

**Principles of Industrial Engineering.**  
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**Lecture-05.**  
**Organizational Structure.**

Hello, I welcome you all in this presentation related to the subject Principles of Industrial Engineering. And you know that the development of a suitable organizational structure is one of the very important aspect related with the industrial engineering, wherein we have to see where the people should be placed, what will be their roles in realizing the goal of the organization. So, basically organizational structure involves the kind of the identification of the various functions, groups, divisions, what will be their roles, authorities.

And how the different groups, the different divisions, the different people in the organization will interact with each other for smooth flow of work, so that the resources of the organization can be utilized effectively for realizing the goal of the organization. So, if we see any organization, comprises the 2 aspects, one is the human resource and another is non-human resource.

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**Organization**

- A group of people who coordinate their activities to meet objectives of organization
  - Human resource
  - Non human resource

*Handwritten notes:*

- Org { Non-human R  
m/c, equipts, syst-  
testi facil-  
mfg, unit-  
R, D → J
- Human R
- Jobs / functn
- Role / A / R
- Coordinated (1)

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So, any organization will consists of the 2 type of the resources, non-human resource, like the machines, equipments, the systems and like testing facilities, manufacturing units, reception, dispatching, delivery etc. So, all those are the non human related aspects. These things will be done by the human being. So, human is the another important resource, non-human resource

and the human resource. So, when we talk of the human resource, they must be given some kind of, the human resource will have certain kind of the, the jobs to be done.

These we can say as kind of the functions. And what exactly their role will be, what will be their authority, what will be their responsibility in completing that job or the function, that has to be identified with the great clarity So, that there is no conflict with other human resource who are there in the organization. And for effective and smooth flow of the work, it is important that there is a proper coordination between the various, the functions various groups which are there in the organization for a smooth flow of the work.

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The slide is titled "Organization" and contains the following text:

- A group of people who coordinate their activities to meet objectives of organization
- Human resource
- Non human resource

Handwritten notes in red ink are present on the slide:

- "Human Resource" written above the first bullet point.
- "Org. Structure" written to the right of the list items.
- Two vertical lines drawn next to the list items.

At the bottom of the slide, there are logos for "BY ROOKEE" and "NPTEL ONLINE CERTIFICATION COURSE", and a page number "2".

So, if we see here a group of people who coordinate their activities to meet the objectives of the organization, this is basically about the human resource. The people who are coordinating their activities to meet the objectives of the organization, which is involving these 2 aspects. So, who will be given what responsibility, how they will cooperate and coordinate with each other, so that that the different divisions and the functions can work effectively to realize the goal of the organization, to set this we need a proper organizational structure.

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## Organization

- Coordination: Efforts of people working need to be coordinated for goal realization
- Communication: Coordination needs communication channels between different layers
- Clarity in roles, relationships, inter-dependency among layers is critical

*\* Grouping of functions/Divis-*

*No. of people doing similar jobs*

*Basic/way group*

*Marketing*

*Sales*

*Production*

*Design*

*Maintenance*

So, as far as this one is concerned, we have given, say the responsibility to the human being, like grouping of functions or divisions. Like there are n number of the persons involved in the same type of the job. The number of people doing similar kind of the jobs, like all those involved in marketing, all those involved in the sales, all those involved in the production or the manufacturing, all those involved in the design of the product, those involved in the maintenance.

So, these are the different functions they specialize in their own field they do. So, in each of the function there may be number of persons who will be working. If we see these functions, functions means involving, functions means they are having those who are doing a particular kind of the task. And this we can say division means, the way or the basis the basis or the way by which these have been grouped.

These are the different kind of activities which are being done and accordingly they are grouped in different division. So, in a function basically, in the function basically, function is a collection of the people during the similar, doing the similar kind of the tasks, while division is a way or the basis of grouping of the functions. So, this is, this grouping of the function is one aspect.

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## Organization

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- Communication: Coordination needs communication channels between different layers
- Clarity in roles, relationships, inter-dependency among layers is critical

Role / Respo. / Authority  
Individual posn. (do Job)  
A/R → Clarity  
Accountability ✓ ✓ ✓ ✓ ✓

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Then another aspect is the kind of the role and the responsibilities or the kind of the authority which is given to the individual position, so that they can do the job which is expected. So, it is very important whatever authority and the responsibility is associated with the particular position that allows him to do the job which is expected. There has to be a clarity with regard to the authority, responsibility and the kind of the obligation which comes on account of these things. So, that is what is called accountability.

It is important to understand these 3 terms which will be associated with the particular position for doing a particular job in a function or in a division. For facilitating the smooth flow of information, smooth flow of the work, it is important that whatever different functions are there, they coordinate and cooperate with each other, so that work is done in most efficient and effective manner.

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**Organization**

- Coordination: Efforts of people working need to be coordinated for goal realization
- Communication: Coordination needs communication channels between different layers
- Clarity in roles, relationships, inter-dependency among layers is critical

*Handwritten notes:* M, S, Mfg, Smooth flow of work, Ind. Engg, Market, Qual, eff./effectiveness

The third aspect related with the organizational structures is about the coordination. For coordination whatever different functions are there like marketing, sales, manufacturing or industrial engineering, maintenance engineering, quality control, all these will have to cooperate and coordinate with each other for smooth flow of work. So, that all the resources available with the organization are efficiently and effectively used. For coordination it is important that they communicate with each other.

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**Organization**

- Coordination: Efforts of people working need to be coordinated for goal realization
- Communication: Coordination needs communication channels between different layers
- Clarity in roles, relationships, inter-dependency among layers is critical

*Handwritten notes:* Communicate channel, function/Division, Conflicts

So, coordination means efforts of the people working in an organization need to be coordinated for realizing the goal of the organization as I have said. So, this kind of the coordination is required between the different functions and divisions for a smooth flow of

work and information. So, for coordination it is important that they communicate with each other, communication is very crucial. So, the communication channels need to be established across the functions and divisions, so that they facilitate the smooth flow of the work from one function to the another.

In order to avoid any conflict, it is important that there is a clarity in roles, the relationship with each other, their interdependency of the different functions or the different positions. So, which are there either within a particular function or division or across the functions and divisions. If there is a clarity in role, the relationship with each other and the interdependency, if that is there, then the possibility for conflict between them will be reduced.

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The slide is titled "Purpose" and lists three main categories of organizational structure with their respective purposes:

- Grouping tasks, functions and divisions
  - To create distinctive competencies and pursue a particular strategy
- Allocating authority and responsibility
  - To the functions and divisions
- Coordinating mechanisms
  - Coordination between functions and divisions with growth and complexity

Handwritten notes in red ink are present on the slide:

- Two vertical double lines (||) are placed to the right of the first bullet point.
- Two vertical double lines (||) are placed to the right of the second bullet point.
- Two vertical double lines (||) are placed to the right of the third bullet point.
- A red oval encircles the handwritten text: "↑ growth of org. Complex. Integrat. ||".

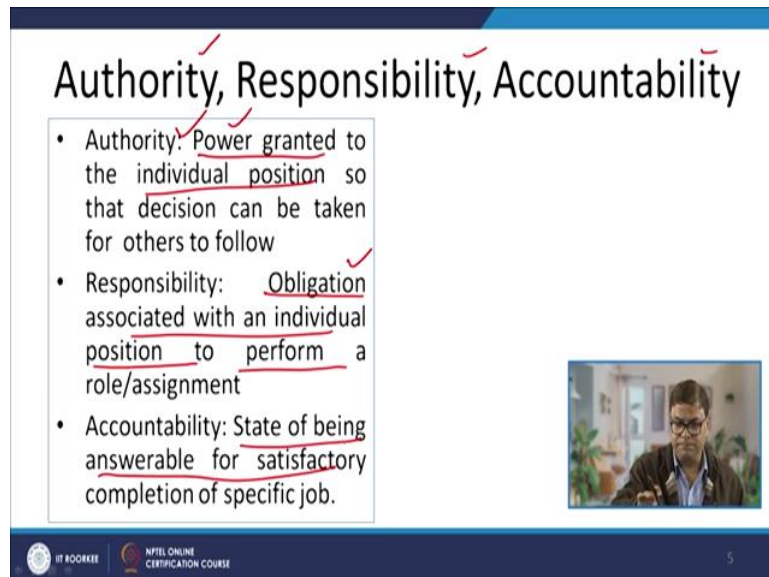
At the bottom of the slide, there are logos for IIT ROORKEE and NPTEL ONLINE CERTIFICATION COURSE, along with a small number "4" in the bottom right corner.

We need to understand what these things are. So, as I have said, purpose of establishing an organizational structure is to grouping the tasks, functions and divisions so that there are distinct competencies to pursue the goals of the organization, identifying the roles and responsibilities while giving the authority to do the different jobs to the functions and divisions and to develop the suitable coordinating mechanism, so that the work flow of the work across the functions and divisions is smooth.

And the coordination becomes extremely crucial with the increase or the growth of the organization with the increasing complexity of the organization, increasing integration of the technology within the organization, coordination becomes extremely critical. So, to have the

clarity with regard to the roles, authorities and responsibilities, it is important that we understand the meaning of these 3 aspects: authority, responsibility and accountability.

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**Authority, Responsibility, Accountability**

- Authority: Power granted to the individual position so that decision can be taken for others to follow
- Responsibility: Obligation associated with an individual position to perform a role/assignment
- Accountability: State of being answerable for satisfactory completion of specific job.

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So, authority means the power granted to the individual position so that it can take decisions for others to follow. Like I can take decision, what is good for the organization in a current situation, so that can be implemented. And the responsibility is about the obligation associated with an individual position to perform the assigned the role, perform the role which has been assigned.

So, it is an obligation to do the job, while authority is the power granted to the position, so that it can take decision. That that person that position, the person sitting in that position can take suitable decision in light of the objectives and the goals of the organization. So, then next is the accountability. Accountability means state of being answerable for satisfactory completion of the job, which is to be done by the particular position.

So, someone will be responsible to do the job and the job is done properly as per the requirement that is about the accountability. So, is about the power granted to the position to take the decisions, responsibility is about the obligation associated with the position to do the job and accountability is the state of being answerable for satisfactory completion of the job.

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**Delegation**

- Authority (A) and responsibility (R) can be delegated to the lower level in the hierarchy.
- However, accountability still rests with individual position delegating A & R
- Non-clarity in above three frequently leads to conflicts.
- Lot of efforts are needed for establishing good interface relationship between manager and executives ✓

*Handwritten notes:*  
Individual  
Authority  
delegated to Subordinate  
A | R - Job  
A

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It is possible that the decision in all the matters may not be taken by the individual position, like the people at the top in the management may not be taking all the decisions. Sometimes they delegate the power to the lower positions, to the subordinates, so they can take the decisions on their behalf. Means authority to take the decisions is delegated to the subordinates.

So, the decisions are taken not necessarily only at the top level but also at the middle and lower levels as per the kind of the organizational structure which is being developed. So, authority and the responsibilities can be delegated to the lower levels in the hierarchy. But still the accountability lies with the position which is delegating it to the lower levels. So, however the accountability still rests with the individual position, delegating the authority and responsibility.

Non-clarity in above 3 frequently causes the conflicts. Sometimes by giving the responsibility people say that now he is accountable for that, which is not true, there has to be authority and responsibility to do the job. And if it is not done, then one can be fixed with the accountability to do the job. Just by giving the responsibility, only having the responsibility is may not lead to this situation. So, non-clarity in above 3 frequently leads to the conflicts. Lot of efforts are needed for establishing the good interface relationship between the managers and executives.





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## Delegation

- Authority (A) and responsibility (R) can be delegated to the lower level in the hierarchy.
- However, accountability still rests with individual position delegating A & R
- Non-clarity in above three frequently leads to conflicts.
- Lot of efforts are needed for establishing good interface relationship between manager and executives

*Function/Division*  
A/R/A/D  
*Clarity - layer of org*  
*accountant*

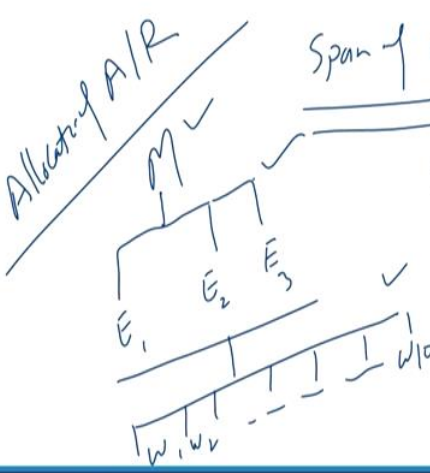


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What is important here is that there are different functions and divisions. There has to be a clarity with regard to the authority, responsibility, accountability and the kind of delegation which is there off the powers to take the decisions. So, it takes a lot of efforts for establishing this kind of the clarity among the different layers of the organization, especially across the functions it is difficult. And if that clarity does not exist, then it can lead to a number of conflicts.

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*Allocation of A/R*



*Span of Control*  
*No. of subordinates report to a manager*  
*span*

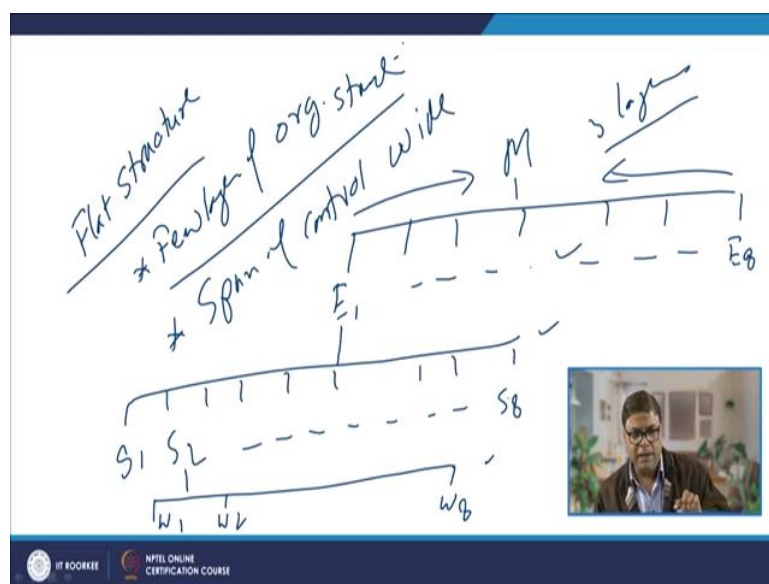


Now, we will see that how the tasks are assigned and how authorities are, authority and responsibilities are distributed. So, allocation of the authority and the responsibility. So, now under this the first thing is the span of control. Like there is a possibility, there is a one

manager and giving the directions to the 3 executives, E1, E2, E3. So, all these are the subordinates reporting to this manager. Now, this can and there can be other supporting staff with each of the executives like this, there can be the 10 workers reporting to the each of the executives.

So, here this is one layer this is another layer. So, how many people are reporting to their boss, that defines the span of the control. There can be, the different kind of the arrangements, basically it is about that number of subordinates reporting to a manager or boss that will be defining the span of the control.

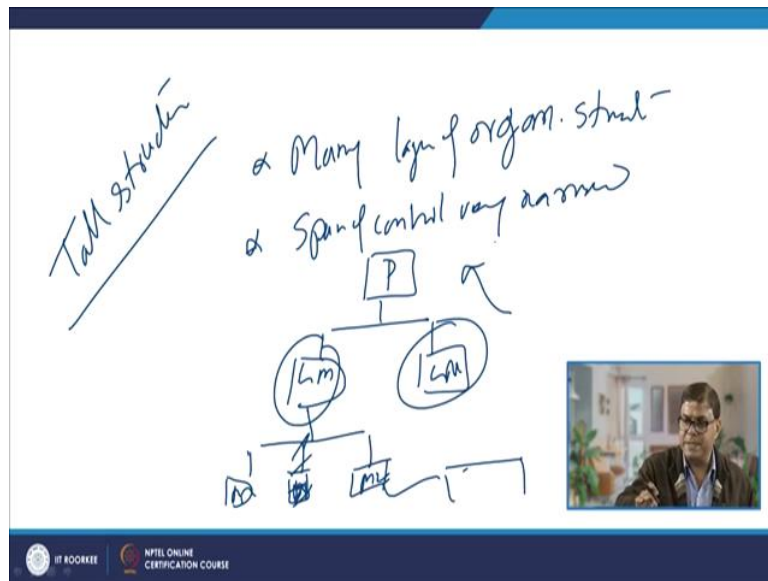
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It can be so, accordingly it can be a flat type of the organizational structure where very few layers of the organizational structure present. And in that case, very few layers means it is more flat kind and the span of control is narrow, span of the control is narrow. So, then the span of the control in case of the flat structure is very wide, like there is one manager and large number of the executives under whom so many supervisors like E8 executives.

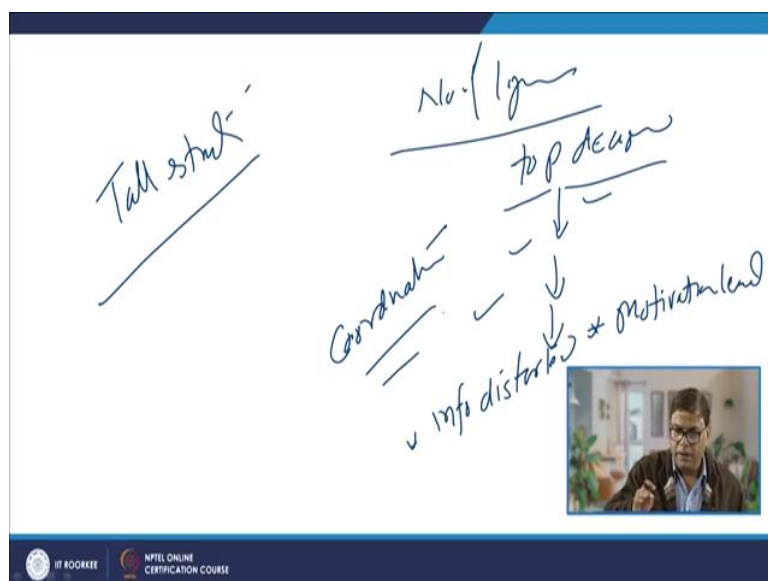
And then under each of the executive, so many supervisors are working for facilitating the smooth flow of the work like this. So, here we may have very few layers like, now each supervisor is looking after the 8 workers W1, W2, so here if we see W8. So, here there are just 3 layers and if you see the current number of people who are reporting to their immediate boss, those are many. So, in this situation we say that span of control is very wide and very few layers exist in this case.

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While in the another case that is called it tall structure, tall organizational structure, in case of the tall organizational structure which is called hierarchy structure also, we have many layers of organizational structure and the span of control is very narrow. Which means there is like a president, then there is 2 general managers, then there are 3 managers under each, like this. So, there are large number of the 2 managers you can say under the each General Manager and then under each manager there are 2 executives, so like this. So, there can be so many layers and in this case only the 2 subordinates are reporting to their immediate boss for smooth flow of the work.

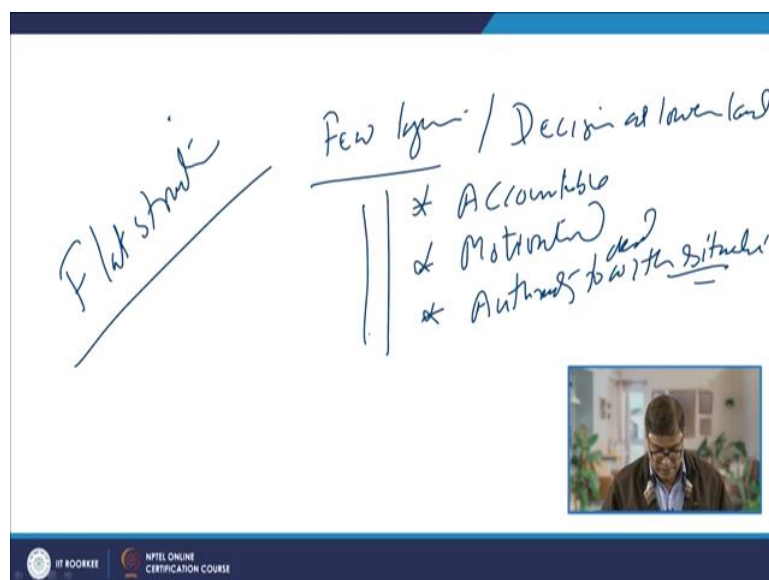
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So, if we see these 2 types of the structures, in case of the tall structures, in case of the tall structures, there are so many layers and when information flows from the. So, due to the increased number of layers, where decisions are taken, most of the decisions are taken at the top, top decisions and these will be flowing down to the lower levels through number of layers. In this process, information flowing down is distorted.

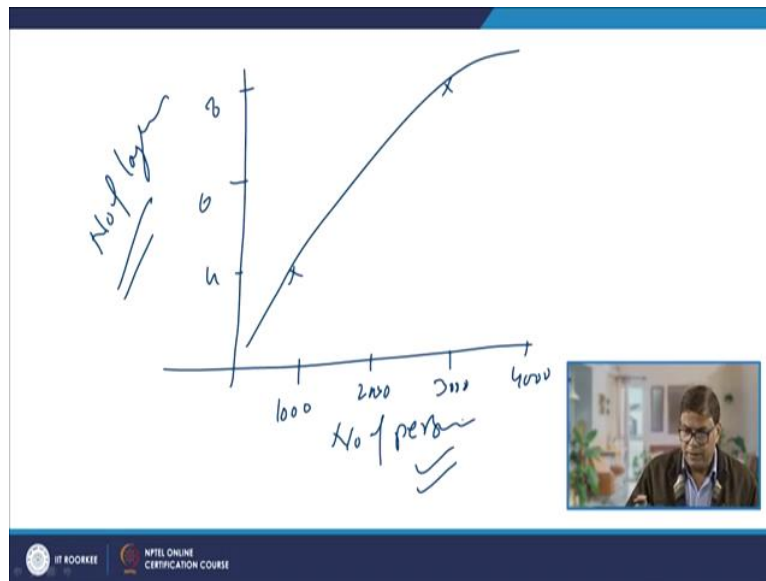
And many times people or the workers at the lower level do not know what they are doing, why they are doing. So, the motivational motivation level is also low. And because of the presence of so many layers, coordination between the layers is also difficult, especially across the divisions and the functions.

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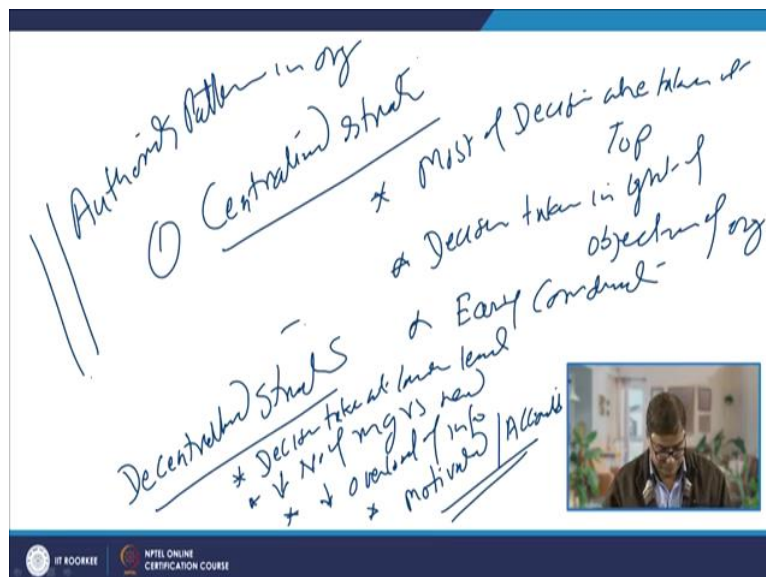
On the other hand, if we see flat structure where there are very few layers and decisions are taken even at the, decisions are taking even at the lower levels, the people feel accountable for the things which are going on, they are better motivated and in this case they find very authorized to deal with the situations. So, these are the kind of he features of the flat structures. Now, we will see how with the size of the organization, the number of layers change.

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So, one typical diagram is like this. If an organization 1000 number of persons are there, about 1000, 2000, 3000, 4000. So, number of layers 4, 6, 8. So, 4... 8 so it goes in somewhat like this, we have number of layers. So, of course, with the increase in the number of persons in the organization, we need to have the more number of the layers.

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Now, in these organizations, how the decisions are taken and how they are structures, structured. So, if we see authority pattern in the organization is of the 2 types, one, centralized structure. In the centralized structure most of the decisions are taken at top. In a way it is good that these decisions are taken in light of the objectives. So, decisions taken in light of the objectives of the organization.

On the other hand, these also find easy coordination because the decisions are being taken at the top. On the other hand in a decentralized structure, in the decentralized structure, in this case as it shows the decisions taken at lower levels. One, it reduces the number of managers needed to deal with the things, it also reduces, because the things are delegated at the lower levels, it reduces the over loading of information with a particular position.

And when the decisions are taken at the lower levels the subordinates or the people working at the lower levels feel motivated and accountable, both. So, these are the features related with the centralized structure and decentralized structures. Now, I will summarize this presentation.

In this presentation basically I have talked about what constitutes to the organizational structure and how the different grouping of the tasks is done and how the authority and responsibility is given and what is the importance of the coordination between the different groups and the functions of the organization and what is the kind of the authority pattern exist in the different types of the organization. Thank you for your attention.