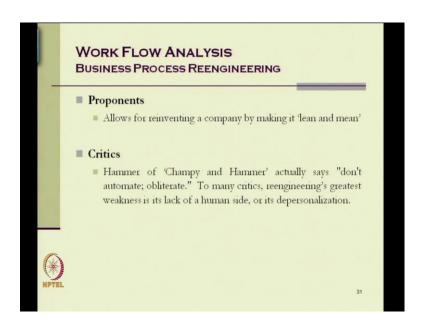
## Organization of Engineering Systems and Human Resource Management Prof. Vinayshil Gautam Department of Human Resource Management Indian Institute of Technology, Delhi

## Module - A Basics of Organizations and Human Resources Management Lecture - 13 Operating Organizations (Contd.)

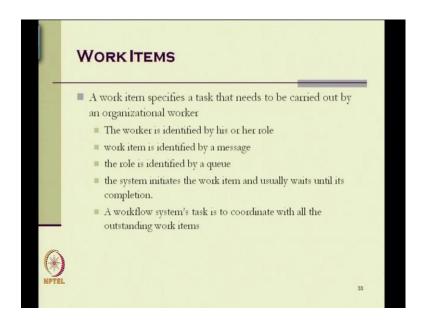
In the preceding session, we were talking of workflows. And as a quick recap, I might mention to you that, there were certain elements, which need to be kept in mind.

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They had to do with proponents and the critics of it.

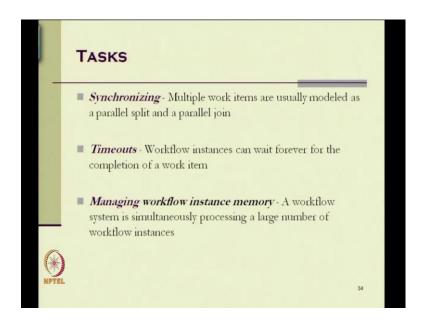
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We now move on to looking at the work items. And the work items specify a task that needs to be carried out by an organizational worker. And, the worker here does not mean a class 3 or class 4; it does not mean a blue-collared worker or any worker of any description; it just means the word personnel. Now, if you substitute the worker as personnel, then we have a situation, where the worker is identified by her work. In other words, a personnel is identified by the kind of his work or role.

In other words, a person is his role. If you recall by explanation of a role relationships in running an organization; work stands from the kind of tasks, which a person is doing; and the work item is identified by a message, which is why in the preceding presentations, I have been emphasizing on the communication component of organization function. The role so far as operating organization is concerned, is identified by a queue. The systems initiative lies in initiating the work item and usually waits until its completion. A workflow system's task is to coordinate with all the outstanding work items. To put it simply therefore, work items need coordination; work items need integration; work items need planning; and, singly by themselves, they do not make any meaning.

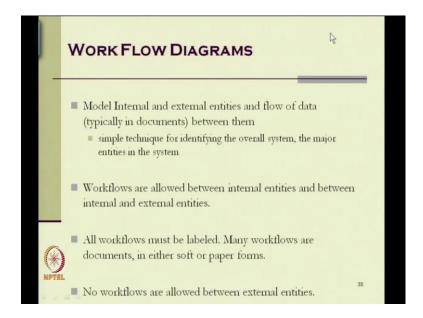
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We are going to move on from this kind of elaboration to looking at the tasks and what implications it has for operating organizations. We need to remember that, for the kind of integration we are talking about; the kind of coordination we are talking about; the kind of putting together, which we are talking about, we need to have the following set of efforts put in position: one is synchronizing; the other is timeouts; and the third is managing workflows in a manner, where there is instance memory.

Now, what is synchronizing? Synchronizing is multiple work items usually modeled as a parallel split and as parallel jobs. In other words, jobs, which are done together in a stream, are referred to as synchronizing. Timeouts are workflow instances that can wait forever for the completion of the work item. And, managing workflow instance memory is a workflow system, is simultaneously processing a large number of workflow instances. And therefore, there needs to be some systems memory of what happened, where, in what stream for proper coordination.

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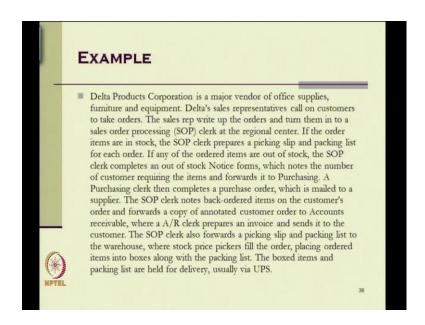


This leads us to the need of having a possible work flow diagram. A model internal and external entities and flow of data – now, the word model here is been used to establish relationships amongst the various task items typically in documents or between them; which is why, very often, a file reads, link up this note with the note in file x. In other words, they are to be seen in coordination and they are to be seen in togetherness. Simple techniques for identifying the overall system, the major entities in the system are of great help here. And, one must remember that, in the ultimate analysis, it is important to have an overall perspective whenever you are taking a decision. Therefore, the model, which is internal and the model, which puts together the external entities, is important in decision making.

Workflows are allowed between internal entities and between internal entities and external entities. In other words, internal entities would have a workflow in it. So, that would be indigenous integration, inter-unit integration. And, workflows between internal and external entities would be coordination between two entities, which are exogenous. And therefore, they are entra-unit integration. This is central to operating organizations, because as I have already explained, it is important to remember that, we have to have linkages within units, between units, if the system is to work properly. All work flows must be labeled, because that helps classification. Many workflows are documents in either soft or paper forms. No workflows are allowed between external entities if it is not known to the system.

In all cases, as you find, there is an attempt to create a logic; there is an attempt to create a situation, where there is formatting; there is an attempt to plan; there is an attempt to monitor; and, there is an attempt to control. And, control meaning the keeping of the system on track; it does not mean restraining. Wherever required, it may even mean expediting. So, workflow diagrams become a kin to control panels in an electrical system, where diagrammatically, you get to know where the decision making sequence is; what are the flows left to cover; and, what is the deficiency if any in the decision processes that is operating.

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Let us look at an example. And, it will help you to understand the proposition. Quickly go through the presentation on the screen. Then, I will read it for you. And then, I will try to analyze it. Let us go through it. You have just read this case of Delta Products Corporation. And, let me walk you through it, so that you can see the players and you can see the flow of work and understand better how the operating aspect of an organization becomes functional. Now, Delta Products Corporation is a major vendor of office suppliers, furniture and equipments.

So, that is what they do. Delta's sales representatives call on customers to take on orders. So, the first actor on the screen is Delta's sales representative. The sales rep write up the orders and turn them to a sales order process; an acronym is created here – SOP clerk. Now, please be careful. management like information technology, like engineering is full

of acronyms. And, all acronyms do not being the same thing. SOP here is not standard operative procedure; SOP here is sales order processing clerk. So, the sales representative hands over the order to a sales processing clerk at the regional center. So, there are now two players and you have moved from the field to the regional center.

If the orders are in stock, then of course that is where the action ends; and, the standard operative procedure clerk prepares a pick up slip and packs the list for each order. If however, any of the ordered items are out of stock, then action does not stop at level 3, person 2, but carries on. The SOP clerk completes an out of order notice form, which notes the number of customer requirements of the items and forwards them for the purchasing wing.

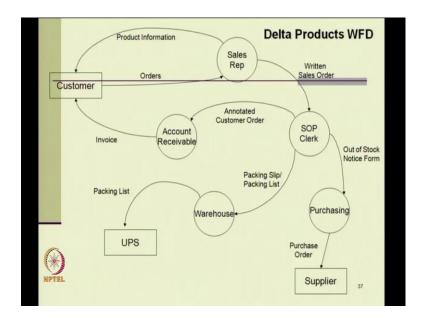
Now, enters yet another department in the sequence and the third person a purchasing clerk. So, it began with a sales rep; went on to the SOP clerk; and, if the action was not concluded then, it goes on to a purchasing clerk. The purchasing clerk then completes a purchasing order, which is mailed to a supplier; enters yet another department. The sales order processing clerk notes back the ordered items on the customer's order and forwards a copy of annotated customer order to accounts receivable, where an AR clerk... Please read AR as accounts receivable clerk – prepares an invoice and sends it to the customer.

Now, you notice that, more and more players are entering the scene. We had the sales rep; then, we had the sales order processing clerk; then, we had the purchase clerk; and now, you have the accounts receivable clerk, who prepares an invoice and sends it to the customer. The point to be made is, work is flowing within the departments; work is flowing between the departments. And, that is the way organizations operate. The SOP clerk also forwards a picking slip; and, the picking list is send to the warehouse, where stock price pickers enters yet another player – fill the order, placing ordered items into a box along with the packing list.

Now, what is that you find? The workflow, which began with the sales rep passed through the sales order processing clerk, moved on to the purchasing clerk, then moved on to the accounts receivable clerk, moves on to the person, who functions as the price picker – stock price picker and fills the box. And, it is then only then, that the boxes are filled; the boxed items and packing list are held for delivery; and, that is usually via UPS.

Now, what appears a simple delivery process? Passes through n number of hands y number of departments; and, for that, a lot of management action is required.

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Now, if reading this in a textual manner does not communicate itself to you in terms of what it takes to operate an organization, let me move on to a diagrammatic presentation. You have the customer here. The customer passes on his requirements to the sales representatives. The sales representatives take the order and the product information goes to the SOP clerk, which goes to purchasing, which goes to the supplier. Another root can be annotated customer order, accounts receivable and again to the customer. The sequence can be different depending upon where action is concluded. There can be yet another sequence, where the SOP clerk moves on to the warehouse and the UPS is packed.

Now, if you look at this entire schematic diagram, the key is written sales order. Now, somebody somewhere would have to know which of the three roots: A, B or C is operational. Somebody somewhere will have to keep a track on the inventory available. Somebody somewhere will have to make sure that, that order is passed on to the concerned person, because one of the key issues in information systems is order being available where it should be in the format that it should be and at the time it should be. A lot of the jerks and jolts, which the customer feels; a lot of the inefficiencies, which the organizations suffer from; and, amongst the variables, which take away from the

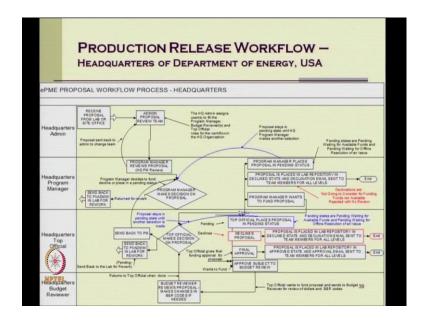
efficiency parameters of the organization, the effectiveness parameter of the organization is really the act of information flows. Therefore, we are going to move on after this analysis to taking a quick look at the communication and information flows. But, the scene is for the moment, workflows and the components, which go into operating an organization.

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Let us move it forward and see where it takes us. This is an organization level workflow diagram. And, here again, you have the customer; you have the order; you have the sales order processing department. This can be from sales order processing department calling the customer to get the order. It can be sales processing department using an invoice. But, in all cases, it has to be an order to the sales order processing department. From this, a purchase order is given and the supplier enters the scene or a packing list is prepared; and, it goes via the UPS. Now, if we look at the two diagrams, the one which I just showed you and try to observe it, and the one which followed, namely, the sequence; you have got a schematic presentation of the elements, which go into operating an organization. But, as you can clearly make out, this is a relatively simple format of operating an organization; and, it can be far more complicated.

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If it is complicated, then what does it look like? Here is the production release workflow that is operated at the headquarters of department of energy, USA. Now, the heart of the matter is spread at several levels depending upon: whether you are looking at the headquarters administration; whether you are looking at the headquarters program manager; whether you are looking at the headquarters top official; or, you are looking at headquarters budget reviewer.

Please remember, all these four divisions will have to work together to make sure that there is a production release workflow process completed. This process in the headquarters department of energy in USA should be read in a scalar form. First read the headquarters administration flows; then, read the headquarters program managers flows; then, read the headquarters top official flows; and then, the headquarters budget reviewer's role. But, reading it in a scalar form alone does not work; each of these four levels have to be integrated together for the action to be completed. And therefore, there are link pins here.

See this job position dealing with this job position; this job position bringing together elements from this set and linking up with this set; this job position serving an integrating role amongst different units; and, this job position integrating from this point and putting a flow into this point. Now, while reading this diagram, the things to keep in mind as I told you is, read it in a scalar mode; read it with the understanding that the

scalar mode have to be integrated together. But, please desist from seeing it from top to bottom or bottom to top. That need not be the case at all. The coordination points can be somewhere in-between. For example, this is a coordination point; this is a coordination point. So, here it is a bottom-up and here it is top-down. So, it is not as if this is a linear flow either downwards or upwards, but it can be put together in a manner, which makes the whole system work.

So, I will pause here for you first to read this left to right in the case of the four scales; then, I will show to you how the integration takes place; and whereas, it may not be possible for you to absorb all of the details, which are presented in this diagram. It will help you to understand the complexity of operating systems and simultaneously recognize that, yes, that complexity is manageable and that is what large part of understanding organization management is all about. So, I will pause there for you to read through.

Now, let me assist you. Receive proposal from labs or site office – this goes to this job description, where one assigns proposal in a team mode. The headquarter admin assigns users to fill the program managers, budget reviewers and top official roles for the workflow to the headquarters organization. Once the review team has done its act, then it goes to the program manager review proposal – headquarters program manager review. From the review of program manager, it goes to program manager making a decision on the proposal.

For this decision, there have to be inputs from places where the proposal is in pending status, proposal is placed in lab repository in a declined state, and declination email sent to team members for all levels, program managers wants to fund proposals. In other words, all these three activities when integrated become input here; which means what? Action at one place, receiving inputs in a unified manner does not necessarily mean that the input originated in a unified manner. The input may have originated in further subforms.

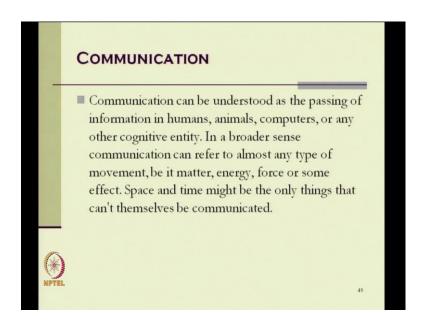
And, here again in red, you find the process issues being listed – declinations are not going to consider for funding; funds not available; rejected with no reviews are the options available. So, the process is segmented into options. And, even one or another of them is enough to kill the proposal here. Once it survives this kind of scrutiny and the

answer to all that is yes, it passes on to the program decision proposal unit, which then decides whether to move it forward or not. This can again take a decision, whether it sends back with a project manager or top official then take a decision on the proposal. Here again there is headquarters administration, headquarters program manager, headquarters top official and headquarters budget reviewer. All of it is in the headquarters. But, functionally, there is administration; there is a program manager; there is a top official; and, there is budget reviewer.

This diagram, this workflow situation, is a telltale example of what can happen if a simple activity like production release work order has to be carried out. In this case, the illustration is taken from headquarters of the department of (()). Now, parallel examples of this can be found in all work situations, in all work organizations. And, it is important to understand that, unless it is scientifically carried out, it would not be effective, let alone result oriented.

Now, a quick recap of what I have done. I took up the discussion of the workflow diagram beginning with the tasks. From tasks, I went on to the workflow diagrams; from workflow diagrams, I went on to an example. I converted that example into a diagram of workflows. That was further simplified. And then, with another illustration of higher level of complexity, I tried to illustrate to you how operating organization is a complex process; but, can be handled if you have proper planning, proper management and proper understanding of job design, work design, structure, processes. Therefore, the substantial point to be registered here is, like everything else, management has to be learnt; you cannot just assume yourself to be a manager merely because you have not put in a managerial role; and, the detailing, which has just been carried out is an illustration to that effect.

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To bring this whole process to a closure, I would like to now move on to discussing communication and information flows and demonstrate to you how communication and information flows are essential to operating organizations. What is communication? We all talk of communication and very few of us really can understand what communication is about. Essentially, a simplistic definition of communication is conveying of a message through a medium for the purpose of seeking and understanding for initiating action. What I have really done is, taken this spelling of communication as an acronym; added an a before the second c; and, using the acronym, try to view around a definition, which you may find both comprehensible and eminently usable.

Now, first co of the spelling of communication used as an acronym would stand for conveying; the next alphabet m would be representing a message; the next alphabet — the second m would be an acronym for a medium. So, conveying a message through a medium for the purposes of seeking and understanding. So, un stands for understanding. Understanding towards what end? I for initiating. And finally, you add an a before the second c and it becomes action invert — ac; take a before c; c follows c; and, you create a word called action. So, conveying of a message through a medium for the intention of seeking and understanding for initiating action is communication. Now, this is a simple rule of form, a simple definition of form, which can be carried by any laymen, because everyone needs communication in some manner.

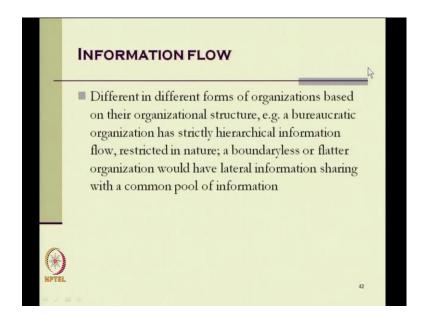
But, when it comes technicalities, there are other ways of looking at communication; and, let me share with you one. Communication can be understood as the passing of information in humans, animals, computers or any other cognitive entity. So, communication has a character of its own and all communication need not necessarily be human communication. It can be amongst animals; it can be amongst inanimate objects as is demonstrated by the use of the word computers here. So, it is communication, is passing of information in humans, animals, computers or any other cognitive entity. In a broader sense, communication can refer to almost any type of movement, be it matter, energy, force or some effect.

Now, obviously, this is a more evolved understanding of communication, because communication refers to any movement. The goods can be communicated. And, as if to make it even more sophisticated, space and time might be the only things that cannot by themselves be communicated. So, if you leave out space and you leave out time, anything can be communicated. But, we do not want to get into this segment of the definition, because if you start covering communication of goods and communication of energy and communication of force and link it up with effect, managerial component tends to be complicated and not necessarily in a helpful way. So, let us confine ourselves merely to this component of the definition.

Communication can be understood as the passing of information in humans, animals, computers or any other cognitive entity. The rest is shown here only to make it clear to you that, in management decision making, we are really concerned with one definition of communication, one aspect of communication; and, the rest as stated here, may be technically right; may be available in thesaurus; may be available in encyclopedia; but, does not really touch management action.

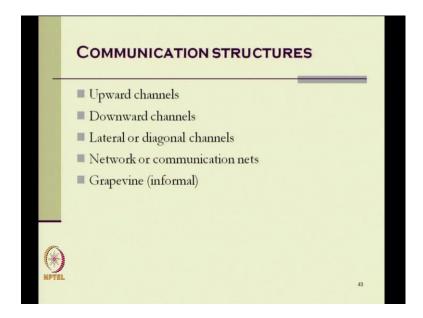
Therefore, this can be deleted from the operational aspect of understanding communication. And, please confine it to communication as the passing of information in humans, animals computers or any other cognitive entity; and, even this simple as it is, maybe difficult for some to understand and for them. The definition of communication as through the acronym of communication is the operational part that I would like to draw your attention to. Predictably, if you are talking of information and communication in the context of operating organization, then yes, you guessed it right; the concept of flows will come in. So, there is concept of the information flow.

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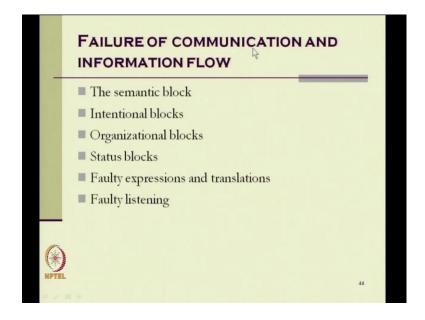
I would like to walk you through an information flow definition by leaving this on the screen to you for your attention; and then, I will revert it. The statement makes a very simple proposition – information flow in any organization will follow the organizational structure. The organizational structure channelizes the information flow. And then, one example is given, in a bureaucratic organization, the hierarchical information flow is restricted in nature; it is boundaryless; or, what in a boundaryless or a flatter organization, it would have lateral information sharing. And, we looked at different types of organizations structures, different types of organization design; and in each case, the information flow would be different.

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The communication structures can be multiple. For our purposes here, I would like to underscore upward channels, downward channels, lateral or diagonal channels, network or communication nets, grapevine. And, if you think that, these five labels under communication structures exhaust (( )) that needs correction. It does not exhaust (( )) but in fact, it an indicative (( )) It shows to you that communications themselves acquire a structure, which are to a very large extent modulated by work structures, but by no means gift to communication structures their entire character or operation.

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Failure of communication and information flows may be because of multiple factors — the semantic block. In other words, words are being used in a different manner. For example, in audit, independence has a particular context; in social sciences, independence has another context; in psychology, the word subject has a particular meaning; in layman's language, the word subject has another meaning; in management, problem solving has one connotation; in general language, in common language of everyday use, problem solving has another meaning. Therefore, there can be semantic blocks. If that was the only problem, then of course the problem was easy to handle; the dictionaries would not do it; simple explanatory notes would do it.

But, then there are intentional blocks. You create ambiguity in communication, which is designed to confuse or worse mislead. These intentional blocks cause severe failure of communication and need to be guarded against. There are organizational blocks. People do not pass on the information; they sit on the information and hope that information will find its natural flows. In many cases, information does find its natural flows, but the flow may not be completed at the right time.

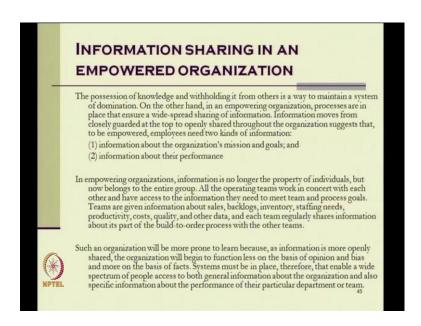
The critical characteristic of information means that information has a life span. If it does not reach the spot, where it is required, at the time at which it is required, in the form in which it is required; then, it loses its value; it is just integrates. Now, these are often linked up with organizational blocks. These are always linked up with the kind of impact, which it makes on decision making. And, we are wanting to understand the elements of understanding operating organizations. Then, you should be cognizant of organizational blocks, which can and do cover a lot of effectiveness parameters.

Then, there are status blocks. Very often, the superior officer may choose not to share information. But, it is not as if it is only the superior officer, which can create its victims. The subordinate officer may also choose to block information. And then, the superior officer is stopped of getting information. The faulty expressions and translations can do havoc to a message. And therefore, mastery of communication up to a given level is must if one is to ensure that results are going to come in.

And, of course, one of the greatest contributors to failure of communication and information flows is faulty listening. It is my case that if you want to operate organization successfully, you want to operate organizations well; then, you need to be

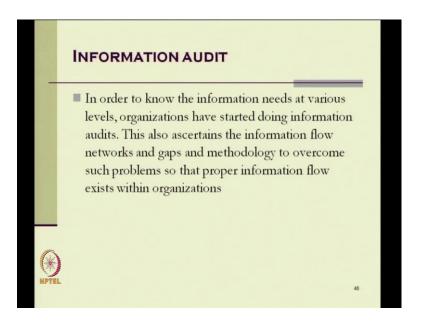
doubly careful and ensure that the organization personnel has been sensitized into what is called effective listening. One has to learn to listen. Unless there is a way of listening and listening competency established across the organizations, all organizations will work with some jerks and jolts; both of which are quite avoidable. Therefore, there is a need for information sharing in any empowered organization.

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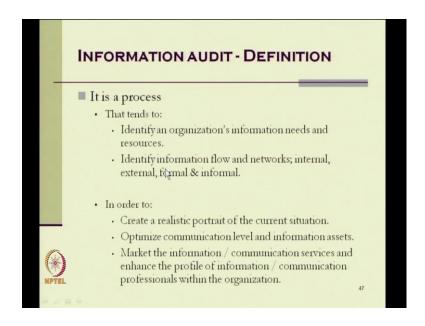
I suggest you read through these three paragraphs, because summing it up would be complicated; explaining it very extended; and, it is written in manner in which it should really communicate itself. So, please read these three paragraphs. Then, I will show what to do with it. The presentation before you essentially communicates – what I have been trying to explain earlier on the relevance of information for organizational functioning; how it has a critical role to play in empowerment; and, how it even determines the character of an organization. And, this is how organizations operate.

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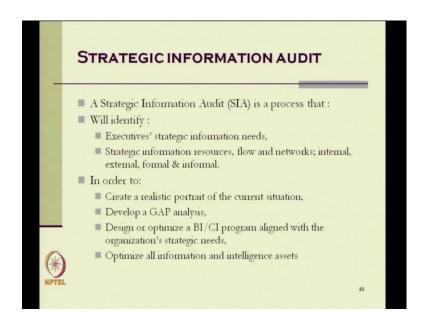
There is such a thing as information audit. In order to know the information needs at different levels, organizations have started doing information audit. This also ascertains the information flow networks and gaps and methodology to overcome such problems, so that proper information flow exists within organizations. Let me repeat. One needs have an awareness of needs of information at various levels. There is a need to ascertain how the information flow networks are operating an organization. And finally, there has to be a methodology to overcome such problems. And, this is a very important useful input in operating organizations.

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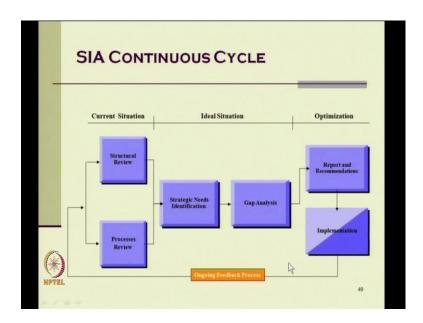


Information audit has a definition. It is a process that tends to identify an organization's information needs. As I have just told you, identify information flows and networks. But, in order to create a realistic portrait of the current situation; to optimize communication levels and information assets; to market the information, communication services and enhance the profile of information, communication professionals within the organization.

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There has to be what is called as strategic information audit. Let me show to you in words and then possibly in a diagram, so that you understand this element of operating organizations. The strategic information audit identifies executives' strategic information needs; strategic information resources, flow and networks. In order to create a realistic portrait of the current situation, one has to develop a gap analysis of how much information is actually transmitted and how much information actually exists. This is aligned with the organization strategic needs. Optimize all information and intelligence assets.



And what you have here is SIA – strategic information audit continuous cycle, which has three levels: current situation, ideal situation, optimization process. For the current situation, do a structural review; do a process review; based again on the structure and process, which we discussed; do an ideal situation analysis, strategic needs, and therefore, the gap analysis. And finally, you have the report and the recommendation, leads to implementation; encourages ongoing feedback process.

So, it is that operating organizations is a extremely enjoyable process if it is based on the scientific method; and, you are aware of how exactly it is going to operate in its discrete components; and, ensuring that at the end of the day you have it all sequenced built on sound foundations, sound understanding of interrelationship and flows; and above all, the ability to interpret what has come out in a powerful manner, so that the operating of an organization is effective; it is able to achieve the goals for which it has been created. And, above all, it is an enjoyable and a satisfying process.