

**Organization of Engineering Systems and Human Resource Management**  
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**Module - 1**  
**Basics of Organizations and Human Resources Management**  
**Lecture - 9**  
**Design Issues in Running Organisations**

We have taken a look at the structure and process dimensions of business organizations, especially those with an engineering base. We would now move on to the consents of design issues in running organizations, and look at what it is that takes to deliver in a functioning system. It is important to understand design consents, because design has to do with the way as set of tasks are pulled together. It has also to do with designing the channels of flow of work which in turn raises issues of decision centers and information centers.

We have to be clear, that there will be a design of work irrespective of whether it has been concisely designed or not, and I have set so even while looking at the consents of structure and processes. These are natural patterns which immerge in a work situation, only when we try to manage successfully. We try to put it in conscious frame to make sure that work gets done in minimal time with optimal effectiveness.

Consider an illustration of a post office; you go to a post office to send 2 registered letters, as went to the post office, you find that the labeling and signage system of the place is either covered up with posters of one variety or another or have faded or are loosely hinged, and you really do not have a level of comfort and trying to figure out which window deals with what. So, you familiar way through and it discovered that there is an enquiry window; and you go to that enquiry window, and after some jostling, you are able to strike a conversation with a person behind a counter; and he tells you that the steps you have to go through is first to get your letter weight; and then get the necessary stamps; and then go to yet another third counter, where they will register your letters receipt and it should be on it is way.

So, with a bit of luck, you tried to locate the counter where your envelopes will be waited and again same jostling, say you take another 4 minutes to reach the counter. And then

your letter surveyed, and they tell you, what the appropriate stamp should be worth to carry that kind of weight. So, you spent 6 minutes at the enquiry counter, another 5 minutes at the way in counter. And now, it is your turn to get to the stamp wending counter. When you get there, you find that the situation is not very different, but there are at least 7 or 8 people ahead of you waiting for their own turn to get their stamp.

So, you spend there, another 7 minutes trying to get the stamp, by which time we have already spent 18 minutes in the process. Then you try to discover the counter where the registered envelopes or the envelopes to be registered are been received. And you spend another 5 minutes getting to the counter only to be told that, that counter receives envelopes which are number more than 3 for registration of envelopes. Less than 3 we have to go to yet another counter. So, your luck never seems to hold, and now you are in jostling space of yet another counter which states another 4 minutes to get there, and you get another 3 minutes for the person to write out; your receipt for having received that precious consignment which is in your hand, and you total yet all at comes to 30 minutes in all.

So, you decide to take it up with the appropriate authorities. The appropriate authorities are responsive, and save with in a fortnight; the post office has under gone a change. Instead of there been separate counters for weighing, wending of stamps, writing out the registration slips; they have put together all this under 2 counters. One counters which receives envelopes less than 3, another counter which receives envelopes more than 3.

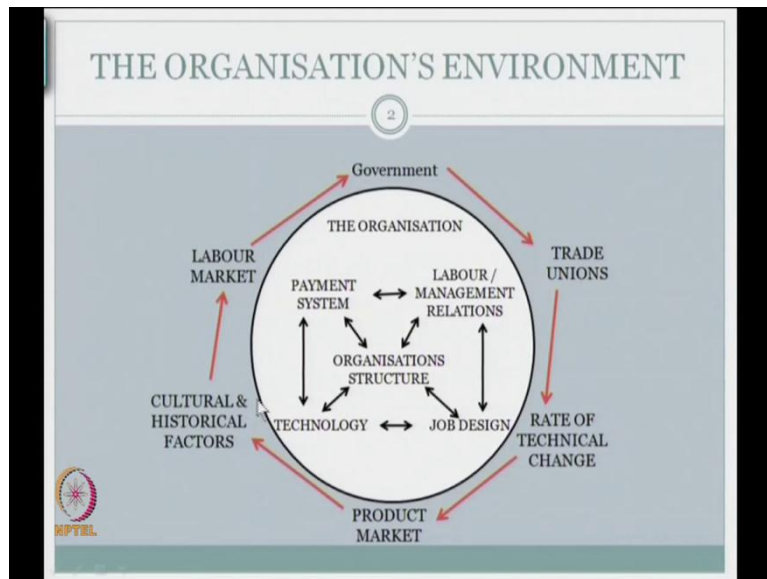
But all in all, it is the same counter which is weighing, wending stamps, issuing the receipts, and when you go next time, again with 2 letters to send, you find that there are 14 people in the queue; each person has less than 3 letters. And each one takes about a minute to dispose of his business, and instead of spending 30 minutes running from one counter to another, and you find that in 14 minutes your turn comes, and your letters are on the way. What is the difference in presidia, which can be labeled presidia one, the first experience, where you have to go to separate counter each time. And the second case, where everything is put under one window, and you do not have to run about from one place to another. This is the simple example of design of work.

In the first case, there is the unity of work. All enquires at one place, all weighing at one place, all stamps pending at one place, all registrations at one place.

In second case, the design is design of multiple tasks put together focused on the results that is the registration of the letter. And the time taken to discharge the activity has been reduced by all most high. Now, that is an example of how design issues affect the effectiveness of running organizations.

As I have been tend through this sessions with you, all of us have to deal with organizations, all of us are part of some organizations, all of us have to understand organizations, because in the ultimate analysis, organizations determine all aspects of our everyday life. However, the nature of organizations is not understood by many, and what are the elements which go into making of an organization.

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So, let me put with you a schematic diagram of what an organization basically looks like. This is the schematic diagram of an organization, and I have labeled it for want of a better phrase, the organizations environment. The organization is contained in this circle and as you notice, I have put 4 pillars within the circle, labor management relations, job design, technology, and payment system. The interactivity relationship between labor management relations, job design, technology, and payment systems creates the organizations structure. Now, we have already explained to you, what an organizations structure is all about, what is the function which it carries out?

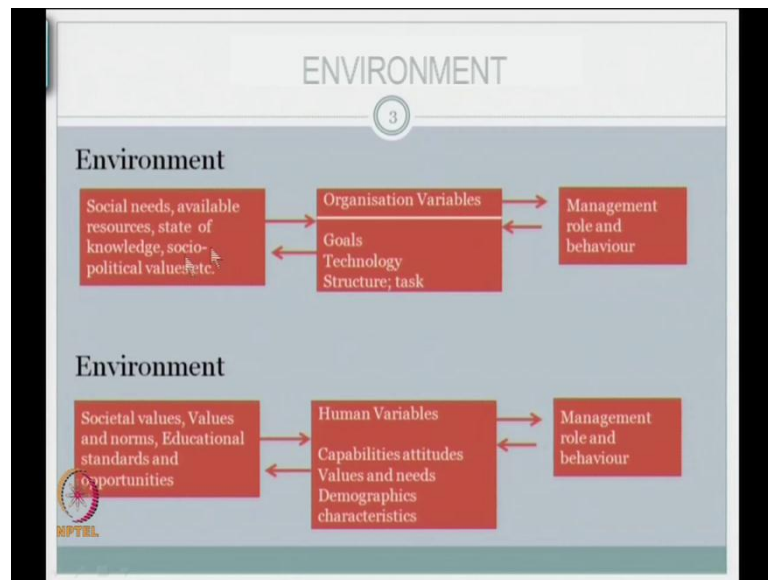
This is the stage in our discussion, where I want you to understand and recognize that any organizations structure stands on 4 pillars; labor management relations, job design,

technology and payment system. Job design is what I just explained to you. It can be homogeneous as in the first case of the post office that I explained, single tasks been clustered. It can be multi-tasking as in the case of all the actives related to registration letter been put together, and in all cases we will have to have a technology which has to work. The technology can be both hard and soft. Even a method of doing some work is a technology, and there must be a payment system to it, because everyone needs to earn a livelihood, and people in any work situation need to be to compensated, which creates a labor management relationships. So, the organization therefore has these four pillars, and at the core of it is the organization structure.

However, the organization has an external environment which has the following variables; there is always the government. Government is the representative of a civil society, when a group of people get together at for the sake of order, safety, and organized function, create a governor System. And the people who operate that governor System are called the government. Obviously, there are trade unions, unions of people who are workmen of one variety or another, there is of course, the case of technical change, and the rate of technical change determines how the organization is going to function, then there is the product market, and there are cultural and historical factors, which this course have been captioned partly has longitudinal elements.

Then there is a labor market. Labor market is the supply side of people, who entered an organization. So, what do we have? We have 6 variables in the environment, where the organization is embedded. And we have the government, the trade unions, and the rate of technical change, product market, cultural and historical factors, and the labor market. Now, this is roughly what an organization and its environment decomposed in to its simple element looks like. So, if you want to understand an organization, and the design elements in an organization. You have to first understand clearly, how an organization relates to an environment, and here it is in its schematic form. Let me take you ahead of that to show to you how designs of jobs are actually discharge it is operational terms.

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Here, consistent with the preceding diagram, I have broken up the environment into the organizational variables, the social variables and the management role and behavior. These needs to be explained, the organizational variables would be the goals, technology, and structure which include tasks of an organization. These are the organizational variables.

Just as there are organizational variables, there are human variables. The human variables of an organization are capabilities, attitudes, values and needs, demographic characteristics. So, any organization moves on the organization and the human variables. If you can control the organizational variables, namely we cleared about what the organization is about the goals, the technology which operates in an organization.

The structure and the tasks which are there, these are the organization variables. I have also stated to you that the human variables will need to be decomposed, and they would turn out to be capabilities, attitudes, values and needs, and demographic characteristics as I just mentioned a little while ago. Now, let us look at its backward linkage, and its forward linkage. Beat organization variables or beat Human variables, it has, if you go back to the preceding diagram, link just with the environment which is in the form of government, trade unions, rate of technical change, product market, cultural and historical factors as well as the labor market.

If you link up organization variables with environment variables, what do you get? You get social needs, you get available resources, and you get state of knowledge and socio-

political values. They enter into an interactive relationship with organizational variables. In another words to the environment social needs, available resources, state of knowledge, socio-political values interacts with the goals, the technologies, the structure and the tasks which are organizational variables, and this is how the organization starts operating.

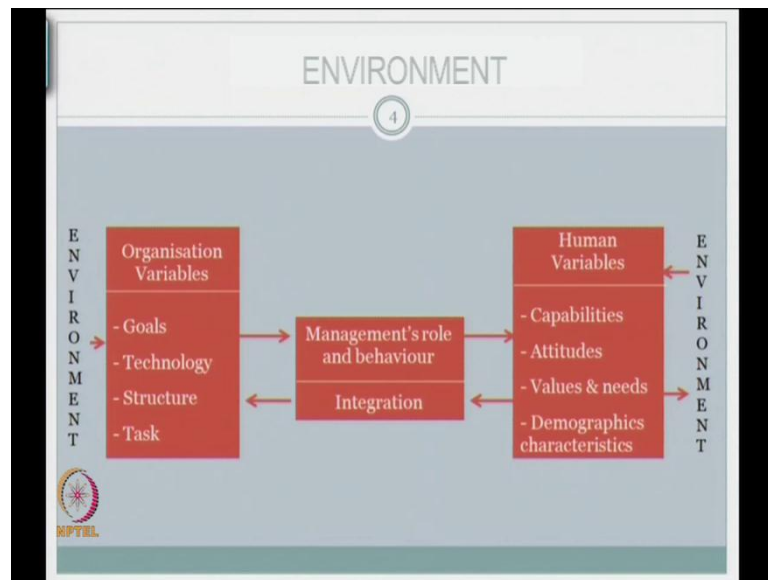
This interaction creates what could be defined as management role and behavior. Management role and behavior again is in an interactive relationship with the organizational variables. So, what you have 3 boxes; organizational variables in an interaction with environment, and organization variables in interaction with the management role and behavior. And it is the management role and behavior which you are seeking to understand.

Let us get to the flows of the second set of diagrams, the human variables. The human variables of capabilities, attitudes, values and needs, demographic characteristics are again interacting with certain environmental variables. The environmental variables here are societal values, values and norms, educational standards and opportunities. So, it is the same environment, but the variables which interact with human variables, as you can clearly see from the diagram, which is at the bottom of the projection are different from the variables, which interact with the organizational variables, which is the diagram on top of the projection.

Therefore, environment interacts with the organizational variables in a different set of manifestations, and the environment interacts with the organizational variables with the different set of variables. But both together determined management role and behavior. So, some of these projection organizational variables with human environmental variables create a certain mode of management role and behavior.

And human variables with environmental variables create a certain mode of managerial role and behavior. So, the outcome is management role and behavior. Now, what would happen, if management role and behavior, which arises out of organizational variables, and management role and behavior which arises out of human variables where to be combined. I will come to that shortly, but I want you to observe this diagram, in its elements divided over 6 boxes, because this is fundamental to the issue of understanding design of organizations. So, I will pause that for a few movements for you to observe the elements, which are projected through the first set of 3 boxes and the second set of the 3 boxes.

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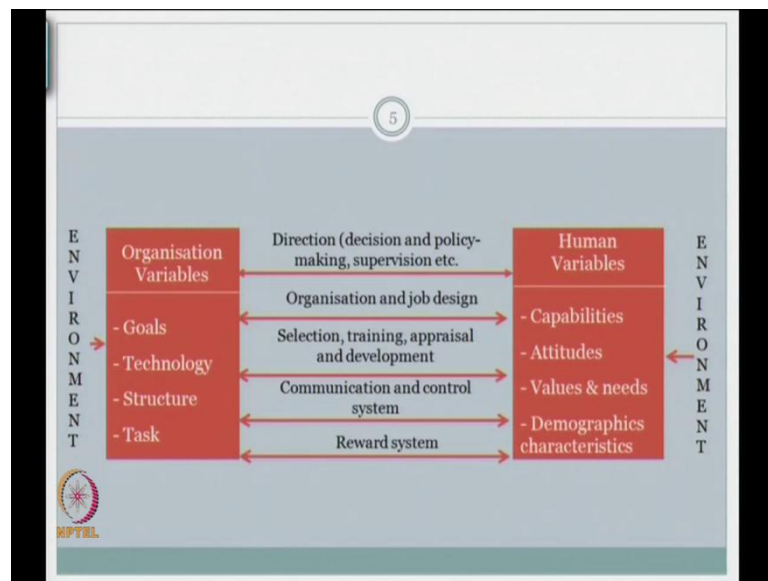
If you combine them, what you get is the following diagram. The management role and behavior, and advance side the organizational variables, the other side human variables. This is collapsing the diagrams which we just saw or I will show it to you again. These 6 boxes with their variables are combined in this diagram as organizational variables on one hand, human variables on another hand, environment on both the sides. And you have just seen in the preceding projection.

Just to refresh your memory, take a look at the preceding projection again. Organizational variables, human variables, environment on both sides, management role and behavior as the outcome. Now, what we are doing is moving management role and behavior to the center; putting organization variables on one side and the human variables on the other side and of course, environment dealing with the both. So, what do you have, as I have already explained to you, we have organizational variables which have goals, technologies, structure and tasks and you have human variables, which have capabilities, attitudes, values and needs and demographic characteristics, and this is the design of functioning of an organization, where management role and behavior integrates the organizational variables and human variables. What do you get of this? You get definition of management action.

So, the design of an organization really spells out the elements of managerial action which actually govern an organization. So, what among to do now is going to project in a bigger

format management roles and behavior; what are the elements there, which integrate organizational variables and human variables. So, please be prepared for the next set of diagram where this box will be projected bigger and you will see the various action points, which will be integrating organizational variables with human variables. So, the emphasis will be on integrator.

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What you find in this diagram is again; organizational variables on one side; human variables on the other side, the basic composition of organizational variables, goals technology, structure, tasks is listed, just as basic elements of human variables; capabilities, attitudes values needs and demographic characteristics are needed. What the contribution of this diagram lie in the 5 integrative mechanisms, which you find listed here, and that is the management action, what are the 5 elements, I want to draw your attention; tomorrow is direction that is decision and policy making, supervision. You integrate the organizational variables, and human variables through direction. You integrate the organizational variables and human variables through organization and job design.

Please remember organization and job design are one phase set of design activities of an organization, what I am showing to you is also the design element in an organization, because the arrows which are in integrating the 2 boxes in saffron color; the organizational variables and the human variables are components of managerial role and behavior.



Therefore, these 5 elements to take you back to preceding diagram are the design of management role and behavior, and this design has 5 elements; direction, organization and job design; selection, training, appraisal and development; communication and control system; and reward system.

Let us get back to selection training and appraisal and development. The selection component shows the identification of the optimal set of skill clusters, which would be represented by a person, who would be an employee of the organization be identified, that is a selection presidia, he would need to be trained, and the appraisal will have to be carried out to find out. Whether he is a growing person or whether he as stopped growing, and no longer response to the requirements of an organization, and there has to be a feed back to him. So, that he continues to develop.

So, putting it quite simply, selection, training, appraisal and development, would be the integrative mechanisms at a certain level of the organizational and human variables. And we come to the fourth component that is the communication and the control system. The communication, and the control system is also very use full in putting together the organizational and the human variable. The organizational and the human variable are put together, by a manager through the integrative mechanisms 3 clusters of which have been noted already. And now I am drawing your attention to the fourth clusters, that is communication and control and finally, looking at the design of managerial role and function. There is a reward system, because the ultimate analysis contributions to the functioning of the organizations have to rewarded, if you are going to create a right values.

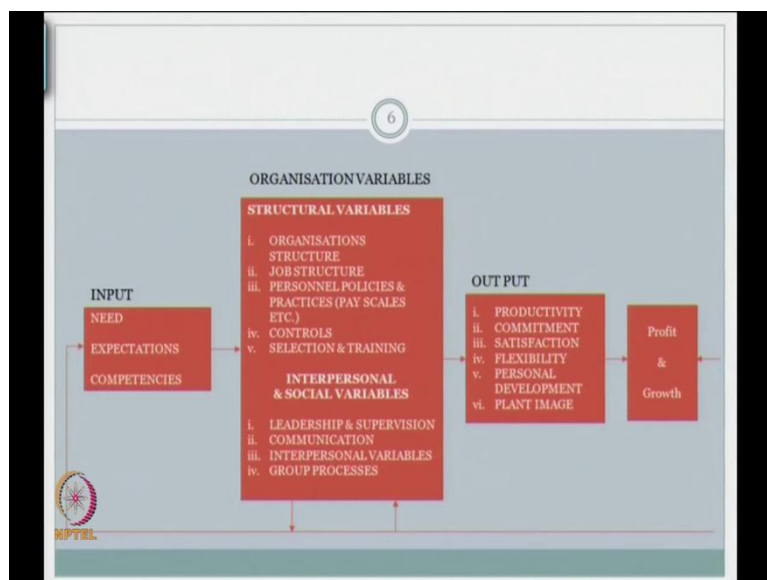
So, all these are designs considerations in running of organizations. And this is a design of what could be called the managerial role and behavioral, there is the design consideration in the organizations, which are called organizational variables. And the design consideration as the following component; goals, technology, structure and tasks, there are design components of human variables, there are listed attitudes, values, needs, demographic characteristics. Hence you are been help to see, how design issues are central to the functioning of the organization; I do not have to explain the design of environment, because that has been explained in the preceding diagram.

When you noticed, that a selection has been carried out of the design of environment, which is relevant to organization variables. And the selection has been carried out design

of the environment, which is relevant to the human variables; therefore, know you have a design prospective of the environment. We have design prospective of on organizational and human variables, and we have a design prospective on the integrative of mechanisms of a managerial role function, again I am going to pause there for a few movements.

So, that, you can observe the full import of this diagram, if you are with me. So, far on the design issues, which effect an organization; I am now, going to walk you through with some of the options, which are available for organizations per say, in other words I want to be clear, that when you put together tasks, you get a job design. Please remember the example of the post office, but when you pull together various jobs, you get an organization design.

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And let me illustrate you to you, how this could give shape to the organization. But before we do that, to understand how those variables would work. Please realize that organizational variables will have 2 clusters, as explained in this central block, the structural variables and inter personal and social variables. The organizational variables broken up in to the structural variables, and inter personal or social variables, both of which are derived from the preceding projections, I have made, will have in the structural component; organization structure, job structure, the personal policies and practices pay scales, controls and selection and training; these 5 are selections of the structural variables, in the inter personal or an social variables; you have leadership and supervision; you will

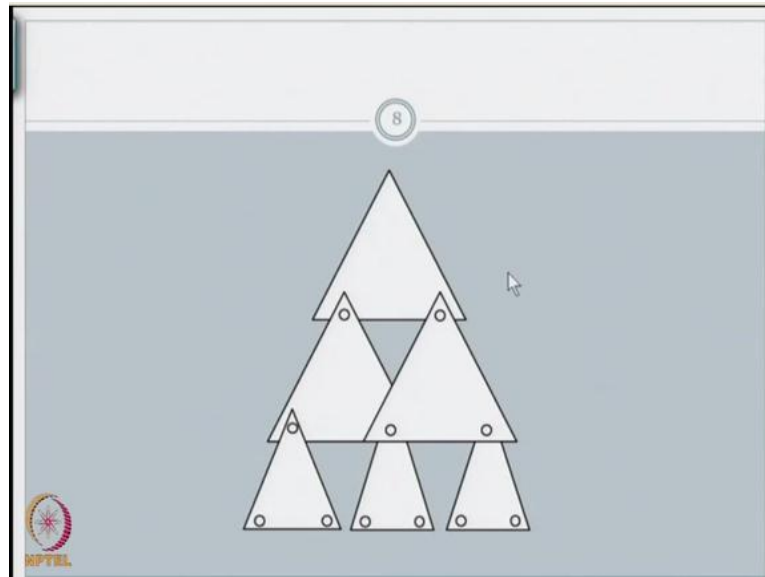
have communication; you have interpersonal variables and you have group process. This is how the design of activities in an organization is structured, and this is how operates.

So, please understand, any organizational variable can have 2 broad components; the structural variables, and the interpersonal variables. The inputs come from the needs, expectations and competencies, needs of the society; expectations of people working in the organizations, and competences of social technical system in an organizations. The output would be productivity, commitment, satisfaction, flexibility, personal development, plant image, and the resultant factor will be profit and growth.

So, please recognize of flow element; inputs to organizational variables, from organizational variables, we have an output and from an output, we have a profit and growth. But there is an internal flow among the boxes which are shown in this diagram. These arrows shown an input, but from the organizational variables, there is a feedback mechanism as shown by this arrow here, back to the input and similarly, the flow from the output to the profit and growth dimension has the flow back to the organizational variables.

So, the close loop has the different phases, and this is how an organization really works, again I will pause for a few movements. So, that you are able to get the different elements of the 4 boxes, which are presented there, the input box the organizational variables, and the output the resultant factor therefore, that is profit and growth. If you have been able to absorb this projection, than it is about time, I walked you through 3 slides, and project the some of the options, which are the available for job design. Please remember any of these interventions are capable of causing higher efficiency or capable of lowering the efficiency. The example was the post office now, if I want explain to you the different forms of organizational design, you will be able to see yourself, how the manager really can controls this variables of input organization; the output to create effectiveness parameters for the organization.

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Before, you are 2 types of organizational forms. But before we get these 2 types, let us look at this, this is popularly called a pyramidal type of a structure, clearly hierarchical in at three levels; the operational; the middle level, and the top level, simplified for the sake of your understanding. Because of each one of these pyramids may be a different department, but even though may be a different department, it is put together in a system, which has an obligation to operate for the purpose of the organizational growth.

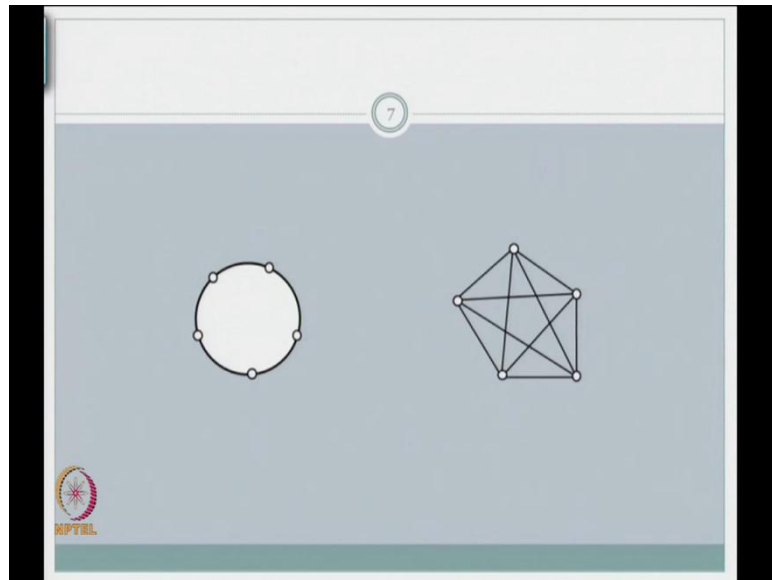
Therefore, you find that this pyramid like this pyramid, like this pyramid is relating to the pyramid on top. And the number of pyramids gets reduced from 3 to 2 to 1, which is typical of the way a pyramidal structure works, in each case, you find that there is a job design here. This round circle here is supposed to be significant of job design; this is called the linking pin.

This job here has a responsibility of coordinating the functioning of this pyramid, with this pyramid similarly, job design here has the responsibility of coordinating the functioning of the pyramid below with the pyramid on top and. So, it goes on, in this pyramid, we show 3 linking pins. But it is not as if the pyramids consists only of linking pins, there can be job design here, there can be job design here, in other words, even within the pyramid, there can be 3 4 5 or multiple levels of hierarchy.

This is a schematic diagram to help you to understand, how organizations possibly can possibly be design, but this is perhaps the simplest, and the most elementary form of work

organization and in an operational terms. There are any numbers of variables, which are possible to arise, from the different types of the job design, which here are reflected in the form of circle.

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Now, what happens, if 5 circles are in a loose interactory relationship like this, which is called the collegial form, now none of them is reporting to another. This is typical of the way a college or an educational system works, people in a department are all in some kind of communication or relationship with each other. But none of them are really reporting to each other.

The same 5 designs in this pentagonal structure, again flat at that there is no hierarchy here is put in any certain type of relationship and linked quite visibly, which demonstrates that each job design is in relationship with every other job design; what does the signify? What this signifies is that, there are open channel of communications and every job design has an obligation to pass on the information to every other job design.

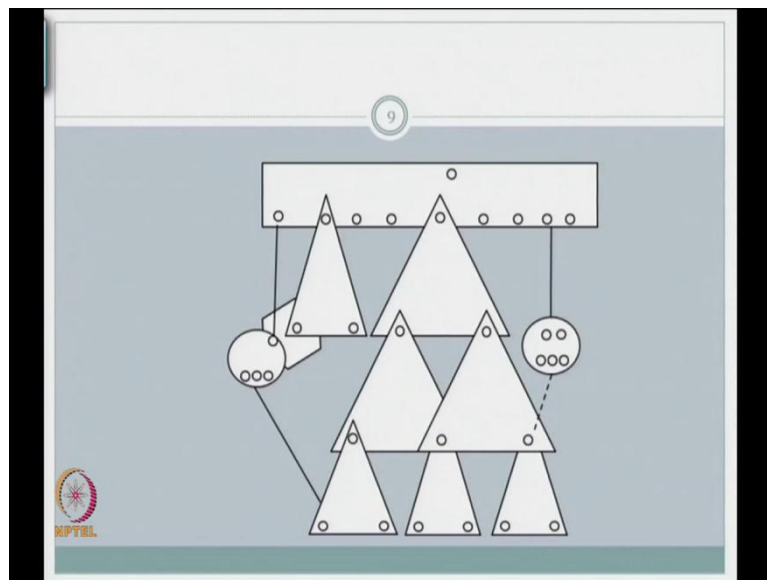
So, there are, if there are 5 job designs, none of them can sit on any information. But every other job design will have a access to the information which a job design has. So, this pentagonal form of organization structure of an organization is very different from a collegial form of organizational structure, and the difference is put together visibly. So, that, you can comprehended in a pictorial manner; what is the distinction, now again, there is no value put on a collegial structure, just as there is no value put on a pentagonal

structure, incidentally another expression which is used for a pentagonal structure is project form of organization. So, this is also called the project form of organization.

This project form of organization is always useful, when no great command issues are there. But there are requirements of exchange of information and speedy discharge of work, like many other designs, this has been borrowed from the industry, and this is typical of the design of work of a group, which says goes behind the enemy lines together information. But this form is never conducive to a stable long range production concerned, which are whites called a project mode, it is disbanded as soon as its goals are accomplished.

So, the life span of a pentagonal form or project mode is forever limited; open access information, peer level relationship, flat structure, quick movement, total sharing capable of maneuverability. Therefore, responding to project needs, when you have got collegial form of structure as in this case. This is a little more stable, but it is again a little more loose, nobody really demands information from what the other job design are up to.

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Now, each one of them has its needs, each one of them as its forms, which brings us to what is called mixed matrix organization, in a mixed organization, you find that there are different designs of divisions, department work in a given organization. For example, there is collegial form here, there is a pentagonal form here, there is pyramidal form here, there is the pentagonal form here; a collegial form here; a paramedical form here. And this

is symbolically representative of the board, simplified by the chairman; who is there, level of board members put together in different circles.

Now, what did the different circle show, the different circle showed that say, this is the person who is director human resources; this could be a person who would be director finance; this could be a person who could be director R and D. So, the positions in this different board are symbolic of the key figure in the board responsible for that division or that function.

The other circles on the board would be representative of the independent directors, government directors, all directors who may have portfolio. But it has not been possible to show in the diagram itself. What you find here in the mixed matrix format is really a fully fledged organization at work, meant to explain to you, that it is always possible to have different types of job designs, for different divisions of an organization, depending upon.

What is the nature of the organization, and what is a nature of the subdivision of the organization, and R and D division being different from a manufacturing division being different from a finance division being a different from a project division. Because it is noticed, if all the divisions of an organization must have the same design, to explain therefore, the new answers of design concerns in an organization, for this part of narration. You need to recognize, that in the ultimate analysis, we have a situation, where we will have to develop the competences of recognizing the crucial role design place a functioning of an organization, how understanding of the design issues make it essential to understand the nature of the organization.

How manipulating the design issues make it possible to intervene in the organization for improving the efficiency, and above all, no matter in what happens in an organization. There is a design concern, because presumably organizations are functioning in a scientific mode therefore, there must be a systematic under pinning of structures, processes, procedures, which would result in some design of activity, which ultimately is the essence of management action, management intervention, which makes it possible to develop organization, and there competences in a manner, which enriches and makes possible the concept of organizational effectiveness.