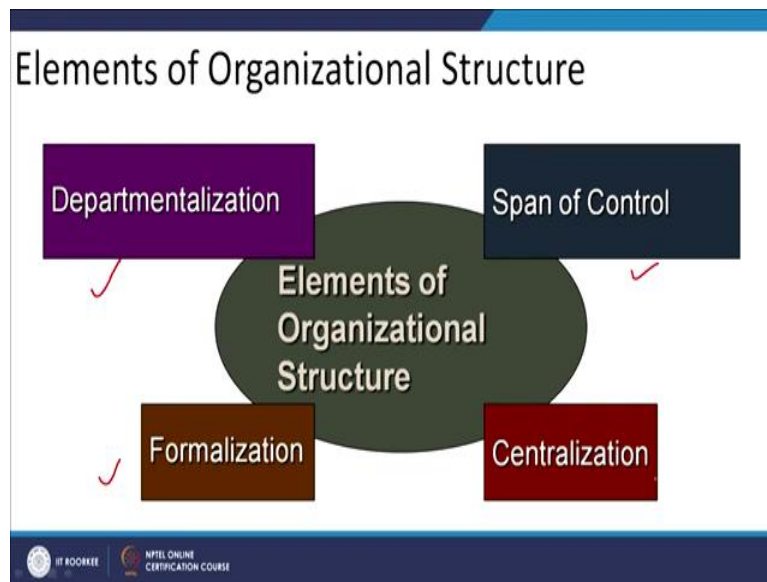


Principles of Industrial Engineering
Professor DK Dwivedi
Department of Mechanical and Industrial Engineering
Indian Institute of Technology, Roorkee
Lecture-11
Organizational Structure Principles

Hello, I welcome you all in this presentation related to the subject, principles of industrial engineering and in this presentation basically we will be talking about the few principles associated with the organizational structure. So what are the things that we should keep in mind, keep in mind while developing an organizational structure?

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So, here if we see, there are four different elements which help in proper development of an organizational structure. Here, departmentalization is the one where as per the expertise, as per the kind of the nature of the job, the different things are segregated and the span of control is about the kind of, the number of persons who will be reporting to the immediate boss.

So, there can be a narrow span of control or wide span of control, then there is a formalization about the establishment of the proper procedures, policies and rules so that there is a smooth flow of the work and information for a proper functioning of the organization. And the way by which decisions are taken that is about the centralisation wherein it is identified how the decisions will be taken, decisions will be taken at the lower level or only at the top level. So accordingly we have centralization or decentralization. So

what is the scope under these different elements of the organizational structures that is what we will see here.

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Departmentalization

- Specifies how employees and their activities are grouped together
- Three functions of departmentalization
 - Establishes chain of command
 - Creates measures of performance, etc.
 - Encourages coordination through informal communication

Handwritten notes: Nature of jobs / function
A/c
Costing
Painting

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So as far as the departmentalization is concerned it specifies how the different employees and their activities are grouped. This may be depending upon the nature of the job or the kind of the function which is performed by them. Like all accounting people or all costing operations or all painting jobs are done at one place, all assemblies, all dispatching, like that. So under this element, there are three functions of the departmentalization.

Like it establishes the chain of control, chain of command, where like who will report whom and how there will be the flow of information, flow of orders for a smooth execution of the work. It also creates the way by which the output and the effectiveness of the function will be measured. So it sets the performance of measure and it also ensures or encourages the proper coordination through the formal and informal communication channels.

So basically here it is to see what will be the hierarchy, how the output and performance will be checked, and how the people will cooperate and collaborate with others for smooth functioning through the proper communication across the functions and down under the line or the how the bosses will interact with their subordinates for a smooth flow of the work.

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Formalization

- The degree of standardization through rules, procedures, formal training, and related mechanisms
- Formalization increases with size, & age of Org.
- Problems with formalization
 - Reduces organizational flexibility
 - Discourages organizational learning/creativity
 - Reduces work efficiency
 - Increases job dissatisfaction and work stress

Handwritten notes:
Standardize
Rule
Procedr
Large Size

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Formalization is about that, how much standardization of the things have been done. Standardization is about the setting the rules, procedures, regulations, formal training and the related mechanism. So how formally the things will be done using set of the rules, procedures and the training. So that is about the formalisation. The degree of standardization through the rules, procedures, training, that is about the how much formally the things are done in light using the procedures, rules, trainings, etc.

And that will depend upon the size of the organization and age. So it is very important that things are standardized if the organization is really large because we cannot go and tell each and everyone what is to be done. So procedures and the rules and regulations need to be established so that people go according to that. So large size organisation, with the increase of the size of organization and with the age of the organization, formalization will be increasing, but there are problems associated with the formalization, like there is a loss of the creativity.

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Formalization

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Because there will be procedures, rules, regulations, so that in turn will be leading to the reduction in the flexibility, the kind of, if as per the need things are to be done, the response will be slow in these situations. It discourages the creativity because things will mostly be going with the procedures or rules which have been established and if we bind the people to do the things strictly according to the procedures and rules, then that in turn reduces the efficiency of the workers.

And too strict rules and procedures will be leading to the jobs dissatisfaction and the work stress also. So, as per the need the formalization has to be implemented or accordingly the standardization of the different things to be done by the different functional groups, that has to be done so that the people can work effectively, efficiently to realize the goal of the organization.

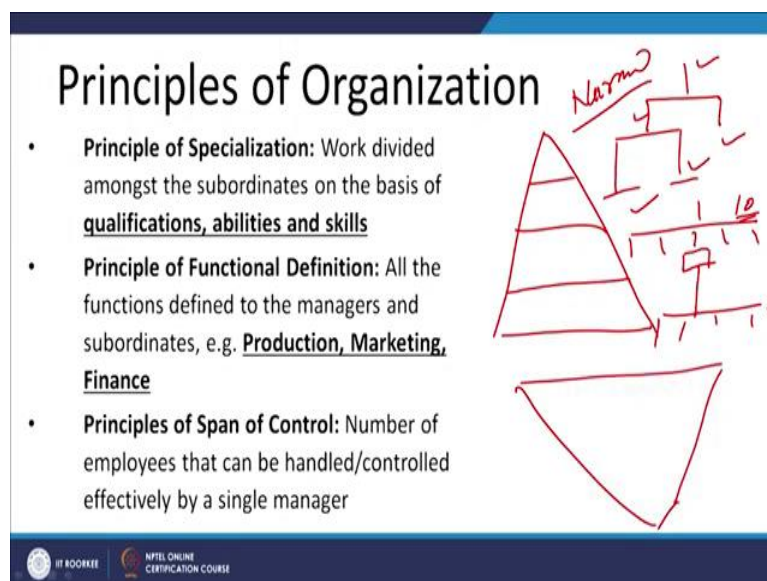
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Then next is like the way by which decisions are taken, decisions are taken by a few people at the top that is the case of the centralization. So, formal decision making authority in this case is held by the people, it by a few people at the top while in case of the decentralization, this kind of the authority to take the decision is given even at the lower levels.

So, the decision making authority is dispersed toward the organisation. And in that case, as per the need of the situations, decisions are taken by the subordinates and the people at the lower ranks also for a suitable action. So that is about the decentralization or the centralization.

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Principles of Organization

- **Principle of Specialization:** Work divided amongst the subordinates on the basis of qualifications, abilities and skills
- **Principle of Functional Definition:** All the functions defined to the managers and subordinates, e.g. Production, Marketing, Finance
- **Principles of Span of Control:** Number of employees that can be handled/controlled effectively by a single manager

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 // Not person reporting
 do include
 other
 things
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As far as the span of control is concerned, like, how many people will be reporting to the how many people, like this is the one case, this is the one way where like number of people will be reporting to the higher level. So here this is one case and there can be the other also. These are the two kind of the structures, the way by which the span of control is identified.

So if there is one boss who is being reported by the two subordinates, then again the two bosses are, this boss will be reported by the other two subordinates. So like this. Now, but there may be a situation where one boss is being reported by the 10 subordinates and then the second layer bosses are again reported by the 10 other subordinates.

So accordingly there will be here the narrow span of control where one is being reported by the two and the two again further being reported by the 2 other subordinates. And another case, this is wider span of control where the 10 are reporting to their immediate boss. So depending upon the number of persons reporting to the immediate officer, that sets the kind of the span of control. If very few people are reporting it is a narrow span of control, if many are reporting then it is wider span of control that is simple.

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Principles of Organization

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Handwritten notes: MBA - mgr, Engg, BE, DEPT, ITI Job

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Handwritten notes: Production - Problem, Finance - Same, Mktg - Adv, Rehn

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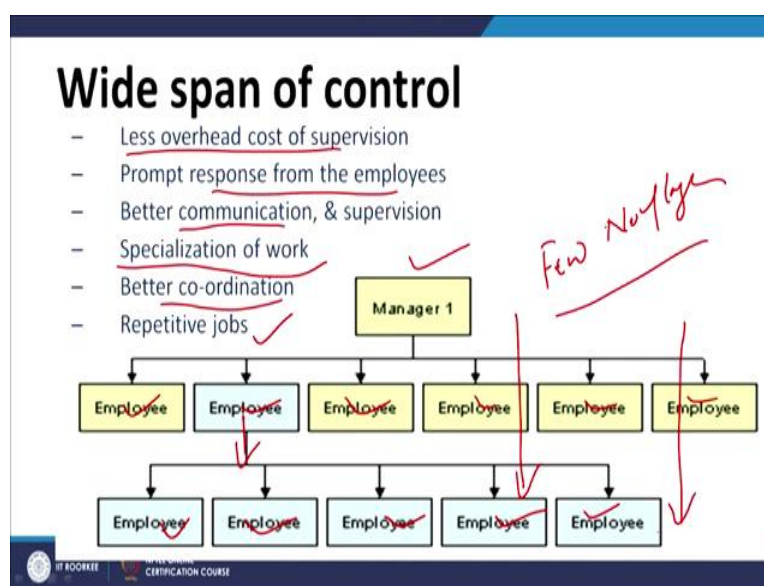
Then other principles of the organizational structure, organisations are like principle of the specialization where the work is divided based among the subordinates based on their qualification abilities and the skills. Like those who have the ITI will be will be given the job at the shop floor; those who have the graduation and the diplomas, they will be like supervisory job and then engineers and then those who have the managing MBAs they will be given the managerial jobs.

So as per the qualification abilities and skills the different jobs are given to the different employees, that is the principle of the specialization. Then the principle of the function is like all the functions defined to the managers, subordinates like the kind of the job that they do. In production, whether it is manager or the workers, they will be given the job to produce the

things, well in case of the finance, they will be looking after the taxes, sales or revenue generation.

And then so the kind of the profit and loss, so those things are taking care of the finance, then in case of the marketing it is about the way by which the advertisements, the research of the market will be carried out for the inputs for improvement of the product and services. And then here span of control, I have just explained the number of employees that will be handled or control effectively by a single manager, like how many are reporting to their immediate boss, that is the span of control.

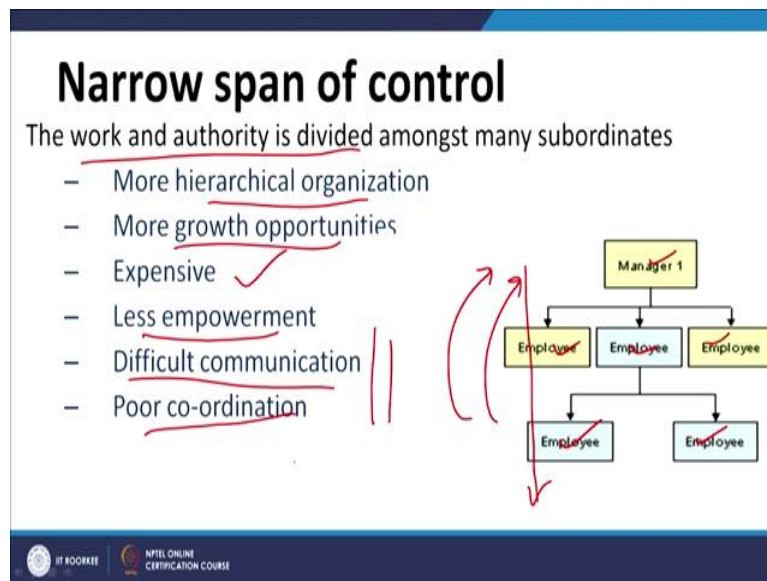
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So wider span of control where one manager is being reported by the so many employees and then each employee is further being reported by the so many employees. So this is the case of the wider span of control. In this case, it involves the less overhead costs of the supervision because the many will be reporting to the one immediate boss. In this case, we get the fast response from the employees, the communication is better and the work, specialized works which can be done effectively through this kind of the structure or this kind of the control and the coordination is better and good for the repetitive jobs.

This is one case where the control is wider. So in this case the number of layers, very few number of layers and when we have the narrow span of control, number of layers are many. So, the flow of information is quick, the response to the change is very fast as compared to the case when we have the narrow span of control.

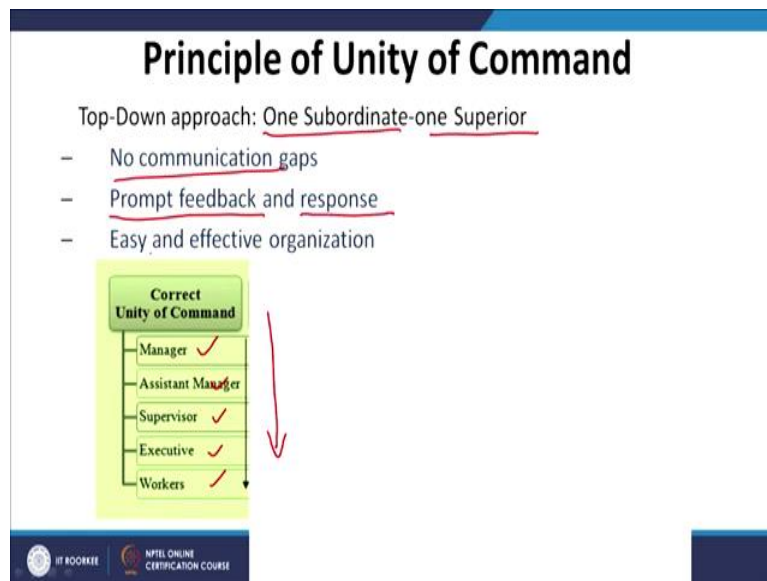
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The work and authority is divided amongst the many subordinates in this case, and like in this case, only three employees are reporting to one manager. Then one employee is being reported by the two other employees. So this is more hierarchical organisational structure. In this case there is more growth opportunities, but this one is expensive, because of the presence of the many persons at the different layers.

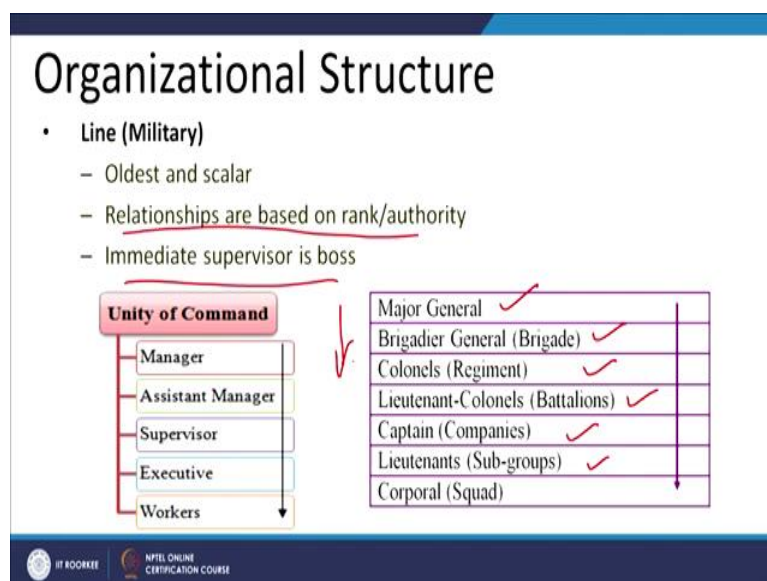
Communication is controlled because of the presence of the many layers and the coordination is also poor. In this case mostly the decisions are taken at the top because of the presence of the many layers and therefore, the empowerment is less. So the more growth opportunities, more hierarchical and difficult communication and poor coordination are the typical features of the poor span of control.

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Then there is a principle of the unity of command, which says that there will be one person responsible for the kind of thing and he will be giving the orders to the subordinates. So in this case, if there is just one person and giving the orders to the subordinates. There is no confusion, there is no communication gap. There is one subordinate and one superior. There is no communication gap, very quick feedback and quick response to the situation and it is easy and effective organizational system. So the top two down approach, one subordinate and one supervisor in this case.

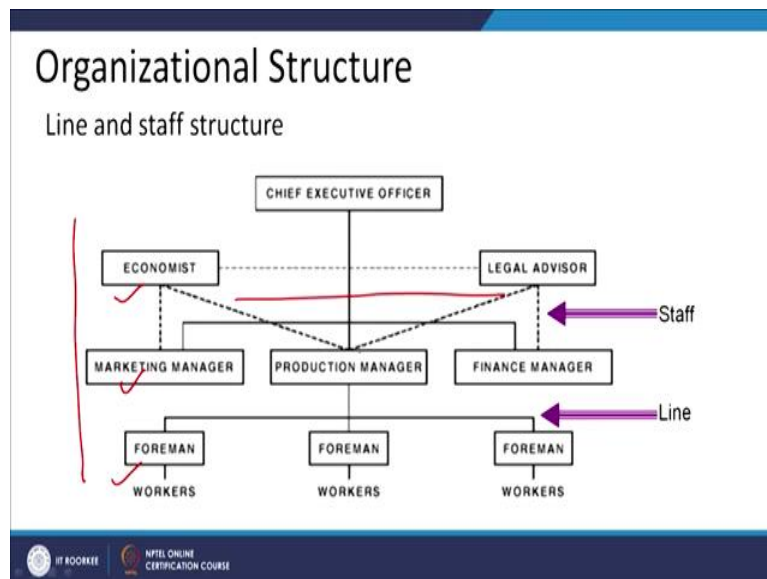
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For example, this kind of, this structure is commonly found in case of the army where, in the army or military where we will see the relationship are based on the rank and authority and

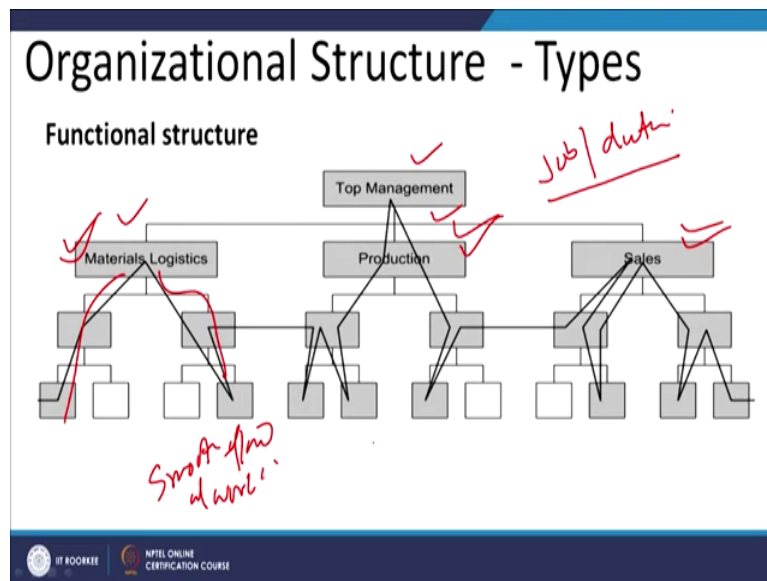
immediate supervisor is the boss. For example, there is one major general at the top, then brigadier, Colonel, lieutenant Colonel, Captain, lieutenant and likewise. So here there is one immediate boss and he communicates the order to the subordinates and so there is a complete control, there is no communication gap in this kind of the structure. So this is what is called unity of the command.

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Then this is the situation where it is the combination of both line and the staff organization which combines both the vertical and the horizontal structures. In case of the line structure it is more vertical type and in this staff structure it is more like the horizontal one. So here there will be the number of layers. At the same time there will be the number of the people who will be cooperating, collaborating with each other, so there will be the vertical as well as the horizontal communication channels in case of the line under the staff structure.

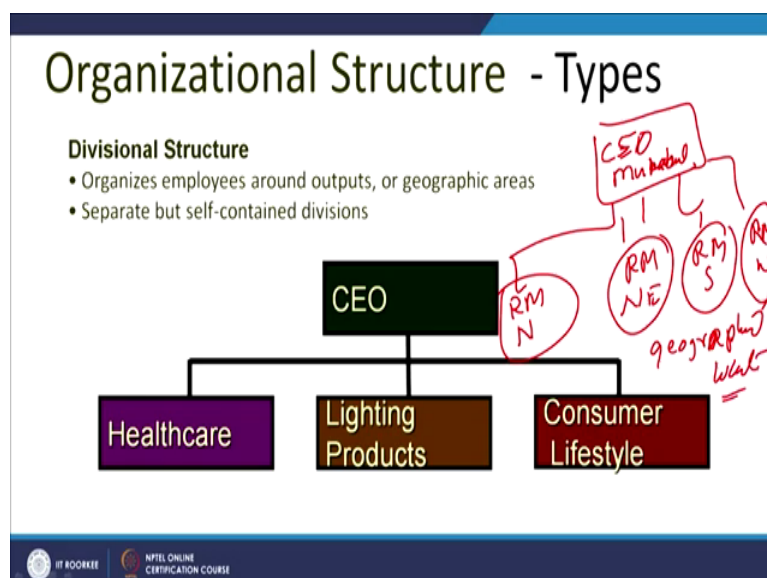
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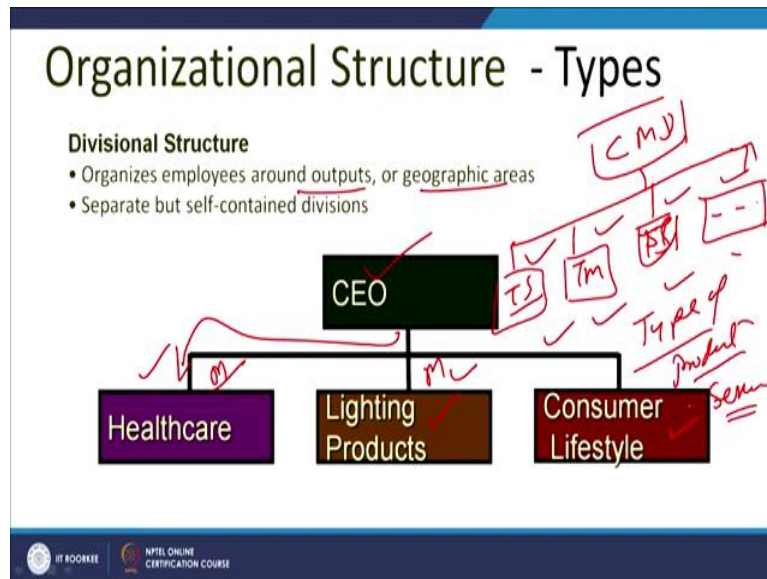


Then this is the functional structure where the top management, thereafter there will be the different functional groups like the top management and material logistics, production, sales, et cetera and each of them. Then this kind of the segregation is based on the kind of the job or the duties which are performed by them. So, here this function will be looking after the material logistics, production and the sales.

And then there will be number of people working under these functional groups for the smooth flow of work and information. So in this case the grouping is done based on the functions and the job, kind of the job that they do. So they have the expertise as per the area of the work.

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Then the another type of the organizational structure is like the divisional structure where this kind of the structure organizes the people around the output or the geographical location like CEO and then the managers, managers for American continent, manager for Europe, manager for Asia, manager for...

So this kind of the grouping is more around the geographical location. So these are the separate but self-content divisions. So each one will be working independently in each of the location and then they will be cooperating and collaborating with each other for realizing the goal of the organization. So this was the kind of the grouping based on the geographical location.

Likewise, we may have the situation where the managers in India, like there is a CEO, CEO sitting in Bombay or Mumbai and then he has assigned the jobs to the different regional managers, regional manager North, then regional manager North East, regional manager South, regional manager West. So like this. So the job is, so this kind of the grouping of the organisational structure is based on the geographical location of the organization.

There is another type of the grouping which is based on the, like in big companies there is a chief Managing Director like CMD or CEO. Then as per the nature of the product or the services that they offer, for example, Tata has the like Tata Salt, then the Taj group of hotels, then the Tata Motors, Tata Steel, likewise, so these are, these kind of the structures which are based on the, like Tata Motors, then there is Tata Steel, likewise the different products of the Tata.

So every organization will have its own structure and this kind of the grouping of the structure is based on the kind of the product type, type of the product that they are providing or manufacturing or producing, the kind of services that they are providing. So the structures organizes, these kind of the divisional structures organizes the employees around the output or the geographical locations.

So like CEO is being reported by the managers taking care of the health care business, the managers taking care of the lighting products, the managers taking care of the consumer life style product. So these are the two types of the groupings. One is based on the geographical location and another is based on the kind of product and the services that they will be offering.

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Consideration for developing structure

- Potential future growth
- Suitable for productive system
- Product to be manufactured
- Competing factors
 - Quality
 - Cost
 - Flexibility,
 - Dependency for supply to customers

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Product / Process
Line org
Functional
Matrix
Network
Team based
Type of Product
geographical

14

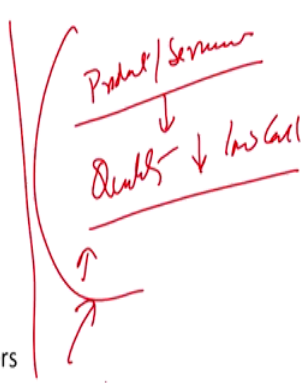
Now, we will see the kind of the factors that we should look for so that we are able to come up with the suitable organizational structures. We have seen there are different types of organizational structures like product and process organizational structure, line organisational structure, functional organizational structure, matrix organizational structure, network organizational structure.

Then we have also seen the team based structure and then the structures based on the kind of the type of the product or divisional structures or the type of the geographical location. So there are different types of the organizational structure. Which type of the structure should be developed for a given product or service? That will depend upon the consideration of the few factors.

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Consideration for developing structure

- Potential future growth
- Suitable for productive system
- Product to be manufactured
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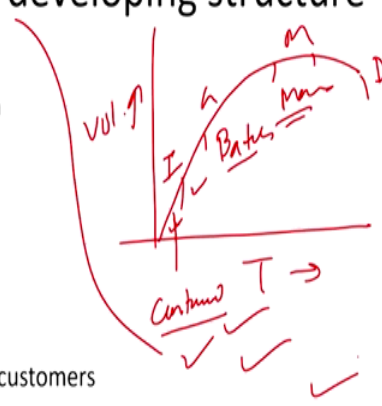


Product/Service
Quality ↓ Low Cost

14

Consideration for developing structure

- Potential future growth
- Suitable for productive system
- Product to be manufactured
- Competing factors
 - Quality
 - Cost
 - Flexibility,
 - Dependency for supply to customers



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Whatever type of the structure is being developed, the primary goal is that the kind of product or the services being provided by the particular company, they are able to offer the quality product at the low cost, this is the main goal so that it can offer really good competition to the competitors' product and services and they can have a good grip in the market.

So to provide these things we need to come up with the suitable organizational structure and what we should keep in mind while developing an organizational structure is this like what is the potential growth. And that is what we can see from the product life cycle, like the time and the volume of the sales of particular product at any moment of time. So, accordingly merely following the suitable product strategies like this. So starting from the introduction

stage where primarily the few units are manufactured, then the units are manufactured in batches, then the mass production and then maturity and then decline.

So, introduction, growth, maturity and decline, these are the different stages as far as the product lifecycle is concerned as a function of time. So here it is the more like customized product situation where very few units are manufactured. So the product strategy for this one will be different than what is to be used. When the volumes increase there will be batch production, then mass production.

So accordingly we have to go for suitable arrangement of the resources and manning the people at the different levels. So that is what is kept in mind like customized products or the process focused structure or the product focused structure. So considering the potential future growth of the product or services, the suitable kind of the strategy is adopted so that the mining or the structure can be developed accordingly.

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The slide is titled "Consideration for developing structure". It contains a bulleted list of factors to consider. The first three items are "Potential future growth", "Suitable for productive system", and "Product to be manufactured". The last item is "Competing factors", which has four sub-points: "Quality", "Cost", "Flexibility", and "Dependency for supply to customers". Handwritten red annotations include checkmarks next to "Quality", "Cost", "Flexibility", and "Dependency for supply to customers", and a downward arrow next to "Cost". There are also two vertical red lines to the right of the first three items. The slide footer includes the IIT Kharagpur logo, "IIT Kharagpur", "NPTEL ONLINE CERTIFICATION COURSE", and the number "14".

- Potential future growth
- Suitable for productive system
- Product to be manufactured
- Competing factors
 - Quality ✓
 - Cost ✓ ↓
 - Flexibility, ✓
 - Dependency for supply to customers ✓

So accordingly we have to choose a suitable productive system and the type of the product to be manufactured, that will decide the way by which the people should be manned. Of course, as I have said, we need to come out with the structure in such a way that we can really give the effective competition to the competitors with respect to the quality, cost, flexibility and the dependency to supply the customer.

So because we should provide the things as and when it is demanded by the customers it should get changed as per the changing demand and the need of the customers it should be available at the low cost and the good quality products.

Now, I will summarize this presentation. In this presentation basically I have talked about the different principles associated with the development of the organizational structures and what are the factors that we should consider while coming up with the design or while developing an organizational structure. Thank you for your attention.