

Economics, Management and Entrepreneurship
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Lecture - 30
Functions of Management (Contd.)

Good morning. Welcome to the 30th lecture on economics, management and entrepreneurship. In our last lecture, we had proposed 4 generic functions of management, planning, organizing, motivating and controlling. We of course said that there are different grouping of functions, some people say that it should be planning, organizing, directing and controlling and so on and so forth.

What we would like to do today and probably in our next lecture is to elaborate certain aspects of each of these 4 functions. In particular, we shall study planning, organizing, motivating and controlling. These are generic functions of management. If you recall, we had suggested that management is universal, wherever there is group activity management principles will be applicable.

And every person doing the task of management has to do these 4 functions maybe in different proportions. At the top-level of management more of planning is involved and as we go down more of organizing, motivating and controlling aspects are involved down the hierarchy of management. So today in this lecture, we shall study the various aspects of planning and if time is available we shall also take up certain aspects of controlling.

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Planning

- The most basic function of management.
- It ensures that everyone in a group knows what the group wishes to achieve and the way to achieve it.
- Planning involves
 - Selecting the goals and objectives
 - Selecting alternative courses of action
 - Deciding on the best course of action



So first planning, as you know planning is the most basic function of management. It ensures that everyone in a group knows what it wishes to achieve and the way to achieve it. In particular, planning involves selecting the goals and objectives, setting alternative courses of action and deciding on the best course of action.

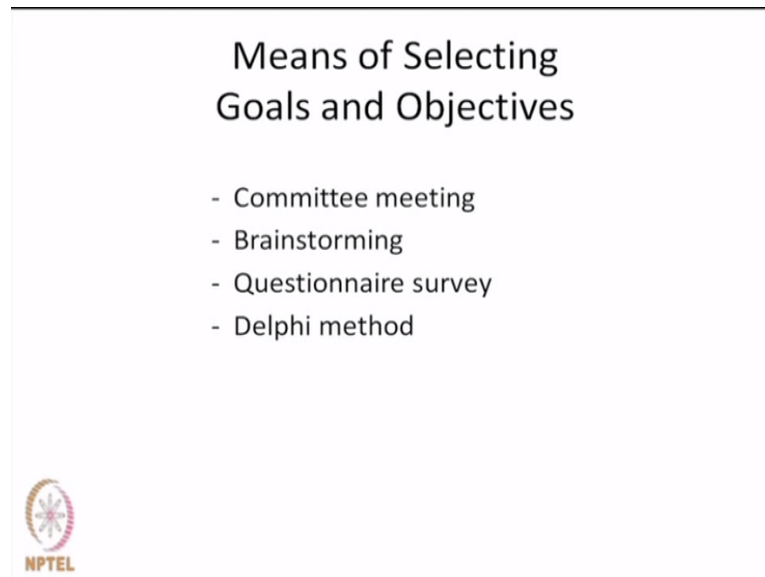
Now in this slide we suggested that whenever there is a group activity to do certain tasks, it requires certain plan to be made in advance. Plan requires first of all knowing what to do and second if to achieve that goal how to do it. How to do it depends on first of all choosing various alternative courses of action and then selecting one among these alternative courses of action.

Naturally, selection will depend on evaluating its course of action against certain criterion. Therefore, the criterion has to be fixed for judging the worthwhileness of various courses of action. The criterion could be very quantitative in the form of maximizing return and investment or minimizing the time to complete the work so on and so forth but sometimes also the criteria could be very qualitative.

For example, improve the morale of the employees, so naturally in such a case it is difficult to know whether really the employee's morale has improved. Therefore, such qualitative criterion has to be also quantified in some way. For example, we can say that improvement in the morale of the employees would be reflected in whether the absenteeism has gone down, whether there is active participation of the employees in the activities of the enterprise.

And whether the productivity has actually improved over the years and so on and so forth. So basically every course of action to achieve a goal has to be evaluated against certain criterion and then the best course of action is to be selected and this must be known by every member in the group. That is the basic essence of planning.

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Now selecting goals and objectives is the fundamental thing before a plan has to be done and how are the goals fixed. Now this is a very difficult task. What to do or what to achieve is something very personal. If an individual has to set a goal for himself or herself it is very, very personal maybe he or she can take the advice of his family members, his friends and colleagues and seniors.

But when it comes to setting the goal for an enterprise, it involves many people, in particular it involves the investors who have invested their money and of course the managers who are trustees almost like trustees for the investors who are given the authority and the responsibility of giving the highest profitability possible. Now these are the people who have to give their inputs for deciding how to achieve or how to set the desired objective.

So normally it will call for brainstorming, committee meetings, and thorough brainstorming what is desirable and what is feasible. Goals can be very ambitious and therefore one may not be able to achieve it. Goals have to be ambitious but at the same time the feasibility has to be also seen in how many years with the resources available or with the resources that can be deployed for the work that goal can be achieved.

Keeping these desirability and feasibility aspects in view, the goal has to be set and whether certain goals are desirable or feasible can be known only through the process of brainstorming, meaning collecting opinion of various people. There are different forms of opinion collection techniques. We have discussed some of them earlier in one of our earlier lectures.

Face-to-face meeting in a committee is one and where everybody expresses his or her opinion about the desirability and the feasibility features of goals. Another could be questionnaire survey in which a person or a department or a particular section charged with responsibility of forming the goals, takes the opinion through a questionnaire survey of people who are knowledgeable in the field and they can give their opinion.

And another method of conducting a structured questionnaire survey is what is called Delphi, on this I had also discussed earlier. Instead of a single round of questionnaire survey Delphi requires questionnaire survey to be conducted in multiple rounds and consensus among the people taking part in the survey is judged by the narrowness of their responses when the responses are expressed in quantitative terms.

There is anonymity and because it is repeated questionnaire survey, there is an opportunity for the members for the respondents in the questionnaire survey to actually change their opinion and therefore hopefully at the end of 3 or 4 rounds of questionnaire survey, a consensus would emerge. So goal setting is something that is done normally in this manner; however, also goals can be set by projecting the past trend.

An enterprise which is existing for a while has got some of its records, some of its actual performance and therefore what it can do is to actually extrapolate or project its past performance and then give a margin, a plus or minus margin depending on the opportunities that exist in the environment to actually fix the goal for the enterprise. So both ways are possible.

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Steps of Planning

- Be aware of opportunities.
- Set long-term goals and short-term objectives.
- Establish planning premises
(bring in consensus among group members with respect to assumptions made)
- Determine alternate courses of action.
- Evaluate the courses of action (main and side effects).
- Select a course of action.
- Formulate derivative plan.
- Numberize plans by budgets.



Now there are different steps of planning that are normally followed. One is be aware of the opportunities that the market offers. The opportunities can come in various forms, a new technology may be coming, a new market may have been created because there is change in the styles or in the demand of the customers, financial opportunities may be available. Soft loans may be given by banks or financial institutes.

Government may be giving more tax benefits if investment is done in certain sector, so these are opportunities that are created in the environment. So one of the things that planning requires is to look for such opportunities. Once the opportunities are available then following the methods of goal setting, we have to set the long-term goals and short-term objectives. Now these 2 words goals and objectives are often used interchangeably.

And sometimes also the word objective is used in the sense of long-term whereas the word goal is used in the sense of short-term that means that although I have said here long-term goals and short-term objectives, you will not be surprised to know that in certain other contexts people may be using the terms long-term objectives and short-term goals. Therefore, these 2 terms are sometimes used interchangeably.

And sometimes used completely differently and hence you have to know the context in which the terms are used. In course of our lecture, we shall use the word goal whenever we are talking about a long-term context whereas we shall use the word objectives when we are using it in the short-term context, setting long-term goals and short-term objectives.

Basically, we say that a goal is a long-term goal and to achieve that goal we need to have a number of objectives set.

These objectives should be subservient to the goal set, that means to achieve the goal each of the objectives should be also accomplished and similarly objectives may also be subdivided into sub objectives. To achieve each objective, you may have to accomplish more than one sub objective. So we shall see that goals and objectives form a hierarchy in themselves. Third is established planning premises.

Establish planning premises basically means that every plan is about the future; whenever we talk about future we know that future is uncertain and therefore nobody is sure as to what the future is going to be. Some people may think that future is bright and some other may feel or think that the future is dark. Now their thought process is best on certain assumptions.

It is the duty of the planning group to bring a consensus about the assumptions that people are holding in their mind about the future. Some may feel that competition is so high that the product that a company is going to launch will not be successful. Some other may feel just the reverse. Now it is the duty of the planning people to bring all those opposing members, members with opposing views to a meeting, talk out.

And then come to a conclusion as to what the company's view regarding the future assumptions about environment are. Now this is the planning premise meaning the assumptions about the future to be debated and to be agreed upon and accepted by the group. The 4th step is determined alternative courses of action. This also requires brainstorming to achieve a particular end we may have to undertake different means to achieve it.

Now certain means may be very profitable meaning it would require less cost but may require more time. Some other means may be costly but it will give us quick results. So these 2 different results or different courses of action are to be traded-off, what is important, is it less input cost or less time to launch a product. So naturally one has to consider the benefit or to make a benefit cost analysis.

If the product is launched early, naturally the company has an edge over its competitor, it will be launching its product fast in the market and therefore it will be leader in the market

regarding the particular product and most likely it will have lot of benefits because it is the first to launch as a product in the market. So these things are to be seen or to be considered against the cost that we are incurring.

So may be a more expensive course of action leading to earlier or first earlier schedule will be a better option than expending or spending more on another course of action or expending less on another course of action that requires more time. This is of course evaluated the courses of action. While evaluating the course of action, we have to also judge the main effect and the side effect.

This is something that is becoming very important in recent days. We had in the past closed our eyes to environmental considerations and to the community considerations. It is quite possible that the goal that we are setting and the course of action that we are taking to achieve the goals may be counterproductive in the sense that it degrades the environment. It creates or generates pollution.

And therefore it reduces the quality of life of the community surrounding the enterprise. Now these are externalities and while planning these adverse effects on the environment the so called externalities have to be also considered by the planning group. Considering all these select a course of action, once the course of action is selected we have to formulate a derivative plan, a detailed plan basically which have to be followed.

And also at the same time we have to prepare a budget. A budget is a very important way as I had already discussed. This reflects monetarily the effect of the plan made and as you have seen a budget talks about sales, cost budget and goes up to how much money will disburse, purchase budget and purchase disbursement budgets and so on and so forth. So a budget is or making a budget is always an important artifact of planning.

Now plan periods can differ, one may plan for a very, very long period such as 10 years or 20 years. Normally, such a plan is called a perspective plan if it is made for 20 years. Normally a plan made for such a long time is made by a country. Perspective plan for steel industry, perspective plan for energy or a perspective plan for water needs in the country. These are examples of perspective plan and where a plan is made not < 20 years.

There are examples where plans are made for even 100 years particularly for exhaustible resources such as coal or a particular type of ore. So what are the other courses of action or other alternative sources of energy if coal is exhausted? So these are also considered by multi-nationals by United Nations and its various organizations. So we will say in general that 20 years or more they are perspective plans.

And suppose that it is made for 5 years, which is the usual life time of a chairman and a managing director of an organization. It is called a strategic plan usually. A strategic plan is made for 5 years because plans that interest the top management are normally about launching a new product, having a different plant located in a different place, creating a new market, so these will reap benefits in not < 5 years.

That is the reason a strategic plan of this type is made for a plan period of about 5 years or even more close to 5 years.

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The Planning Period	
Perspective plan:	20 years
Strategic plan:	5 years
Annual plan:	1 year
Short-term plan:	1 week – 1 month



Then we have annual plans, annual plans for one year, normally they are production plans, inventory plans, plans regarding labour intake, recruitment of new skills, training that is required to be given to various workers or budgets basically maintenance to be done, procurement of spares, these are annual plans and normally annual plans are supported by budgets.

And the most visible plan that is done by almost every enterprise is the annual plan and lastly plans made for one week or even one day, close to one month sometimes. These are short-


term plans. Plans regarding let us say monthly maintenance, corrective maintenance and preventive maintenance. Preventive maintenance in particular are planned for one month. So monthly plans are made as you known by the operating managers.

And strategic plans are made by the top management people. So this is how the planning period are decided and accordingly the plans are made.

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Hierarchy of Objectives

- Each higher-level objective is supported by a set of low-order objectives (**sub-objectives**).
- Example:
 - Top management:
Reduce working capital to 50 % of its present value.
 - Middle management:
Cut down inventory level to 50 % of its present level.
 - Operating management:
Bring down internal lead time to one day and external lead time to one week.
- **Network relationships** among cross-functional objectives.
 - These objectives may be **conflicting**, requiring higher management's coordination and compromise.



Next, we talk about hierarchy of objectives. Already, I told you that we are not distinguishing between the work goal and objective. If we have to distinguish we shall say that objectives are a lower level subdivision of goal. To achieve a goal, we have to have certain objectives. Each objective has to be further subdivided into sub-objectives and so on and so forth. So there is a hierarchy of objectives.

Each higher-level objective is supported by a set of low order objectives we are calling it sub-objectives. Suppose for example that top management decides to reduce working capital to 50% of its present value, so this is the top management decision and this is the goal to be achieved, reduce working capital to 50% of its present value. To achieve this goal, the sub-objective is cut down inventory level to 50% of its present level.

So to reduce working capital to 50%, inventory level should be cut down by 50%, so this is a sub-objective for this. For the operating manager, it would call for bring down the internal lead time to one day and external lead time to one week. What is the meaning of lead time?

We shall discuss lead time both internal and external when we will discuss about inventory control.

In manufacturing organizations, the manager wishes to have enough inventory at hand to be able to produce its goods. Now normally whenever the inventory position comes down, it places orders with the supplier for replenishing the inventory and there is a delay involved to replenish it. First of all, there is an internal delay. The inventory position has actually come down.

But the company may actually place an order with the supplier quite late. This is the internal lead time. It is official delay. There is a procedure which has to be filled, somebody has to sign, the document has to go to higher authorities, the higher authority say yes, place an order and there is a clerical processing delay. Then, it will be sent and maybe the finance department has to have enough funds.

And then they will clear, so all that delay is the internal delay and that is called internal lead time and when such an order reaches the supplier, the supplier takes some time, it may have the inventory with itself and then it will pack it, prepare the invoice, send by truck or by some other transportation and then it will reach the stores. Stores will send it to the material department.

So there is an external delay involved in it. So to cut down the inventory position such delays have to be cut down because more the delay more the company would like to have inventory. So if it takes one week's time to replenish your goods, you would have at least one week's safety inventory with you but if it takes one-month time for replenishment, it would naturally have to have one month's inventory level with you.

So if the lead time reduces, the inventory level reduces and the working capital reduces. So this is a very good example where it says that if the higher order objective is to reduce the working capital to 50% then the sub-objective is cut down inventory level to 50% of its present level and sub sub-objective is to bring down the internal lead time to one day and external lead time to one week.

Now apart from these hierarchical relationships to achieve an objective, there is also a horizontal relationship. Various departments may have different objectives in their mind and they may be conflicting. Normal example that is cited is that of production department and marketing department or sales department. Production department wishes to produce as much as possible and marketing department wishes to sale as much as possible.

Now this is fine, as far as this example is going it is fine but to produce the production department also requires to minimize its cost of production, so that the gross profit is high. To minimize cost of production sometimes it sacrifices quality and the sales department does not like low quality product because then there are problems by the customers, they do not accept it, returns are more because the defects are more.


So in the production departments, objective is to minimize cost of production, which may result in quality problems. It goes against the objective of the sales department. So these are examples of conflicting objectives. So one has to ensure that these conflicting objectives are suitably met and there is some sort of a conformance of the objectives and here the higher management has to come in to coordinate.

And bring in a consensus or a compromising solution between the 2 parties. So these first 2 examples where there is a hierarchy of sub-objectives, there is a vertical relationship and these network relationships is something like a horizontal relationship.

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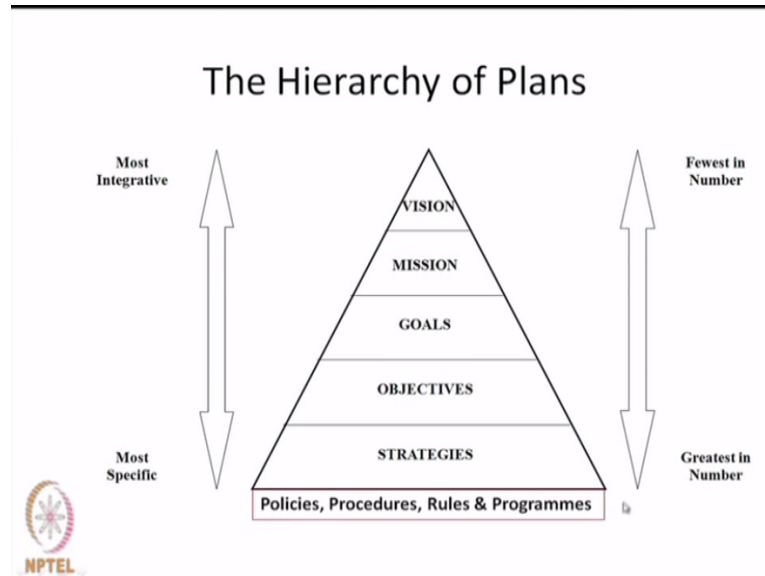
Types of Plan

- Vision and Mission
- Goals and Objectives
- Strategies
- Policies
- Procedures
- Rules
- Programmes



Now plans can be of various types. We call them vision and mission, goals and objectives, strategies, policies, procedures, rules and programmes. We shall see each one of them separately.

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This is in a pictorial form, the hierarchy of plans. At the top is the vision about an enterprise, what it dreams to achieve and such a dream can be expressed in the form of a mission. The mission has to be translated into understandable goals, which are to be further subdivided into objectives and then strategies have to be devised to meet each of these objectives. These strategies in term are to be followed by broken down into policies, procedures, rules and programmes.

Now we see that they are fewest in number, only one vision, only one or 2 missions, 5 or 10 goals, 20 to 50 objectives, 100 strategies. So these are greatest in number, these are fewest in number. These are most specific to a particular situation and they are more systemic, more integrative, more holistic in view.

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Vision

- A dream, an aspiration, a passion, a shared mental image of some ideal future state, a foresight of an aggregate future.
- An emotional appeal to the members of the organization that inspires them to think big.
- A vision does not specify the means to achieve it.
- It is often too ephemeral and ideal to be written down on paper and is therefore not always made public.



Now let us see each one of them. Vision is basically a dream, an inspiration, a passion, a shared mental image of an ideal future state, a foresight of an aggregate future. It is an emotional appeal to the members of the organization inspiring them to think big. So normally it is something that the enterprise dreams of achieving in 15, 20, 30, 40, 50 years is a grand vision, a dream.

A vision does not specify the means to achieve it. The vision normally is silent about the means. It is too ephemeral, nonphysical basically and ideal to be written down on paper and is therefore not always made public. So a vision if written down is not usually made public.

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Mission

- A vision becomes more tangible in the form of a mission statement.
- A mission statement gives vent to the organization's beliefs, explicates its thrust and underlying design, and gives broad directions in which the organization will be navigated.
- It addresses the organization's most fundamental intentions expressing
 - (1) Its obligation to stakeholders,
 - (2) the scope of the organization, and
 - (3) the skills to develop and the principal means to adopt to achieve the vision.

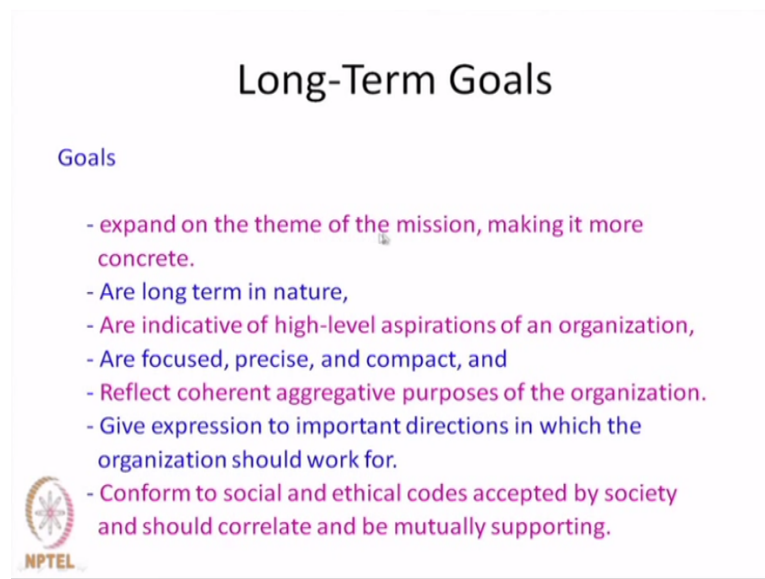


However, a mission is made always public. A vision becomes more tangible in the form of a mission statement. A mission statement gives vent to the organization's beliefs, explicates its

thrust and underlying design, and gives broad directions in which the organization will be navigated. It addresses the organization's most fundamental intentions expression its obligation to stakeholders, the scope of the organization and the skills to develop and the principal means to adopt to achieve the vision.

So mission translates basically the vision into written statement specifying the means to achieve the vision. It is a sad image by all the members of the enterprise, it is left known to everybody and everybody gets inspired to achieve the mission.


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Long-Term Goals

Goals

- expand on the theme of the mission, making it more concrete.
- Are long term in nature,
- Are indicative of high-level aspirations of an organization,
- Are focused, precise, and compact, and
- Reflect coherent aggregative purposes of the organization.
- Give expression to important directions in which the organization should work for.
- Conform to social and ethical codes accepted by society and should correlate and be mutually supporting.

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Goals expand in the theme of the mission, making it more concrete. Usually, long-term in nature, they are indicative of high-level aspirations of an organization. They are focused, precise and compact and reflect coherent aggregative purposes of the organization. Give expression to important directions in which the organization should work for.

Conform to social and ethical codes accepted by the society and should correlate and be mutually supporting. So basically goals expand on the theme of the mission making it more concrete.

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Short-Term Objectives

- Each goal must be exploded into short-term objectives to be acted upon and realized.
- Objectives must be aligned with the goals.
- They must be **focused, measurable** (quantifiable so as to monitor progress towards a target or a benchmark), and **attainable** within a specified timeframe.



Objectives, each goal are exploded into short-term objectives to be acted upon and realized. Therefore, objectives are aligned with the goals. They must be focused and measurable and must be attainable within a specified timeframe, these 3 words are very important. They are more concrete than goal, they are measurable and a specific time must be planned for by which each objective has to be accomplished.

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Strategies

- Formulated to make appropriate rules for making decisions and actions to achieve the objectives.
- Prelude to decision making and planning for action.
- Defined at various levels of an organization:
 - **Operations level strategy** (organization's day-to-day functions)
 - **Administrative strategy** (establishing the internal relations and processes within the organization)
 - **Business strategy** (organization's relationship with its external environment).
- We do not distinguish among these three forms of strategy.




- Instead, we take a **contingency approach to strategy formulation**, i.e., we formulate a strategy as the most logical and viable means to achieve each identified objective.

Strategies, they are formulated to make appropriate rules for making decisions and actions to achieve the objectives. So basically once the objectives are known, strategies are formulated to achieve those objectives and they in turn help in making appropriate rules for decisions and actions. So this is a prelude to decision making and planning. They are defined at various levels of an organization.

They may be for day-to-day functions, operational strategies, for establishing internal relations and processes, administrative strategies and they may be business strategies for designing organization's relationship with external environment such as customers, suppliers and competitors.

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SWOT Analysis		
	<u>Strengths (S)</u> List Strengths	<u>Weaknesses (W)</u> List weaknesses
<u>Opportunities (O)</u> List Opportunities	<u>SO strategies</u> Use strengths to take advantages of the opportunities	<u>WO strategies</u> Overcome weaknesses by taking advantages of opportunities
<u>Threats (T)</u> List Threats	<u>ST strategies</u> Use strengths to avoid threats.	<u>WT strategies</u> Minimize weaknesses and avoid threats.



Now normally for strategy making we make what is known as SWOT analysis. A SWOT analysis is also called TOWS analysis, in the reverse order also it is told. Basically, it is a matrix. A matrix in which along the rows we saw the opportunities and threats and in the columns we saw the strengths and weaknesses. The opportunities and threats coming from the environment.

So basically these 2 rows indicate the attributes of the environment and these are the attributes of the enterprise in terms of technology, in terms of employee's skill, in terms of the number of people, in terms of the capital investment, the company may have certain strengths and may have certain weaknesses. So these are internal dimensions of the enterprise. These are external dimensions.

Dimensions external to the enterprise that is environmental analysis, so while making the strategies the company looks at what lies in the environment that gives them certain opportunities or what threats exists in the environment. Threats could be in the form of obsolescence of the existing product because new technology may be coming.

Threats may be coming because certain products are coming that are giving much better quality features than what the company is able to give. Threats may be coming in the form of new laws regarding environment, which will adversely affect the company's products and company's profitability. Opportunities could be new technology coming, opportunities could be new demand for customers, new demand for new products from the customers so on and so forth.

Now these 2 rows and 2 columns give rise to different strategies, strength opportunity strategies, if there are opportunities and if these are our strengths, align the strengths to meet the opportunities to take advantage of the opportunities, so that is prepare the strategies that way and to take advantage of the opportunities if you have certain weaknesses.

Then overcome your weakness, invest your time, your other resources to improve to get rid of these weaknesses and take advantage of these opportunities. If you have threats, use your strengths to avoid or meet the threats and minimize weaknesses to avoid threats. So usually although there are different ways of making SWOT, making strategies, one of the very fundamental and basic way of making a strategy is by first of all making an analysis.


Internal analysis of strengths and weaknesses of the enterprise and an external analysis of what opportunities on threats are coming from the environment.

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Policies
Provide broad guidelines for individual decisions.

Procedures
Are guides to actions and take the form of chronological sequence of actions required to achieve a plan.

Rules
Specific actions or non-actions required to be done with no discretion. Thus, leave rules permit an employee to take leave according to the stated condition.

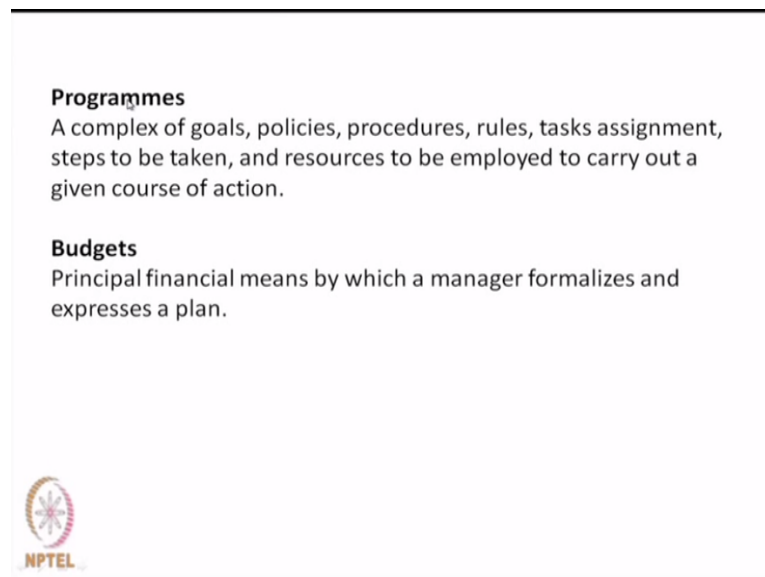


Now policies, policies provide broad guidelines for individual decisions and procedures are guides to actions and take the form of chronological sequence of actions required to achieve a

plan. So basically the policies are broad guidelines for individual decisions and procedures are chronological sequence. This is the various steps to achieve a plan and finally rules are specific actions or non-actions required to be done with no discretion.

Thus, leave rules permit an employee to take leave according to the stated condition. Thus, we have seen here various forms of plans and how they are verbal out starting from vision, mission, goals, objectives, strategies, polices and then finally procedures and rules.

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Of course, we can have separate programmes to take up a complex of goals, polices, procedures, rules, tasks assignments, and steps to be taken and resources to be employed to carry out a given course of action. So to carry out a particular course of action we may have a programme. This is word that is often used by the government employment programme or roads, Prime Minister's Road Programme or Water Programme.

So this is a very specific to achieve a specific target one may decide on the strategies, plans, procedures, rules, budgets, tasks to be assigned, people to be deployed, all these things is done to achieve a particular goal that is called a programme and finally a research plan is supported by budgets. We already have talked about budgets. So friends we have seen how planning is done.

We will now spend the remaining time of this lecture on controlling aspects, which is the 4th function of the management.

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Planning and controlling are two sides of a coin.

Control is the **measurement and correction of performance** in order to make sure that enterprise **objectives and plans**, devised to attain them, are accomplished.

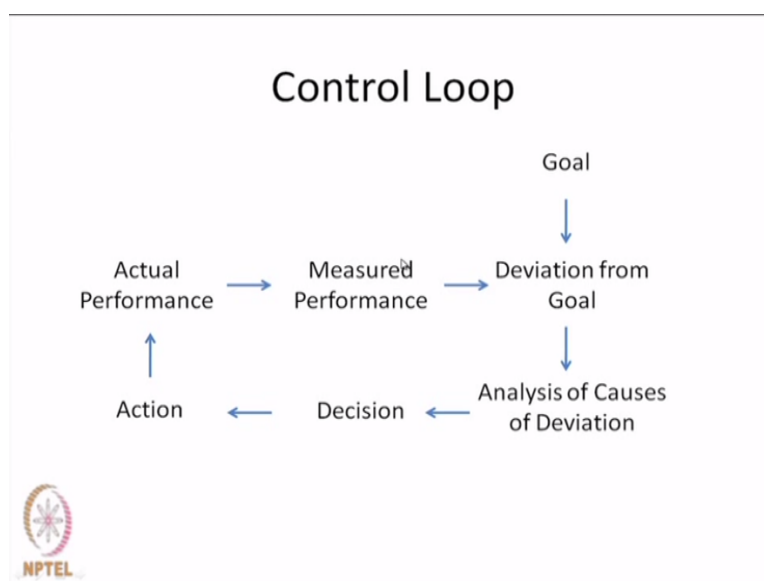
Thus control is always exercised in the framework of a **feedback loop**.



Controlling, now planning and controlling are basically 2 sides of a coin. Making a plan as I said plan is about the future and one has to see when a plan is actually executed, then whether the objective has been attained. So a control has to be exercised at the same time. Therefore, they belong to they are adjacent to each other in the sense that they are 2 sides of a coin.

Control is a measurement and correction of performance in order to make sure that enterprise objectives and plans devised to attain them are accomplished. So basically control requires objectives to be achieved and plans to be implemented and for that reason it has to measure and take corrective actions if there are deviations from our plan. Thus, the control is always exercised in the framework of a feedback loop.

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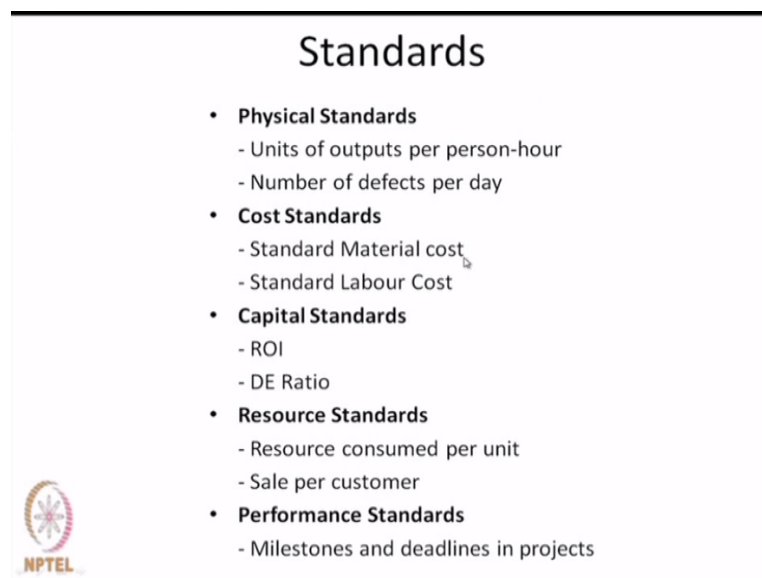


This is a feedback loop and is also called a control loop. This is the goal that is set for the plan and when action is done, action is taken when a plan is implemented when the actual performance is the performance changes when an action is taken, that is sudden performance, that is actual performance and then we observe the performance or measure the performance and then we compare what the performance should be (()) (50:56).

What the goal said was then we find out the deviation from the goal. If there is no deviation, we allow the action to be taken as it was being done in the past but if there is a deviation then we analyze why there is a deviation and accordingly we take some other decision that leads to some other action and that changes the performance. So that hopefully the goal is maintained. Thus we see that the deviation that came that lead to a different decision and different action.


And that change the performance, so that the deviation of the performance from the goal is reduced. This is a feedback loop as you can see and this controls the performance brings it close to the goal set. So the elements of the control loop are the goal or the standard, the actual performance, the measured performance, the deviation of the measured performance from the goal, the decision to correct the deviation and action implementing the decision.

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Standards


- **Physical Standards**
 - Units of outputs per person-hour
 - Number of defects per day
- **Cost Standards**
 - Standard Material cost
 - Standard Labour Cost
- **Capital Standards**
 - ROI
 - DE Ratio
- **Resource Standards**
 - Resource consumed per unit
 - Sale per customer
- **Performance Standards**
 - Milestones and deadlines in projects



Now goals or standards can be of different types. We have given some examples of different types of standards, physical standards, cost standards, capital standards, resource standards, performance standards. Physical standards could be units of output per person-hour, number of defects per day. These are some examples. Cost standards we already know, standard material cost, standard labour cost.

Capital standards also we know, return on investment, debt-to-equity ratio and others as financial resource. Resource standards could be resource consumed per unit or sale per customer. Performance standards could be particularly in projects, milestones and deadlines.

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Control Techniques

- Budgetary Control Techniques
 - Revenue budgets
 - Expense budgets
 - Capital Budgets
 - Cash Budgets
- Non-Budgetary Control Techniques
 - Statistical data analysis
 - Special reports and analysis
 - Operational audit
 - Personal observation
- Physical Control Techniques
 - Time-event network analysis

Control techniques can be budgetary, can be non-budgetary, can be physical. We already know about budgetary control. Different types of budgets from revenue budgets, expense budgets, capital budgets, cash budgets. Non-budgetary control like statistical data analysis, special reports and analysis, operational audit, personal observation or physical control like time-event network analysis.

Friends, we have talked today elaborately on the concepts underlying planning in particular. We did not devote much time on controlling but we shall have enough discussion on such subjects of control such as production planning and control, inventory control, quality control etc. So the various topics on controls that I quickly went through you will get to know more about them when I take up those specific control techniques for functional management.

In our next lecture, we shall study about organizing and if time permits motivating. Thank you very much.