MANAGEMENT SCIENCE

UNIT-4

PROJECT MANAGEMENT

1. What is Project Management? Explain it.

Concept: A project is defined as "' a complex of non routine activities that must be completed with a set amount of resources and within a set limit time''. Project management deals with planning, scheduling, controlling and monitoring the complex non routine activities that must be completed to reach the predetermined objectives of the project.

Project is a term which covers once through and small batch program. When to determine the completion data for any task/ project where it is

(1) Construction project , building projects
(2) Research and development projects
(3) Heavy engineering
(4) A marriage program
(5) Preparation of dinner party Or any other project it is necessary to timetable all the activities which make up task or the project that is to say, a plan must be prepared

2. What is Network Analysis? Explain objectives and advantages?

Network Analysis: Network analysis refers to a number of technique for the planning and control of complex project. It is a technique through which large projects are broken down to individual jobs or events and arranged in a logical network

Objectives of Network Analysis

(1) To complete the project within the stipulate period.
(2) Optimum utilization of available resources
(3) Minimization of costs and time required for the completion of desired work.
(4) To reduce the costs of setup and changeover. the two most frequently used forms of network planning are PERT And CPM.

Advantages of Network Analysis

(1) These are most valuable and powerful for planning, scheduling and control of operating in large and complicated projects.
(2) It is useful tool to evaluate the level of performance against the level of performance by comparing actual performance against the planned targets.

(3) It involves integrated approach and provides better coordination and communication between various components of a project.
(4) It can deal with time cost, trade off and determine the optimum schedule.
(5) The technique is simple and easy and can be easily orientated towards computers.
(6) It provides better analysis and logical thinking.

3. What is CPM and PERT?

CPM:- Critical path method is a technique used for the planning and controlling the most logical and economic sequence of operating for accomplishing a project

CPM assumes that the time required to complete an activity can be predicted fairly accurately, thus costs involved can be quantified once the critical path has been identified. CPM involves a trade of between costs and time. It involves determining an optimum duration for the project , that is a maximum duration which involves the lowest overall costs.

Features:-

1) CPM stands for critical path method
2) It is a tool in production planning and scheduling.
3) It has only one time estimate for each activity.
4) It is used for optimizing resources and minimizing overall cost of the project.

Objectives :-

- To assign time for each operation.
- To find the critical path maximum.
- To find the difficulties in the course of production process.
- To ascertain starting and finishing times of work.

Advantages :-

1) It identifies the most critical elements.
2) Management control becomes easy.
3) Better and detailed planning is possible.
4) It helps in ascertaining time schedules.
5) It identifies sequence of jobs that determines

PERT:- Program evaluation and review technique

Program evaluation and review technique tool to evaluate a given program and review the progress made in it from time to time. A program is also called a project. A project is defined as a set of activities with a specific goal occupying a specific period of time. PERT is concerned with estimating the time for different stages in

such a program or a project and find out what the critical path is that is which consumes the maximum resources.

P – Program:-

1) Job analysis
2) Management by objectives
3) Determination of events and activities and their relationship
4) Network representation

E –Evaluation

1) Time
2) Cost
3) Feasibility
4) Probability

R- Review :-

1) Program
2) Resource allocation
3) Time schedule
4) Expenditure

T- Technique

1) To attain defectives
2) To forecast time
3) To avoid failures
4) To attain major drawbacks

Features of PERT:-

1) All individual tasks are shown in the network; events are shown in the circles.
2) It is used in defense, chemical and construction industries.
3) Critical path and slack time is computed.
4) It is applicable in long range planning.
5) Each row represents an activity

Advantages:-

1) The network system creates pressure for action.
2) It encourages control by exception.
3) It is used for rescheduling the activities.
4) It helps managers in making plans
5) It enables forward working control

4. Differences between PERT and CPM?

PERT	CPM
• It is event oriented. • It is based on three time estimates 1)optimistic 2)most likely 3) pessimistic • Time is not related to cost • Time is controlling factor • Analyzed statistically • PERT terminology uses words like network diagram, event and slack.	➢ It is activity orientated ➢ It is deterministic here time elements are based on past data ➢ Here time is related to cost ➢ Not statistically analyzed ➢ CPM terminology uses words like arrow diagram , models and float

Slack:-Generally the project network was logical thinking of total work with fixation of time schedule every path

Meaning of slack:-It is a time related technique which can be measured or identified at each and every activity for the purpose of how much delay period is going to reach the each and every activity

Procedure for evaluating the slack value:-

1) Construct the network diagram
2) Calculate the earliest starting time (EST) with forward passing method at every event
3) Calculate latest finishing time (LFT) with backward passing method at every activity
4) Calculate the slack value

Slack = LFT-EST

PERT:- PERT network is based on three estimates , that is

1) Optimistic time estimate
2) Most likely time estimate
3) Pessimistic time estimate

Optimistic time estimate:- This is denoted by to. It refers to the minimum time the activity takes assuming that there will be any hindrances such as delay, setbacks....completion.

Pessimistic time estimate:- This is denoted by tp. This is the maximum possible time it could take to complete the job.

Most likely time estimate:-This is denoted by tm (or) t1 which lies in between the optimistic and pessimistic time estimates.

Average time estimate: T e=(to+4tm+tp) / 6

Range: (t p-to)

Standard deviation: (t p-to)/6

Variance: $\sqrt{((t\ p\text{-}to)/6)^2}$

Probability of Project Completion Period: Generally project management can be help us to completing work within schedule time which may not be materialized to various practical problems and variances of resources allocation for the project completion. There is another way to know the chance of project completion period with the application of binomial distribution formula meant by probability.

Procedure for estimation of project completion period

1. Calculate the time estimation and variance
2. Identify the critical path
3. Calculate the critical path time variance ($\sum V$)
4. Incase more than one critical path is appeared the highest critical path time variance will be considered.
5. Calculate the standard deviation of critical path variance (σ V) where $\sigma V = \sqrt{\sum V}$
6. Calculate the probability $Z \leq (Tp - Tc)/ \sigma V$

   Where Tp= proposed project time estimation

   Tc= total of critical path duration
7. Identify the binomial distribution value for output
8. There is a standard treatment to know the ultimate probability value is as follows:

   - if the Z value is less than the binomial distribution table value

     Z= 1- binomial distribution table value
   - if the Z value is greater than the binomial distribution table value

     Z= 0.5 + binomial distribution table value

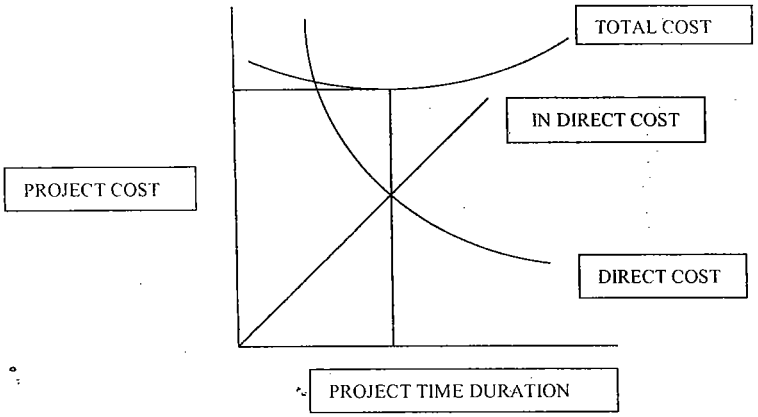
Some times the desired percentage of project completion time has given for estimation of project completion period. To calculate the percentage of non completion period of chance

Z= 100 % - proposed percentage

Project Crashing:

In project crashing the starting point is the critical path. Once the critical path in a network is identified it is necessary to identify the priority to crash the activities by calculating the cost slope. It can be observed that the direct costs (A) decrease with an increase in time. As the project duration increases, the indirect costs (B) increases. The total cost (A + B) curve is a flat U-shaped curve, which implies that only up to a particular point (o) the crashing is economical, not beyond where CT= crash time, OT = optimum time and NT= normal time.

The time duration, which involves the least total cost is the optimum duration at optimum cost. Crashing the duration of a project may not be possible beyond a particular point.



Direct costs are those, which are directly proportional to the number of activities involved in the project. Example if a software development project takes 10 days for four system analysts and 30 programs. The direct cost in this case salaries paid for this staff for 10 days.

Indirect Costs are those determined per day. Examples are the rent, interest on borrowings, advertisement, depreciation etc.

Normal costs are the costs incurred if the project is allowed to take its normal duration of time.

Crash costs are the cost incurred to reduce the activity duration to its minimum.

Normal Time is the time required for a project to be completed at normal cost under normal circumstances.

Crash Time is the possible time to which the duration of the project could be reduced by additional resources.

Cost Slope It is the amount that has to be spent over and above the normal direct cost for reducing the duration by one unit of time.

Slope= (cash cost-normal cost) / (normal time-crash time)

In simple words project crashing means the possible way of maximum reducing the time of the project.

Management Science - UNIT – 5

LIST OF TOPICS/QUESTIONS:

1) **Types of Plans**
2) **Elements of Corporate Planning Process**
3) **Environmental Scanning**
4) **Strategic Management Process**
5) **Steps in Strategic Formulation**
6) **Steps in Strategic implementation**
7) **Steps in Strategic Evaluation and Control**
8) **SWOT Analysis**
9) **Generic Strategic Alternatives (OR) Theories of Multinational Companies**
10) **Global Strategies.**

INTRODUCTION AND HISTORY:

Strategic management – Meaning and Definitions:

The word "strategy" is derived from the Greek word "stratçgos"; stratus (meaning army) and "ago" (meaning leading/moving). Strategy is an action that managers take to attain one or more of the organization's goals.

Strategic management is the continuous planning, monitoring, analysis and assessment of all that is necessary for an organization to meet its goals and objectives. In the field of management, **strategic management** involves the formulation and implementation of the major goals and initiatives taken by an organization's top management on behalf of owners, based on consideration of resources and an assessment of the internal and external environments in which the organization operates.

Strategic management provides overall direction to an enterprise and involves specifying the organization's objectives, developing policies and plans to achieve those objectives, and then allocating resources to implement the plans.

Academics and practicing managers have developed numerous models and frameworks to assist in strategic decision-making in the context of complex environments and competitive dynamics. Strategic management is not static in nature; the models often include a feedback loop to monitor execution and to inform the next round of planning.

Strategy is defined as "the determination of the basic long-term goals of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals." Strategies are established to set direction, focus effort, define or clarify the organization, and provide consistency or guidance in response to the environment.

Strategy can also be defined as "A general direction set for the company and its various components to achieve a desired state in the future. Strategy results from the detailed strategic planning process".

Brief history of strategic thought

Period	Author	Development
Circa 500BC	Sun Tzu	• The Art of War
Mid 1960s	Christensen et al. Ansoff	• Business policy (strategy) exists as a field of study • Corporate planning is valuable
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Mid 1990s	Hamel and Prahalad D'Aveni	• Strategy as stretch for the changing future • Hypercompetition
2000s	Various	• Sustainability and stakeholders

1) Types of Plans:

Plans commit individuals, departments, organizations, and the resources of each to specific actions for the future. Effectively designed organizational goals fit into a hierarchy so that the achievement of goals at low levels permits the attainment of high-level goals. This process is called a **means-ends chain** because low-level goals lead to accomplishment of high-level goals.

Planning is one of the most important and the first function of management. It is an activity that managers of all levels have to perform. So according to the level of management, the type of plan will differ. Let us see the different types of plan in management.

Types of Plan:

1) **Single-use plans:** apply to activities that do not recur or repeat. A one-time occurrence, such as a special sales program, is a single-use plan because it deals with the who, what, where, how, and how much of an activity. A budget is also a single-use plan because it predicts sources and amounts of income and how much they are used for a specific project.

2) **Continuing or ongoing plans:** are usually made once and retain their value over a period of years while undergoing periodic revisions and updates.

3) **Operational plan:** is one that a manager uses to accomplish his or her job responsibilities. Supervisors, team leaders, and facilitators develop operational plans to support tactical plans

Management Science - UNIT – 5

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4) **Tactical plan:** is concerned with what the lower level units within each division must do, how they must do it, and who is in charge at each level. Tactics are the means needed to activate a strategy and make it work.
5) **Strategic plan:** is an outline of steps designed with the goals of the entire organization as a whole in mind, rather than with the goals of specific divisions or departments.
6) **Vision and Mission:** A Mission Statement defines the company's business, its objectives and its approach to reach those objectives. A **Vision** Statement describes the desired future position of the company. Elements of Mission and **Vision** Statements are often combined to provide a statement of the company's purposes, goals and values.

Vision and mission statements are often developed and used together for the same purpose. This confuses many people into thinking that vision and mission could be used interchangeably, when actually they can't.

How Mission and Vision Statements work:

Typically, senior managers will write the company's overall Mission and Vision Statements. Other managers at different levels may write statements for their particular divisions or business units. The development process requires managers to:

- Clearly identify the corporate culture, values, strategy and view of the future by interviewing employees, suppliers and customers
- Address the commitment the firm has to its key stakeholders, including customers, employees, shareholders and communities
- Ensure that the objectives are measurable, the approach is actionable and the vision is achievable
- Communicate the message in clear, simple and precise language
- Develop buy-in and support throughout the organization

Companies use Mission and Vision Statements to:

Internally

- Guide management's thinking on strategic issues, especially during times of significant change
- Help define performance standards
- Inspire employees to work more productively by providing focus and common goals
- Guide employee decision making
- Help establish a framework for ethical behavior

Externally

- Enlist external support
- Create closer linkages and better communication with customers, suppliers and alliance partners
- Serve as a public relations tool.

7) ***Objectives:*** This is the first step in planning the action plan of the organization. Objectives are the basics of every company and the desired objective/result that the company plans on achieving, so they are the endpoint of every planning activity.

- Objectives should be framed for a single activity in mind.
- They should be result oriented. The objective must not frame any actions

- Objectives should not be vague, they should be quantitative and measurable.
- They should not be unrealistic. Objectives must be achievable.

8) ***Strategy:*** This obviously is the next type of plan, the next step that follows objectives. A strategy is a complete and all-inclusive plan for achieving said objectives. A strategy is a plan that has **three** specific dimensions

i. Establishing long-term objectives

ii. Selecting a specific course of action

iii. allocating the necessary resources needed for the plan

Forming strategy is generally reserved for the top level of management. It actually defines all future decisions and the company's long-term scope and general direction.

9) ***Policy:*** Policies are generic statements, which are basically a guide to channelize energies towards a particular strategy. It is an organization's general way of understanding, interpreting and implementing strategies. Like for example, most companies have a return policy or recruitment policy or pricing policy etc.
10) ***Procedure:*** Procedures are the next types of plan. They are a stepwise guide for the routine to carry out the activities. These stepwise sequences are to be followed by all the employees so the activities can be fulfilled in an organized manner. The procedures are **described in a chronological order.** So when the employees follow the instructions in the order and completely, the success of the activity is pretty much guaranteed.
11) ***Rules:*** Rules are very specific statements that define an action or non-action. Also, rules allow for no flexibility at all, they are final. All employees of the organization must compulsorily follow and implement the rules. Not following rules can have severe consequences. Rules create an environment of discipline in the organization.
12) ***Program:*** Programmes are an in-depth statement that outlines a company's policies, rules, objectives, procedures etc. These programmes are important in the implementation of all types of plan. Primary programmes are made at the top level of management. To support the primary program all managers will make other programs at the middle and lower levels of management.
13) ***Methods:*** Methods prescribe the ways in which in which specific tasks of a procedure must be performed. Also, methods are very specific and detailed instructions on how the employees must perform every task of the planned procedure.
14) ***Budget:*** A budget is a statement of expected results the managers expect from the company. Budgets are also a quantitative statement, so they are expressed in numerical terms. A budget quantifies the forecast or future of the organization.

2) Elements of Corporate Planning Process

Corporate planning is a total system of planning which involves the determination of the objectives for the company as a whole and for each department of the it; formulation of strategies for the attainment of these objectives (all this being done against the background of SWOT analysis); conversion of strategies into tactical plans (or operational plans); implementation of tactical plans and a review of the progress of tactical plans against the corporate planning objectives.

Corporate planning is a process that is used by businesses to map out a course of actionto grow, increase profits, gain exposure, or strengthen brand identity. Corporate planning is a tool that successful business use to leverage their resources more wisely than their competitors.

Definition:

David Hussey: "Corporate planning includes the setting of objectives, organizing the work, people and systems to enable those objectives to be achieved, motivating through the planning process and through the plans, measuring performance and so controlling progress of the plans and developing people through better decision-making, clearer objectives, more involvement, and awareness of progress."

NEED OF THE CORPORATE PALNNING:

No matter the size of your business, it is crucial to have a plan. A plan is not only beneficial to keep your business organized, but it can also help increase the followings:

Clarity & Direction

Ensure efficiency use of resources

Provide a way of measuring progress

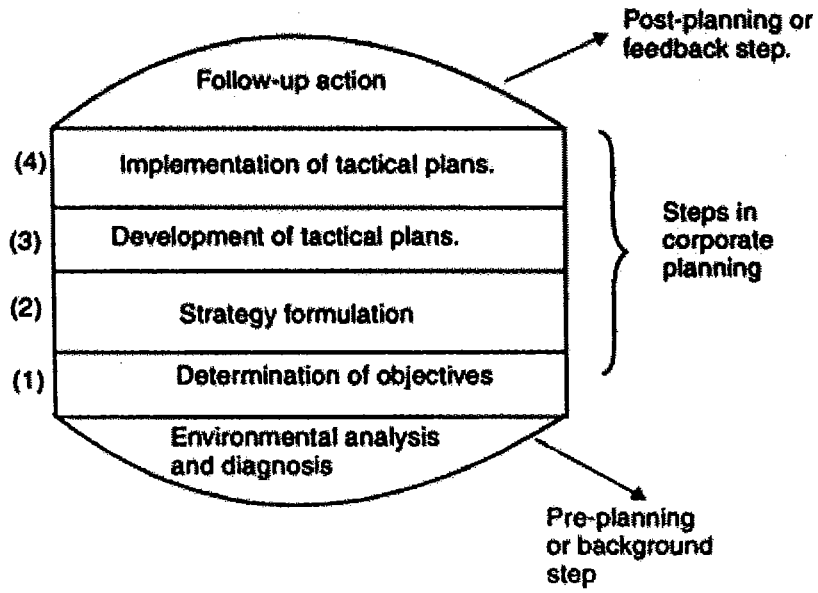
Support effective decision-making

Coordinate activities

Allocate responsibilities

Motivate and guide staff

Process of Corporate Planning:



(i)Environmental Analysis and Diagnosis:

(I) Environmental Analysis: it consisting of:

(A) Internal Environmental analysis and

(B) External environmental analysis

(A) Internal Environmental Analysis:
All that environment which is found within the business enterprise itself, may be termed as the internal environment of business. **the following major factors:**

(i) Philosophical environment, consisting of the mission, values, beliefs and long-term goals of the enterprise and organisational culture. **(ii) Managerial environment**, consisting of the management hierarchy, quality of managerial talents and the process of managerial development **(iii) Structural environment,** consisting of: 1. Rules, policies and procedures of the organization 2. Authority-responsibility relationships found in the organization 3. Communication network 4. Controlling techniques etc.

(B) External environmental Analysis:
Though due to the overlapping nature of environmental factors, it is quite difficult to identify specific factors comprised in this environment; yet for sake of analysis some major factors of it could be stated as under: 1. Political factors 2.Legal factors: 3.Social-religious-cultural factors 4.Competitive factors 5.Technological factors 6. Technology 7.General economic factors 8.Natural environmental factors

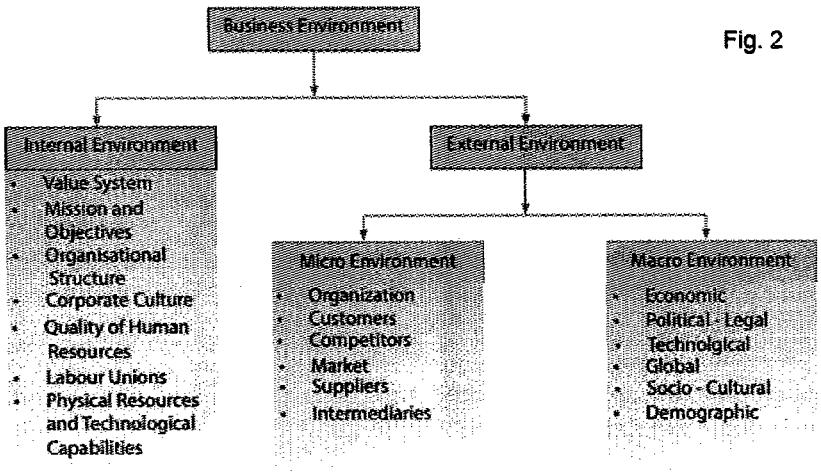
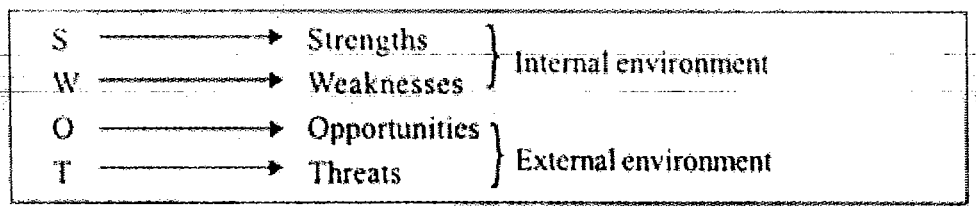


Fig. 2

(II) ***SWOT Analysis:*** SWOT analysis is a key concept in the world of corporate planning and strategy formulation. SWOT is also called TOWS by some management people. In fact, TOWS is SWOT; just written backward, i.e. SWOT and TOWS one and the same thing.

Concept and purpose of SWOT analysis:



Out of these four words, the first two refer to the internal environment of the company; while the last two refer to the external environment of business.

The purpose of SWOT analysis is:
(i) To capitalize (i.e. to take best advantage) on the strengths of the company.

(ii) To overcome the weaknesses of the company.

(iii) To exploit fully the opportunities available in the external environment.

(iv) To manage successfully the threats posed by the external environment

.

(ii) Determination of Objectives:
All planning starts with a determination of the objectives for the plan; and corporate planning is no exception to this generality. In corporate planning, after environmental analysis and diagnosis, the planners determine objectives for the company as a whole and for each department of it; which become the beginning point of corporate planning.

All objectives of corporate planning must represent an integrated or coordinated system of objectives. In order to make corporate planning a realistic approach to attaining objectives; objective setting for corporate planning is done in the light of environmental analysis and diagnosis.

(iii) Strategy Formulation:
Strategy formulation is the core aspect of corporate planning. Strategy is, in fact, the weapon of the planner devised for attaining objectives of corporate planning. It is easier to set objectives; it is difficult to realize them. Strategies facilitate the attainment of objectives.

There is no doubt about it that success of strategies is the success of corporate planning; and vice-versa. Strategy formulation is also done in the light of environmental analysis and diagnosis.

(iv) Development of Tactical Plans:
Strategies are translated into action plans called tactical plans or operational plans. Tactical plans are necessary for implementation of strategies leading to the attainment of corporate planning objectives. For example, if the strategy of a company is to develop the skills and talents of manpower for realizing objectives; then designing of suitable training programmes would amount to making tactical plans.

Corporate planning and strategy formulation have a long-term perspective; while tactical plans have a short-term perspective, as the latter are to be implemented immediately, in the usual course of organizational life.

(v) Implementation of Tactical Plans:
Mere paper planning is no planning; unless and until it is put into practice. As such, tactical plans are put into a process of implementation, just at the right time, as decided by management. For implementation

purposes, necessary communications are made to the operating staffing; who are also provided with necessary facilities to implement the tactical plans.

(vi) Follow-Up Action:

After the tactical plans have been put into practice; a review of progress is done i.e. an examination of what results are following from the implementation of the plan and what feedback action is necessary, for the betterment of the corporate planning process.

3) Environmental scanning

Organizational environment consists of both external and internal factors. Environment must be scanned so as to determine development and forecasts of factors that will influence organizational success. **Environmental scanning refers to possession and utilization of information about occasions, patterns, trends, and relationships within an organization's internal and external environment.**

It helps the managers to decide the future path of the organization. Scanning must identify the threats and opportunities existing in the environment. While strategy formulation, an organization must take advantage of the opportunities and minimize the threats. A threat for one organization may be an opportunity for another.

Environmental scanning is the process of gathering information about events and their relationships within an organization's internal and external environments. The basic purpose of environmental scanning is to help management determine the future direction of the organization.

The purpose of the scan is the identification of opportunities and threats affecting the business for making strategic business decisions. As a part of the environmental scanning process, the organization collects information regarding its environment and analyzes it to forecast the impact of changes in the environment. This eventually helps the management team to make informed decisions.

Components of a Business Environment

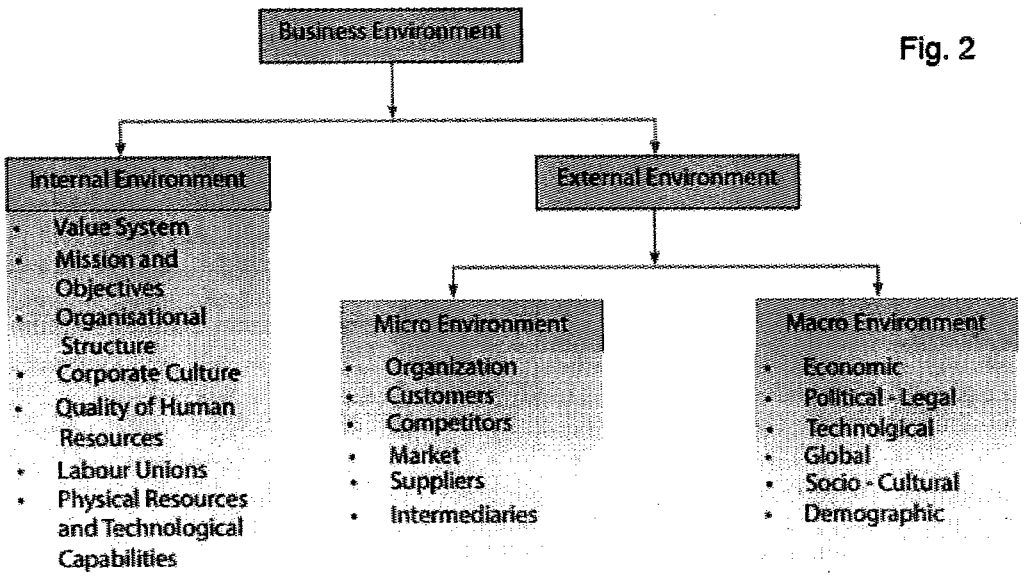


Fig. 2

Internal analysis of the environment (Internal Environment) is the first step of environment scanning. Organizations should observe the internal organizational environment. This includes employee interaction with other employees, employee interaction with management, manager interaction with other managers, and management interaction with shareholders, access to natural resources, brand awareness, organizational structure, main staff, operational potential, etc. Also, discussions, interviews, and surveys can be used to assess the internal environment. Analysis of internal environment helps in identifying strengths and weaknesses of an organization.

As business becomes more competitive, and there are rapid changes in the external environment, information from external environment adds crucial elements to the effectiveness of long-term plans. As environment is dynamic, it becomes essential to identify competitors' moves and actions. Organizations have also to update the core competencies and internal environment as per external environment. Environmental factors are infinite, hence, organization should be agile and vigile to accept and adjust to the environmental changes.

For example - Monitoring might indicate that an original forecast of the prices of the raw materials that are involved in the product are no more credible, which could imply the requirement for more focused scanning, forecasting and analysis to create a more trustworthy prediction about the input costs. In a similar manner, there can be changes in factors such as competitor's activities, technology, market tastes and preferences.

While in **external analysis**, three correlated environment should be studied and analyzed —

- immediate / industry / micro environment
- broader socio-economic environment / macro-environment

Examining the **industry environment** needs an appraisal of the competitive structure of the organization's industry, including the competitive position of a particular organization and it's main rivals. Also, Govt, Creditors, Debtors, Customers, Suppliers, Competitors, Trade Unions etc.,

Analysis of **macro-environment** includes exploring macro-economic, social, government, legal, technological, political and international factors that may influence the environment. The analysis of organization's external environment reveals opportunities and threats for an organization.

Strategic managers must not only recognize the present state of the environment and their industry but also be able to predict its future positions.

4) Strategic Management Process:

The strategic management process means defining the organization's strategy. It is also defined as the process by which managers make a choice of a set of strategies for the organization that will enable it to achieve better performance.

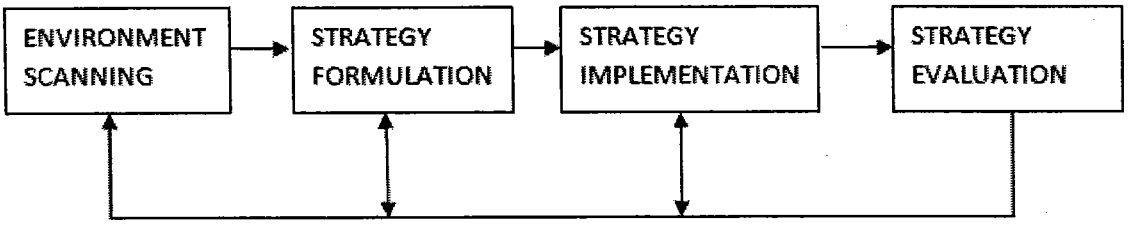
Strategic management is a continuous process that appraises the business and industries in which the organization is involved; appraises it's competitors; and fixes goals to meet all the present and future competitor's and then reassesses each strategy.

Strategic management process has following four steps:

1. **Environmental Scanning-** Environmental scanning refers to a process of collecting, scrutinizing and providing information for strategic purposes. It helps in analyzing the internal and external factors influencing an organization. After executing the environmental analysis process, management should evaluate it on a continuous basis and strive to improve it.

2. **Strategy Formulation-** Strategy formulation is the process of deciding best course of action for accomplishing organizational objectives and hence achieving organizational purpose. After conducting environment scanning, managers formulate corporate, business and functional strategies.
3. **Strategy Implementation-** Strategy implementation implies making the strategy work as intended or putting the organization's chosen strategy into action. Strategy implementation includes designing the organization's structure, distributing resources, developing decision making process, and managing human resources.
4. **Strategy Evaluation and control-** Strategy evaluation is the final step of strategy management process. The key strategy evaluation activities are: appraising internal and external factors that are the root of present strategies, measuring performance, and taking remedial / corrective actions. Evaluation makes sure that the organizational strategy as well as it's implementation meets the organizational objectives.

These components are steps that are carried, in chronological order, when creating a new strategic management plan. Present businesses that have already created a strategic management plan will revert to these steps as per the situation's requirement, so as to make essential changes.



Components of Strategic Management Process

Strategic management is an ongoing process. Therefore, it must be realized that each component interacts with the other components and that this interaction often happens in chorus.

5) Steps in Strategic Formulation:

Strategy formulation refers to the process of choosing the most appropriate course of action for the realization of organizational goals and objectives and thereby achieving the organizational vision. **The process of strategy formulation basically involves six main steps.** Strategy formulation is the process of establishing the organization's mission, objectives, and choosing among alternative strategies. Sometimes strategy formulation is called "strategic planning." Though these steps do not follow a rigid chronological order, however they are very rational and can be easily followed in this order.

1. **Setting Organizations' objectives -** The key component of any strategy statement is to set the long-term objectives of the organization. It is known that strategy is generally a medium for realization of organizational objectives. Objectives stress the state of being there whereas Strategy stresses upon the process of reaching there. Strategy includes both the fixation of objectives as well the medium to be used to realize those objectives. Thus, strategy is a wider term which believes in the manner of deployment of resources so as to achieve the objectives.

   While fixing the organizational objectives, it is essential that the factors which influence the selection of objectives must be analyzed before the selection of objectives. Once the objectives and the factors influencing strategic decisions have been determined, it is easy to take strategic decisions.

2. **Company analysis:** Company analysis is a process carried out by investors to evaluate securities, collecting info related to the company'sprofile, products and services as well as

profitability. It is also referred as 'fundamental analysis.' ... Conversely, if it is a service business, the investor studies the services put forward.

3. **Competitive analysis:** Identifying your competitors and evaluating their strategies to determine their strengths and weaknesses relative to those of your own product or service. A competitive analysis is a critical part of your company marketing plan.
4. **Situation analysis:** Situation analysis refers to a collection of methods that managers use to analyze an organization's internal and external environment to understand the organization's capabilities, customers, and business environment.
5. **Financial analysis:** Financial analysis is the process of evaluating businesses, projects, budgets and other finance-related entities to determine their performance and suitability. Typically, financial analysis is used to analyze whether an entity is stable, solvent, liquid or profitable enough to warrant a monetary investment.
6. **Evaluating the Organizational Environment** - The next step is to evaluate the general economic and industrial environment in which the organization operates. This includes a review of the organizations competitive position. It is essential to conduct a qualitative and quantitative review of an organizations existing product line. The purpose of such a review is to make sure that the factors important for competitive success in the market can be discovered so that the management can identify their own strengths and weaknesses as well as their competitors' strengths and weaknesses.

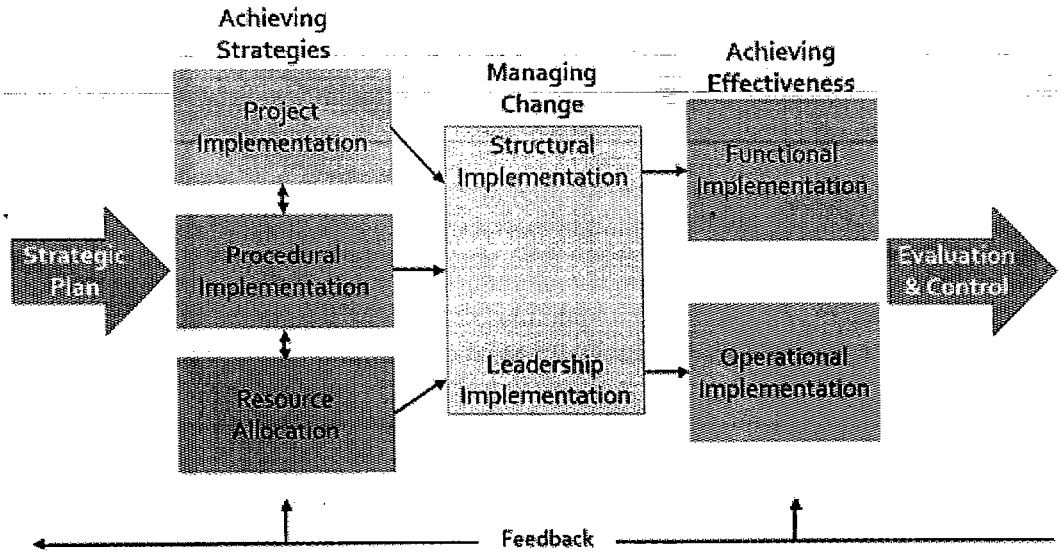
   After identifying its **strengths and weaknesses**, an organization must keep a track of competitors' moves and actions so as to discover probable **opportunities of threats** to its market or supply sources.

7. **Setting Quantitative Targets** - In this step, an organization must practically fix the quantitative target values for some of the organizational objectives. The idea behind this is to compare with long term customers, so as to evaluate the contribution that might be made by various product zones or operating departments.
8. **Aiming in framework with the divisional plans** - In this step, the contributions made by each department or division or product category within the organization is identified and accordingly strategic planning is done for each sub-unit. This requires a careful analysis of macroeconomic trends.
9. **Performance Analysis** - Performance analysis includes **discovering and analyzing the gap between the planned or desired performance.** A critical evaluation of the organizations past performance, present condition and the desired future conditions must be done by the organization. This critical evaluation identifies the degree of gap that persists between the actual reality and the long-term aspirations of the organization. An attempt is made by the organization to estimate its probable future condition if the current trends persist.
10. **Select of Strategy** - This is the ultimate step in Strategy Formulation. The best course of action is actually chosen after considering organizational goals, organizational strengths, potential and limitations as well as the external opportunities.

6) Strategy Implementation

Definition: Strategy Implementation refers to the **execution of the plans and strategies**, so as to accomplish the long-term goals of the organization. It converts the opted strategy into the moves and actions of the organisation to achieve the objectives.

Simply put, strategy implementation is the technique through which the firm develops, utilises and integrates its structure, culture, resources, people and control system to follow the strategies to have the edge over other competitors in the market.



Strategy Implementation is the **fourth stage of the Strategic Management process**, the other three being a determination of strategic mission, vision and objectives, environmental and organisational analysis, and formulating the strategy. It is followed by Strategic Evaluation and Control.

Process of Strategy Implementation

1. Building an organization, that possesses the capability to put the strategies into action successfully.
2. Supplying resources, in sufficient quantity, to strategy-essential activities.
3. Developing policies which encourage strategy.
4. Such policies and programs are employed which helps in continuous improvement.
5. Combining the reward structure, for achieving the results.
6. Using strategic leadership.

The process of strategy implementation has an important role to play in the company's success. The process takes places after environmental scanning, SWOT analyses and ascertaining the strategic issues.

Prerequisites of Strategy Implementation

1. **Institutionalization of Strategy**: First of all the strategy is to be institutionalized, in the sense that the one who framed it should promote or defend it in front of the members, because it may be undermined.
2. **Developing proper organizational climate**: Organizational climate implies the components of the internal environment, that includes the cooperation, development of personnel, the degree of commitment and determination, efficiency, etc., which converts the purpose into results.
3. **Formulation of operating plans**: Operating plans refers to the action plans, decisions and the programs, that take place regularly, in different parts of the company. If they are framed to indicate the proposed strategic results, they assist in attaining the objectives of the organization by concentrating on the factors which are significant.

4. **Developing proper organisational structure**: Organization structure implies the way in which different parts of the organisation are linked together. It highlights the relationships between various designations, positions and roles. To implement a strategy, the structure is to be designed as per the requirements of the strategy.
5. **Periodic Review of Strategy**: Review of the strategy is to be taken at regular intervals so as to identify whether the strategy so implemented is relevant to the purpose of the organisation. As the organization operates in a dynamic environment, which may change anytime, so it is essential to take a review, to know if it can fulfil the needs of the organization.
6. **Strategic leadership:** it refers to a manager's potential to express a strategic vision for the organization, or a part of the organization, and to motivate and persuade others to acquire that vision. Strategic leadership can also be defined as utilizing strategy in the management of employees.
7. **Effective Reward Systems:** When employees are motivated to work at higher levels of productivity, the organization as a whole runs more efficiently and is more effective at reaching its goals. ... Rewards are positive outcomes that are earned as a result of an employee's performance.
8. **Budgets:** A budget is a financial plan for a defined period, often one year. It may also include planned sales volumes and revenues, resource quantities, costs and expenses, assets, liabilities and cash flows. Companies, governments, families and other organizations use it to express strategic plans of activities or events in measurable terms.
9. **Resource allocation:** Resource allocation is the process of assigning and managing assets in a manner that supports an organization's strategic goals. Resource allocationincludes managing tangible assets such as hardware to make the best use of softer assets such as human capital.
10. **Ethics and Human values**: Human values are the principles, convictions and internal beliefs that people adopt and follow in their daily activities. Ethics or moral philosophy is a branch of philosophy that involves systematizing, defending, and recommending concepts of right and wrong conduct.

Even the best-formulated strategies fail if they are not implemented in an appropriate manner. Further, it should be kept in mind that, if there is an alignment between strategy and other elements like resource allocation, organizational structure, work climate, culture, process and reward structure, then only the effective implementation is possible.

7) Strategy Evaluation and Control:

Strategy Evaluation is as significant as strategy formulation because it throws light on the efficiency and effectiveness of the comprehensive plans in achieving the desired results. The managers can also assess the appropriateness of the current strategy in todays dynamic world with socio-economic, political and technological innovations. Strategic Evaluation is the final phase of strategic management.

The significance of strategy evaluation lies in its capacity to co-ordinate the task performed by managers, groups, departments etc, through control of performance. Strategic Evaluation is significant because of various factors such as - developing inputs for new strategic planning, the urge for feedback, appraisal and reward, development of the strategic management process, judging the validity of strategic choice etc. **Strategy Evaluation and control consists of following steps-**

1. **Fixing benchmark of performance -** While fixing the benchmark, strategists encounter questions such as - what benchmarks to set, how to set them and how to express them. In order to determine the benchmark performance to be set, it is essential to discover the special

requirements for performing the main task. The performance indicator that best identify and express the special requirements might then be determined to be used for evaluation

2. **Measurement of performance -** The standard performance is a bench mark with which the actual performance is to be compared. The reporting and communication system help in measuring the performance.. The measurement must be done at right time else evaluation will not meet its purpose. For measuring the performance, financial statements like - balance sheet, profit and loss account must be prepared on an annual basis.
3. **Analyzing Variance -** While measuring the actual performance and comparing it with standard performance there may be variances which must be analyzed. The strategists must mention the degree of tolerance limits between which the variance between actual and standard performance may be accepted. **The positive deviation** indicates a better performance but it is quite unusual exceeding the target always. **The negative deviation** is an issue of concern because it indicates a shortfall in performance.
4. **Taking Corrective Action -** Once the deviation in performance is identified, it is essential to plan for a corrective action. If the performance is consistently less than the desired performance, the strategists must carry a detailed analysis of the factors responsible for such performance.
5. **Premise Control:** Business strategy is based on an assumed premise of how things will occur in the future. Premise controls allow you to examine whether this assumption still holds true once you actually put your ideas into action. Premises may be affected by environmental factors such as inflation, interest rates and social changes or by industry factors such as competitors, suppliers and barriers to entry. These controls will help you recognize changes in the premise so you can adapt your strategy accordingly.
6. **Implementation Control:** Once design a strategy for your business, we will need to implement it. As you take the steps necessary to put your plan into action, use implementation controls to ensure no adjustments to your strategy are necessary. Two basic types of implementation controls are monitoring strategic thrusts and doing milestone reviews. The former means you analyze the tactics you're using to gain market share. The latter allows you to conduct a full-scale assessment of your business at designated points in your strategy.
7. **Special Alert Control:** we will need mechanisms in place to assess the position of your business in the case of sudden events, such as natural disasters, product recalls or market spikes. Special alert controls allow you to reconsider the relevancy of your strategy in light of these new events. Prepare how you will handle these special alerts with procedures to be followed, priorities to keep and tools to be used.
8. **Strategic Surveillance Controls:** As a small-business owner, you need to protect your business from external threats that may hinder the success of your strategy. Strategic surveillance controls allow you to monitor multiple sources for these threats. Continually safeguard your strategy by following trade journals, attending conferences and keeping awareness of industry trends to meet these risks as they arise.
9. **Strategic Audit:** A strategic audit is an in-depth review to determine whether a company is meeting its organizational objectives in the most efficient way. Additionally, it examines whether the company is utilizing its resources fully. A successful strategic audit is beneficial to any company.
10. **Strategic information systems (SIS):** areinformation systems that are developed in response to corporate business initiative. They are intended to give competitive advantage to the organization.

8) SWOT ANALYSIS:

SWOT is an short form for Strengths, Weaknesses, Opportunities and Threats. By definition, Strengths (S) and Weaknesses (W) are considered to **be internal factors** over which you have some measure of control. Also, by definition, Opportunities (O) and Threats (T) are considered to **be external factors** over which you have essentially no control.

In other words, it is the foundation for evaluating the internal potential and limitations and the probable/likely opportunities and threats from the external environment. It views all positive and negative factors inside and outside the firm that affect the success. A consistent study of the environment in which the firm operates helps in forecasting/predicting the changing trends and also helps in including them in the decision-making process of the organization.

An overview of the four factors (Strengths, Weaknesses, Opportunities and Threats) is given below-

1. **Strengths** - Strengths are the qualities that enable us to accomplish the organization's mission. These are the basis on which continued success can be made and continued/sustained.

   Strengths can be either tangible or intangible. These are what you are well-versed in or what you have expertise in, the traits and qualities your employees possess (individually and as a team) and the distinct features that give your organization its consistency.

   Strengths are the beneficial aspects of the organization or the capabilities of an organization, which includes human competencies, process capabilities, financial resources, products and services, customer goodwill and brand loyalty. Examples of organizational strengths are huge financial resources, broad product line, no debt, committed employees, etc.

2. **Weaknesses** - Weaknesses are the qualities that prevent us from accomplishing our mission and achieving our full potential. These weaknesses deteriorate influences on the organizational success and growth. Weaknesses are the factors which do not meet the standards we feel they should meet.

   Weaknesses in an organization may be depreciating machinery, insufficient research and development facilities, narrow product range, poor decision-making, etc. Weaknesses are controllable. They must be minimized and eliminated. For instance - to overcome obsolete machinery, new machinery can be purchased. Other examples of organizational weaknesses are huge debts, high employee turnover, complex decision making process, narrow product range, large wastage of raw materials, etc.

3. **Opportunities** - Opportunities are presented by the environment within which our organization operates. These arise when an organization can take benefit of conditions in its environment to plan and execute strategies that enable it to become more profitable. Organizations can gain competitive advantage by making use of opportunities.

   Organization should be careful and recognize the opportunities and grasp them whenever they arise. Selecting the targets that will best serve the clients while getting desired results is a difficult task. Opportunities may arise from market, competition, industry/government and technology. Increasing demand for telecommunications accompanied by deregulation is a great opportunity for new firms to enter telecom sector and compete with existing firms for revenue.

4. **Threats** - Threats arise when conditions in external environment jeopardize the reliability and profitability of the organization's business. They compound the vulnerability when they relate to the weaknesses. Threats are uncontrollable. When a threat comes, the stability and survival can be at stake. Examples of threats are - unrest among employees; ever changing technology; increasing competition leading to excess capacity, price wars and reducing industry profits; etc.

Advantages of SWOT Analysis:

SWOT Analysis helps in strategic planning in following manner-

a. It is a source of information for strategic planning.
b. Builds organization's strengths.

c. Reverse its weaknesses.
d. Maximize its response to opportunities.
e. Overcome organization's threats.
f. It helps in identifying core competencies of the firm.
g. It helps in setting of objectives for strategic planning.
h. It helps in knowing past, present and future so that by using past and current data, future plans can be chalked out.

SWOT Analysis provide information that helps in synchronizing the firm's resources and capabilities with the competitive environment in which the firm operates.

Limitations/Disadvantages of SWOT Analysis

There are certain limitations of SWOT Analysis which are not in control of management. These include-

a. Price increase;
b. Inputs/raw materials;
c. Government legislation;
d. Economic environment;
e. Searching a new market for the product which is not having overseas market due to import restrictions; etc.

Internal limitations may include-

a. Insufficient research and development facilities;
b. Faulty products due to poor quality control;
c. Poor industrial relations;
d. Lack of skilled and efficient labour; etc

9) Strategic alternatives:

Strategic alternatives are strategies that a business develops to set the direction, for which human and material resources will be applied, for a greater chance of achieving selected goals. Generally, a company develops strategic alternatives when it's struggling and seeking a new direction to increase profits, or even simply to save itself from dissolution or bankruptcy.

Strategic Alternatives

There are actually **six** strategic alternatives, says Dr. M. Thenmozhi, a professor in the Department of Management Studies at Indian Institute of Technology, Madras Chennai, a public engineering college in Southern India. Thenmozhi lists these examples of strategic alternatives:

- **Concentration**, such as vertical integration, horizontal integration, Backward and forward integration
- **Diversification**, such as concentric or conglomerate
- **Stability**, which involves following a steady course and trying to maintain profits
- **Turnaround**
- **Divestiture/sale (Merger, Acquisition, and Joint-venture)**
- **Liquidation**

1) Concentration: A strategic approach in which a business focuses on a single market or product. This allows the company to invest more resources in production and marketing in that one area, but carries the risk of significant losses in the event of a drop in demand or increase in the level of competition.

- **Vertical integration:** Vertical integration occurs when a company assumes control over several of the production steps involved in the creation of its product or service in a particular market. In other words, vertical integration involves purchasing a part of the production or sales process that was previously outsourced to have it done in-house. Typically, a company's supply chain or sales process begins with the purchase of raw materials from a supplier and ends with selling the final product to the customer.
- **Backward Integration:** *Backward integration is when a company expands backward on the production path into manufacturing, meaning a retailer buys the manufacturer of their product. An example of backward integration might be Amazon.com Inc. (AMZN), which expanded from an online retailer that sold books to becoming a book publisher. Amazon also owns warehouses and parts of its distribution channel.*
- **Forward Integration:** *Forward Integration is a strategy that companies use to expand by purchasing and controlling the direct distribution or supply of a company's products. A clothing manufacturer that opens its own retail locations to sell its product is an example of forward integration. Forward integration helps companies* cut out the middleman*by removing distributors that would typically be paid to sell a company's products—reducing their overall profitability.*

- **Horizontal Integration:** Horizontal integration is the acquisition of a business operating at the same level of the value chain in a similar or different industry. This is in contrast to vertical integration, where firms expand into upstream or downstream activities, which are at different stages of production.

2)Diversification: Diversification is a corporate **strategy** to enter into a new market or industry in which the business doesn't currently operate, while also creating a new product for that new market.

- **Concentric diversification**. A type of **diversification** in which a company acquires or develops new products or services (closely related to its core business or technology) to enter one or more new markets.
- **Conglomerate diversification** is growth strategy that involves adding new products or services that are significantly different from the organization's present products or services. Conglomerat **diversification**occurs when the firm diversifies into an area(s) totally unrelated to the organization current business.

3)Stability strategy: A stability strategy refers to a strategy by a company where the company stops the expenditure on expansion, in other words it refers to situation where company do not venture into new markets or introduce new products.

4)Turnaround Strategy. Definition: The **Turnaround Strategy** is a retrenchment **strategy** followed by an organization when it feels that the decision made earlier is wrong and needs to be undone before it damages the profitability of the company.

5)Divestitures/Sale strategy:
In its simplest form, a divestiture is the disposition or sale of an asset by a company. Divestitures are essentially a way for a company to manage its portfolio of assets. As companies grow, they may find they are trying to focus on too many lines of business and they must close some operational units to focus on more profitable lines.

- **Merger Strategy:** A **merger** is a corporate **strategy** of combining different companies into a single company in order to enhance the financial and operational strengths of both organizations.J
- **Acquisition Strategy:**. The **Acquisition Strategy** is a comprehensive plan that identifies and describes the**acquisition** approach that Program Management will follow to manage program risks and meet program objectives.
- **joint venture:** A **strategic joint venture** is a business agreement that is actively engaged by two companies who make a concerted decision to work together to achieve a specific set of goals. ... **Joint ventures** have helped numerous companies achieve access to emerging markets that they would otherwise have difficulty breaking into.

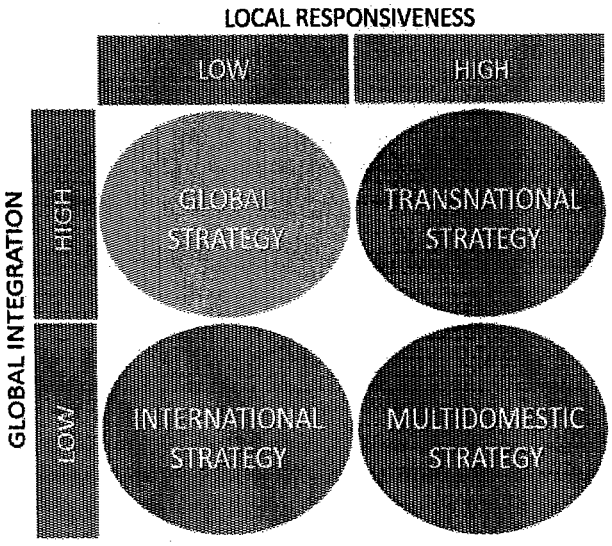
6)**Liquidation Strategy:** The **Liquidation Strategy** is the most unpleasant **strategy** adopted by the organization that includes selling off its assets and the final closure or winding up of the business operations.

10) GLOBAL STRATEGY:A) Types of Strategies, B) Benefits, and C) costs/limitations

A global strategy refers to the plans an organization has developed to target growth beyond its borders. Specifically, it aims to increase the sales of goods or services abroad. *'Global strategy'* ***is, in fact, a shortened term that covers four*** *strategies:* ***international, multinational,*** *global,* ***and Transnational.***

A **global strategy** is one that a company takes when it wants to compete and expand in the global market. In other words, a strategy businesses pursue when they wish to expand internationally. A global strategy refers to the plans an organization has developed to target growth beyond its borders. Specifically, it aims to increase the sales of goods or services abroad.

In developing 'global strategy', it is useful to distinguish between three forms of international expansion that arise from a company's resources, capabilities and current international position. If the company is still mainly focused on its home markets, then its strategies outside its home markets can be seen as **international.**



A)TYPES OF GLOBAL STRATEGIES: (4 STRATEGIES)

A) *International Strategy*

An international company is one that imports and exports. In other words, it sells to customers abroad and has foreign suppliers.

However, this type of company does not have any investments, i.e., branches, offices, factories outside its home country

B) *Multinational Strategy/ Multi - domestic Strategy*

A multinational company, unlike an international one, has investments in other countries. It has business, staff, and premises in more than one country.

However, it does not have coordinated product offerings. A multinational company focuses more on adapting its products and services to individual local markets.

C) *Global Strategy*

A global company has investments and is present in several countries. It markets its goods or services through the use of an identical coordinated image/brand in every market.

In most cases, there is one corporate office that is responsible for worldwide strategy. There is also a strong emphasis on cost management, efficiency, and volume.

D) Transnational Strategy

A transnational company operates in different countries. It has investments in operations both at home and abroad. However, the directors/managers at each individual market are also the decision-makers for their regions.

Additionally, local management decides on R&D and marketing policies and strategies for their territories. R&D stands for **R**esearch and **D**evelopment.

B)Benefits of a global strategy

The business case for achieving a global strategy is based on one or more of the factors set out below – *see* academic research by Theodore Leavitt, Sumanthra Ghoshal, Kenichi Ohmae, George Yip and others. For the full, detailed references, go to the end of Chapter 19 in either of my books, *Corporate Strategy* or *Strategic Management*

1. **Economies of scope**: the cost savings developed by a group when it shares activities or transfers capabilities and competencies from one part of the group to another – for example, a biotechnology sales team sells more than one product from the total range.
2. **Economies of scale**:the extra cost savings that occur when higher volume production allows unit costs to be reduced – for example, an Arcelor Mittal steel mill that delivers lower steel costs per unit as the size of the mill is increased.
3. **Global brand recognition**: the benefit that derives from having a brand that is recognized throughout the world – for example, Disney..
4. **Global customer satisfaction**: mulitnational customers who demand the same product, service and quality at various locations around the world – for example, customers of the Sheraton Hotel chain expect and receive the same level of service at all its hotels around the world.
5. **Lowest labour and other input costs**: these arise by choosing and switching manufacturers with low(er) labour costs – for example, computer assembly from imported parts in Thailand and Malaysia where labour wages are lower than in countries making some sophisticated computer parts (such as high-end computer chips) in countries like the USA
6. **Recovery of research and development (R&D)** *costs and other development costs across the maximm number of countries* – new models, new drugs and other forms of research often amounting to billions of US dollars. The more countries of the world where the goods can be sold means the greater number of countries that can contribute to such costs. For example, the Airbus Jumbo A380 launched in 2008 where development costs have exceeded US$ 10 billion.
7. **Emergence of new markets**: means greater sales from essentially the same products.

C)Costs or limitations of a global strategy

The costs of operating a global strategy may be greater than the benefits – see academic research from Douglas and Wind, Rugman and Verbaeke, Ghemawat and others. For the full details, go to the end of my chapter 19 in either *Corporate Stategy* or *Strategic Management* 5th edition.
Set against these benefits, there are at least six economic costs of international and global strategies:

1. **Lack of sensitivity to local demand**: Leavitt argued that people would be prepared to compromise on their individual tastes if the product was cheap enough deriving from economies of scale and scope. Is this really correct? Other writers argued that there could be costs in adapting products to match local tastes, local conditions like the climate and other local factors like special laws on environmental issues.
2. **Transport and logistics costs**: if manufacturing takes place in one country, then it will be necessary to transport the finished products to other countries. The costs for some heavy products, like steel bars, may be greater than the economies of scale from centralised production in one country.

3. **Economies of scale benefits may be difficult to obtain in practice**: plant takes time to commission, local competitors still using old plant and cheap labour may still be competitive. For an example, see the Tate & Lyle Case in Chapter 19 of Lynch.
4. **Communications costs will be higher**: standardisation of products and services needs to be communicated to every country. In virtually every case, it will also be necessary to monitor and control the result. All this is time consuming, expensive and at the mercy of local managers who may have their own agendas and interests.
5. **Management coordination costs**: in practice, managers and workers in different countries often need to be consulted, issues need to be explored and discussed, local variations in tax and legal issues need to be addressed. This means that senior managers operating a global strategy need to spend time visiting countries. It cannot all be done on the telephone and worldwide web. This takes a tremendous toll of people personally.
6. **Barriers to trade:** taxes and other restrictions on goods and services set by national governments as the goods cross their national borders.
7. **Other costs imposed by national governments** *to protect their home industries* – like special taxes or restrictions on share holdings.

- THE END -

Management Science - UNIT – 6

LIST OF TOPICS/QUESTIONS:

1) **MIS (Management Information System)**
2) **MRP (Material Requirement Planning)**
3) **JIT System(Just - in - time)**
4) **TQM (Total Quality Management)**
5) **Six Sigma**
6) **CMM (Capability Maturity Model)**
7) **SCM (Supply Chain Management)- { same question repeated. it is in unit – 3 question no. 7 Please refer it}**
8) **ERP (Entrepreneur Resource Planning)**
9) **BPO (Business Process Outsourcing)**
10) **Bench Marking**
11) **Balanced Score Card**
12) **Business Process Re-engineering**

1) MANAGEMENT INFORMATION SYSTEM

A **management information system** (MIS) is a computer **system**consisting of hardware and software that serves as the backbone of an organization's operations. An MIS gathers data from multiple online **systems**, analyzes the **information**, and reports data to aid in **management** decision-making.

The purpose of an MIS is improved decision-making, by providing up-to-date, accurate data on a variety of organizational assets, including:

- Financials
- Inventory (Production Dept.,)
- Personnel(Human Resources)
- Project timelines
- Manufacturing
- Marketing
- Raw materials
- R&D

The MIS collects the data, stores it, and makes it accessible to managers who want to analyze the data by running reports.

Types of MIS:

The following are types of information systems used to create reports, extract data, and assist in the decision making processes of middle and operational level managers.

1. **Decision support systems (DSS)** are computer program applications used by middle and higher management to compile information from a wide range of sources to support problem solving and decision making. A DSS is used mostly for semi-structured and unstructured decision problems.
2. **Executive information systems (EIS)** is a reporting tool that provides quick access to summarized reports coming from all company levels and departments such as accounting, human resources and operations.
3. **Marketing information systems** are management Information Systems designed specifically for managing the marketing aspects of the business.
4. **Accounting information systems** are focused accounting functions.
5. **Human resource management systems** are used for personnel aspects.
6. **Office automation systems (OAS)** support communication and productivity in the enterprise by automating workflow and eliminating bottlenecks. OAS may be implemented at any and all levels of management.
7. **School Information Management Systems (SIMS)** cover school administration, often including teaching and learning materials.
8. **Enterprise resource planning (ERP)** software facilitates the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders.[8]
9. **Local Databases**, can be small, simplified tools for managers and are considered to be a primal or base level version of a MIS.
10. **Enterprise systems**—also known as **enterprise resource planning (ERP)** systems—provide integrated software modules and a unified database that personnel use to plan, manage, and control core business processes across multiple locations. Modules of ERP systems may include finance, accounting, marketing, human resources, production, inventory management, and distribution.[11]
11. **Supply chain management (SCM)** systems enable more efficient management of the supply chain by integrating the links in a supply chain. This may include suppliers, manufacturers, wholesalers, retailers, and final customers.[12]
12. **Customer relationship management (CRM)** systems help businesses manage relationships with potential and current customers and business partners across marketing, sales, and service.[13]
13. **Knowledge management system (KMS)** helps organizations facilitate the collection, recording, organization, retrieval, and dissemination of knowledge. This may include documents, accounting records, unrecorded procedures, practices, and skills. Knowledge management (KM) as a system covers the process of knowledge creation and acquisition from internal processes and the external world. The collected knowledge is incorporated in organizational policies and procedures, and then disseminated to the stakeholders

2) Material requirements planning (MRP)

Material requirements planning (MRP) is a system for calculating the **materials** and components needed to manufacture a product. It consists of three primary steps: taking inventory of the **materials** and components on hand, identifying which additional ones are needed and then scheduling their production or purchase.

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IBM engineer Joseph Orlicky developed MRP in 1964 after he studied the Toyota Production System, which was the model for the lean production methodology. Power tool maker Black & Decker built the first computerized MRP system that same year, according to several sources.

Materials requirements planning (MRP) is one of the first software-based integrated information systems designed to improve productivity for businesses. A materials requirements planning information system is a sales forecast-based system used to schedule raw material deliveries and quantities, given assumptions of machine and labor units required to fulfill a sales forecast.

MRP Implementation/ Features/ Functions:

- **Raw material ordering and costs.** Knowing the exact costs for raw materials, as well as cost differences between suppliers, enables managers to reduce manufacturing costs without sacrificing quality.
- **Scheduling of raw material deliveries.** The best-laid plans for material planning will fail following missed or inconsistent deliveries. The system should enable scheduling of raw material deliveries and provide accurate lead-time estimates.
- **Performance measurement and management.** Performance management helps floor managers improve quality control, increase labor productivity, and reduce turnover.
- **Ongoing sales and production forecasts.** Ongoing sales and production forecasts within the material requirements planning system will enable shorter lead-times and augmented production value.
- **Assign the right personnel to the change management team.** The change management team is responsible for overseeing the selection and implementation of a new system. The right personnel making decisions will translate into selecting and implementing the system faster and without added costs.
- **Establish policies that enhance system use and benefits.** A frequent problem in requirements planning system use goes back to "letting the system handle it all." Although a modern system allows for greater efficiency and self-optimization, it still relies on data. Inaccurate data undermines the capabilities of the system. Policies created must focus on using real-time, accurate data, and integration between systems can automate the data collection and entry processes.
- **On-hand accuracy** – How much is your inventory balance? What is the quality of the materials you have in your inventory? These are some questions that you need accurate answers to. If you have incorrect quantity on hand, your material requirement planning will be around those inaccurate amounts, which will result in poor performance.

- **Use of forecast** – If enough data of past inventory trends of your industry is present, i.e. inward & outward values of inventory, then you'll be able to forecast the future trends of production needs and hence plan your inventory accordingly.

- **Lead times** – Knowing how long it generally takes for materials to arrive from the moment you order, how long it takes to make your finished product, time for quality check etc will help you in identifying when you need to place the order hence to prevent any delays in production while keeping minimum stocks in-hand.

- **Safety stock and reorder point** – It is really important to know the difference between the two. Will you treat safety stock as a hard number and not go below it, or is it more of a soft number, treated more as a 'suggested quantity we don't want to go below, but we're fine if we do.' Reorder point is when stocks reach the level when there's a need for action.

- **Capacity limits** – Planning should be done keeping in mind the limitations of productions in work centers or capacity of the inventory. Accurate data of these are needed and materials should be planned accordingly

- **Active Participation** – In most of the organizations, the burden of material requirement planning is placed on the shoulders of 1 or 2 individuals. These individuals will not always have all the answers or solutions to problems that may come up.

- **Proper Execution:** An efficient MRP requires the participation of executives from the purchasing team, customer service, production, and quality leader as well along with individuals responsible for material requirement planning. Frequent meeting of all these individuals should occur reviewing and analyzing reports of MRP.

3) JIT System(Just - in - time)

Just-in-time (JIT) manufacturing, also known as just-in-time production or the Toyota Production System (TPS), is a methodology aimed primarily at reducing times within production system as well as response times from suppliers and to customers. Its origin and development was in Japan, largely in the 1960s and 1970s and particularly at Toyota.

The just-in-time (JIT) inventory system is a management strategy that aligns raw-material orders from suppliers directly with production schedules. Companies employ this inventory strategy to increase efficiency and decrease waste by receiving goods only as they need them for the production process, which reduces inventory costs. This method requires producers to forecast demand accurately.

The Purpose of JIT

- Ordering inventory on an as-needed basis means that the company does not hold any safety stock, and it operates with continuously low inventory levels. This strategy helps companies lower their inventory carrying costs, increase efficiency, and decrease waste. JIT requires manufacturers to be very accurate in forecasts for the demand for their products.
- Just-in-time inventory management is a positive cost-cutting inventory management strategy, although it can also lead to stockouts. The goal of JIT is to improve a company's return on investment by reducing non-essential costs.
- Some competing inventory management systems exist, including short-cycle manufacturing (SCM), continuous-flow manufacturing (CFM) and demand-flow manufacturing (DFM).
- The JIT inventory system represents a shift away from the older "just-in-case" strategy, in which producers carried much larger inventories of stock and raw goods, in case they needed to produce more units because of higher demand.

Elements of JIT include:

- **Continuous improvement.**
  - Attacking fundamental problems - anything that does not add value to the product.
  - Devising systems to identify problems.
  - Striving for simplicity - simpler systems may be easier to understand, easier to manage and less likely to go wrong.
  - A product oriented layout - produces less time spent moving of materials and parts.
  - Quality control at source - each worker is responsible for the quality of their own output.
  - 'foolproof' tools, methods, to prevent mistakes
  - Preventative maintenance, Total productive maintenance - ensuring machinery and equipment functions perfectly when it is required, and continually improving it.
- **Eliminating waste.** There are **seven** types of waste:
  - waste from overproduction.
  - waste of waiting time.
  - transportation waste.
  - processing waste.
  - inventory waste.
  - waste of motion.
  - waste from product defects.

- **Good housekeeping** - workplace cleanliness and organisation.
- **Set-up time reduction** - increases flexibility and allows smaller batches. Ideal batch size is 1item.
- Multi-process handling - a multi-skilled workforce has greater productivity, flexibility and job satisfaction.
- **Levelled / mixed production** - to smooth the flow of products through the factory.
- **Simple tools** to 'pull' products and components through the process.
- **Automation** - providing machines with the autonomous capability to use judgement, so workers can do more useful things than standing watching them work.
- **Trouble lights** - to signal problems to initiate corrective action.

4) TQM (Total Quality Management)

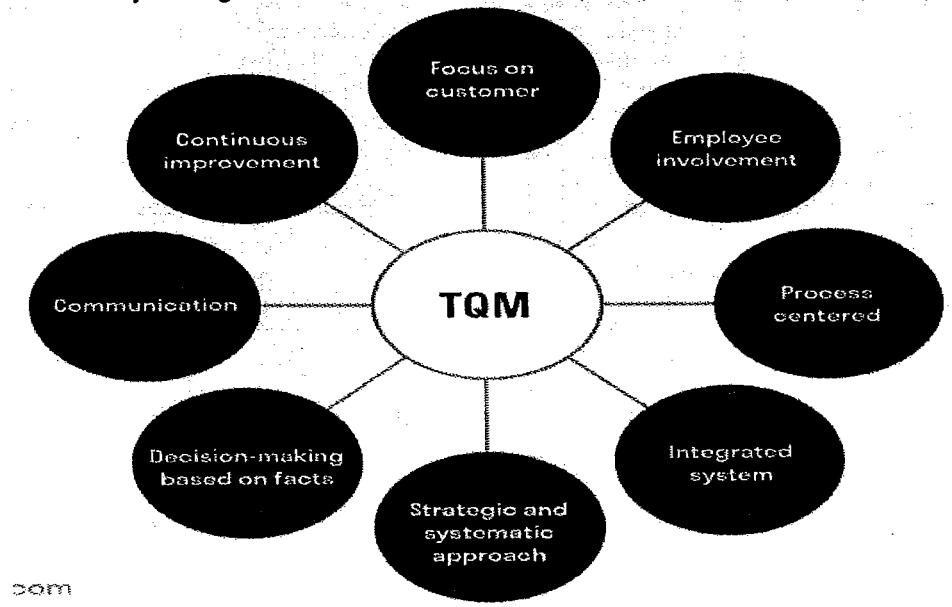
Total Quality Management is defined as a customer-oriented process and aims for continuous improvement of business operations. It ensures that all allied works (particularly work of employees) are toward the common goals of improving product quality or service quality, as well as enhancing the production process or process of rendering of services. However, the emphasis is put on fact-based decision making, with the use of performance metrics to monitor progress.

Total Quality Management is an extensive and **structured organization management approach** that focuses on **continuous quality improvement** of products and services by using **continuous feedback.** Joseph Juran was one of the founders of total quality management just like William E. Deming.

Total quality management originated in the industrial sector of Japan (1954). Since that time the concept has been developed and can be used for almost all types of organizations such as schools, motorway maintenance, hotel management and churches.

Total Quality Management principles

Total Quality Management has a number of basic principles which can be converted to the figure below.



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TQM can be summarized as a management system for a customer-focused organization that involves all employees in continual improvement. It uses strategy, data, and effective communications to integrate the quality discipline into the culture and activities of the organization.

These elements are considered so essential to TQM that many organizations define them, in some format, as a set of core values and principles on which the organization is to operate. The methods for implementing this approach come from the teachings of such quality leaders as Philip B. Crosby, W. Edwards Deming, Armand V. Feigenbaum, Kaoru Ishikawa, and Joseph M. Juran.

Many of these concepts are present in modern quality management systems, the successor to TQM. Here are **the 8 principles** of total quality management:

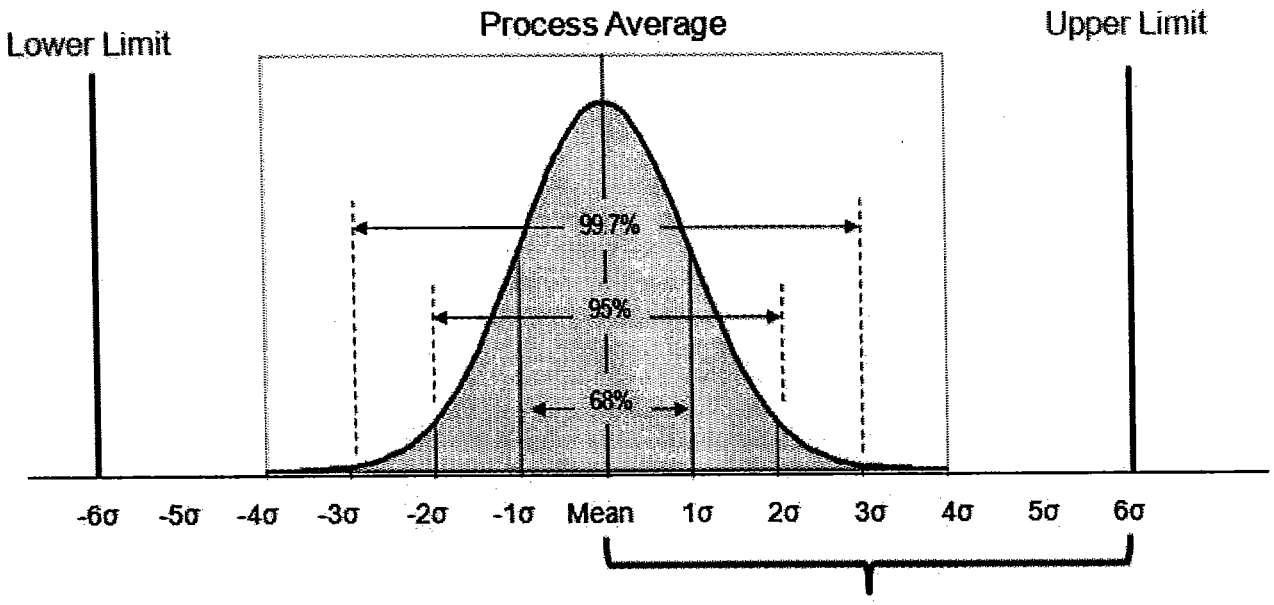
1. **Customer-focused:** The customer ultimately determines the level of quality. No matter what an organization does to foster quality improvement—training employees, integrating quality into the design process, or upgrading computers or software—the customer determines whether the efforts were worthwhile.
2. **Total employee involvement:** All employees participate in working toward common goals. Total employee commitment can only be obtained after fear has been driven from the workplace, when empowerment has occurred, and when management has provided the proper environment. High-performance work systems integrate continuous improvement efforts with normal business operations. Self-managed work teams are one form of empowerment.
3. **Process-centered:** A fundamental part of TQM is a focus on process thinking. A process is a series of steps that take inputs from suppliers (internal or external) and transforms them into outputs that are delivered to customers (internal or external). The steps required to carry out the process are defined, and performance measures are continuously monitored in order to detect unexpected variation.
4. **Integrated system:** Although an organization may consist of many different functional specialties often organized into vertically structured departments, it is the horizontal processes interconnecting these functions that are the focus of TQM.
   - Micro-processes add up to larger processes, and all processes aggregate into the business processes required for defining and implementing strategy. Everyone must understand the vision, mission, and guiding principles as well as the quality policies, objectives, and critical processes of the organization. Business performance must be monitored and communicated continuously.
   - An integrated business system may be modeled after the Baldrige Award criteria and/or incorporate the ISO 9000 standards. Every organization has a unique work culture, and it is virtually impossible to achieve excellence in its products and services unless a good quality culture has been fostered. Thus, an integrated system connects business improvement elements in an attempt to continually improve and exceed the expectations of customers, employees, and other stakeholders.
5. **Strategic and systematic approach:** A critical part of the management of quality is the strategic and systematic approach to achieving an organization's vision, mission, and goals. This process, called strategic planning or strategic management, includes the formulation of a strategic plan that integrates quality as a core component.
6. **Continual improvement:** A large aspect of TQM is continual process improvement. Continual improvement drives an organization to be both analytical and creative in finding ways to become more competitive and more effective at meeting stakeholder expectations.
7. **Fact-based decision making:** In order to know how well an organization is performing, data on performance measures are necessary. TQM requires that an organization continually collect and analyze data in order to improve decision making accuracy, achieve consensus, and allow prediction based on past history.
8. **Communications:** During times of organizational change, as well as part of day-to-day operation, effective communications plays a large part in maintaining morale and in motivating employees at all levels. Communications involve strategies, method, and timeliness.

5) Six Sigma

Six Sigma is a disciplined, statistical-based, data-driven approach and continuous improvement methodology for eliminating defects in a product, process or service. It was developed by Motorola and Bill Smith in the early 1980's based on quality management fundamentals, then became a popular management approach at General Electric (GE) with Jack Welch in the early 1990's.

The approach was based on the methods taught by W. Edwards Deming, Walter Shewhart and Ronald Fisher among many others. Hundreds of companies around the world have adopted Six Sigma as a way of doing business.

Sigma represents the population standard deviation, which is a measure of the variation in a data set collected about the process. If a defect is defined by specification limits separating good from bad outcomes of a process, then a six sigma process has a process mean (average) that is six standard deviations from the nearest specification limit. This provides enough buffer between the process natural variation and the specification limits.



Six Sigma can also be thought of as a measure of process performance, with Six Sigma being the goal, based on the defects per million. Once the current performance of the process is measured, the goal is to continually improve the sigma level striving towards 6 sigma. Even if the improvements do not reach 6 sigma, the improvements made from 3 sigma to 4 sigma to 5 sigma will still reduce costs and increase customer satisfaction.

Sigma Level	Defects per Million	Yield
6	3.4	99.99966%
5	230	99.977%
4	6,210	99.38%
3	66,800	93.32%
2	308,000	69.15%
1	690,000	30.85%

Methodologies

Six Sigma projects follow **two methodologies** inspired by Deming's Plan–Do–Study–Act Cycle. These methodologies, composed of five phases they are DMAIC and DMADV.

- DMAIC is used for projects aimed at improving an existing business process.
- DMADVis used for projects aimed at creating new product or process designs.

DMAIC:

The DMAIC project methodology has five phases:

- **Define the system**, the voice of the customer and their requirements, and the project goals, specifically.
- **Measure key aspects** of the current process and collect relevant data; calculate the 'as-is' Process Capability.
- **Analyze the data** to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation.
- **Improve or optimize the current process** based upon data analysis using techniques such as design of experiments, poka yoke or mistake proofing, and standard work to create a new, future state process. Set up pilot runs to establish process capability.
- **Control the future state process** to ensure that any deviations from the target are corrected before they result in defects. Implement control systems such as statistical process control, production boards, visual workplaces, and continuously monitor the process. This process is repeated until the desired quality level is obtained.

DMADV or DFSS :

The DMADV project methodology, known as DFSS ("**D**esign **F**or **S**ix **S**igma") features five phases:

- **Define design goals** that are consistent with customer demands and the enterprise strategy.
- **Measure and identify CTQs** (characteristics that are **C**ritical **T**o **Q**uality), measure product capabilities, production process capability, and measure risks.
- **Analyze to develop** and design alternatives
- **Design an improved alternative**, best suited per analysis in the previous step
- **Verify the design**, set up pilot runs, implement the production process and hand it over to the process owner(s).

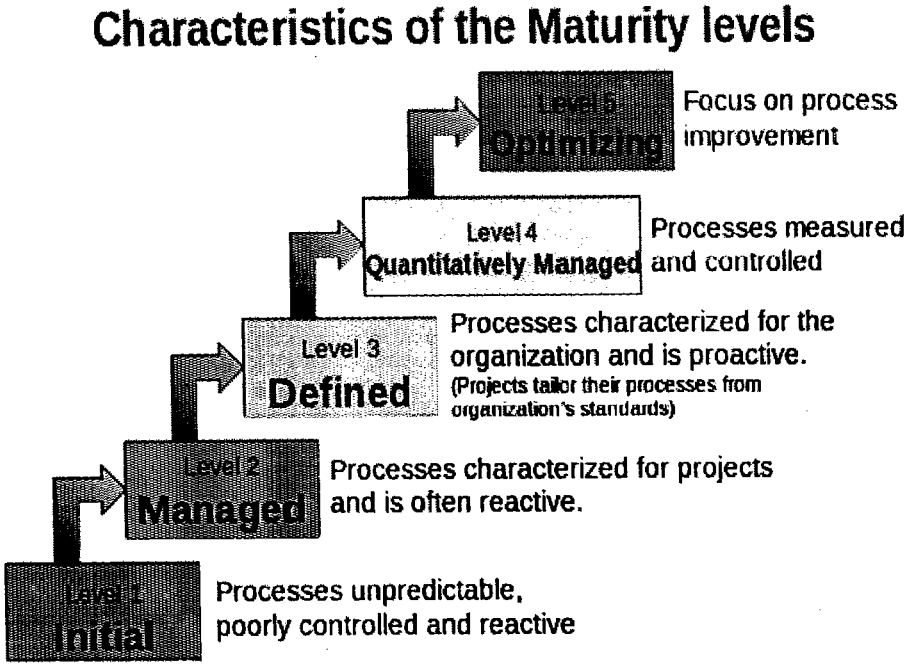
6) CMM (Capability Maturity Model)

The **Capability Maturity Model (CMM)** is a development model created after a study of data collected from organizations that contracted with the U.S. Department of Defense, who funded the research. The term "maturity" relates to the degree of formality and optimization of processes, from *ad hoc* practices, to formally defined steps, to managed result metrics, to active optimization of the processes.

The model's aim is to improve existing software development processes, but it can also be applied to other processes.

The Capability Maturity Model was originally developed as a tool for objectively assessing the ability of government contractors' *processes* to implement a contracted software project. The model is based on the process maturity framework first described in *IEEE Software* and, later, in the 1989 book *Managing the Software Process* by Watts Humphrey. It was later published in a report in 1993[2] and as a book by the same authors in 1995.

Though the model comes from the field of software development, it is also used as a model to aid in business processes generally, and has also been used **extensively worldwide in government offices, commerce, and industry.**



Levels of CMM:

There are five levels defined along the continuum of the model and, according to the SEI: "Predictability, effectiveness, and control of an organization's software processes are believed to improve as the organization moves up these five levels.

1. *Initial* (chaotic, ad hoc, individual heroics) - the starting point for use of a new or undocumented repeat process.

2. *Repeatable* - the process is at least documented sufficiently such that repeating the same steps may be attempted.
3. *Defined* - the process is defined/confirmed as a standard business process
4. *Capable* - the process is quantitatively managed in accordance with agreed-upon metrics.
5. *Efficient* - process management includes deliberate process optimization/improvement.

Within each of these maturity levels are Key Process Areas which characterise that level, and for each such area there are **five factors: goals, commitment, ability, measurement, and verification**. These are not necessarily unique to CMM, representing — as they do — the stages that organizations must go through on the way to becoming mature.

Level 1 - *Initial*
It is characteristic of processes at this level that they are (typically) undocumented and in a state of dynamic change, tending to be driven in an *ad hoc*, uncontrolled and reactive manner by users or events. This provides a disordered or unstable environment for the processes. (Example - a surgeon performing a new operation a small number of times - the levels of negative outcome are not known).

Level 2 - *Repeatable*
It is characteristic of this level of maturity that some processes are repeatable, possibly with consistent results. Process discipline is unlikely to be rigorous, but where it exists it may help to ensure that existing processes are maintained during times of stress.

Level 3 - *Defined*
It is characteristic of processes at this level that there are sets of defined and documented standard processes established and subject to some degree of improvement over time. These standard processes are in place. The processes may not have been systematically or repeatedly used - sufficient for the users to become competent or the process to be validated in a range of situations. This could be considered a developmental stage - with use in a wider range of conditions and user competence development the process can develop to next level of maturity.

Level 4 - *Managed (Capable)*
It is characteristic of processes at this level that, using process metrics, effective achievement of the process objectives can be evidenced across a range of operational conditions. The suitability of the process in multiple environments has been tested and the process refined and adapted. (Example - surgeon performing an operation hundreds of times with levels of negative outcome approaching zero).

Level 5 - *Optimizing (Efficient)*
It is a characteristic of processes at this level that the focus is on continually improving process performance through both incremental and innovative technological changes/improvements. At maturity level 5, processes are concerned with addressing statistical *common causes* of process variation and changing the process (for example, to shift the mean of the process performance) to improve process performance.

7) SCM (Supply Chain Management)

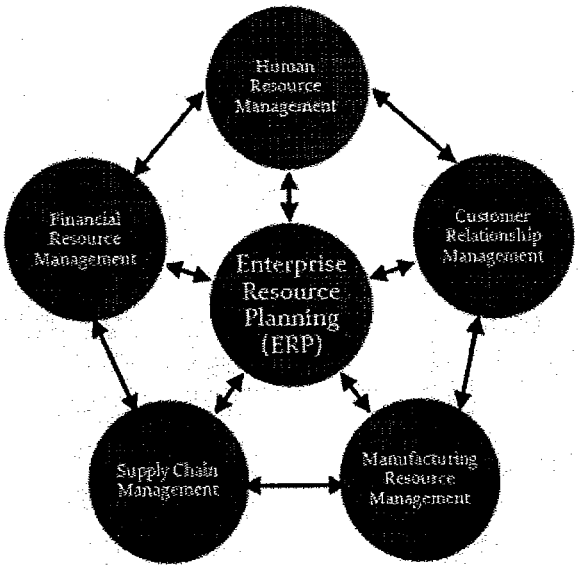
Supply chain management is the **management** of the flow of goods and services and includes all processes that transform raw materials into final products. It involves the active streamlining of a business's **supply**-side activities to maximize customer value and gain a competitive advantage in the marketplace. **{ same question repeated. it is in unit – 3 question no. 7 Please refer it}.**

8) ERP (Entrepreneur Resource Planning)

Definition: Enterprise Resource Planning, or otherwise known as ERP is an integrated software application, which firms use to manage and control their internal and external resources comprising financial resources, material, assets and human resources.

ERP system unites various functions of management into a rationally integrated system to streamline processes and enable the movement of information among all business function. It can be understood as a description of systems wherein innovative information technology is used to manage all functional areas in an organization.

The ERP system integrates varied organizational systems and facilitates error-free transactions and production, thereby enhancing the organization's efficiency. However, developing an ERP system differs from traditional system development.[4] ERP systems run on a variety of computer hardware and network configurations, typically using a database as an information repository



Enterprise resource planning (ERP) is the integrated management of main business processes, often in real-time and mediated by software and technology.

History:

The Gartner Group first used the abbreviation ERP in the 1990s to include the capabilities of material requirements planning (MRP), and the later manufacturing resource planning (MRP II), as well as computer-integrated manufacturing. Without replacing these terms, ERP came to represent a larger whole that reflected the evolution of application integration beyond manufacturing. ERP vendors variously began assembling their packages with finance-and-accounting, maintenance, and human-resource components. By the mid-1990s ERP systems addressed all core enterprise functions. Governments and non–profit organizations also began to use ERP systems.

Functional areas:

ERP system covers the following common functional areas. In many ERP systems, these are called and grouped together as ERP modules:

- **Financial accounting:** general ledger, fixed assets, payables including vouchering, matching and payment, receivables and collections, cash management, financial consolidation
- **Management accounting**: budgeting, costing, cost management, activity based costing
- **Human resources**: recruiting, training, rostering, payroll, benefits, retirement and pension plans, diversity management, retirement, separation
- **Manufacturing**: engineering, bill of materials, work orders, scheduling, capacity, workflow management, quality control, manufacturing process, manufacturing projects, manufacturing flow, product life cycle management
- **Order processing:** order to cash, order entry, credit checking, pricing, available to promise, inventory, shipping, sales analysis and reporting, sales commissioning
- **Supply chain management**: supply chain planning, supplier scheduling, product configurator, order to cash, purchasing, inventory, claim processing, warehousing (receiving, putaway, picking and packing)
- **Project management:** project planning, resource planning, project costing, work breakdown structure, billing, time and expense, performance units, activity management
- **Customer relationship management (CRM):** sales and marketing, commissions, service, customer contact, call center support – CRM systems are not always considered part of ERP systems but rather business support systems (BSS)
- **Data services :** various "self–service" interfaces for customers, suppliers and/or employees
- **Materials Management: Material management** is an approach for planning, organizing, and controlling all those activities principally concerned with the flow of **materials** into an organisation.
- **Financial management** is the application of general principles of **management** to the **financial** possessions of an enterprise. Proper**management** of an organization's **finance** provides quality fuel and regular service to ensure efficient functioning.
- **Human resource management** is the strategic approach to the effective **management** of people in a company or organization such that they help their business gain a competitive advantage. It is designed to maximize employee performance in service of an employer's strategic objectives.
- **Marketing management** is the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services in order to create, exchange and satisfy individual and organisational objectives
- **strategic management** involves the formulation and implementation of the major goals and initiatives taken by an organization's top management on behalf of owners, based on consideration of resources and an assessment of the internal and external environments in which the organization operates.

9. BPO (Business Process Outsourcing)

Business process outsourcing, or BPO, is a business practice in which one organization hires another company to perform a task (i.e., process) that the hiring organization requires for its own business to successfully operate.

BPO has its roots in the manufacturing industry, with manufacturers hiring other companies to handle specific processes, such as parts of their supply chains, that were unrelated to the core competencies required to make their end products.

Business Process Outsourcing (BPO) is a kind of outsourcing in which the company outsources a specific activity/process related to its business to a third party service provider. e.g. of the process could include payroll, HR, technical support to the customers. BPO allows a company to save cost and also focus on the core activities.

Types of Business Process Outsourcing (BPO)

Business Process Outsourcing can be of 2 types:

1. **Back-office outsourcing:** it involves outsourcing of internal business functions like payroll, HR, etc.

2. **Front-office outsourcing**: It involves outsourcing of customer related processes like technical support, maintenance etc.It can also be classified as:

1. **Offshore outsourcing**: When the work is contracted to a company that does **not reside in the same country**. India and China have emerged as popular destinations for offshore outsourcing.

2. **Near-shore outsourcing:** When the work is contracted to a company that resides in the **neighboring country.**

3. **Onshore outsourcing:** When the work is contracted to a company that is in the **same country**.

Functions /Services Provided by BPO:

The Indian BPO industry offers a variety of services to their domestic and international clients. Some of the services are: technical support, customer support, data processing, bookkeeping, telemarketing, insurance processing, forms processing, web/internet/ online research and more.

- **Technical support services:** product support, installation, running support. Resolution and usage problems for computer software's internet infrastructure, hardware, troubleshooting.
- **Customer support services:** These services are involved with **outbound call center outsourcing**, 4/7 inbound and outbound services which addresses to give customer's solutions on their concerns and queries though email, phone or by live chat.
- **Data processing and data entries:** Providing data entry for books, images, paper work, yellow pages, e-books, printed documents, web sites, business cards, receipts, software applications, catalogs, bills and the mailing lists.
- **Accounting services and book keeping:** Providing maintenance of customer's account payables, general ledger, account receivables, bank reconciliations, financial statements and equipment and assets ledgers.
- **Telemarketing services:** Providing friendly interactions with the potential customers to create interests for the products and services. By promotion, up- selling and cross selling to the existing customers and also by completing the online sales process.
- **Insurance processing:** Providing new promotional strategies with business acquisition, policy maintenance, claims processing and policy management.
- **Form processing services:** The **call centre support services** in India also provides payroll processing, online form processing, insurance claim forms, medical billing forms processing.
- **IT help desk services:** BPO also caters to offer solutions for system problem, Level 1 and level multi cannel support, technical problem resolution, remote diagnostics, office productivity tools support and answering the queries of product usage.
- **Online research:** Provides extensive details and search on the market survey researches, analysis, mailing list research, internet search, and web search and product search and usage details.
- **Data conversion services:** Gives data conversions for word processors, data bases, software applications and spreadsheets. Also provides data conversion for raw data like HTML, PDF, Acrobats formats or for the word file.

Objectives /Benefits of Business Process Outsourcing

Companies that offshore their business processes to India are no longer looking at cost reduction alone. They typically want to achieve:

1. Process improvement and efficiency - faster turnaround and greater productivity
2. Cost savings
3. Reduced head count
4. Improved quality - less errors/rework
5. Building/strengthening presence in a new market/foreign country
6. Increased focus on core competencies - e.g. developing new products or services
7. Building business value and strategic differentiation
8. Business process speed and efficiency are enhanced.
9. Employees may invest more time in core business strategies to bolster competitive advantage and enhance value chain engagement.
10. Organizational growth increases when capital resource and asset expenditures are not required, which averts problematic investment returns.
11. Organizations are not required to invest in unrelated primary business strategy assets, facilitating a shift in focus to specific competencies.

10.Bench Marking (a). Types and b). Process)

Benchmarking is a tool of **strategic management** that allows the organization to set goals and measure productivity, on the basis of the best industry practices. It is a practice in which quality level is used as a point of reference to evaluate things by making a comparison.

Benchmarking is the practice of comparing business processes and performance metrics to industry bests and best practices from other companies. Dimensions typically measured are quality, time and cost.

Benchmarking is used to measure performance using a specific indicator (cost per unit of measure, productivity per unit of measure, cycle time of x per unit of measure or defects per unit of measure) resulting in a metric of performance that is then compared to others

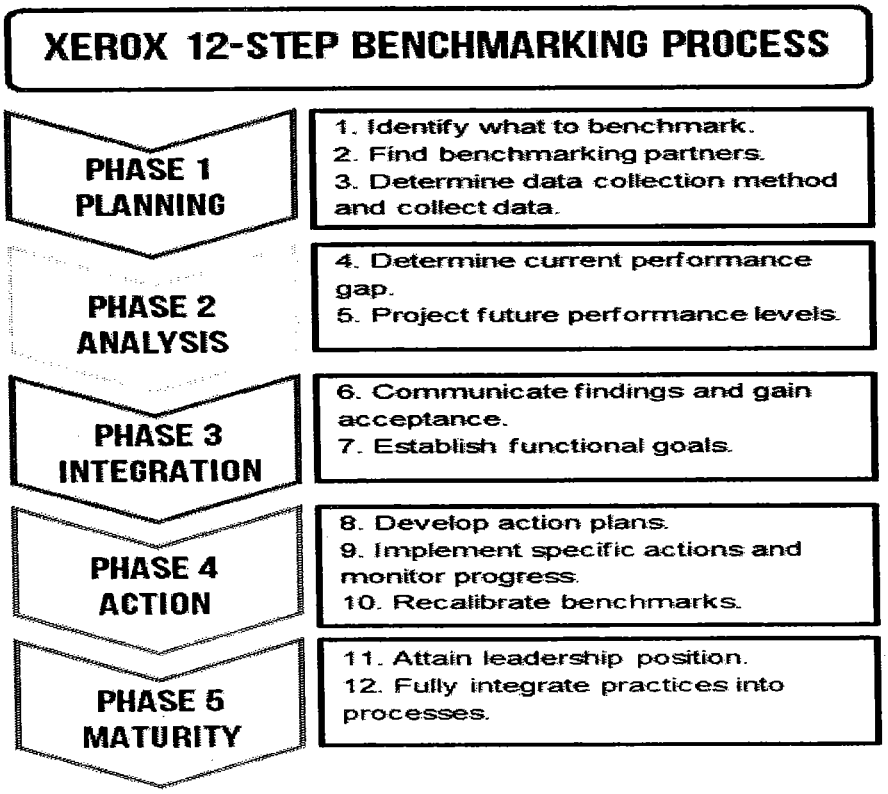
a) Applications/Types/Approaches of Benchmarking:

- **Strategic benchmarking.** Managers use this type of benchmarking to identify the best way to compete in the market. During the process, the companies identify the winning strategies (usually outside their own industry) that successful companies use and apply them to their own strategic process. It is also common to compare the strategic goals in order to spot new strategic choices.
- **Performance benchmarking.** It is concerned with comparing your company's products and services. According to Bogan & English[1] the tool mainly focuses on product and service quality, features, price, speed, reliability, design and customer satisfaction, but it can measure anything that has the measurable metrics, including processes. Performance benchmarking determines how strong our products and services are compared to our competition.
- **Process benchmarking.** It requires to look at other companies that engage in similar activities and to identify the best practices that can be applied to your own processes in order to improve them. Process benchmarking is a separate type of benchmarking, but it usually derives from performance benchmarking. This is because companies first identify the weak competing points of their products or services and then focus on the key processes to eliminate those weaknesses.
- **Internal benchmarking.** In large organizations, which operate in different geographic locations or manage many products and services, same functions and processes are usually performed by different teams, business units or divisions.

- **External or competitive benchmarking.** Some authors use these terms interchangeably but there are a few differences between them. First, competitive benchmarking refers to a process when a company compares itself with the competitors inside its industry. Whereas external benchmarking looks both inside and outside the industry to find the best practices, thus, including competitive benchmarking.[9] Second, competitive benchmarking, in my opinion, will only be used with performance benchmarking to compare your products and services.
- **Functional benchmarking.** Managers of functional departments find it useful to analyze how well their functional area performs compared to functional areas of other companies. It is quite easy to identify the best marketing, finance, human resource or operations departments, in other companies, that excel in what they do and to apply their practices to your own functional area.
- **Generic benchmarking.** According to Kulmala,[9] it refers to comparisons, which "focus on excellent work processes rather than on the business practices of a particular organizationThis gives you an idea to implement the data collecting and analysis team in your own company to significantly improve its overall performance.

- **Financial benchmarking** - performing a financial analysis and comparing the results in an effort to assess your overall competitiveness and productivity.
- **Benchmarking in the public sector** - functions as a tool for improvement and innovation in public administration, where state organizations invest efforts and resources to achieve quality, efficiency and effectiveness of the services they provide.
- **Product benchmarking** - the process of designing new products or upgrades to current ones. This process can sometimes involve reverse engineering which is taking apart competitors products to find strengths and weaknesses.
- **Best-in-class benchmarking** - involves studying the leading competitor or the company that best carries out a specific function.

b) **PROCESS OF BENCHMARKING:**



Advantages:

- Easy to understand and use.
- If done properly, it's a low cost activity that offers huge gains.
- Brings innovative ideas to the company.
- Provides you with insight of how other companies organize their operations and processes.
- Increases the awareness of your costs and level of performance compared to your rivals.
- Facilitates cooperation between teams, units and divisions.

Disadvantages:

- You need to find a benchmarking partner.
- It is sometimes impossible to assign a metric to measure a process.
- You might need to hire a consultant.
- If your organization is not experienced at it, the initial costs could be huge.
- Managers often resist the changes that are required to improve the performance.
- Some of best practices won't be applicable to your whole organization.

11.Balanced Score Card

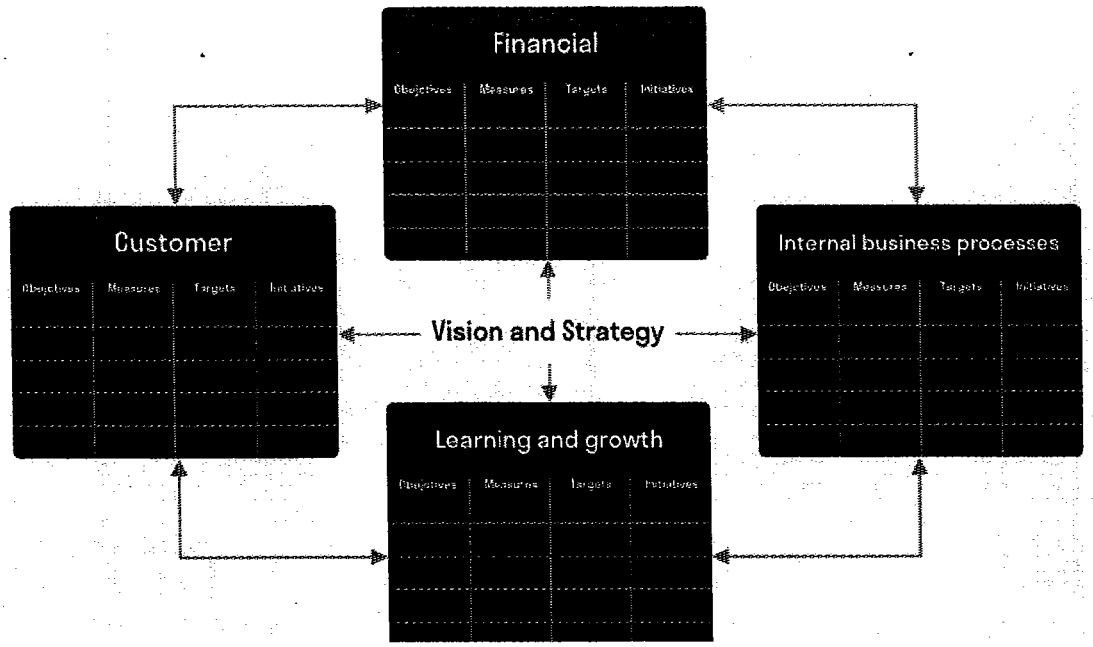
A balanced scorecard is a performance metric used in strategic management to identify and **improve various internal functions** of a business and their resulting external outcomes. It is used to measure and provide feedback to organizations. Data collection is crucial to providing quantitative results, as the information gathered is interpreted by managers and executives, and used to make better decisions for the organization.

The balanced scorecard was first introduced by accounting **academic Dr. Robert Kaplan and business executive and theorist Dr. David Norton. It was first published in 1992 in the *Harvard Business Review* article** "The Balanced Scorecard—Measures That Drive Performance." Both Kaplan and Norton took previous metric performance measures and adapted them to include nonfinancial information.

The balanced scorecard (BSC) is a strategic planning and management system that organizations use to:

- Communicate what they are trying to accomplish
- Align the day-to-day work that everyone is doing with strategy
- Prioritize projects, products, and services
- Measure and monitor progress towards strategic targets

Balanced Scorecard by Robert Kaplan & David Norton toolshero



ECI's Balanced Business Scorecard

Financial Perspective	
GOALS	MEASURES
Survive	Cash flow
Succeed	Quarterly sales growth and operating income by division
Prosper	Increased market share and ROE

Customer Perspective	
GOALS	MEASURES
New products	Percent of sales from new products
	Percent of sales from proprietary products
Responsive supply	On-time delivery (defined by customer)
Preferred supplier	Share of key accounts' purchases
	Ranking by key accounts
Customer partnership	Number of cooperative engineering efforts

Internal Business Perspective	
GOALS	MEASURES
Technology capability	Manufacturing geometry vs. competition
Manufacturing excellence	Cycle time Unit cost Yield
Design productivity	Silicon efficiency Engineering efficiency
New product introduction	Actual introduction schedule vs. plan

Innovation and Learning Perspective	
GOALS	MEASURES
Technology leadership	Time to develop next generation
Manufacturing learning	Process time to maturity
Product focus	Percent of products that equal 80% sales
Time to market	New product introduction vs. competition

Financial perspective

The financial perspective is important for all shareholders and other financial backers of an organization. It answers the question: "*How attractive must we appear to our shareholders and financial backers?*". This is mainly a quantitative benchmark based on figures from the past. ,

In addition, it provides a reliable insight into the operational management and the sustainability of the chosen strategy. The delivered added value from the other three perspectives will be translated into a financial success. This is therefore a quantification of the added value that is delivered in the organization. After all in the balanced scorecard, when there is a higher added value, the profits will also be higher.

Customer perspective

Each organization serves a specific need in the market. This is done with a target group in mind, namely its customers. Customers determine for example the quality, price, service and the acceptable margins on these products and/or services. Organizations always try to meet customer expectations that may change at any time. The existence of alternatives (those of the competitor) has a large influence on customer expectation. This perspective answers the question: "*How attractive should we appear to our customers?*"

Internal Business Processes

From the perspective of internal processes the question should be asked what internal processes have actually added value within the organizations and what activities need to be carried out within these processes. Added value is mainly expressed as the performance geared towards the customer resulting from an optimal alignment between processes, activities and decisions. This perspective answers the question: "*What must we excel at to satisfy our customers and shareholders/ financial backers?*"

Learning and growth

An organization's learning ability and innovation indicate whether an organization is capable of continuous improvement and/or growth in a dynamic environment. This dynamic environment is subject to change on a daily basis due to new legislation and regulations, economic changes or even increasing competition. This perspective answers the question: "*How can we sustain our ability to achieve our chosen strategy?*"

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12. BUSINESS PROCESS RE – ENGINEERING (BPR)- A) PROCESS, AND B) BENEFITS

Business Process Reengineering or BPR for short, is a methodology and technique with which organisations radically change their business processes with the aim of becoming more efficient and more modern. The far-reaching measures that are taken after the decision to restructure a process not only concern formal procedures or other existing processes, but can also bring about radical changes in management style and corporate culture.

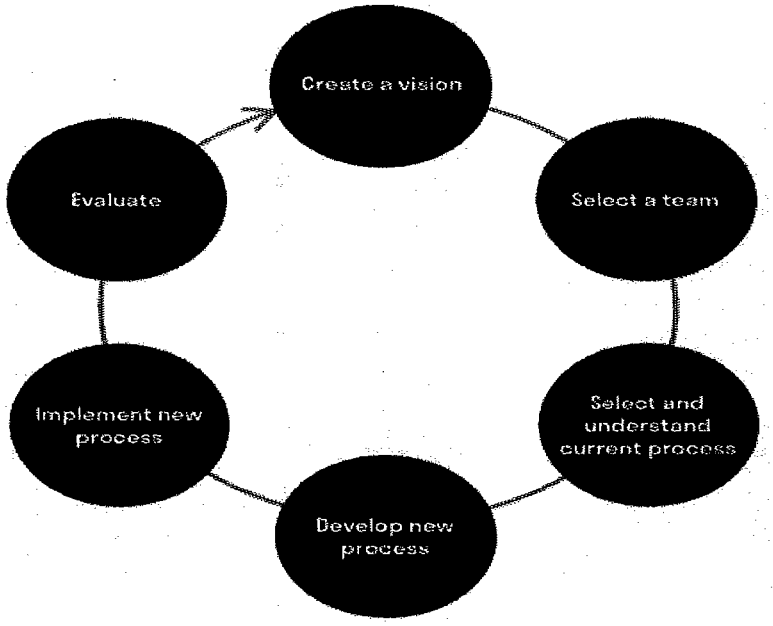
The founder of the Business Process Reengineering concept **is Michael Hammer. Michael Hammer published the article '*Reengineering Work: Do not Automate, Obliterate*' in 1990.** With this title, Hammer was saying that just automating processes is not enough. Hammer developed the BPR concept further with **James Champy**, after which they published their **famous book, 'Reengineering the company, a manifesto for business revolutions', in 1993.**

The fundamental nature of BPR is to encourage process thinking: shifting from task focus to process focus to then removing all processes that do not create value for the customer. In this way, improvements are achieved that are only for the betterment of the performance criteria such as costs, efficiency, quality and service.

Steps in the change process:

1. Create a vision

Before a process is reviewed or adjusted, there needs to be a clear picture of the reason for the change. It's important that the customer is the focus of this vision. The objectives must then be clarified in qualitative and quantitative terms. If the objectives are clear, it's important to convince the employees that the changes are necessary.



2. Select a team

A skilled team needs to be formed to get started with the changes and to minimise the chance of failure. It's valuable to set up a diverse team because creativity is essential in analysing current business processes and developing new ones. For example, the problem is looked at from different perspectives and an accurate diagnosis is formed in the following steps.

3. Select and understand current process

The complete current process needs to be mapped out in order to optimise it. This can be done by using flowcharts and software. KPIs can then be linked to the relevant process in order to be able to monitor whether the process has the desired effect. This way, all matters that add no value to the process can be identified. These KPIs are compared in the following phases with the same indicators, but then for the new process.

4. Develop a new process

If the KPIs show that a current process is inefficient or ineffective, a new process must be drawn up. The customer-oriented vision from step 1 should be the guide here.

5. Implement a new process

Once the development and planning of the new process is complete, a small scale test can be run. If necessary, adjustments can then be made. The results and effects must be closely monitored with the KPIs. If it turns out that the new process works better than the previous one, it can be implemented on a larger scale.

6. Evaluate

In a highly dynamic environment, a lot changes, so sometimes the indicators can give a different picture over time. By running an evaluation, inconsistencies are noticed sooner and can be adequately anticipated.

Benefits of using BPR are:

A) Increase productivity

The goal of BPR is to modernise outdated processes and that often yields time-saving results. For example, after performing BPR, the organisation can discover that a certain process can be carried out by two employees instead of four. It's important that the employees themselves provide input and come up with suggestions; after all, they know better than anyone else how the business processes work.

B) Improve quality and customer focus

By changing task orientation to process orientation, the focus is put on the customer. This has the advantage that all irrelevant processes quickly come to the foreground, after which they can easily be removed or modified.

C) Improve competitive position

Normally, changes that an organisation makes are only gradually noticed. In order to keep up with the competition, and to satisfy customer needs, however, we must act appropriately. BPR is ideally suited for this because the radical changes are implemented in a relatively short period.

D) Implement new technology

A downside to adjusting business processes as quickly as possible in order to be able to work more efficiently, is that some employees need more time to adjust than others.

E) **Quickness**

Organizations are constantly faced with the need for change. Changes may become necessary as a result of new regulations, market demands or the emergence of new ways of working.

One key feature of BPM is that it facilitates the design of processes that are flexible. With BPM, you get the flexibility of making changes to processes with minimal costs. Processes can easily be customized to suit the requirements of your organization.

F) **Efficiency & Reduced Risks**

The visibility of business processes allows for concentration on inefficiencies. Because BPM gives organizations the opportunity to work more efficiently, they are able to save their resources. BPM also results in the creation of better-designed, executed and monitored processes which can help reduce the risk of fraud.

G) **Compliance & Transparency**

Organizations need to be compliant with industry regulations. BPM ensures that organizations can implement regulatory requirements quickly, thereby preventing delays in compliance and any associated fines. When you adopt BPM, you integrate compliance into the process life cycle. This also implies that organizational processes will become transparent and visible to employees.

H) **Employee Satisfaction**

BPM eliminates a lot of red tape in organizations and allows employees to focus 100% on their work since process automation cuts down on a lot of repetitive work and makes information access easier. This in turn makes for increased productivity and a happier workforce.

I) **Customer Focus**

With leaner processes and increased productivity, employees are better able to focus on the customer. There will be an increased capacity to respond more quickly to proposals, build solutions faster and customize more quickly. BPM also brings people and technology together in a way that increases customer satisfaction.

J) **Sustainability** (the ability to be maintained at a certain rate or level)

Business Processes are continually improved to adapt to changing organizational conditions so that they can deliver the expected results. This adaptation can be achieved with BPM while maintaining control or managerial oversight.

- THE END -