This refers to business policy that allows employees to use their preferred computing devices, like smart phones and laptops for business purposes. It means employees are welcome to use personal devices (laptops, smart phones, tablets etc.) to connect to the corporate network to access information and application.

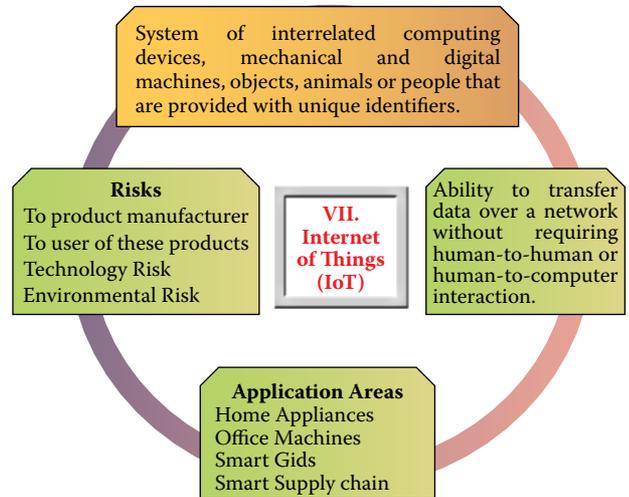
Advantages	Emerging BYOD Threats
<ul style="list-style-type: none"> <li>Happy Employees</li> <li>Lower IT budgets</li> <li>IT reduces support requirement</li> <li>Early adoption of new Technologies</li> <li>Increased employee efficiency</li> </ul>	<ul style="list-style-type: none"> <li><b>Network Risks:</b> It is normally exemplified and hidden in 'Lack of Device Visibility'. As BYOD permits employees to carry their own devices (smart phones, laptops for business use), the IT practice team is unaware about the number of devices being connected to the network. As network visibility is of high importance, this lack of visibility can be hazardous.</li> <li><b>Device Risks:</b> It is normally exemplified and hidden in 'Loss of Devices'. A lost or stolen device can result in an enormous financial and reputational embarrassment to an organization as the device may hold sensitive corporate information.</li> <li><b>Application Risks:</b> It is normally exemplified and hidden in 'Application Viruses and Malware'. Organizations are not clear in deciding that 'who is responsible for device security – the organization or the user'.</li> <li><b>Implementation Risks:</b> It is normally exemplified and hidden in 'Weak BYOD Policy'. The effective implementation of the BYOD program should not only cover technical issues mentioned above but also mandate the development of a robust implementation policy.</li> </ul>

## VI. Web 3.0 Technology

- Known as the Semantic Web, this describes sites wherein the computers will be generated raw data on their own without direct user interaction.
- Web 3.0 standard uses semantic web technology, drag and drop mash-ups, widgets, user behavior, user engagement, and consolidation of dynamic web contents depending on the interest of the individual users.
- Web 3.0 Technology uses the "Data Web" Technology, which features the data records that are publishable and reusable on the web through query-able formats. The Web 3.0 standard also incorporates the latest researches in the field of artificial intelligence.



**Example:** The application that uses content management systems along with artificial intelligence. This helps to achieve a more connected open and intelligent web applications using concepts of natural language processing machine learning, machine reasoning and autonomous agents.



**VIII. Artificial Intelligence** may be defined as the ability to use memory, knowledge, experience, understanding, reasoning, imagination and judgement to solve problems and adapt to new situations. Applications Areas include Medical diagnosis, in cancer research. Predicting the chances of an individual getting ill by a disease; Creating art such as poetry; Proving mathematical theorems; Playing games (such as Chess or Go) and predicting the outcomes etc.

**IX. Machine Learning** is a type of Artificial Intelligence (AI) that provides computers with the ability to learn without being explicitly programmed. Machine learning focuses on the development of computer programs that can change when exposed to new data. The process of machine learning is similar to that of data mining. For example: Machine learning has been used for image, video, and text recognition, as well as serving as the power behind recommendation engines.

## CHAPTER 5: CORE BANKING SYSTEMS

This chapter deals with components and architecture of Core Banking Systems (CBS) and impact of related risks and controls, and further discusses the functioning of core modules of banking and business process flow. The chapter also provides a detailed understanding on the regulatory and compliance requirements applicable to CBS such as Banking Regulations Act, RBI regulations, Prevention of Money Laundering Act and Information Technology Act.

**Banking** is the engine of economic growth specifically in a rapidly developing country like India with its diverse background, practices, cultures, and large geographic dispersion of citizens. The core of banking functions is acceptance of deposits and lending of money. Further, specific services such as demand drafts, bank guarantees, letter of credits, etc. are also provided. The key features of a banking business are as follows:

- The custody of large volumes of monetary items, including cash and negotiable instruments, whose physical security should be ensured.
- Dealing in large volume (in number, value and variety) of transactions.
- Operating through a wide network of branches and departments, which are geographically dispersed.
- Increased possibility of frauds as banks directly deal with money making it mandatory for banks to provide multi-point authentication checks and the highest level of information security.
- Increased possibility of frauds as banks directly deal with money making it mandatory for banks to provide multi-point authentication checks and the highest level of information security.

### Major products and services provided and rendered by commercial banks

#### Acceptance of Deposits

- Commercial banks accept deposits in various forms such as term deposits, savings bank deposits, current account deposits, recurring deposits, saving-cum-term deposits and various others innovative products.

#### Granting of Advances

- Advances constitute a major source of lending by commercial banks. The type of advances granted by commercial banks take various forms such as cash credit, overdrafts, purchase/discounting of bills, term loans, etc.

#### Remittances

- Involves transfer of funds from one place to another. Two of most common modes of remittance of funds are demand drafts & Telegraphic/ Mail Transfers (TT/ MT).

#### Collections

- Collections involve collecting proceeds on behalf of the customer. Customers can lodge various instruments such as cheques, drafts, pay orders, travelers' cheques, dividend and interest warrants, tax refund orders, etc.

#### Clearing

- This involves collecting instruments on behalf of customers of bank.

#### Letters of Credit (LC)

- It is an undertaking by a bank to the payee to pay to him, on behalf of the applicant any amount up to the limit specified in the LC, provided the terms and conditions mentioned in the LC are complied with.

#### Guarantees

- These are required by the customers of banks for submission to the buyers of their goods/services to guarantee performance of contractual obligations undertaken by them or satisfactory performance of goods supplied by them, or for submission to certain departments like excise and customs, electricity boards, or to suppliers of goods, etc. in lieu of the stipulated security deposit.

#### Credit Cards

- Most credit cards issued by banks are linked to one of the international credit card networks like VISA, Master etc.

#### Debit Cards

- Debit Cards facilitates customers to pay at any authorized outlet as well as to withdraw money from an ATM from their account.

#### Other Banking Services

- These include Back operations, Retail Banking, High Net-worth Individuals (HNI), Risk Management and Specialized Services such as insurance broking, claims, underwriting, life insurance, non-life insurance, etc.

### Key Modules of Core Banking Systems (CBS)

#### Back End Applications

- **Back Office:** Includes settlements, clearances, record maintenance, regulatory compliance, accounting and IT services.
- **Data Warehouse:** Takes care of the difficult data management - digesting large quantities of data and ensuring accuracy.
- **Credit Card System:** Provides customer management, credit card management, account management, customer information management and general ledger functions; online transaction authorization and service of the bank card in each transaction channel of the issuing bank; support in the payment application.
- **ATM Switch:** Is convenient, allowing consumers to perform quick, self-serve transactions from everyday banking like deposits and withdrawals to more complex transactions like bill payments and transfers.

#### Central Server

- All the bank's branches access applications from centralized data centers/ servers, therefore any deposits made in any branch are reflected immediately and customer can withdraw money from any other branch throughout the world.

#### Front End Applications

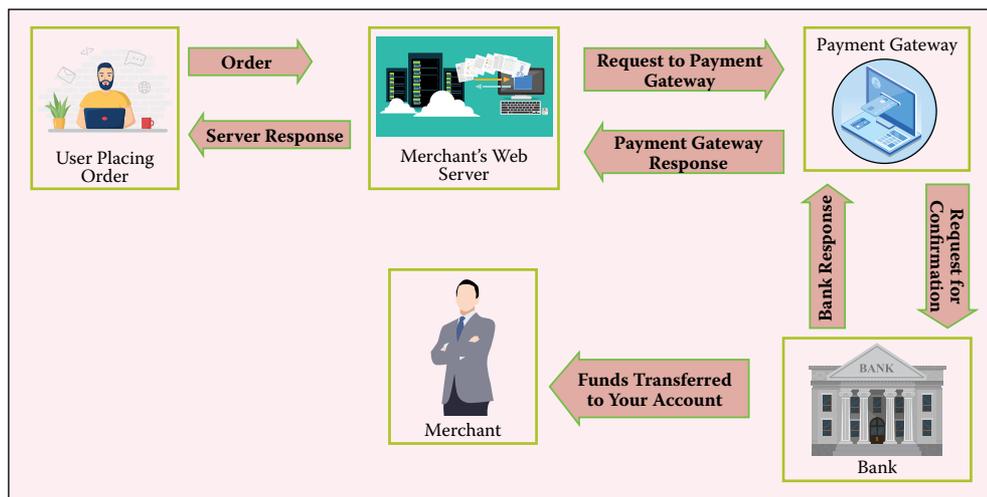
- **Mobile Banking:** A service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a smartphone or tablet.
- **Internet Banking:** An electronic payment system that enables customers of a bank or other financial institution to conduct a range of financial transactions through the financial institution's website accessed through any browser.
- **Phone Banking:** A functionality through which customers can execute many of the banking transactional services through Contact Centre of a bank over phone, without the need to visit a bank branch or ATM.
- **Branch Banking:** Creating manual documents capturing data required for input into software; Internal authorization; Initiating Beginning-Of-Day (BOD) operations; End-Of-Day (EOD) operations; and Reviewing reports for control and error correction.

# ENTERPRISE INFORMATION SYSTEMS

CBS IT Environment	
The CBS facilities providing banking services for branches of a bank which are networked and connected to common data center. This facilitates staff to process transactions of customers of any branch. The <b>Server</b> is a sophisticated computer that accepts service requests from different machines called <b>clients</b> . The requests are processed by the server and sent back to the clients. There are different types of servers used in deploying CBS which are as follows:	
SERVER	FUNCTIONING
<b>Application Server</b>	The application software, resides in the application server and is always the latest version as accepted after adequate testing.
<b>Database Server</b>	The Database Server of Bank contains entire data of Bank which would consist of various accounts of customers & master data.
<b>ATM Channel Server</b>	This server contains the details of ATM account holders. Soon after the facility of using the ATM is created by the Bank, the details of such customers are loaded on to the ATM server.

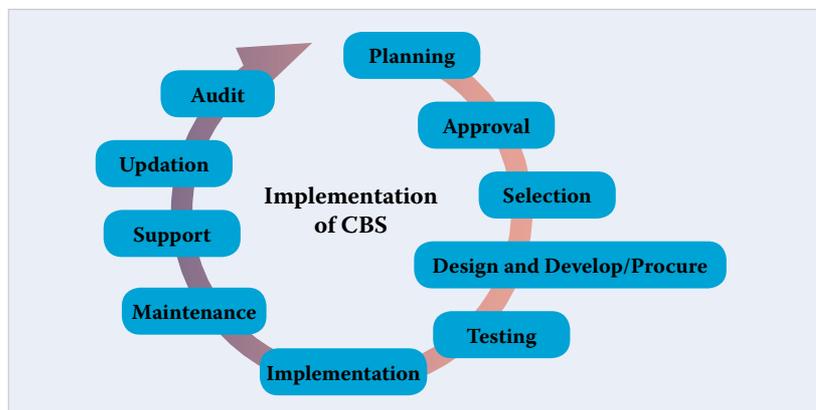
<b>Internet Banking Channel Server (IBCS)</b>	IBCS software stores the name and password of the entire internet banking customers. IBCS server also contains the details about the branch to which the customer belongs.
<b>Internet Banking Application Server (IBAS)</b>	The Internet Banking Software which is stored in IBAS authenticates customer with the login details stored in IBCS.
<b>Web Server</b>	It is used to host all web services and internet related software. Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients.
<b>Proxy Server</b>	It is a computer that offers a computer network service to allow clients to make indirect network connections to other network services.
<b>Anti-Virus Software Server</b>	It is used to host anti-virus s/w which is deployed for ensuring all the s/w deployed are first scanned to ensure that appropriate virus/ malware scans are performed.

## e-Commerce Transaction flow for approval of payments



## CBS Implementation

The deployment and implementation of CBS should be controlled at various stages to ensure that banks' automation objectives are achieved.



## Planning

- Implementation of CBS should be done as per strategic and business objectives of bank.

## Approval

- The decision to implement CBS must be approved by the Board of Directors as high investment and recurring costs are involved.

## Selection

- Bank should select the right solution considering various parameters as defined by the bank to meet their specific requirements and business objectives.

## Design and develop or procured

- Currently, most of the CBS deployment are procured. There should be appropriate controls covering the design or development or procurement of CBS for the bank.

## Testing

- The testing is to be done at different phases at procurement stage to test suitability to data migration to ensure all existing data is correctly migrated and testing to confirm processing of various types of transactions of all modules produces the correct results.

## Implementation

- CBS must be implemented as per pre-defined and agreed plan with specific project milestones to ensure successful implementation.

## Maintenance

- CBS must be maintained as required. E.g. program bugs fixed, version changes implemented, etc.

## Support

- CBS must be supported to ensure that it is working effectively.

## Updation

- CBS modules must be updated based on requirements of business processes, technology updates and regulatory requirements.

## Audit

- Audit of CBS must be done internally and externally as required to ensure that controls are working as envisaged.

**Operational Risk** is defined as a risk arising from direct or indirect loss to the bank which could be associated with inadequate or failed internal process, people and systems.

**Credit Risk** is the risk that an asset or a loan becomes irrecoverable in the case of outright default, or the risk of an unexpected delay in the servicing of a loan.

### Risks associated with CBS

**Strategic Risk** is defined as the risk that earnings decline due to changing business environment or changing demand of customers.

**Market Risk** refers to the risk of losses in the bank's trading book due to changes in equity prices, interest rates, credit spreads, commodity prices and other indicators whose values are set in a public market.

## Information Technology Risks

### Ownership of Data/ Process

- Establishes clear ownership so that accountability can be fixed.

### Authorization process

- Anybody with access to the CBS, including the customer himself, can enter data directly. Thus needs to have robust authorization process.

### Authentication procedures

- Usernames and passwords, PIN, OTP are some of the authentication techniques. If inadequately implemented, the user entering the transaction may not be determinable or traceable.

### Several software interfaces across diverse networks

- As a Data Centre can have as many as 75-100 different interfaces and application software; it must contain adequate infrastructure, such as power distribution and supplemental power subsystems and so on.

### Maintaining response time

- Maintaining the interfacing software and ensuring optimum response time and up time can be challenging.

### User Identity Management

- This could be a serious issue. Some Banks may have more than 5000 users interacting with the CBS at once.

### Access Controls

- Bank environments are subject to all types of attacks; thus, a strong access control system is a crucial part of a bank's overall security plan.

### Incident handling procedures

- Incident handling procedures are used to address and manage the aftermath of a security breach or cyberattack. These may not be adequate considering the need for real-time risk management.

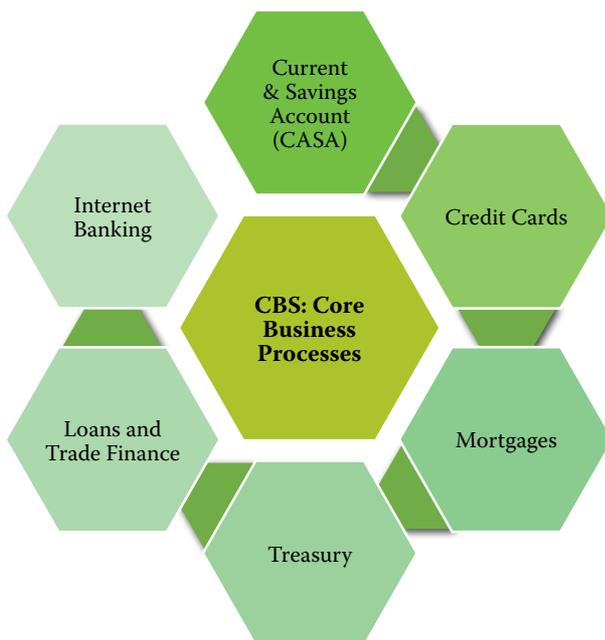
### Change Management

- This reduces the risk that a new system or other change will be rejected by the users.

**Information Security** is critical to mitigate the risks of Information technology. Security refers to ensure Confidentiality, Integrity and Availability of information. RBI has suggested use of ISO 27001: 2013 implement information security. Banks are also advised to obtain ISO 27001 Certification. Many banks have obtained such certification for their data centers.

**Information security is comprised of the following sub-processes:**

- **Information Security Policies, Procedures and practices:** This refers to the processes relating to approval and implementation of information security.
- **User Security Administration:** This refers to security for various users of information systems. The security administration policy documents define how users are created and granted access as per organization structure and access matrix. It also covers the complete administration of users right.
- **Application Security:** This refers to how security is implemented at various aspects of application right from configuration, setting of parameters and security for transactions through various application controls.
- **Database Security:** This refers to various aspects of implementing security for the database software. For example - Role based access privileges given to employees.
- **Operating System Security:** This refers to security for operating system software which is installed in the servers and systems which are connected to the servers.
- **Network Security:** This refers to how security is provided at various layers of network and connectivity to the servers. For example - Use of virtual private networks for employees, implementation of firewalls etc.
- **Physical Security:** This refers to security implemented through physical access controls. For example - Disabling the USB ports.



## Three stages of Money Laundering

- **Placement:** Involves the Placement of proceeds derived from illegal activities – the movement of proceeds, frequently currency, from the scene of the crime to a place, or into a form, less suspicious and more convenient for the criminal.
- **Layering:** Involves the separation of proceeds from illegal source using complex transactions designed to obscure the audit trail and hide the proceeds.
- **Integration:** Involves conversion of illegal proceeds into apparently legitimate business earnings through normal financial or commercial operations.

## Prevention of Money Laundering Act (PMLA)

- ❖ **CHAPTER II Offence Of Money-laundering**
  - Section 3. Offence of money-laundering
- ❖ **Chapter IV Obligations Of Banking Companies, Financial Institutions And Intermediaries**
  - Section 12. Reporting entity to maintain records.
  - Section 13. Powers of Director to impose fine.
- ❖ **CHAPTER X Miscellaneous**
  - Section 63. Punishment for false information or failure to give information, etc.
  - Section 70. Offences by companies

**Money Laundering** is the process by which the proceeds of the crime and the true ownership of those proceeds are concealed or made opaque so that the proceeds appear to come from a legitimate source.

## Anti-Money Laundering (AML) using Technology

Banks face the challenge of addressing the threat of money laundering on multiple fronts as banks can be used as primary means for transfer of money across geographies.

With regulators adopting stricter regulations on banks and enhancing their enforcement efforts, banks are using special fraud and risk management software to prevent and detect fraud and integrate this as part of their internal process and daily processing and reporting.

## Financing of Terrorism

Terrorist financing is a form of money laundering. Money to fund terrorist activities moves through the global financial system via wire transfers and in and out of personal and business accounts.

It can sit in the accounts of illegitimate charities and be laundered through buying and selling securities and other commodities or purchasing and cashing out insurance policies.

## Banking Regulations Acts

- **Negotiable Instruments Act-1881 (NI Act)** Under NI Act, Cheque includes electronic image of truncated cheque and a cheque in the electronic form. The truncation of cheques in clearing has been given effect to and appropriate safeguards in this regard have been set forth in the guidelines issued by RBI from time to time.
- **The Reserve Bank of India (RBI)** was established on April 1, 1935 in accordance with the provisions of the Reserve Bank of India Act, 1934. The basic functions of the Reserve Bank as: "to regulate the issue of Bank Notes and keeping of reserves with a view to securing monetary stability in India and generally to operate the currency and credit system of the country to its advantage."

## Information Technology (IT) Act

The Information Technology Act was passed in 2000, amended in 2008 and the Rules were passed in 2011.

- The Act provides legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as "electronic commerce", which involve the use of alternatives to paper-based methods of communication and storage of information, to facilitate electronic filing of documents with the Government.
- The Act provides the legal framework for electronic governance by giving recognition to electronic records and digital signatures. It also deals with cybercrime and facilitates electronic commerce. It also defined cyber-crimes and prescribed penalties for them.
- The Amendment Act 2008 provides stronger privacy data protection measures as well as implementing reasonable information security by implementing ISO 27001 or equivalent certifiable standards to protect against cyber-crimes.

## Key provisions of IT related offences that impact banks

<b>Section 43</b> provides for Penalty and compensation for damage to computer, computer system, etc.	<b>Section 65:</b> Tampering with Computer Source Documents	<b>Section 66:</b> Computer Related Offences	<b>Section 66-B:</b> Punishment for dishonestly receiving stolen computer resource or communication device	<b>Section 66-C:</b> Punishment for identity theft	<b>Section 66-E:</b> Punishment for violation of privacy
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## Sensitive Personal Data Information (SPDI)

The IT Act has a specific category, "Sensitive Personal Data or Information," which consists of password, financial information (including bank account, credit card, debit card or other payment details), physical, physiological and mental health conditions, sexual orientation, medical records, and biometric information. This legally obligates all stakeholders (i.e., any individual or organization that collects, processes, transmits, transfers, stores or deals with sensitive personal data) to adhere to its requirements.

## Privacy Policy

Every bank captures Personal Information of customers as per definition of IT Act. Hence, it is mandatory to ensure security of personal information. This information must be protected by maintaining physical, electronic, and procedural safeguards by using appropriate security standards such as ISO 27001 to ensure compliance with regulatory requirements.

## STRATEGIC MANAGEMENT - A CAPSULE FOR QUICK REVISION

Chartered Accountants who are expected to reach high in the corporate ladder need to be sound in the concepts and principles of strategic management. The Capsule for quick recap of IIPCC/Intermediate Paper 7B: Strategic Management broadly covers the topics of strategic management discussed in detail in Chapter 1& 2 of the Study Material. Kindly note that this capsule would be beneficial for both Intermediate and IIPCC of Paper 7B: Strategic Management.

It may be kept in mind that the capsule is not the replacement of the Study Material. Reading of Study Material is absolutely essential. This capsule is intended to assist you in the process of revision of concepts discussed in the Study Material.

## CHAPTER 1 : INTRODUCTION TO STRATEGIC MANAGEMENT

### Business Policy

#### Origin

- Origin of business policy is traced back to 1911.
- In 1969, the American Assembly of Collegiate Schools of Business, made the course a mandatory requirement for business schools.
- During the next few decades, it spread to management institutes across different nations.

#### Definition

“The study of the functions and responsibilities of senior management, the crucial problems that affect success in the total enterprise, and the decisions that determine the direction of the organization and shape its future.”

- *Christensen*

#### Importance



### Concept of Management

**Management is an influence process to make things happen, to gain command over phenomena, to induce and direct events and people in a particular manner.** The term is often used :

As a key group in an organisation in-charge of its affairs.

As a set of interrelated functions and processes carried out by the management of an organisation to attain its objectives.

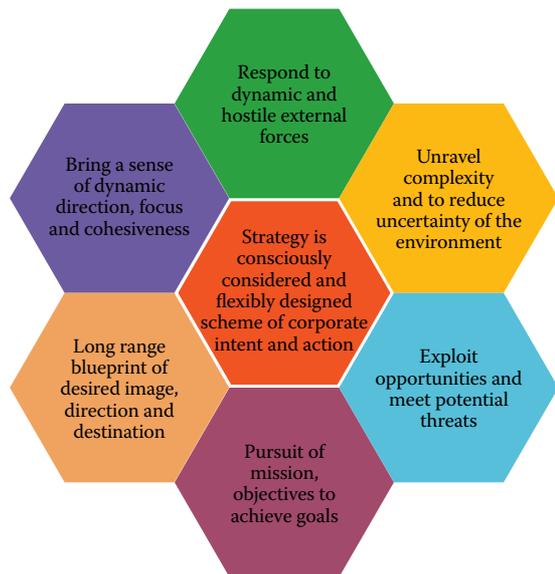
### Concept of Strategy

“The common thread among the organization’s activities and product-markets that defines the essential nature of business that the organization has or planned to be in future.”

- *Igor H. Ansoff*

“A unified, comprehensive and integrated plan designed to assure that the basic objectives of the enterprise are achieved.”

- *William F. Glueck*



### Strategy - Partly proactive and partly reactive



A company’s strategy is typically a blend of **partly proactive** and **partly reactive**.

**Proactive Strategy:** Proactive actions on the part of managers to improve the company’s market position and financial performance.

**Reactive Strategy:** Reactions to unanticipated developments and fresh market conditions.

## Abandoned Strategy Features

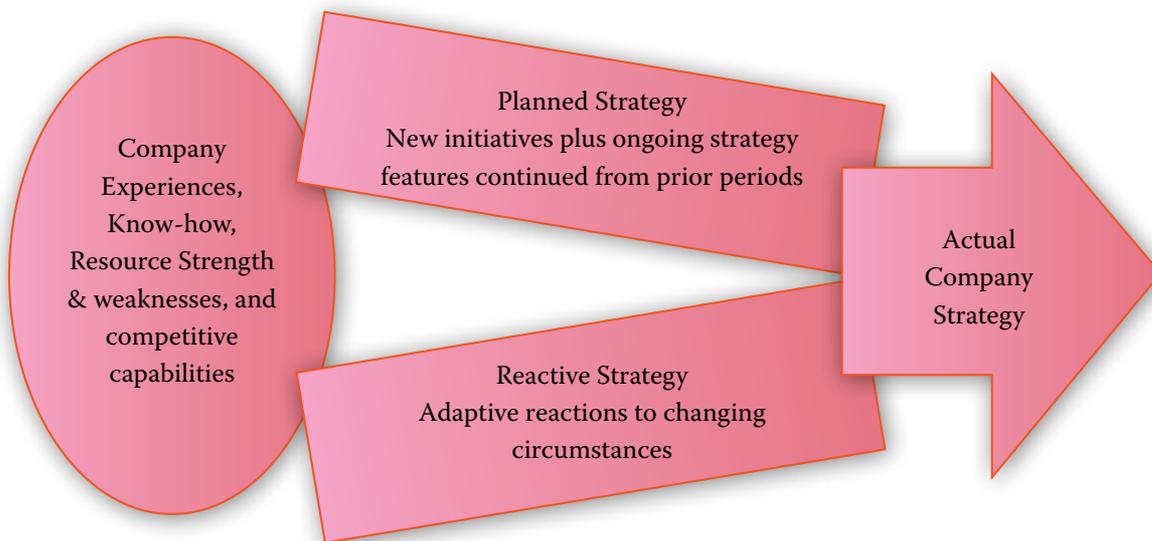


Figure: A company's actual strategy is partly planned & partly reactive

### Strategic Management

Process of developing a strategic vision, setting objectives, crafting a strategy, implementing and evaluating the strategy, and initiating corrective adjustments where deemed appropriate.

#### Concept

Managerial process to develop vision, set objectives, craft, implement and evaluate strategy.

Initiate corrective adjustments where deemed appropriate.

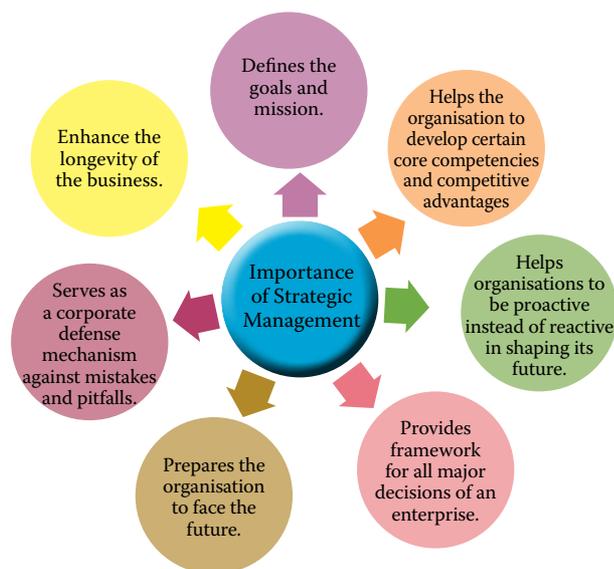
#### Objectives

To create competitive advantage, so that the company can outperform the competitors in order to have dominance over the market.

To guide the company successfully through all changes in the environment.

### Importance of Strategic Management

Strategic Management is very important for the survival and growth of business organizations in dynamic business environment.



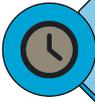
## Limitations of Strategic Management



Environment is highly complex and turbulent. It is difficult to understand the complex environment and exactly pinpoint how it will shape-up in future.



Strategic management is a costly process. It add lot of expenses to an organization.



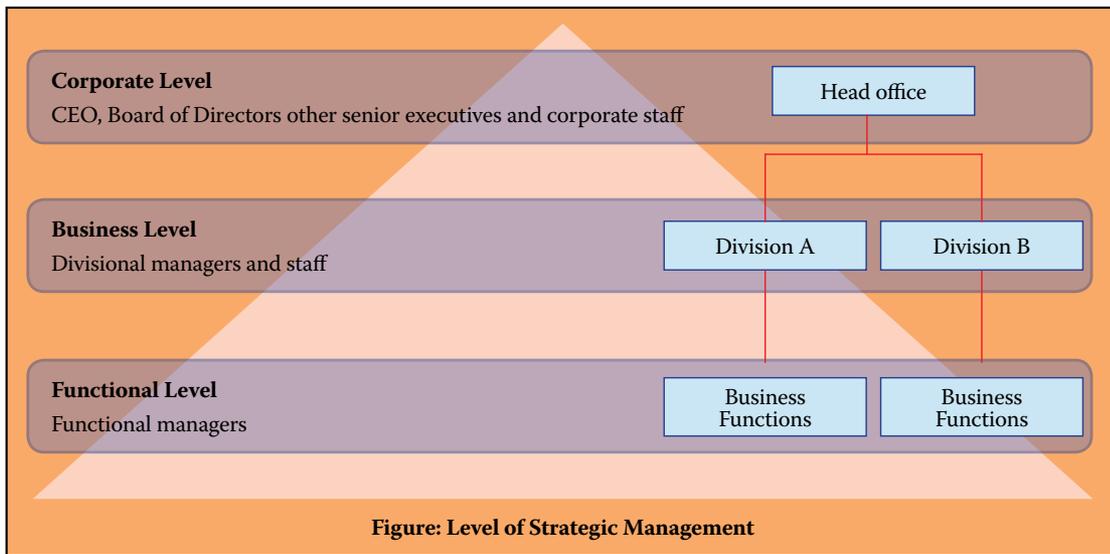
Strategic management is a time-consuming process.



Competition is unpredictable. It is difficult to clearly estimate the competitive responses to a firm's strategies.

## Strategic Levels in Organisations

Three main levels: Corporate, Business & Functional



## Strategic Management in Government and Not-for-profit Organisations

- There are many organizations that do not have any commercial objective of making profits.
- They are set up for social, charitable, or educational purposes.
- There are not-for-profit and government organizations that outperform many private firms in managing their affairs.
- Often function as a monopoly, produce a product or service that offers little or no measurability of performance.
- Dependent on outside financing.

### Educational Institutions

- Significant change in the competitive climate
- Adopting different strategies for attracting best students
- There are interactions between Academic institutions and industries
- Online education is new phenomena

### Medical Organizations

- Advances in the diagnosis and treatment of diseases
- Providing better facilities and services to the patients
- Diversification - hospitals opening pathological labs
- Better collaboration with physicians

### Governmental agencies and departments

- Formulating, implementing, and evaluating strategies
- Efficient and effective utilization of resources
- Public funds are used.
- Several government organizations are making significant surpluses
- Little freedom to alter missions or redirect objectives.
- Legislators and politicians can have direct or indirect control.
- Issues get discussed and debated in the media and legislatures.

## CHAPTER 2 : DYNAMICS OF COMPETITIVE STRATEGY

### Competitive Strategy

An organization must identify its position relative to the competitors in the market. Competitive strategy generates competitive advantage, increase the loyalty of customers and beat competition. A competitive strategy consists of:

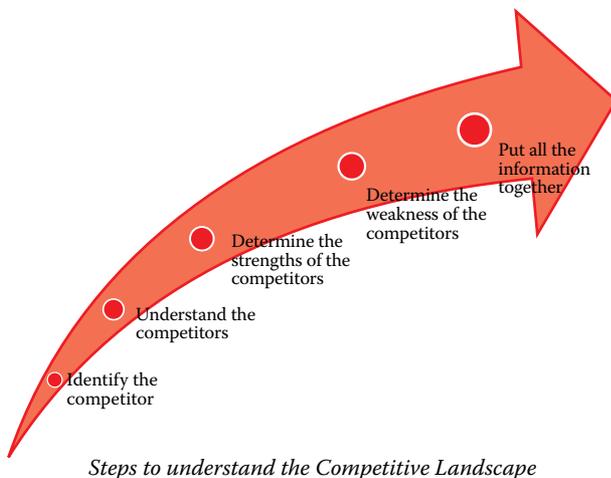


Having a competitive advantage is necessary for a firm to compete in the market.

### Competitive Landscape

Competitive landscape refers to a process or method of identifying direct or indirect competitors to help comprehend their mission, vision, core values, niche market, strengths, and weaknesses.

Competitive intelligence is required to understand competitive landscape. The cognitive faculty of mind and the information input involved here is referred to as competitive intelligence

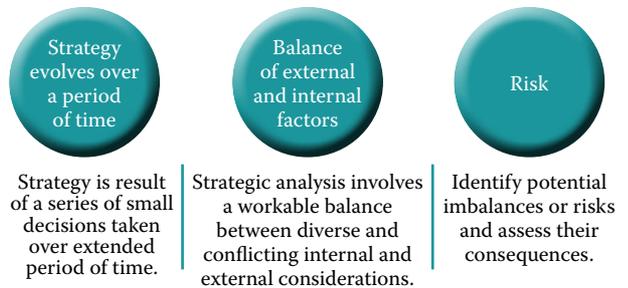


Steps to understand the Competitive Landscape

### Strategic Analysis

Proper diagnosis of the company's situation is necessary for managerial preparation for deciding on a sound long-term direction, setting appropriate objectives, and crafting a winning strategy. The analytical sequence is from strategic appraisal of the external and internal situation, to evaluation of alternatives, to choice of strategy. Two most important situational considerations are:

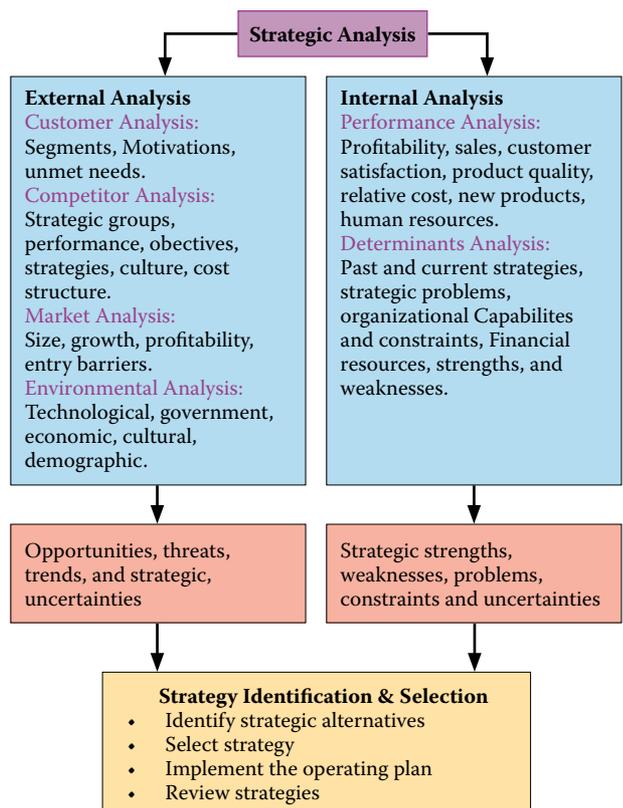
- (1) industry and competitive conditions and
- (2) an organisation's own competitive capabilities, resources, internal strengths, weaknesses, and market position.



### Issues to consider for Strategic Analysis

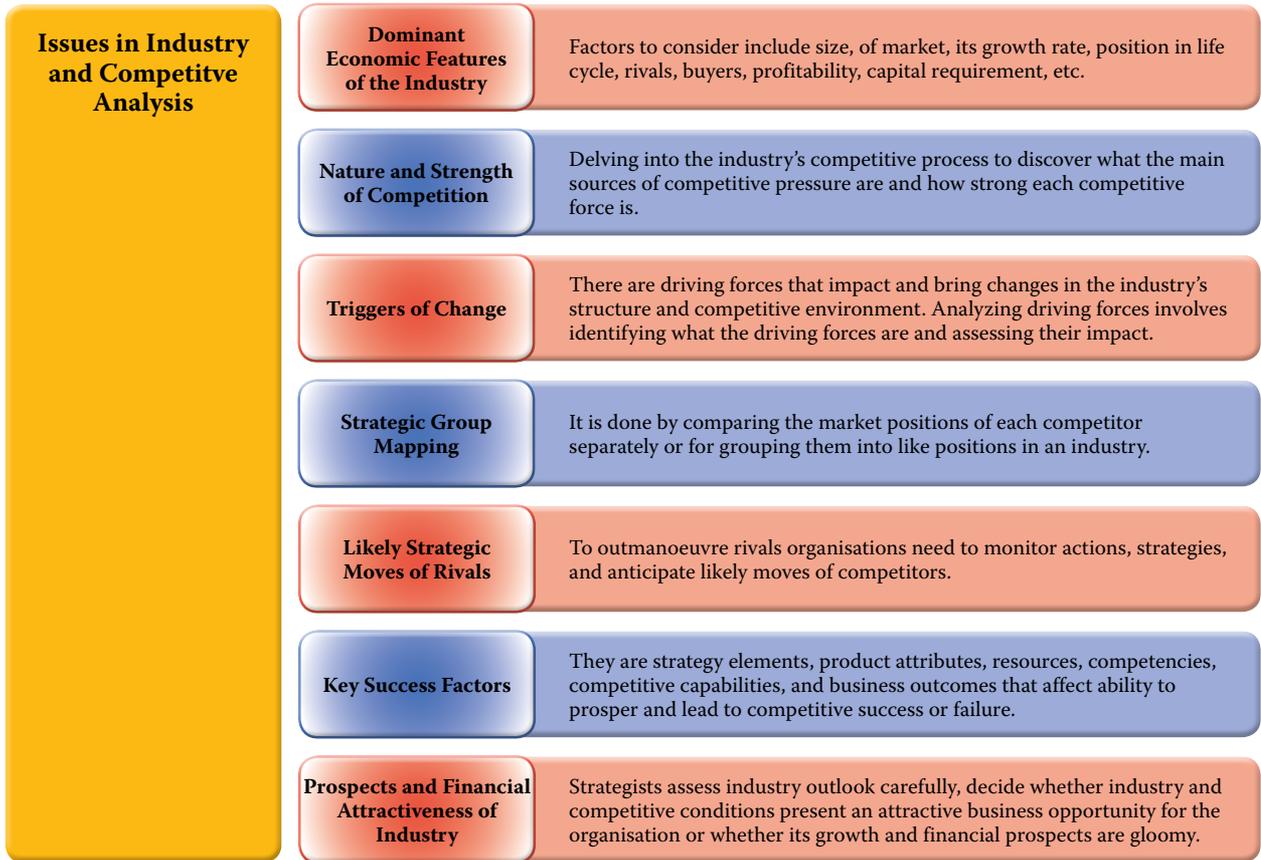
		Time	
		Short-term	Long-term
Strategic Risks	External	Errors in interpreting the environment cause strategic failure	Changes in the environment lead to obsolescence of strategy
	Internal	Organizational capacity is unable to cope up with strategic demands	Inconsistencies with the strategy are developed on account of changes in internal capacities and preferences

### Framework of Strategic Analysis



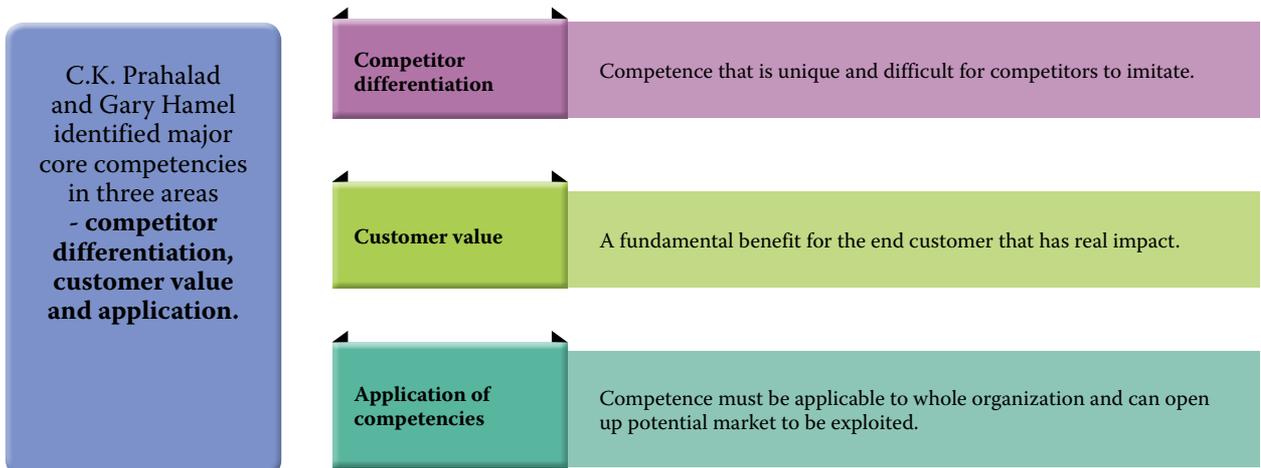
## Industry and Competitive Analysis

Industry and competitive analysis provides a way of thinking strategically about any industry's overall situation and drawing conclusions about whether the industry represents an attractive investment for organisational funds.



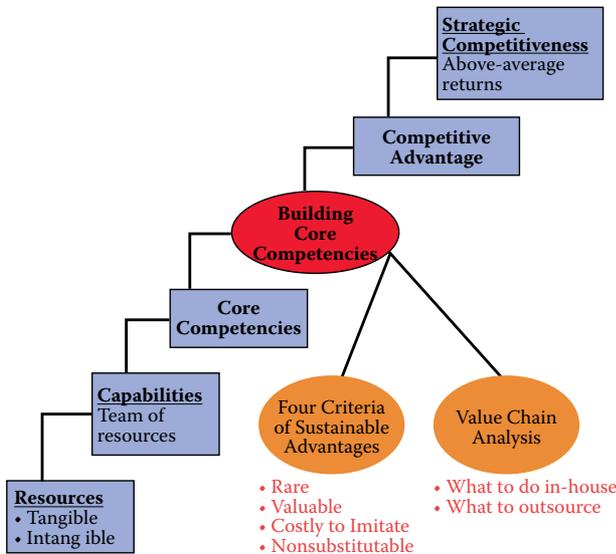
## Core Competence

C.K. Prahalad and Gary Hamel defined core competency as the collective learning in the organization, especially coordinating diverse production skills and integrating multiple streams of technologies. Capabilities that are **valuable, rare, costly to imitate, and non-substitutable** are core competencies.



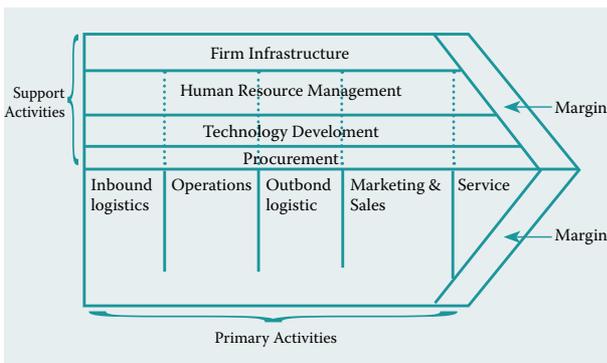
# STRATEGIC MANAGEMENT ||

## How to build Core Competencies



## Value Chain Analysis

Value chain analysis has been widely used as a means of describing the activities within and around an organization, and relating them to an assessment of the competitive strength of an organization (or its ability to provide value-for-money products or services). The primary activities of the organization are grouped into five main areas: inbound logistics, operations, outbound logistics, marketing and sales, and service. For an organisation it is important to identify those competences which critically underpin the organization's competitive advantage. These are known as the core competences and will differ from one organization to another.

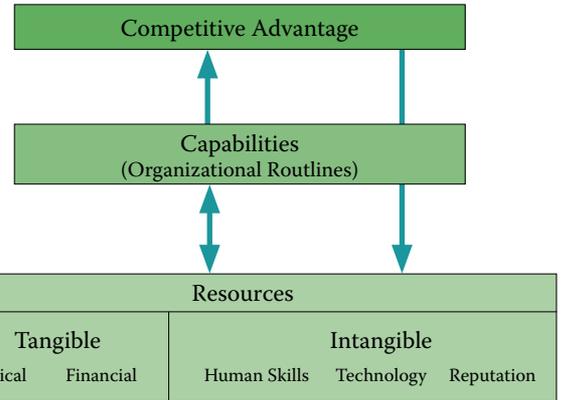


Value Chain (Michael Porter)

## Competitive Advantage

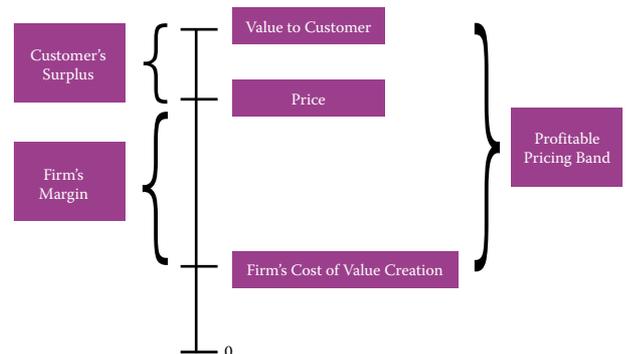
Competitive advantage allows a firm to gain an edge over rivals when competing. 'It is a set of unique features of a company and its products that are perceived by the target market as significant and superior to the competition.'

Competitive advantages and the differences they create in the firm's performance are often strongly related to the resources firms hold and how they are managed. Resources and capabilities are not inherently valuable, but they create value when the firm can use them to perform certain activities that result in a competitive advantage.



## Value Creation

The concept of value creation was introduced primarily for providing products and services to the customers with more worth. Value is measured by a product's features, quality, availability, durability, performance and by its services for which customers are willing to pay.

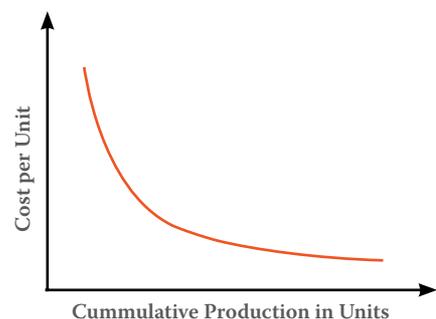


Thus, we can say that the value creation is an activity or performance by the firm to create value that increases the worth of goods, services, business processes or even the whole business system.

## Portfolio Analysis

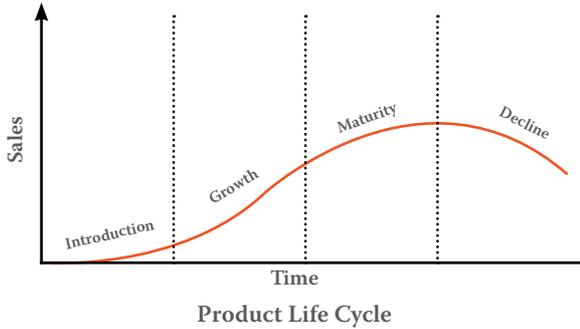
### Experience Curve

Experience curve is akin to a learning curve which explains the efficiency increase gained by workers through repetitive productive work. Experience curve is based on the commonly observed phenomenon that unit costs decline as a firm accumulates experience in terms of a cumulative volume of production. The concept of experience curve is relevant for a number of areas in strategic management.



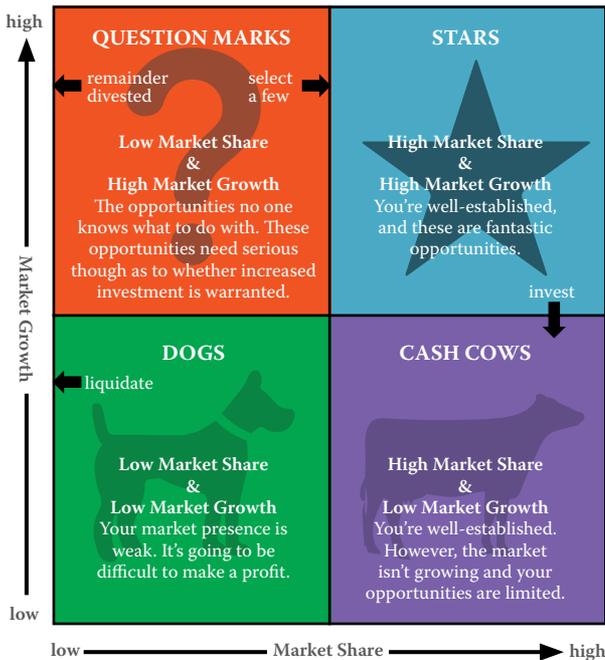
## Product Life Cycle

Product life cycle (PLC) an S-shaped curve which exhibits the relationship of sales with respect of time for a product that passes through the four successive stages of introduction (slow sales growth), growth (rapid market acceptance) maturity (slowdown in growth rate) and decline (sharp downward drift).



## A. Boston Consulting Group (BCG) Growth-Share Matrix

BCG helps to classify different businesses on a two-dimensional growth-share matrix



## B. Ansoff's Product Market Growth Matrix

A useful tool to decide product and market growth strategy.

	Existing Products	New Products
Existing Markets	<b>Market Penetration</b>	<b>Product Development</b>
New Markets	<b>Market Development</b>	<b>Diversification</b>

Ansoff's Product Market Growth Matrix

### Market penetration

refers to a growth strategy where the business focuses on selling existing products into existing markets.

### Market development

refers to a growth strategy where the business seeks to sell its existing products into new markets.

### Product development

refers to a growth strategy where business aims to introduce new products into existing markets.

### Diversification

refers to a growth strategy where a business markets new products in new markets.

## C. ADL Matrix

The ADL matrix is a portfolio analysis technique that is based on product life cycle. The approach forms a two dimensional matrix based on stage of industry maturity and the firms competitive position, environmental assessment and business strength assessment. Stage of industry maturity is an environmental measure that represents a position in industry's life cycle. Competitive position is a measure of business strengths that helps in categorization of products or SBU's into one of five competitive positions: dominant, strong, favourable, tenable and weak.

Competitive position	Stage of industry maturity			
	Embryonic	Growth	Mature	Ageing
Dominant	Fast grow Build barriers Act offensively	Fast grow Attend cost leadership Renew Defend position Act offensively	Defend position Attend cost leadership Renew Fast grow Act offensively	Defend position Renew Focus Consider withdrawal
Strong	Differentiate Fast grow	Differentiate Lower cost Attack small firms	Lower cost Focus Differentiate Grow with industry	Find niche Hold niche Harvest
Favourable	Differentiate Focus Fast grow	Focus Differentiate Defend	Focus Differentiate Harvest Find niche Hold niche Turnaround Grow with industry Hit smaller firms	Harvest Turnaround
Tenable	Grow with industry Focus	Hold niche Turnaround Focus Grow with industry Withdraw	Turnaround Hold niche Retrench	Divest Retrench
Weak	Find niche Catch-up Grow with industry	Turnaround Retrench Niche or withdraw	Withdraw Divest	Withdraw

# STRATEGIC MANAGEMENT

## D. General Electric Matrix [“Stop-Light” Strategy Model]

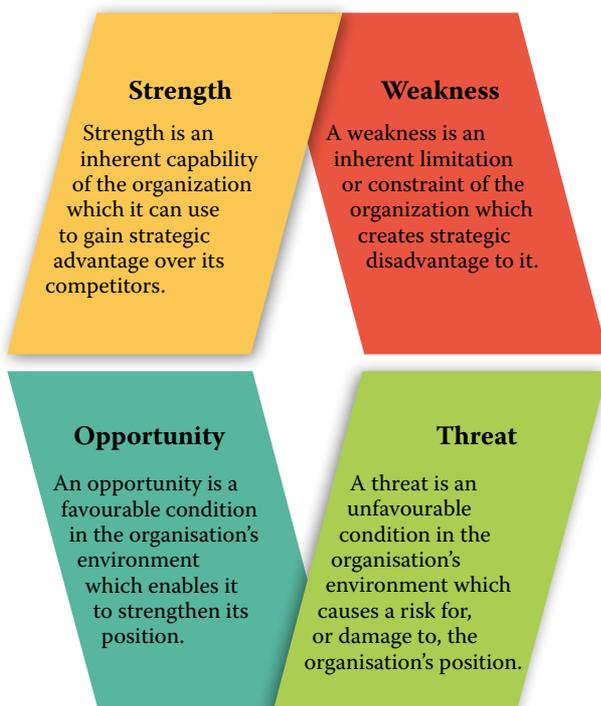
The strategic planning approach in this model has been inspired from traffic control lights. The lights that are used at crossings to manage traffic are: **green for go, amber or yellow for caution, and red for stop**. This model uses two factors while taking strategic decisions: **Business Strength and Market Attractiveness**.

		Business Strength		
		Strong	Average	Weak
Market Attractiveness	High	Invest/Expand	Invest/Expand	Select/Earn
	Medium	Invest/Expand	Select/Earn	Harvest/Divest
	Low	Select/Earn	Harvest/Divest	Harvest/Divest

**The GE Portfolio Matrix**

## SWOT Analysis

To enable management create a firm-specific business model that will best align, fit, or match an organisational resources and capabilities to the demands of the environment.



## TOWS Matrix

Heinz Wehrich developed a matrix called TOWS matrix by matching strengths and weaknesses of an organization with the external opportunities and threats. The incremental benefit of the TOWS matrix lies in systematically identifying relationships between these factors and selecting strategies on their basis. Thus TOWS matrix has a wider scope when compared to SWOT analysis. TOWS analysis is an action tool whereas SWOT analysis is a planning tool.

<i>Internal</i>	<b>Strengths – S</b>	<b>Weaknesses – W</b>
<i>External</i>	<i>List Strengths</i>	<i>List Weaknesses</i>
<b>Opportunities – O</b>	<b>SO Strategies</b>	<b>WO Strategies</b>
<i>List Opportunities</i>	<i>Use strengths to take advantage of opportunities</i>	<i>Overcoming weaknesses by taking advantage of opportunities</i>
<b>Threats – T</b>	<b>ST Strategies</b>	<b>WT Strategies</b>
<i>List Threats</i>	<i>Use strengths to avoid threats</i>	<i>Minimize weaknesses and avoid threats</i>

**SO**  
(Maxi-Maxi)

The strengths can be used to capitalize or build upon existing or emerging opportunities.

**ST**  
(Maxi-Mini)

ST is a position in which a firm strives to minimize existing or emerging threats through its strengths.

**WO**  
(Mini-Maxi)

The firm needs to overcome internal weaknesses and make attempts to exploit opportunities to maximum.

**WT**  
(Mini-Mini)

A firm facing external threats and internal weaknesses may have to struggle for its survival.

## Globalization

For a company globalization means two things: (a) the company commits itself heavily with several manufacturing locations around the world and offers products in several diversified industries, and (b) the company's ability to compete in domestic markets with foreign competitors.

- It is a conglomerate of multiple units in different countries but linked by common ownership.
- Multiple units draw on a common pool of resources.
- The units respond to some common strategy.

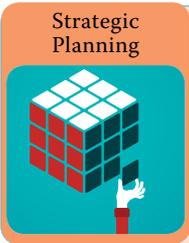
CA INTERMEDIATE - PAPER 7B - STRATEGIC MANAGEMENT

Chartered Accountants who are expected to reach high in the corporate ladder need to be sound in the concepts and principles of strategic management. The Capsule for quick recap of IIPCC/Intermediate Paper 7B: Strategic Management broadly covers the topics of strategic management discussed in detail in Chapter 3 of the Study Material.

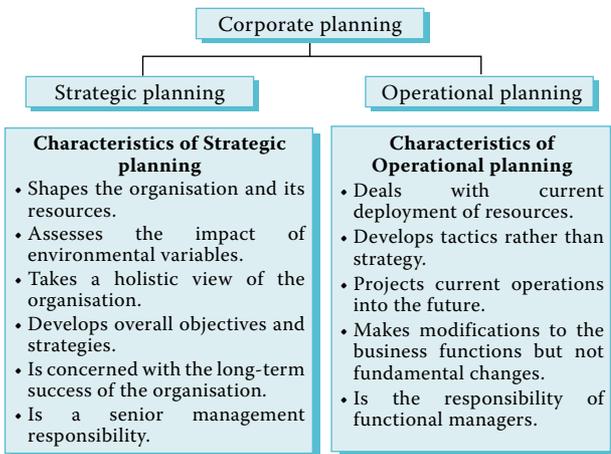
It may be kept in mind that the capsule is not the replacement of the Study Material. Reading of Study Material is absolutely essential. This capsule is intended to assist you in the process of revision of concepts discussed in the Study Material.

CHAPTER 3: STRATEGIC MANAGEMENT PROCESS

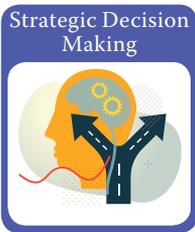
STRATEGIC PLANNING



Strategic Planning is the process of arriving at a set of interactive and overlapping decisions regarding the objectives of the firm, resources required to attain these objectives and formulation of policies to govern the acquisition, use and disposition of resources and formulation of a strategy that would enable the firm to outperform its own aspirations/ competition.



STRATEGIC DECISION MAKING



“Strategic decisions encompass the definition of the business, products to be handled, markets to be served, functions to be performed and major policies needed for the organisation to execute these decisions to achieve the strategic objectives.”

The major dimensions of strategic decisions are as follows:

- Involvement of top management
- Substantial resource commitment
- Consideration of factors in the external environment
- Significant impact on the long-term prosperity of the firm
- Future oriented- high degree of futurity
- Multifunctional and multi-business implications

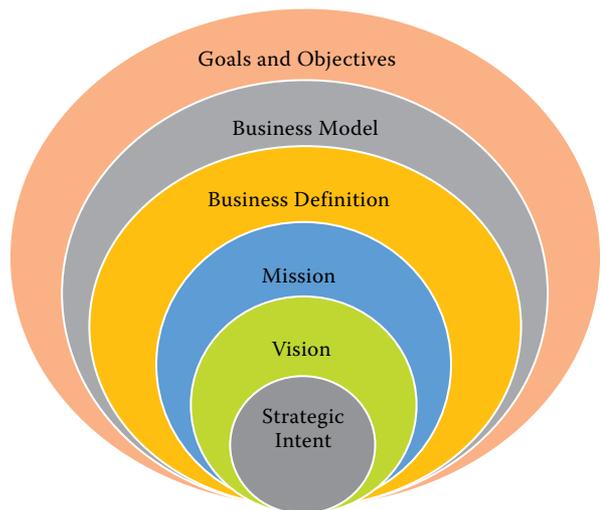
STRATEGIC INTENT



Strategic intent is a commitment to carrying out an action or actions in the future. It involves mental activities such as planning and forethought. It may be expressed in such broad terms as vision and mission or more specifically as goals and objectives.

The elements of strategic intent are:

- Vision**  
It depicts the organisation's aspirations and provides a glimpse of what the organization would like to become in future.
- Mission**  
A mission is an answer to the basic question 'what business are we in and what we do'.
- Business Definition**  
It seeks to explain the business undertaken by the firm, with respect to the customer needs, target markets, and alternative technologies.
- Business Model**  
Business model, as the name implies is a strategy for the effective operation of the business, ascertaining sources of income, desired customer base, and financial details.
- Goals and Objectives**  
These are the base of measurement. Goals are the end results, that the organization attempts to achieve. On the other hand, objectives are time-based measurable targets, which help in the accomplishment of goals.



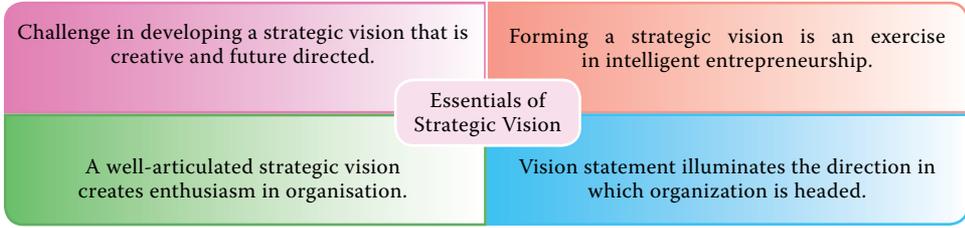
# STRATEGIC MANAGEMENT

## VISION



A Strategic vision is a road map of a company's future – providing specifics about technology and customer focus, the geographic and product markets to be pursued, the capabilities it plans to develop, and the kind of company that management is trying to create.

The essentials of a strategic vision are:

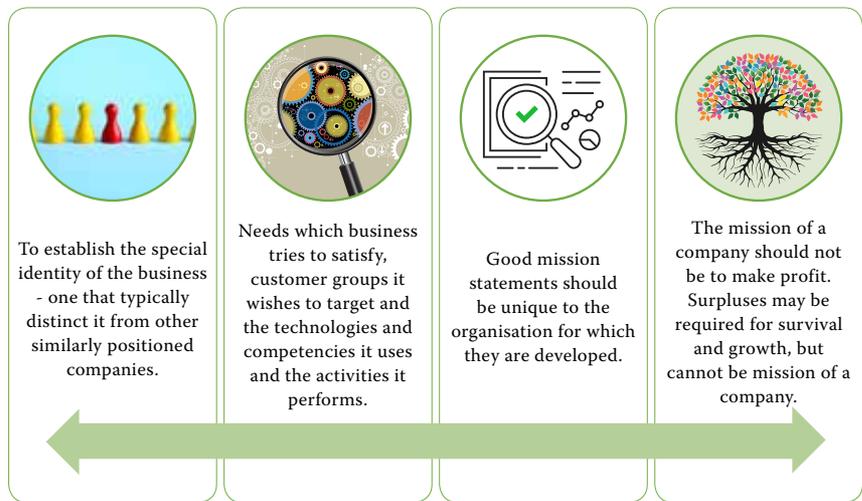


## MISSION



A company's mission statement is typically focused on its present business scope – “who we are and what we do”. Mission statements broadly describe an organizations present capabilities, customer focus, activities, and business makeup.

Points must be considered while writing a mission statement of a company are:



## GOALS AND OBJECTIVES

### Goals

Goals are open-ended attributes that denote the future states or outcomes. Objectives are close-ended attributes which are precise and expressed in specific terms. Thus, the Objectives are more specific and translate the goals to both long term and short-term perspective.

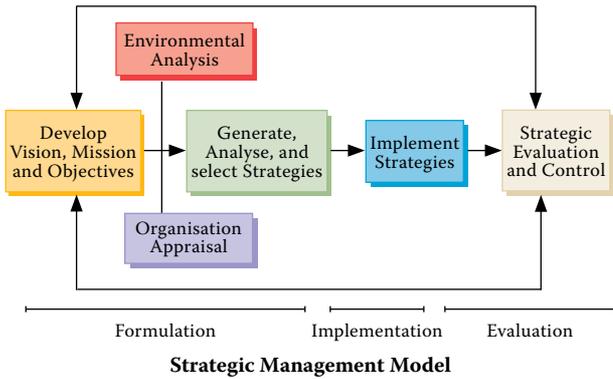
### Objectives

Objectives should be quantitative, measurable, realistic, understandable, challenging, hierarchical, obtainable, and congruent among organizational units. Objectives are short-term and long-term. Long term objectives are subdivided into short term such as monthly, weekly or daily objectives.

The strategic management consists of following stages:

## STRATEGIC MANAGEMENT MODEL

The strategic management process is dynamic and continuous. It involves strategy formulation, implementation, and evaluation. The major components of the strategic management process are shown in the model.



## STAGES IN STRATEGIC MANAGEMENT



**Strategic vision, mission and objective**  
 First a company must determine what directional path the company should take and what changes in the company's product – market – customer – technology – focus would improve its current market position and its future prospect. Deciding to commit the company to one path versus another pushes managers to draw some carefully reasoned conclusions about how to try to modify the company's business makeup and the market position. Corporate goals and objectives flow from the mission.

**Environmental and organisational analysis**  
 The stage would reveal organisational strengths and weaknesses which could be matched with the threats and opportunities in the external environment. External environment of a firm consists of economic, social, technological, market and other forces which affect its functioning. Organisational analysis involves a review of financial resources, technological resources, productive capacity, marketing and distribution effectiveness, research and development, human resource skills and so on.

**Formulating strategy**  
 The stage involves identifying strategic alternatives, in depth analysis and choosing the most appropriate alternative which will serve as strategy of the firm.

**Implementation of strategy**  
 Implementation and execution is an operations-oriented, activity aimed at shaping the performance of core business activities in a strategy-supportive manner. Good strategy execution involves creating strong "fits" between strategy and organizational capabilities, between strategy and the reward structure, between strategy and internal operating systems, and between strategy and the organization's work climate and culture.

**Strategic evaluation and control**  
 Assessing periodically that organisation is moving towards achieving its strategic intent is desirable. The final stage of strategic management process – evaluating the company's progress, assessing the impact of new external developments, and making corrective adjustments – is the trigger point for deciding whether to continue or change the company's vision, objectives, strategy, and/ or strategy-execution methods.

## STRATEGIC MANAGEMENT – A CAPSULE FOR QUICK REVISION

In the August 2017 issue, the Capsule for quick recap of IIPCC/Intermediate Paper 7B: Strategic Management broadly covers the topics of strategic management discussed in detail in Chapter 1 to 3 of the Study Material. In continuation, the capsule on this subject published in this issue covers the remaining Chapters 4 to 8 of the Study Material. Kindly note that this capsule would be beneficial for both Intermediate and IIPCC of Paper 7B: Strategic Management.

It may be kept in mind that the capsule is not the replacement of the Study Material. Reading of Study Material is absolute essential. This capsule is intended to assist you in the process of revision of concepts discussed in the Study Material.

### CHAPTER 4 : CORPORATE LEVEL STRATEGIES

Strategies are formulated at different levels of an organization – corporate, business and functional. Corporate level strategy occupies the highest level of strategic decision making and covers actions dealing with the objective of the firm, acquisition and allocation of resources and coordination of strategies of various SBUs for optimal performance.

We can classify the different types of strategies on the basis of levels of organisation, stages of business life cycle and competition.

Basis of Classification	Types
Level	Corporate Level Business Level Functional Level
Stages of Business Life Cycle	Entry/Introduction Stage - Market Penetration Strategy Growth Stage - Growth/Expansion Strategy Maturity Stage - Stability Strategy Decline Stage - Retrenchment/Turnaround Strategy
Competition	Competitive Strategies - Cost Leadership, Differentiation, Focus Collaboration Strategies - Joint Venture, Merger & Acquisition, Strategic Alliance

The corporate strategies a firm can adopt may be classified into four broad categories. The basic features of the corporate strategies are as follows:

Strategy	Basic Feature
Stability	The firm stays with its current businesses and product markets; maintains the existing level of effort; and is satisfied with incremental growth.
Expansion	Here, the firm seeks significant growth—maybe within the current businesses; maybe by entering new business that are related to existing businesses; or by entering new businesses that are unrelated to existing businesses.
Retrenchment	The firm retrenches some of the activities in some business (es), or drops the business as such through sell-out or liquidation.
Combination	The firm combines the above strategic alternatives in some permutation/combination so as to suit the specific requirements of the firm.

#### Stability Strategy

A stability strategy is pursued by a firm when:

- It continues to serve in the same or similar markets and deals in same or similar products and services.
- The strategic decisions focus on incremental improvement of functional performance

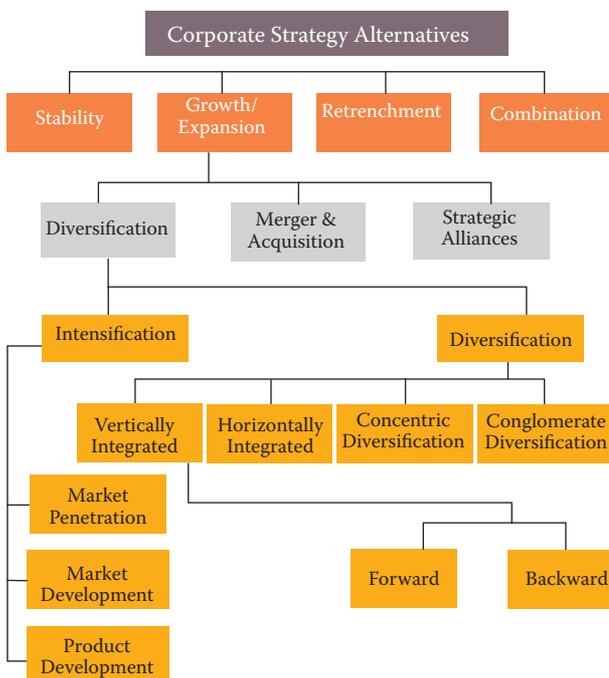
Stability strategy is not a 'do nothing' strategy. It involves keeping track of new developments to ensure that the strategy continues to make sense. This strategy is typical for those firms whose product have reached the maturity stage of product life cycle. Small organizations may also follow stability strategy to consolidate their market position and prepare for the launch of growth strategies.

#### Growth/Expansion Strategy

Growth/Expansion strategy is often characterised by significant reformulation of goals and directions, major initiatives and moves involving investments, exploration and onslaught into new products, new technology and new markets, innovative decisions and action programmes and so on. Expansion also includes diversifying, acquiring and merging businesses.

##### • Expansion through diversification

Diversification is defined as entry into new products or product lines, new services or new markets, involving substantially different skills, technology and knowledge. For some firms, diversification is a means of utilising their existing facilities and capabilities in a more effective and efficient manner.



# STRATEGIC MANAGEMENT

**Expansion or growth strategy can either be through intensification or diversification:** Igor Ansoff gave a framework as shown which describes the intensification options available to a firm.

<b>Market Penetration</b> Increase market share Increase product usage Increase the frequency used Increase the quantity used Find new application for current users	<b>Basic Feature</b> Add product features, product refinement Develop a new-generation product Develop new product for the same market
<b>Market Development</b> Expand geographically target new segments	<b>Diversification involving new products and new markets</b> Related / Unrelated

**Product-Market Expansion Grid**

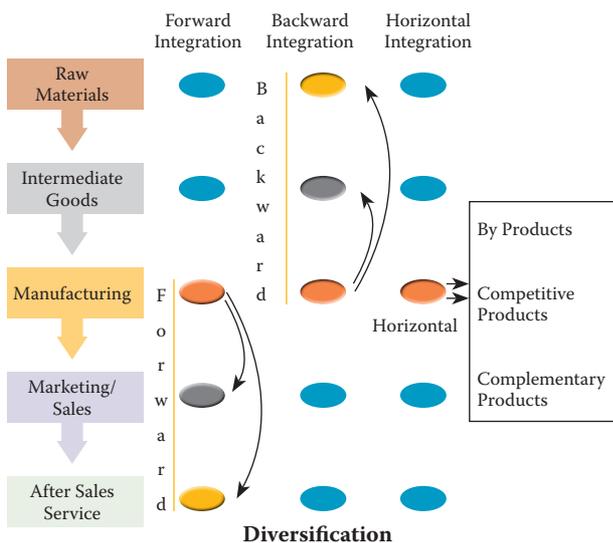
**(a) Intensification**

- **Market Penetration:** Highly common expansion strategy is market penetration/concentration on the current business. The firm directs its resources to the profitable growth of its existing product in the existing market.
- **Market Development:** It consists of marketing present products, to customers in related market areas by adding different channels of distribution or by changing the content of advertising or the promotional media.
- **Product Development:** Product development involves substantial modification of existing products or creation of new but related items that can be marketed to current customers through establish channels.

**(b) Diversification**

Diversification endeavours can be related or unrelated to existing businesses of the firm. Based on the nature and extent of their relationship to existing businesses, diversification endeavours have been classified into four broad categories:

- (i) Vertically integrated diversification
- (ii) Horizontally integrated diversification
- (iii) Concentric diversification
- (iv) Conglomerate diversification



- (i) **Vertically integrated diversification:** In vertically integrated diversification, firms opt to engage in businesses that are related to the existing business of the firm. The firm remains vertically within the same process sequence moves forward or backward in the chain and enters specific product/process steps with the intention of making them into new businesses for the firm.

**Forward and Backward Integration:**

Forward integration is moving forward in the value chain and entering business lines that use existing products.

On the other hand, backward integration is a step towards creation of effective supply by entering business of input providers.

- (ii) **Horizontal Integrated Diversification:** Through the acquisition of one or more similar business operating at the same stage of the production-marketing chain that is going into complementary products, by-products or taking over competitors' products.

RELATED DIVERSIFICATION	UNRELATED DIVERSIFICATION
Exchange or share assets or competencies by exploiting <ul style="list-style-type: none"> <li>• Brand name</li> <li>• Marketing skills</li> <li>• Sales and distribution capacity</li> <li>• Manufacturing skills</li> <li>• R&amp;D and new product capability</li> <li>• Economies of scale</li> </ul>	<ul style="list-style-type: none"> <li>• Investment in new product portfolios.</li> <li>• Employment of new technologies.</li> <li>• Focus on multiple products.</li> <li>• Reduce risk by operating in multiple product markets.</li> <li>• Defend against takeover bids.</li> <li>• Provide executive interest.</li> </ul>

**Related vs. Unrelated Diversification**

- (iii) **Concentric Diversification:** Concentric diversification too amounts to related diversification. In concentric diversification, the new business is linked to the existing businesses through process, technology or marketing.
- (iv) **Conglomerate Diversification:** In conglomerate diversification, no such linkages exist; the new businesses/ products are disjointed from the existing businesses/products in every way; it is a totally unrelated diversification.

**Expansion through Mergers and Acquisitions**

Acquisition or merger with an existing concern is an instant means of achieving the expansion. Merger and acquisition in simple words are defined as a process of combining two or more organizations together.

- ❖ Merger is considered to be a process when two or more companies come together to expand their business operations. In such a case the deal gets finalized on friendly

terms and both the organizations share profits in the newly created entity.

- ❖ When one organization takes over the other organization and controls all its business operations, it is known as acquisitions. In this process of acquisition, one financially strong organization overpowers the weaker one.

### Types of Mergers

1. **Horizontal merger:** Horizontal mergers are combinations of firms engaged in the same industry.
2. **Vertical merger:** It is a merger of two organizations that are operating in the same industry but at different stages of production or distribution system.
3. **Co-generic merger:** In Co-generic merger two or more merging organizations are associated in some way or the other related to the production processes, business markets, or basic required technologies.
4. **Conglomerate merger:** Conglomerate mergers are the combination of organizations that are unrelated to each other. There are no linkages with respect to customer groups, customer functions and technologies being used.

### • Expansion through Strategic Alliance

A strategic alliance is a relationship between two or more businesses that enables each to achieve certain strategic objectives which neither would be able to achieve on its own. The strategic partners maintain their status as independent and separate entities, share the benefits and control over the partnership, and continue to make contributions to the alliance until it is terminated.

### Retrenchment/Turnaround Strategy

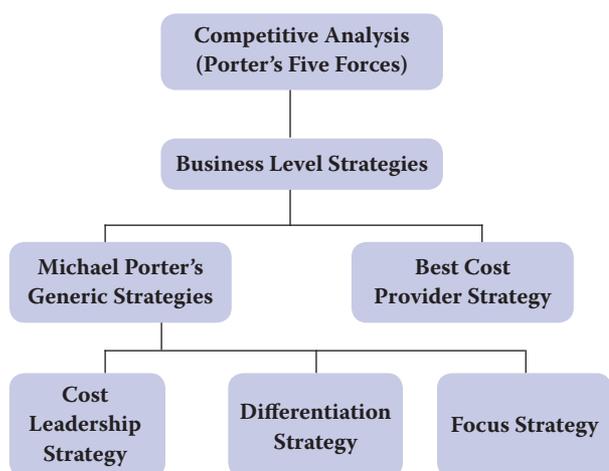
- (i) **Retrenchment Strategy:** It is followed when an organization substantially reduces the scope of its activity.
- (ii) **Turnaround Strategy:** Retrenchment may be done either internally or externally. For internal retrenchment to take place, emphasis is laid on improving internal efficiency, known as turnaround strategy.
- (iii) **Divestment Strategy:** Divestment strategy involves the sale or liquidation of a portion of business, or a major division, profit centre or SBU. Divestment is usually a part of rehabilitation or restructuring plan and is adopted when a turnaround has been attempted but has proved to be unsuccessful.
- (iv) **Liquidation Strategy:** A retrenchment strategy considered the most extreme and unattractive is liquidation strategy, which involves closing down a firm and selling its assets. It is considered as the last resort because it leads to serious consequences such as loss of employment for workers and other employees, termination of opportunities where a firm could pursue any future activities, and the stigma of failure.

### Combination Strategy

The above strategies are not mutually exclusive. It is possible to adopt a mix of the above to suit particular situations. An enterprise may seek stability in some areas of activity, expansion in some and retrenchment in the others. Retrenchment of ailing products followed by stability and capped by expansion in some situations may be thought of. For some organizations, a strategy by diversification and/or acquisition may call for a retrenchment in some obsolete product lines, production facilities and plant locations.

## CHAPTER 5 : BUSINESS LEVEL STRATEGIES

An organization's core competencies should be focused on satisfying customer needs or want in order to achieve organisational objectives. This is done through business-level strategies. Business level strategies are the courses of action adopted by an organisation for each of its businesses separately, to serve identified customer groups and provide value to the customers by satisfaction of their needs. In the process, the organisation uses its competencies to gain, sustain and enhance its strategic or competitive advantage.

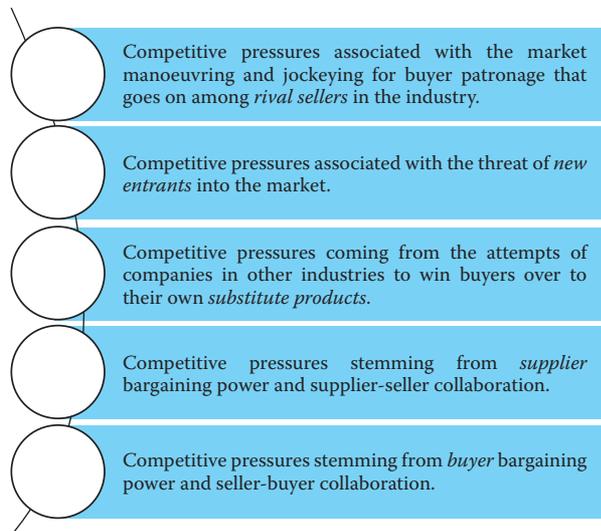


### Porter's Five Forces Model –Competitive Analysis

Michael Porter believes that the basic unit of analysis for understanding is a group of competitors producing goods or services that compete directly with each other. It is the industry where competitive advantage is ultimately won or lost. It is through competitive strategy that the organisation attempts to adopt an approach to compete in the industry.

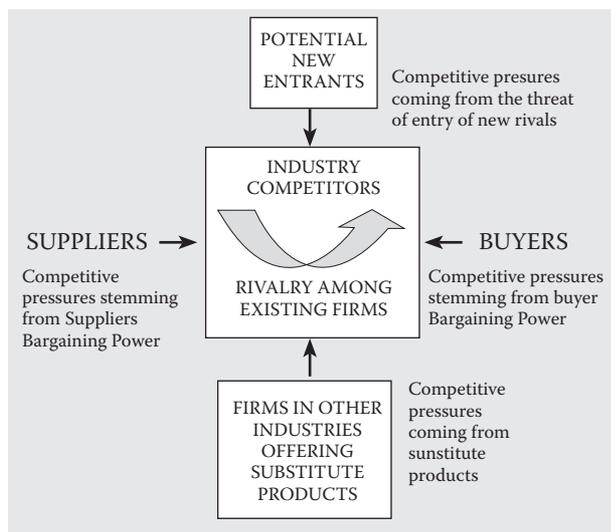
A powerful and widely used tool for systematically diagnosing the significant competitive pressures in a market and assessing the strength and importance of each is the Porter's five-forces model of competition. This model holds that the state of competition in an industry is a composite of competitive pressures operating in five areas of the overall market:

# STRATEGIC MANAGEMENT ||



The strategists can use the five-forces model to determine what competition is like in a given industry by undertaking the following steps:

- Step 1: Identify the specific competitive pressures associated with each of the five forces.
- Step 2: Evaluate how strong the pressures comprising each of the five forces are (fierce, strong, moderate to normal, or weak).
- Step 3: Determine whether the collective strength of the five competitive forces is conducive to earning attractive profits.



Porter's five forces model is one of the most effective and enduring conceptual frameworks used to assess the nature of the competitive environment and to describe an industry's structure. The interrelationship among these five forces gives each industry its own particular competitive environment. By applying Porter's five forces model of industry attractiveness to their own industries, the manager can gauge their own firm's strengths, weaknesses, and future opportunities.

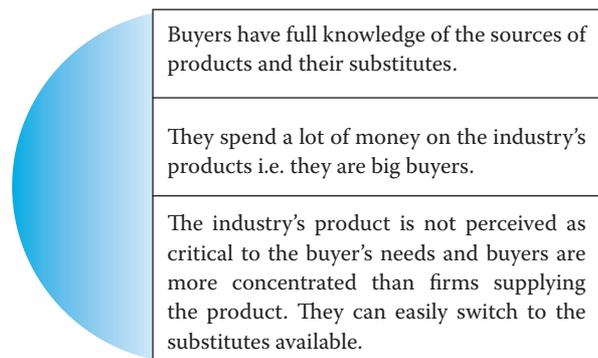
## Threat of New Entrants

New entrants are always a powerful source of competition. They can reduce industry profitability because they add new production capacity and can substantially erode existing firm's market share positions. To discourage new entrants, existing firms can try to raise barriers to entry. Common barriers to entry include:



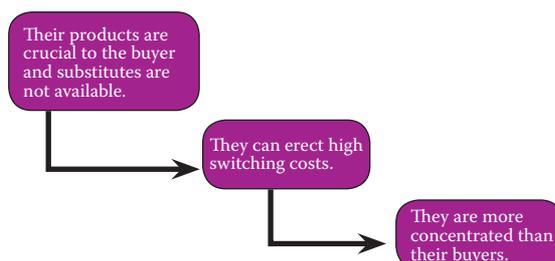
## Bargaining Power of Buyers

Buyers of an industry's products or services can sometimes exert considerable pressure on existing firms to secure lower prices or better services. This leverage is particularly evident when:



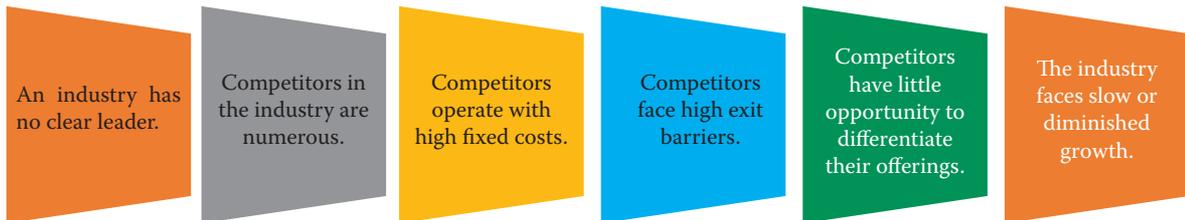
## Bargaining Power of Suppliers

Suppliers can influence the profitability of an industry in a number of ways. Suppliers can command bargaining power over a firm when:



## The Nature of Rivalry in the Industry

The intensity of rivalry in an industry is a significant determinant of industry attractiveness and profitability. The intensity of rivalry can influence the costs of suppliers, distribution, and of attracting customers and thus directly affect the profitability. The more intensive the rivalry, the less attractive is the industry. Rivalry among competitors tends to be cutthroat and industry profitability low when:



## Threat of Substitutes

A final force that can influence industry profitability is the availability of substitutes for an industry's product. To predict profit pressure from this source, firms must search for products that perform the same, or nearly the same, function as their existing products.

## Business-Level Strategies

An organization's core competencies should be focused on satisfying customer needs or wants in order to achieve above average returns. This is done through Business-level strategies

Customers are the foundation of an organization's business-level strategies. Who will be served, what needs have to be met, and how those needs will be satisfied are determined by the senior management.

### Who are the customers?

Knowing one's customers is very important in obtaining and sustaining a competitive advantage. Being able to successfully predict and satisfy future customer needs is important. Perhaps one of Compaq's mistakes was not understanding who their real customer was and what that customer -- end user -- wanted.

### How to satisfy customer needs?

Organizations must determine how to bundle resources and capabilities to form core competencies and then use these core competencies to satisfy customer needs or create value for them.

Business level strategies detail actions to be taken to provide value to customers and gain a competitive advantage by exploiting core competencies in specific individual product or service markets. Having selected a market, the organization must develop a plan to be successful in that market. Business strategy therefore looks at how the organization can compete successfully in the individual markets that it chooses to operate within.

Business level strategy is concerned with issues such as:

- Achieving advantage over competitors.
- Meeting the needs of key customers.
- Avoiding competitive disadvantage.

## Michael Porter's Generic Strategies

According to Porter, strategies allow organizations to gain competitive advantage from three different bases: cost leadership, differentiation, and focus. Porter called these base generic strategies. These strategies have been termed generic because they can be pursued by any type or size of business firm and even by not-for-profit organisations.

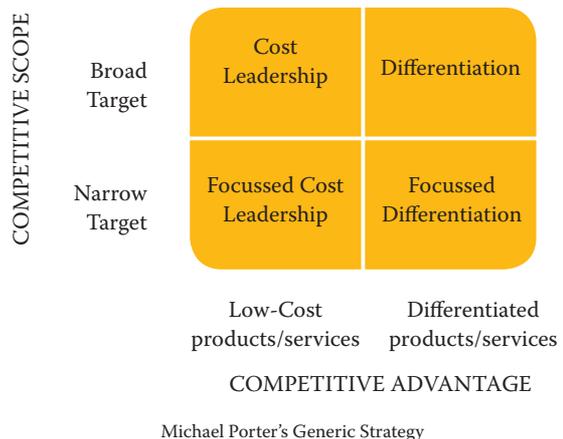
**Michael Porter's Generic Strategies**

**Cost leadership** emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive.

**Differentiation** is a strategy aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price-insensitive.

**Focus** means producing products and services that fulfill the needs of small groups of consumers.

Porter's strategies imply different organizational arrangements, control procedures, and incentive systems. Larger firms with greater access to resources typically compete on a cost leadership and/or differentiation basis, whereas smaller firms often compete on a focus basis.



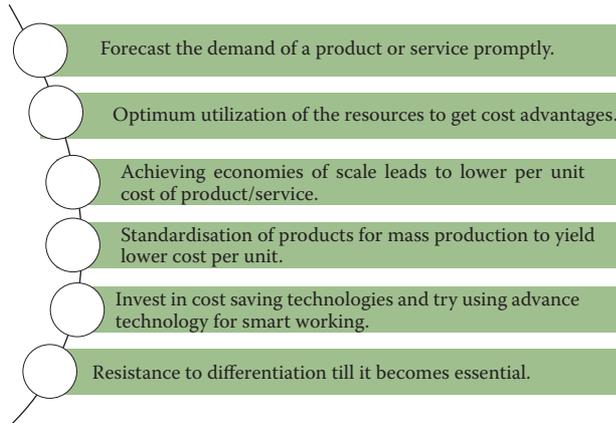
# STRATEGIC MANAGEMENT ||

## Cost Leadership Strategy

Cost leadership emphasizes producing standardized products at a very low per-unit cost for consumers who are price-sensitive. It is a low cost competitive strategy that aims at broad mass market. It requires vigorous pursuit of cost reduction in the areas of procurement, production, storage and distribution of product or service and also economies in overhead costs. Because of its lower costs, the cost leader is able to change a lower price for its products than its competitors and still make satisfactory profits.

### Achieving Cost Leadership Strategy

To achieve cost leadership, following are the actions that could be taken:



### Advantages of Cost Leadership Strategy

A cost leadership strategy may help to remain profitable even with: rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

**Rivalry** – Competitors are likely to avoid a price war, since the low cost firm will continue to earn profits after competitors compete away their profits.

**Buyers** – Powerful buyers/customers would not be able to exploit the cost leader firm and will continue to buy its product.

**Suppliers** – Cost leaders are able to absorb greater price increases before it must raise price to customers.

**Entrants** – Low cost leaders create barriers to market entry through its continuous focus on efficiency and reducing costs.

**Substitutes** – Low cost leaders are more likely to lower costs to induce customers to stay with their product, invest to develop substitutes, purchase patents.

### Disadvantages of Cost Leadership Strategy

Cost advantage may not be remaining for long as competitors may also follow cost reduction technique.

Cost leadership can succeed only if the firm can achieve higher sales volume.

Cost leaders tend to keep their costs low by minimizing advertising, market research, and research and development, but this approach can prove to be expensive in the long run.

Technology changes are a great threat to the cost leader.

## Differentiation Strategy

Differentiation is a strategy aimed at producing products and services considered unique industry wide and directed at consumers who are relatively price-insensitive. This strategy is aimed at broad mass market and involves the creation of a product or service that is perceived by the customers as unique. The uniqueness can be associated with product design, brand image, features, technology, dealer network or customer service. Because of differentiation, the business can charge a premium for its product.

### Basis of Differentiation

There are several basis of differentiation: product, pricing and organization.

- ❖ **Product:** Innovative products that meet customer needs can be an area where a company has an advantage over competitors. The pursuit of new product offerings can be costly – research and development, as well as production and marketing costs can all add to the cost of production and distribution. The payoff, however, can be great as customer's flock to be among the first to have the new product.
- ❖ **Pricing:** It can fluctuate based on its supply and demand, and also be influenced by the customer's ideal value for the product. Companies that differentiate based on product price can either determine to offer the lowest price, or can attempt to establish superiority through higher prices.
- ❖ **Organisation:** Organisational differentiation is yet another form of differentiation. Maximizing the power of a brand, or using the specific advantages that an organization possesses can be instrumental to a company's success. Location advantage, name recognition and customer loyalty can all provide additional ways for a company differentiate itself from the competition.

### Achieving Differentiation Strategy

To achieve differentiation, following are the measures that could be adopted by an organization to incorporate that:



## Advantages of Differentiation Strategy

A differentiation strategy may help to remain profitable even with: rivalry, new entrants, suppliers' power, substitute products, and buyers' power.

**Rivalry** - Brand loyalty acts as a safeguard against competitors. It means that customers will be less sensitive to price increases, as long as the firm can satisfy the needs of its customers.

**Buyers** - They do not negotiate for price as they get special features and also they have fewer options in the market.

**Suppliers** - Because differentiators charge a premium price, they can afford to absorb higher costs of supplies and customers are willing to pay extra too.

**Entrants** - Innovative features are an expensive offer. So, new entrants generally avoid these features because it is tough for them to provide the same product with special features at a comparable price.

**Substitutes** - Substitute products can't replace differentiated products which have high brand value and enjoy customer loyalty.

## Disadvantages of Differentiation Strategy

In long term, uniqueness is difficult to sustain.

Charging too high a price for differentiated features may cause the customer to switch-off to another alternative.

Differentiation fails to work if its basis is something that is not valued by the customers.

## Focus Strategies

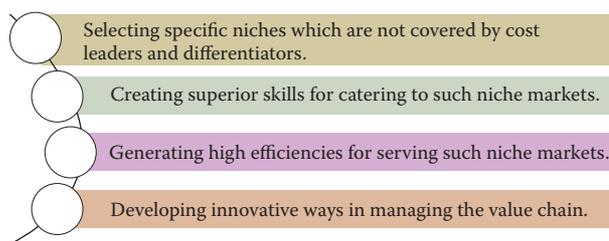
Focus means producing products and services that fulfill the needs of small groups of consumers. Focus strategies are most effective when consumers have distinctive preferences or requirements and when rival firms are not attempting to specialize in the same target segment. Risks of pursuing a focus strategy include the possibility that numerous competitors will recognize the successful focus strategy and copy it, or that consumer preferences will drift toward the product attributes desired by the market as a whole. An organization using a focus strategy may concentrate on a particular group of customers, geographic markets, or on particular product-line segments in order to serve a well-defined but narrow market better than competitors who serve a broader market.

❖ **Focused cost leadership:** Firms that compete based on price and target a narrow market are following a focused cost leadership strategy.

❖ **Focused differentiation:** Firms that compete based on uniqueness and target a narrow market are following a focused differentiations strategy.

## Achieving Focused Strategy

To achieve focused cost leadership/differentiation, following are the measures that could be adopted by an organization:



## Advantages of Focused Strategy

Premium prices can be charged by the organisations for their focused product/services.

Due to the tremendous expertise about the goods and services that organisations following focus strategy offer, rivals and new entrants may find it difficult to compete.

## Disadvantages of Focused Strategy

The firms lacking in distinctive competencies may not be able to pursue focus strategy.

Due to the limited demand of product/services, costs are high which can cause problems.

In long run, the niche could disappear or be taken over by larger competitors by acquiring the same distinctive competencies.

## Best-Cost Provider Strategy

The new model of best cost provider strategy is a further development of above three generic strategies. It is directed towards giving customers more value for the money by emphasizing both low cost and upscale differences. The objective is to keep costs and prices lower than those of other sellers of comparable products.

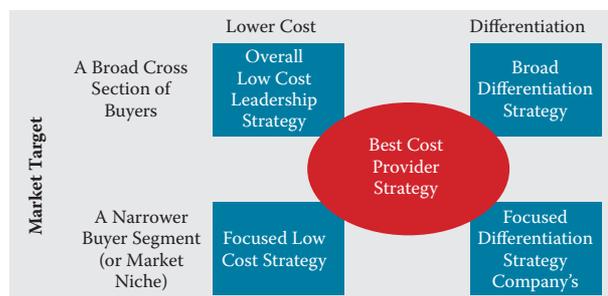


Figure: The Five Generic Competitive Strategies

Best-cost provider strategy involves providing customers more value for the money by emphasizing low cost and better quality difference. It can be done:

- through offering products at lower price than what is being offered by rivals for products with comparable quality and features or
- charging similar price as by the rivals for products with much higher quality and better features.

## CHAPTER 6 : FUNCTIONAL LEVEL STRATEGIES



Once higher level corporate and business strategies have been developed, management need to formulate and implement strategy for each of the functional areas of business. Strategy of one functional area cannot be looked at in isolation. Different functional areas of the business are interwoven together and how a functional strategy is synergised with other functional strategies determines its effectiveness.

Functional strategies play two important roles. Firstly, they provide support to the overall business strategy. Secondly, they spell out as to how functional managers will work so as to ensure better performance in their respective functional areas.

Strategies in functional areas including marketing, financial, production, R & D and human resource management are based on the functional capabilities of an organisation. For each functional area, first the major sub areas are identified and then for each of these sub areas, content of functional strategies, important factors, and their importance in the process of strategy implementation are identified.

In terms of the levels of strategy formulation, functional strategies operate below the SBU or business-level strategies. Within functional strategies there might be several sub-functional areas. Functional strategies are made within the framework of corporate level strategies and guidelines therein that are set at higher levels of the organization. Operational plans at the SBU level tell the functional managers what has to be done while policies state how the plans are to be implemented.

The reasons why functional strategies are needed can be enumerated as follows:

- ❖ Functional strategies lay down clearly what is to be done at the functional level. They provide a sense of direction to the functional staff.
- ❖ They are aimed at facilitating the implementation of corporate strategies and the business strategies formulation at the business level.
- ❖ They act as basis for controlling activities in the different functional areas of business.
- ❖ They help in bringing harmony and coordination as they are formulated to achieve major strategies.
- ❖ Similar situations occurring in different functional areas are handled in a consistent manner by the functional managers.

Thus, strategies need to be segregated into viable functional plans and policies that are compatible with each other. In this way, strategies can be implemented by the functional managers. Environmental factors relevant to each functional area have an impact on the choice of functional strategies. Corporate strategies influence the formulation of functional strategies.

### Marketing Strategy

Marketing is a social and managerial process by which individuals and groups obtain what they need and want through creating, offering and exchanging products of value with others.

### Marketing Mix

Marketing mix is a systematic way of classifying the key decision areas of marketing management. It is the set of controllable marketing variables that the firm blends to produce the response it wants in the target market. The original framework of marketing mix comprises of 4Ps- product, price, place and promotion. These are subsequently expanded to highlight certain other key decision areas like people, processes, and physical evidence. The elements of original framework are:

- ❖ **Product:** It stands for the “goods-and-service” combination the company offers to the target market.
- ❖ **Price:** It stands for the amount of money customers have to pay to obtain the product.
- ❖ **Place:** It stands for company activities that make the product available to target consumers and include marketing channel, distribution policies and geographical availability.
- ❖ **Promotion:** It stands for activities that communicate the merits of the product and persuade target consumers to buy it. Modern marketing is highly promotional oriented. There are at least four major direct promotional methods or tools – personal selling, advertising, publicity and sales promotion.

**Expanded Marketing Mix:** Typically, all organizations use a combination of 4 Ps in some form or the other.

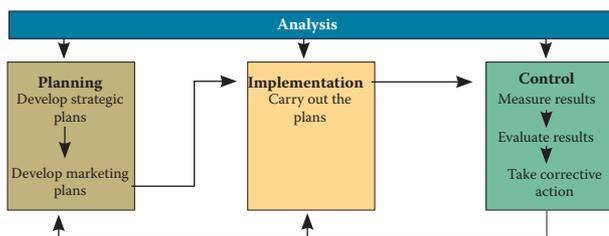
However, the above elements of marketing mix are not exhaustive. It is pertinent to discuss a few more elements that may form part of an organizational marketing mix strategy. They have got more currency in recent years. Growth of services has its own share for the inclusion of newer elements in marketing. A few new Ps are as follows:

- ❖ **People:** all human actors who play a part in delivery of the market offering and thus influence the buyer's perception, namely the firm's personnel and the customer.
- ❖ **Process:** the actual procedures, mechanisms and flow of activities by which the product / service is delivered.
- ❖ **Physical evidence:** the environment in which the market offering is delivered and where the firm and customer interact.

## Marketing Strategy Formulation

**Marketing Analysis:** A company must carefully analyze its environment in order to avoid the threats and take advantage of the opportunities. Areas to be analyzed in the environment normally include:

1. Forces close to the company such as its ability to serve customers, other company departments, channel members, suppliers, competitors, and publics.
2. Broader forces such as demographic and economic forces, political and legal forces, technological and ecological forces, and social and cultural forces.



Strategic marketing management process

**Strategy Formulation:** Marketing planning involves deciding on marketing strategies that will help the company attain its overall strategic objectives. A detailed plan is needed for each business, product, or brand. A product or brand plan may contain different sections: executive summary, current marketing situation, threats and opportunity analysis, objectives and issues, marketing strategies, action programs, budgets, and controls.

**Strategy Control:** Strategic control involves monitoring and measuring of results and their evaluation. This would lead to taking corrective actions in the 4 P's of marketing.

## Strategic Marketing Techniques

Over the years, a number of marketing strategies have been

evolved, which are given below:

**Social Marketing:** It refers to the design, implementation, and control of programs seeking to increase the acceptability of a social idea, cause, or practice among a target group.

**Augmented Marketing:** It is provision of additional customer services and benefits built around the core and actual products that relate to introduction of hi-tech services like movies on demand, on-line computer repair services, secretarial services, etc. Such innovative offerings provide a set of benefits that promise to elevate customer service to unprecedented levels.

**Direct Marketing:** Marketing through various advertising media that interact directly with consumers, generally calling for the consumer to make a direct response.

**Relationship Marketing:** The process of creating, maintaining, and enhancing strong, value-laden relationships with customers and other stakeholders.

**Services Marketing:** It is applying the concepts, tools, and techniques, of marketing to services. Services is any activity or benefit that one party can offer to another that is essentially intangible and does not result in the banking, savings, retailing, educational or utilities.

**Person Marketing:** People are also marketed. Person marketing consists of activities undertaken to create, maintain or change attitudes and behaviour towards particular person.

**Organization Marketing:** It consists of activities undertaken to create, maintain, or change attitudes and behaviour of target audiences towards an organization. Both profit and non-profit organizations practice organization marketing.

**Place Marketing:** Place marketing involves activities undertaken to create, maintain, or change attitudes and behaviour towards particular places say, business sites marketing, tourism marketing.

**Enlightened Marketing:** It is a marketing philosophy holding that a company's marketing should support the best long-run performance of the marketing system; its five principles include customer-oriented marketing, innovative marketing, value marketing, sense-of-mission marketing, and societal marketing.

**Differential Marketing:** It is a market-coverage strategy in which a firm decides to target several market segments and designs separate offer for each.

**Synchro-marketing:** When the demand for a product is irregular due to season, some parts of the day, or on hour basis, causing idle capacity or overworked capacities, synchro-marketing can be used to find ways to alter the pattern of demand through flexible pricing, promotion, and other incentives.

**Concentrated Marketing:** It is a market-coverage strategy in which a firm goes after a large share of one or few sub-markets.

**Demarketing:** It includes marketing strategies to reduce demand temporarily or permanently. The aim is not to destroy demand, but only to reduce or shift it. This happens when there is overfull demand.

## Financial Strategy

The financial strategies of an organization are related to several finance/ accounting concepts considered to be central to strategy implementation. These are: acquiring needed capital/sources of fund, developing projected financial statements/budgets, management/ usage of funds, and evaluating the worth of a business.

Various methods for determining a business's worth can be grouped into three main approaches which are as follows:

- (i) **Net worth or stockholders' equity:** Net worth is the total assets minus total outside liabilities of an organisation.
- (ii) **Future benefits to owners through net profits:** These benefits are considered to be much greater than the amount of profits. A conservative rule of thumb is to establish a business's worth as five times the firm's current annual profit. A five-year average profit level could also be used.
- (iii) **Market-determined business worth:** This, in turn, involves three methods. First, the firm's worth may be based on the selling price of a similar company. The second approach is called the price-earnings ratio method whereby the market price of the firm's equity shares is divided by the annual earnings per share and multiplied by the firm's average net income for the preceding years. The third approach can be called the outstanding shares method whereby one has to simply multiply the number of shares outstanding by the market price per share and add a premium.

## Production/Operations Strategy

### Production System

The production system is concerned with the capacity, location, layout, product or service design, work systems, degree of automation, extent of vertical integration, and such factors. Strategies related to production system are significant as they deal with vital issues affecting the capability of the organisation to achieve its objectives.

Strategy implementation would have to take into account the production system factors as they involve decisions which are long-term in nature and influence not only the operations capability of an organisation but also its ability to implement strategies and achieve objectives.

### Operations Planning and Control

Operations planning and control provides an example of an organizational activity that is aimed at translating the objectives into reality. Some companies use quality as a strategic tool.

### Logistics Management

Management of logistics is a process which integrates the flow of materials into, through and out of an organization to achieve a level of service that the right materials are available at the right place at the right time, of right quality and at the right cost. For a business organization effective logistics strategy will involve raising and finding solutions to the questions relating to raw material, manufacturing locations,

products, transportation and deployment of inventory. Improvement in logistics can result in saving in cost of doing business.

When a company creates a logistics strategy, it is defining the service levels at which its logistics systems are highly effective. A company may develop a number of logistics strategies for specific product lines, specific countries or specific customers to address different categorical requirements.

### Supply Chain Management

The term supply chain refers to the linkages between suppliers, manufacturers and customers. Supply chains involve all activities like sourcing and procurement of material, conversion, and logistics. Planning and control of supply chains are important components of its management. Naturally, management of supply chains include closely working with channel partners – suppliers, intermediaries, other service providers and customers.

Supply chain management is defined as the process of planning, implementing, and controlling the supply chain operations. It is a cross-functional approach to managing the movement of raw materials into an organization and the movement of finished goods out of the organization toward the end-consumer who are to be satisfied as efficiently as possible. It encompasses all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption. Organizations are finding that they must rely on the chain to successfully compete in the global market.

Modern organizations are striving to focus on core competencies and reduce their ownership of sources of raw materials and distribution channels. These functions can be outsourced to other business organizations that specialize in those activities and can perform in better and cost effective manner. In a way organizations in the supply chain do tasks according to their core-competencies. Working in the supply chain improve trust and collaboration amongst partners and thus improve flow and management of inventory.

*Is logistic management same as supply chain management?*

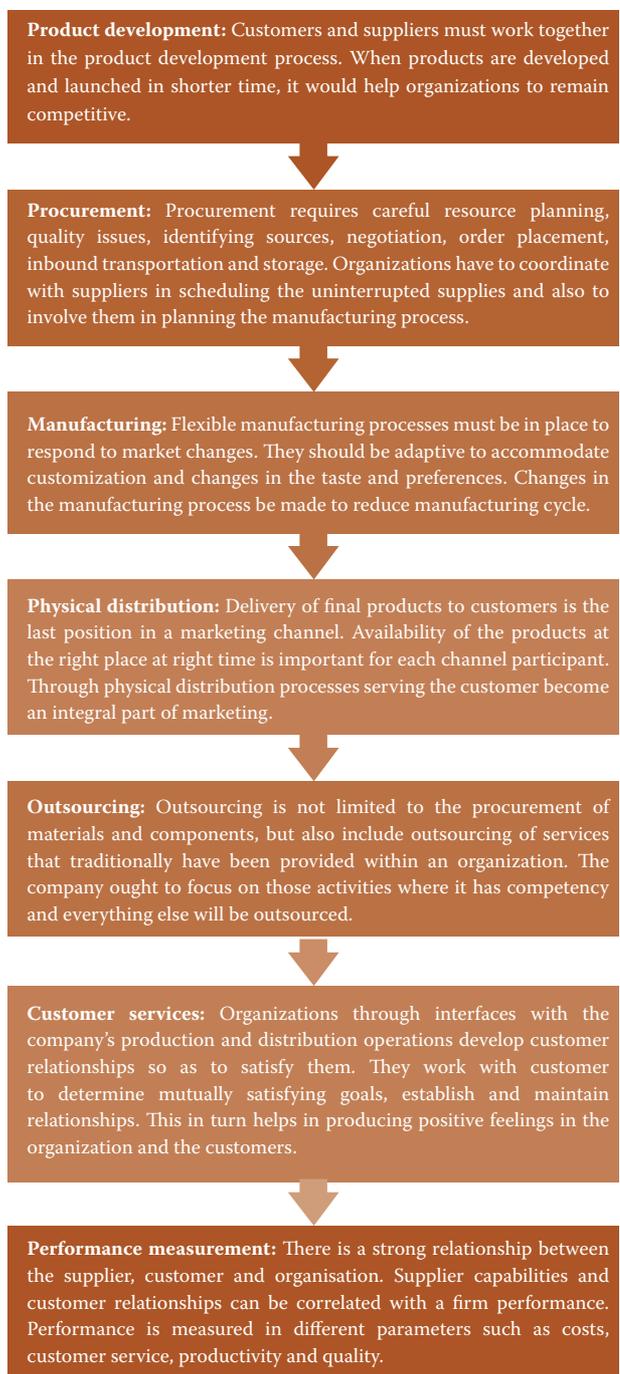
Supply chain management is an extension of logistic management. However, there is difference between the two. Logistical activities typically include management of inbound and outbound goods, transportation, warehousing, handling of material, fulfilment of orders, inventory management, supply/demand planning. Although these activities also form part of Supply chain management, the latter has different components. Logistic management can be termed as one of its part that is related to planning, implementing, and controlling the movement and storage of goods, services and related information between the point of origin and the point of consumption.

Supply chain management includes more aspects apart from the logistics function. It is a tool of business transformation and involves delivering the right product

at the right time to the right place and at the right price. It reduces costs of organizations and enhances customer service.

## Implementing Supply Chain Management System

The following are the major steps which are required for the successful implementation of Supply Chain Management in the business organizations:



## Research and Development Strategy

Research and Development (R&D) personnel can play an integral part in strategy implementation. These individuals are generally charged with developing new products and improving old products in a way that will allow effective strategy implementation. R&D employees and managers perform tasks that include transferring complex technology, adjusting processes to local raw materials, adapting processes to local markets, and altering products to particular tastes and specifications.

Strategies such as product development, market penetration, and concentric diversification require that new products be successfully developed and that old products be significantly improved. But the level of management support for R&D is often constrained by resource availability.

## Human Resource Strategy

### Strategic Role of Human Resource Manager

The prominent areas where the human resource manager can play strategic role are as follows:

- 

**Providing purposeful direction:** The human resource manager leads people and the organization towards the desired direction involving people. He can ensure harmony between organisational objectives and individual objectives.
- 

**Creating competitive atmosphere:** In the present business environment, maintaining competitive position or gains is an important objective of any business. Having a highly committed and competent workforce is very important for getting a competitively advantageous position.
- 

**Facilitation of change:** The human resource manager will be more concerned about furthering the organization not just maintaining it. He can devote more time to promote acceptance of change rather than maintaining the status quo.
- 

**Diversion of workforce:** In a modern organization, management of diverse workforce is a great challenge. Workforce diversity can be observed in terms of male and female, young and old, educated and uneducated, unskilled and professional employee and so on. Motivation, maintaining morale and commitment are some of the key tasks that a HR manager can perform.
- 

**Empowerment of human resources:** Empowerment involves giving more power to those who, at present, have little control on what they do and little ability to influence the decisions being made around them.
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**Building core competency:** The human resource manager has an important role to play in developing core competency of the firm. A core competence is a unique strength of an organization which may not be shared by others. Organization of business around core competence implies leveraging the limited resources of a firm.
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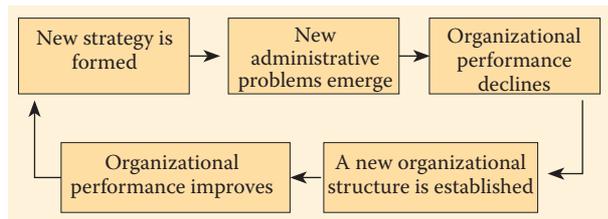
**Development of works ethics and culture:** A vibrant work culture will have to be developed in the organizations to create an atmosphere of trust among people and to encourage creative ideas by the people.

## CHAPTER 7: ORGANISATION AND STRATEGIC LEADERSHIP

### Organization Structure

In order to implement strategies organisations need an organizational structure. Changes in corporate strategy often require changes in the way an organization is structured for two major reasons. First, structure largely dictates how operational objectives and policies will be established to achieve the strategic objectives. The second major reason why changes in strategy often require changes in structure is that structure dictates how resources will be allocated to achieve strategic objectives.

### Chandler's Strategy-Structure Relationship



### Changing organizational design

Old Organizational Design	New Organizational Design
One large corporation	Mini-business units & cooperative relationships
Vertical communication	Horizontal communication
Centralised top-down decision making	Decentralised participative decision making
Vertical integration	Outsourcing & virtual organizations
Work/quality teams	Autonomous work teams
Functional work teams	Cross-functional work teams
Minimal training	Extensive training
Specialised job design focused on individual	Value-chain team-focused job design



### Simple Structure

A simple structure is an organizational form in which the owner-manager makes all major decisions directly and monitors all activities, while the company's staff merely serves as an executor. Little specialization of tasks, few rules, little formalization, unsophisticated information systems and direct involvement of owner-manager in all phases of day-to-day operations characterise the simple structure.

### Functional Structure

A functional structure groups tasks and activities by business function, such as production/operations, marketing, finance/accounting, research and development, and management information systems.

### Divisional Structure

A divisional structure can be organized in one of the four ways: *by geographic area, by product or service, by customer, or by process*. With a divisional structure, functional activities are performed both centrally and in each division separately.

### Multi Divisional Structure

Multidivisional (M-form) structure is composed of operating divisions where each division represents a separate business to which the top corporate officer delegates responsibility for day-to-day operations and business unit strategy to division managers.

### Strategic Business Unit (SBU) Structure

The SBU structure is composed of operating units where each unit represents a separate business to which the top corporate officer delegates responsibility for day-to-day operations and business unit strategy to its managers. The structure is relevant to multi-product, multi-business enterprises. An SBU is a grouping of related businesses, which is amenable to composite planning treatment. The three most important characteristics of a SBU are:

- ❖ It is a single business or a collection of related businesses which offer scope for independent planning and which might feasibly stand alone from the rest of the organization.
- ❖ It has its own set of competitors.
- ❖ It has a manager who has responsibility for strategic planning and profit performance, and who has control of profit-influencing factors.

### Matrix Structure

A matrix structure is the most complex of all designs because it depends upon both vertical and horizontal flows of authority and communication (hence the term matrix). A matrix structure has dual lines of authority, dual sources of reward and punishment, shared authority, dual reporting channels, and a need for an extensive and effective communication system. Matrix structure was developed to combine the stability of the functional structure with the flexibility of the product form.

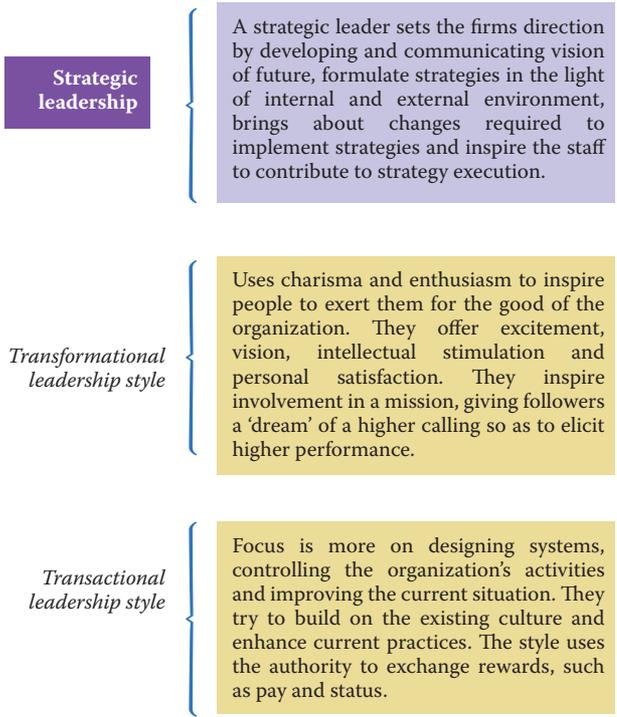
## Network Structure

A company with network structure is often called a virtual organization because it is composed of a series of project groups or collaborations linked by constantly changing non-hierarchical, cobweb-like networks. It could be termed a “non-structure”, by its virtual elimination of in-house business functions as many activities are outsourced.

## Hourglass Structure

With the diminishing role played by middle management as the tasks performed by them are increasingly being replaced by the technological tools, a new form of organisation structure is seen. Hourglass organization structure consists of three layers with constricted middle layer. A shrunken middle layer coordinates diverse lower level activities. Contrary to traditional middle level managers who are often specialists, the managers in the hourglass structure are generalists and perform wide variety of tasks.

## Strategic Leadership



Strategic leader has several responsibilities, including the following:

- Making strategic decisions.
- Formulating policies and action plans to implement strategic decision.
- Ensuring effective communication in the organisation.
- Managing human capital (perhaps the most critical of the strategic leader's skills).
- Managing the company's operations.
- Sustaining high performance over time.



## Strategy Supportive Culture

Every organisation has a unique organizational culture. It has its own philosophy and principles, its own ways of approaching problems and making decisions, its own work climate. It has its own embedded patterns of how to do things. its own ingrained beliefs, behaviour and thought patterns, and practices that define its corporate culture.

An organization's culture is either an important contributor or an obstacle to successful strategy execution. The beliefs, vision, objectives, and business approaches and practices underpinning a company's strategy may or may not be compatible with its culture. Strong culture promotes good strategy execution when there's fit and impedes execution when there's negligible fit.

## Entrepreneurship and Intrapreneurship

The terms Entrepreneur and Intrapreneur are frequently used in the business world.

Entrepreneurship is the attempt to create value through recognition of business opportunity, the management of risk taking appropriate to the opportunity and through management skills to mobilize financial, human and material resources. The person who perceives the business idea and takes steps to implement the idea is known as an entrepreneur. He takes all types of risks, not only to put the product or service into reality but also to make it an extremely demanding one.

An intrapreneur is nothing but an entrepreneur who operates within the boundaries of an organisation. He is an employee of a large organisation, who is vested with authority of initiating creativity and innovation in the company's products, services and projects, redesigning the processes, workflows and systems. The intrapreneurs believe in change and do not fear failure. They discover new ideas, look for such opportunities that can benefit the whole organisation and take risks, promote innovation to improve the performance and profitability of the organisation.

## CHAPTER 8 : STRATEGY IMPLEMENTATION AND CONTROL

Strategic management process does not end when the firm decides what strategies to pursue. There must be a translation of strategic thought into strategic action. This requires support of all managers and employees of the business. Implementing strategy affects an organization from top to bottom; it affects all the functional and divisional areas of a business. Strategy implementation requires introduction of change in the organisation to make organisational member adapt to the new environment.

Strategic control has been discussed as an integral part of strategic management. Strategic control focuses on whether the strategy is being implemented as planned and the results produced are those intended. In addition, we will also have an overview of the emerging concepts in strategic management namely strategy audit, business process reengineering and benchmarking.



### Interrelationship between Strategy Formulation and Implementation

Strategic implementation is concerned with translating a strategic decision into action, which presupposes that the decision itself (i.e., the strategic choice) was made with some thought being given to feasibility and acceptability. The allocation of resources to new courses of action will need to be undertaken, and there may be a need for adapting the organization's structure to handle new activities as well as training personnel and devising appropriate systems.

#### Relationship with strategy formulation

A company will be successful only when the strategy formulation is sound and implementation is excellent.

Organizational success is a function of good strategy and proper implementation. The matrix in the figure below represents various combinations of strategy formulation and implementation:

Strategy Formulation	Sound	A	B
	Flawed	C	D
		Weak	Excellent
		Strategy Implementation	

Strategy formulation and implementation matrix

- Square A is the situation where a company apparently has formulated a very competitive strategy, but is showing difficulties in implementing it successfully.
- Square B is the ideal situation where a company has succeeded in designing a sound and competitive strategy and has been successful in implementing it.
- Square C is reserved for companies that haven't succeeded in coming up with a sound strategy formulation and in addition are bad at implementing their flawed strategic model.
- Square D is the situation where the strategy formulation is flawed, but the company is showing excellent implementation skills.

Successful strategy formulation does not guarantee successful strategy implementation. It is always more difficult to do something (strategy implementation) than to say you are going to do it (strategy formulation)! Although inextricably linked, strategy implementation is fundamentally different from strategy formulation. Strategy formulation and implementation can be contrasted in the following ways:

#### Strategy Formulation Vs. Strategy Implementation

Strategy Formulation	Strategy Implementation
Strategy formulation focuses on effectiveness.	Strategy implementation focuses on efficiency.
Strategy formulation is primarily an intellectual process.	Strategy implementation is primarily an operational process.
Strategy formulation requires conceptual intuitive and analytical skills.	Strategy implementation requires motivation and leadership skills.
Strategy formulation requires coordination among the executives at the top level.	Strategy implementation requires coordination among the executives at the middle and lower levels.

## Strategic Change

The changes in the environmental forces often require businesses to make modifications in their existing strategies and bring out new strategies. Strategic change is a complex process that involves a corporate strategy focused on new markets, products, services and new ways of doing business.

**Steps to initiate strategic change:** For initiating strategic change, three steps can be identified as under:

**Recognize the need for change:** The first step is to diagnose which parts of the present corporate culture are strategy supportive and which are not. This basically means going for environmental scanning involving appraisal of both internal and external capabilities and then identify the problems/improvement areas and determine scope for change.

**Create a shared vision to manage change:** Objectives and vision of individuals and organization should coincide. Strategy implementers have to convince all those concerned that the change in business culture is not superficial or cosmetic. The actions taken have to be fully indicative of management's seriousness to new strategic initiatives and associated changes.

**Institutionalise the change:** This is basically an action stage which requires implementation of changed strategy. Creating and sustaining a different attitude towards change is essential to ensure that the firm does not slip back into old ways of thinking or doing things. Besides, change process must be regularly monitored and reviewed to analyse the after-effects of change. Any discrepancy or deviation should be appropriately addressed.

**Kurt Lewin's Model of Change:** To make the change lasting, Kurt Lewin proposed three phases of the change process for moving the organization from the present to the future. These stages are unfreezing, changing and refreezing.

**Unfreezing the situation:** The process of unfreezing simply makes the individuals or organizations aware of the necessity for change and prepares them for such a change. Lewin proposes that the changes should not come as a surprise to the members of the organization. Unfreezing is the process of breaking down the old attitudes and behaviours, customs and traditions so that they start with a clean slate. This can be achieved by making announcements, holding meetings and promoting the ideas throughout the organization.

**Changing to new situation:** Once the unfreezing process has been completed and the members of the organization recognise the need for change and have been fully prepared to accept such change, their behaviour patterns need to be redefined. H.C. Kellman has proposed three methods for reassigning new patterns of behaviour. These are compliance, identification and internalisation.

**Refreezing:** Refreezing occurs when the new behaviour becomes a normal way of life. The new behaviour must replace the former behaviour completely for successful and permanent change to take place. In order for the new behaviour to become permanent, it must be continuously reinforced so that this new acquired behaviour does not diminish or extinguish.

## Strategic Control

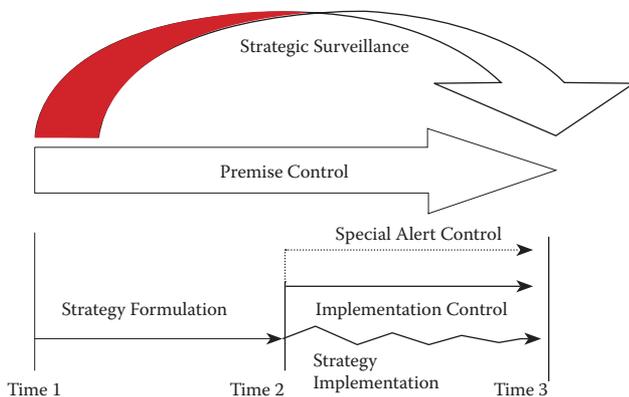
Controlling is one of the important functions of management, and is often regarded as the core of the management process. The controlling function involves monitoring the activity and measuring results against pre-established standards, analysing and correcting deviations as necessary and maintaining/adapting the system. Primarily there are three types of organizational control, viz., operational control, management control and strategic control.



Strategic control focuses on the dual questions of whether: (1) the strategy is being implemented as planned; and (2) the results produced by the strategy are those intended.

**Types of Strategic Control:** There are four types of strategic control as follows:

Premise control:	Strategic surveillance:	Special alert control:	Implementation control:
Premise control is a tool for systematic and continuous monitoring of the environment to verify the validity and accuracy of the premises on which the strategy has been built. It primarily involves monitoring two types of factors: (i) Environmental factors (ii) Industry factors	Contrary to the premise control, the strategic surveillance is unfocussed. It involves general monitoring of various sources of information to uncover unanticipated information having a bearing on the organizational strategy.	At times unexpected events may force organizations to reconsider their strategy. Sudden changes in government, natural calamities, terrorist attacks, unexpected merger/acquisition by competitors, industrial disasters and other such events may trigger an immediate and intense review of strategy.	Implementation control is directed towards assessing the need for changes in the overall strategy in light of unfolding events and results associated with incremental steps and actions. The two forms of implementation control are: (i) Monitoring strategic thrust (ii) Milestone reviews



## Strategy Audit

*“Strategy audit is a process for taking an objective look at the existing strategies of the organization. It involves assessing the direction of a business and comparing that to the course to the direction required to succeed in a changing environment.”*

***“A strategy audit is an examination and evaluation of areas affected by the operation of a strategic management process within an organization”***

A strategy audit provides an excellent platform for discussion with the top management regarding necessary corporate actions or changes in the existing business plan. It also identifies a company’s need to adjust the existing business plan as well as its business.

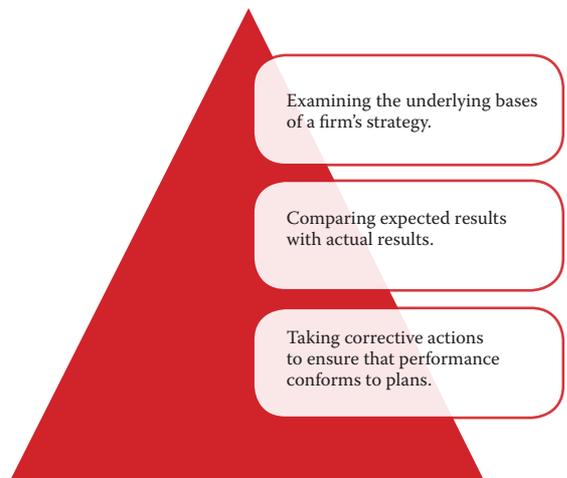
### Need of Strategy Audit

A strategy audit is needed under the following conditions:

- ❖ When the performance indicators reflect that a strategy is not working properly or is not producing desired outcomes.
- ❖ When top-priority goals and objectives of the strategy are not being accomplished.
- ❖ When a major change takes place in the external environment of the organization.
- ❖ When the top management plans:
  - a) to fine-tune and introduce a new set of strategies and
  - b) to ensure that a strategy that has worked in the past continues to be in-tune with subtle internal and external changes that may have occurred since the formulation of strategies.

Adequate and timely feedback is the cornerstone of effective strategy audit. Strategy audit can be no better than the information on which it is based.

Strategy Audit includes three basic activities:



### Richard Rumelt’s Criteria for Strategy Audit

#### Consistency:

A strategy should not present inconsistent goals and policies. Organizational conflict and interdepartmental bickering are often symptoms of managerial disorder, but these problems may also be a sign of strategic inconsistency.

#### Consonance:

Consonance refers to the need for strategists to examine sets of trends, as well as individual trends, in auditing strategies. A strategy must represent an adaptive response to the external environment and to the critical changes occurring within it.

#### Feasibility:

A strategy must neither overtax available resources nor create unsolvable sub-problems. The final broad test of strategy is its feasibility; that is, can the strategy be attempted within the physical, human, and financial resources of the enterprise? The financial resources of a business are the easiest to quantify and are normally the first limitation against which strategy is audited.

#### Advantage:

A strategy must provide for the creation and/or maintenance of a competitive advantage in a selected area of activity. Competitive advantages normally are the result of superiority in one of three areas: (1) resources, (2) skills, or (3) position.

## Business Process Reengineering

Business Process Reengineering (BPR) is an approach to unusual improvement in operating effectiveness through the redesigning of critical business processes and supporting business systems. It is revolutionary redesign of key business processes that involves examination of the basic process itself. It looks at the minute details of the process, such as why the work is done, who does it, where is it done and when it is done. BPR refers to the analysis and redesign of workflows and processes both within the organization and between the organization and the external entities like suppliers, distributors, and service providers. The orientation of redesigning efforts is basically radical. In other words, it is a total deconstruction and rethinking of business process in its entirety.

### BPR involves the following steps:

**Determining objectives:** Objectives are the desired end results of the redesign process which the management and organization attempts to realise. This will provide the required focus, direction, and motivation for the redesign process.

**Identify customers and determine their needs:** The Process designers have to understand customers – their profile, their steps in acquiring, using and disposing a product. The purpose is to redesign business process that clearly provides value addition to the customer.

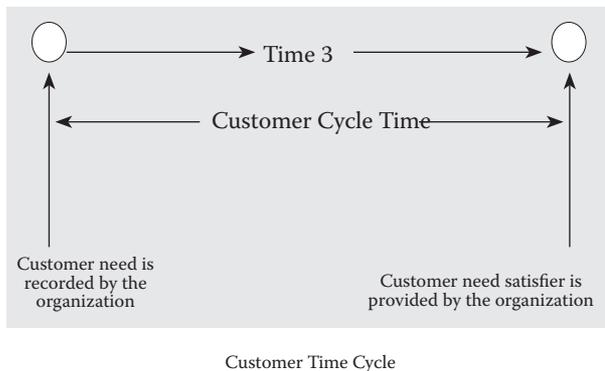
**Study the existing process:** The study of existing processes will provide an important base for the process designers. The purpose is to gain an understanding of the 'what', and 'why' of the targeted process. However, some companies go through the reengineering process with clean perspective without laying emphasis on the past processes.

**Formulate a redesign process plan:** Formulation of redesign plan is the real crux of the reengineering efforts. Customer focused redesign concepts are identified and formulated. Alternative processes are considered and the optimum is selected.

**Implement the redesigned process :** It is easier to formulate new process than to implement them. It is the joint responsibility of the designers and management to operationalise the new process.

### Central Thrust of BPR

BPR is a continuous improvement process. Although BPR is a multi-dimensional approach in improving the business performance its thrust area may be identified as *"the reduction of the total cycle time of a business process."* BPR aims at reducing the cycle time of process by eliminating the unwanted and redundant steps and by simplifying the systems and procedures and also by eliminating the transit and waiting times as far as possible. Even after redesigning of a process, BPR maintains a continuous effort for more and more improvement.



## Benchmarking

Benchmarking is an approach of setting goals and measuring productivity of firms based on best industry practices or against the products, services and practices of its competitors or other acknowledged leaders in the industry. It developed out of need to have information against which performance can be measured. Benchmarking helps businesses in improving performance by learning from the best practices and the processes by which they are achieved. Thus, benchmarking is a process of continuous improvement in search for competitive advantage. Firms can use benchmarking practices to achieve improvements in diverse range of management functions like product development, customer services, human resources management, etc.

### The various steps in Benchmarking Process are as under:

**Identifying the need for benchmarking:** This step will define the objectives of the benchmarking exercise. It will also involve selecting the type of benchmarking. Organizations identify realistic opportunities for improvements.

**Clearly understanding existing decisions processes:** The step will involve compiling information and data on performance.

**Identify best processes:** Within the selected framework best processes are identified. These may be within the same organization or external to them.

**Comparison of own process and performance with that of others:** Benchmarking process also involves comparison of performance of the organization with performance of other organization. Any deviation between the two is analysed to make further improvements.

**Prepare a report and implement the steps necessary to close the performance gap:** A report on benchmarking initiatives containing recommendations is prepared. Such a report also contains the action plans for implementation.

**Evaluation:** Business organizations evaluate the results of the benchmarking process in terms of improvements vis-à-vis objectives and other criteria set for the purpose. They also periodically evaluates and reset the benchmarks in the light of changes in the conditions that impact the performance.