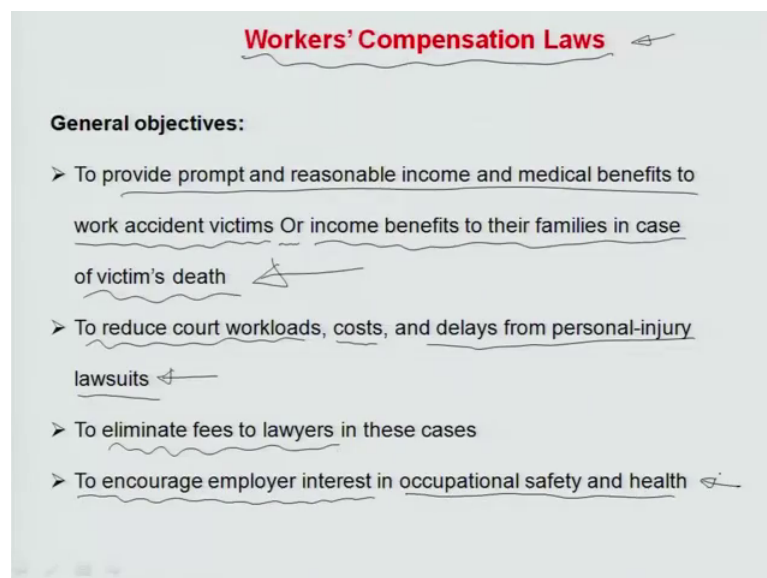


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Module - 03
Lecture - 13
Workers compensation laws

Hello and welcome to this lecture on Applied Ergonomics, lecture 13. In this lecture I would try to give you some safety guidelines, which are available across the various, you know available, made available by the various organizations related to implementation of occupational safety and health hazards study. Beyond this I would like to migrate into a little bit newer section, on how to do work management in ergonomics, looking at different organizational structures, looking at different motivational and social model, social organization models also looking at job evaluation appraisals, and finally, compensation systems. So, that there can be retained motivation for industrial safety and accidents.

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Workers' Compensation Laws

General objectives:

- To provide prompt and reasonable income and medical benefits to work accident victims Or income benefits to their families in case of victim's death
- To reduce court workloads, costs, and delays from personal-injury lawsuits
- To eliminate fees to lawyers in these cases
- To encourage employer interest in occupational safety and health

So, the first, the topic that I would like to share here, is the compensation laws that what happens in case, there is an unsafe practice, because of which there is an injury or a even

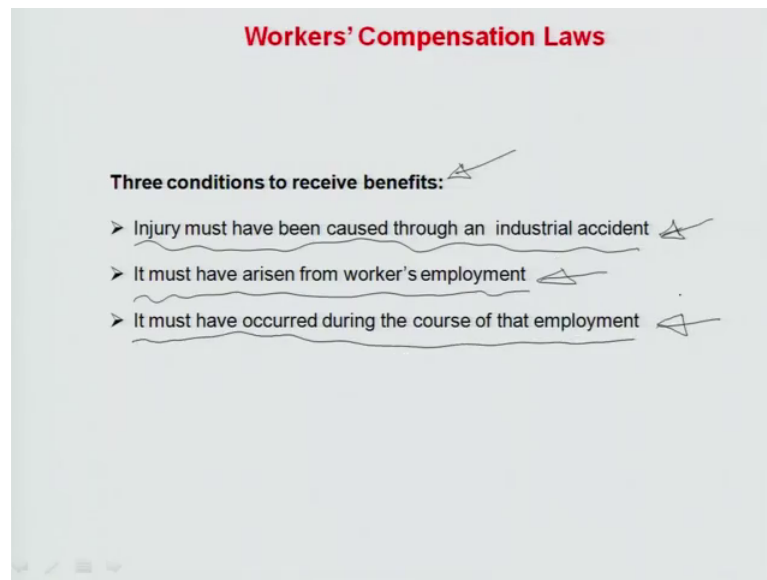
a death or a fatality, and what are the kind of objectives behind general objectives, behind laying out a compensator, good compensation law, in case such a non compliance happens. So, to provide prompt and reasonable income and medical benefit is to work victims, or even income benefit is to families, in case of the victims death is sort of a general objective behind how to compensate, although life losses really cannot be compensated in the literal meaning of it, but then you know there has to be a method in place.

So, that such compensations may not impose unnecessary pressure on the family or on the. Let us say the stakeholders, who are sort of dependent on the concerned subject, the human being who is met this fatality or accident. Also the general objectives is to reduce the workload of courts. For example, you know also, let us say reduce overall costs or delays from personal injury lawsuits, which would otherwise come in, if not properly handled. So, there has to be a framework through which every such case is handled. So, that there is uniformity, and people are aware that such a framework would compensate in a particular define given manner, and it will not vary between different kind of you know deaths, which have happened. And so it really reduces a lot of litigation cost to the company if you can have such a proper compensation law in place also.

Of course, because of lawsuit is there are additional costs, which are imposed, like fees to lawyer or you know, let us say generally the cost of lawsuit is which are really very high. Also it is important to encourage employers interest in occupational safety and health, by giving them a sort of a mandate, that if such a fatal injury or an accident happens in the work system, which is in place, because of some non compliance on the part of the owner of the work system, then it may lead to a high quantum of losses. So, such an awareness created within the employers itself would necessitate the employers, to go for adopting safety measures, which otherwise may be thought of, as a expensive measure to be adopted.

Where the value added by such a measure may not be significant, until an accident comes up or an unfortunate non compliance happens in terms of injury etcetera or risk potential health risk. Therefore, the general objectives of why compensation law should be there, is to maybe in a way lessen the cost burden, which comes out of these kinds of unsafe situations, which occasionally arise in industries.

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So, there are three conditions, really to receive benefits, which have to be really looked upon in great details by lesser people, who are associated with compensating; one is that the injury must have been caused through an industrial accident at the place of work, or even let us say away from the place of work.

But because of an industrial accident, it must not, it must have arisen from the workers employment. It should not be, because of any other work that the person was doing for his own self, which has created some kind of an accident and fatality that cannot be counted within the compensation laws, or the reasons for getting compensation from the employer. It must also have occurred during the course of that employment. So, basically somebody who is retired, and has met an accident, may not be able to go back to a work system, and claim a compensation for getting injured. Let us say in an accident or even having a fatal death or something in an accident after he has left the place of employment. So, it is very clearly defined that during the process of the employment.

Because of the employment arisen from the work of workers, employment and also, because of a means or a reason, while, which is the cause of the industrial accident. If these things are clear, only then people will think about compensating the workers ok.

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Establishment of OSHA

Occupational Safety and Health Administration (1970) – OSH Act set forth by fed government to impose safety standards on industry.

- under the U.S. Department of Labor
- set standards for general and specific industries
- companies comply by: keeping records, keeping employees informed on safety matters, complying with standards for injury avoidance, etc...

> **Occupational safety** - concerned with the avoidance of industrial accidents and in particular accidents that cause injury or fatality.

Goal in ergonomics:

- To understand how and why they occur
- To undertake steps to prevent them

> **Occupational Health** - concerned with avoidance of diseases and disorders induced by exposure to materials or conditions in the workplace

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So, these conditions need to be met. So, I would like to share with you this sort of occupational, you know it is an organization developed in United States for occupational health and safety, safety and health administration. It was established in 1970, and it was an OSH act set forth by the federal government to impose safety standards on the industry, although in a way people do still argue and maintain that the OSH a more looks into the side of the employers, and the industrialists rather than that of the worker, but then they are again misnomers, having something in place with an organizational framework.

Where we are looking at individual cases in a very established, in a very evolved manner, is always sort of a benefit, you know to maybe keeping a pressure of having safe practices within such work systems. So, this occupational safety and health administration was an organization started 1970 under the U S Department of Labour, and sets a kind of standards for general and specific industries. There are certain guidelines that they give keep on revising those guidelines from time to time depending on the complexity of the processes, which happen over a period of time. There are generally by law enforcement, companies must comply to such set standards or a specific instructions from the OSHA, by keeping records, keeping employees informed on safety matters, also complying with standards for injury avoidance etcetera.

So, there are certain additional auxiliary tasks, that the company automatically has, or an employer automatically has to get into, once it comes to the compliance of the OSHA standards. So, what is occupational safety? So, definitionally, it is concerned with the avoidance of industrial accidents, and in particular accidents that may cause injury or fatality. And the goal in ergonomics really, is to understand how and why some of the injuries would happen, or what kind of steps can be undertaken to prevent them and. So, therefore, this issue is being addressed very well through organizations like OSHA. The other issue is occupational health; for example, this is concerned with the avoidance of diseases disorders in induced by exposure to materials, or conditions in the workplace, coming out of the quantum of the work; that is being carried out under the work system.

So, generally there has to be a guidelines in handling things, which may otherwise be deleterious for the health of a stakeholder, who is working in such situation. So, therefore, occupational health is again another very important aspect, which is being standard, is being set through the OSHA guidelines.

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Responsibilities of OSHA

- Implement safety and health programs.
- Establish mandatory occupational and health standards.
- Enforce the standards in industry by conducting inspections and assessing penalties for violations.
- Define responsibilities and rights for employers and employees.
- Maintain a reporting system and database of occupational injuries and illnesses
 - Work with states on related programs
- The Occupational Safety and Health Review Commission is a quasi-judicial agency

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So, the responsibilities of such organizations; like OSHA, and in fact, there are identical models in a variety of other countries as well, is first and foremost to implement the safety and health programs across industrial systems, or you know basically among all the employers established mandatory occupational and health standards, which are subjected to review an auditing also. Degree of enforcement to the standards by the

industries, by conducting inspections, and also enabled to penalize for violations of guidelines or standards which have been set up.

And which has been agreed upon by a certain employer or a certain industry in terms of complying to OSHA guidelines, and then also define responsibilities and rights for employers and employees, which gives both the stakeholders sort of an idea of not getting exploited in a given situation, a given unfortunate situation of a industrially, unsafe practice being carried out leading to an accident. Some of the responsibilities of organizations; like OSHA also include maintaining a reporting system and database for occupational injuries and illnesses, and you know work with really the governance on related programs which would increase the awareness, increase more stake holding by parties, who are involved in such industrial practices.

And so it is like not only policing or a monitoring role, but also a sort of facilitating role that such organizations must play to improve the overall mandate of industrial safety, the occupational safety and health, review commission, again is a sort of a quasi judicial agency. So, it does have some judicial powers to administer penalties, in case violations are being sought, you know. And also they are enabled to, in a way sometimes close down, even some industries which are unsafe for the practices that are being carried out by that particular work system or industry.

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NIOSH
National Institute for Occupational Safety and Health

- Mainly for research and education functions
- finds hazardous types of working conditions by reviewing research
- Human factors professionals use the standards or recommendations

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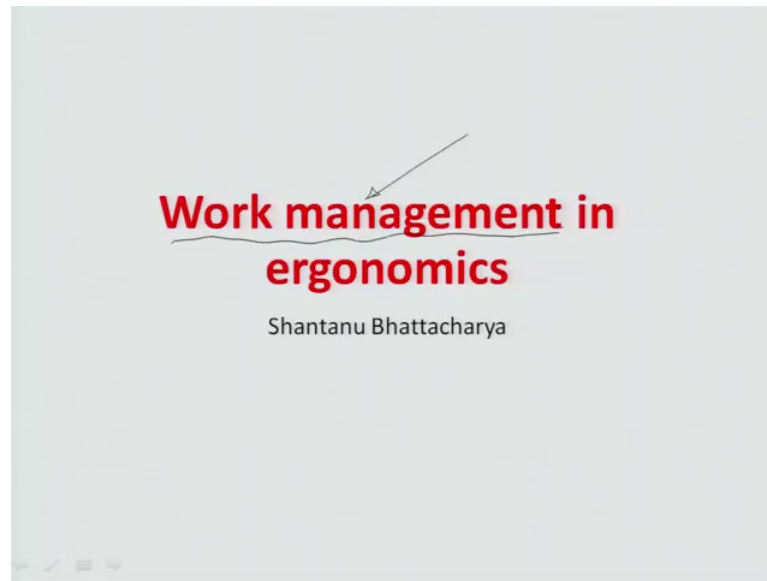
So, there is other side, which is also sort of working hand in hand with organizations like OSHA. So, there is this national institute for occupational safety and health, which mainly focuses on the research aspect of how guidelines could be revisited or change from time to time, based on different situations ok.

And it does have some educational functions, which can be improved. I mean you know maybe preparing a class of people, who are trained to create such high level national and international safety awareness programs etcetera. So, such an institute which is working in close collaboration with the organization like OSHA. Typically finds hazardous type of working conditions by certain scientific methods, reviewing the systems, which are in place and doing some research, so that such hazardous types can come out very clearly on basis of certain parameters, which have been laid out in, and then helps.

This also helps in improving the norms, or the legal standards which have been set up by organizations like OSHA. So, the other issue; that is addressed by this kind of institutes, is to sort of prepare the standards, and recommendations which can be followed by human factors professionals for doing safety management, as well as understanding safety.

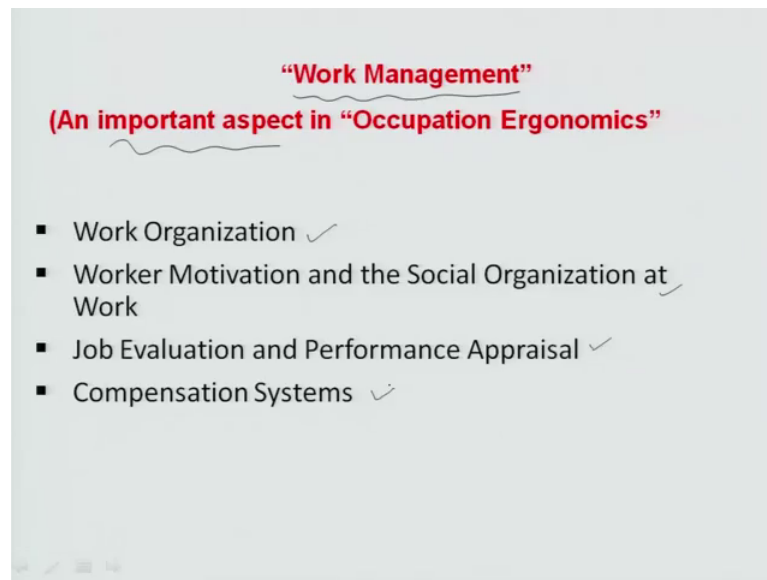
More human factors particularly related to the work systems. So, this is a sort of a small cartoon which says it all, that you know what is meant by safety. So, typically this is sort of a reverse connotation that manager is talking to his subordinates, saying that you have been chosen for a the design of a safest nuclear power reactor, and the concerned engineer that he speaks to basically says that I am flattered, and you know I am really obliged that you had a trust in me, but he, the manager says that do not build near my house. So, safety is something which has to be in place in a proper manner so that such kind of altercations. So, it kind of, says how important it is to believe in safety if you really want to be somebody, who can administer safety.

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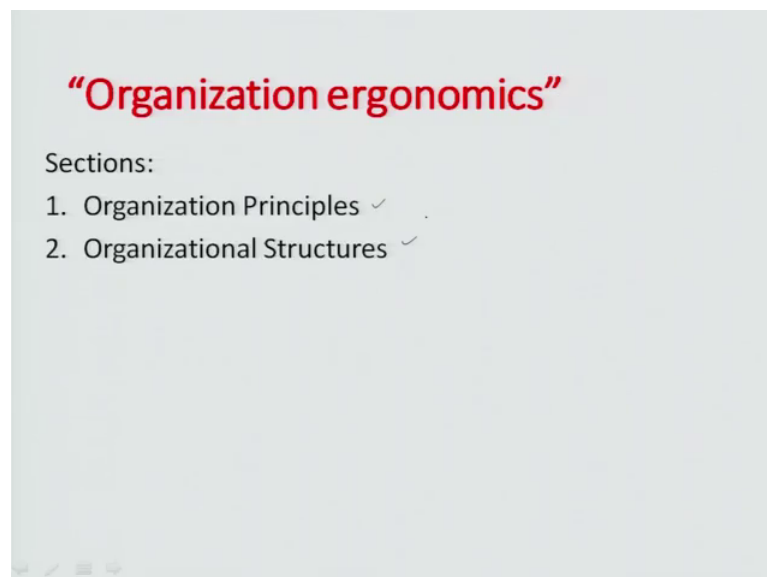
So, we will actually go to the next topic now, which is about work management. Work management is a very important terminology, associated particularly with ergonomic, because kinds of gives you in a sense of how the information should flow, who directs whom. What is the degree of control that a person has, and these are very important concepts as related to implementation of a work system, and implementation of operations within carried out, within the work system, and there have been some learning experiences from quite a lot of time right, from the time of Gilbreth actually, which talks about the first line diagram or line organization chart, which talks about how this kind of groupings can be made, divisions can be made within the work system itself.

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So, we all do agree that work management is really a very important central aspect in occupation ergonomics, and basically the concepts around which this area of work management evolves, means work organization, worker motivation and the social organization at work. It also talks about job evaluation and performance appraisals.

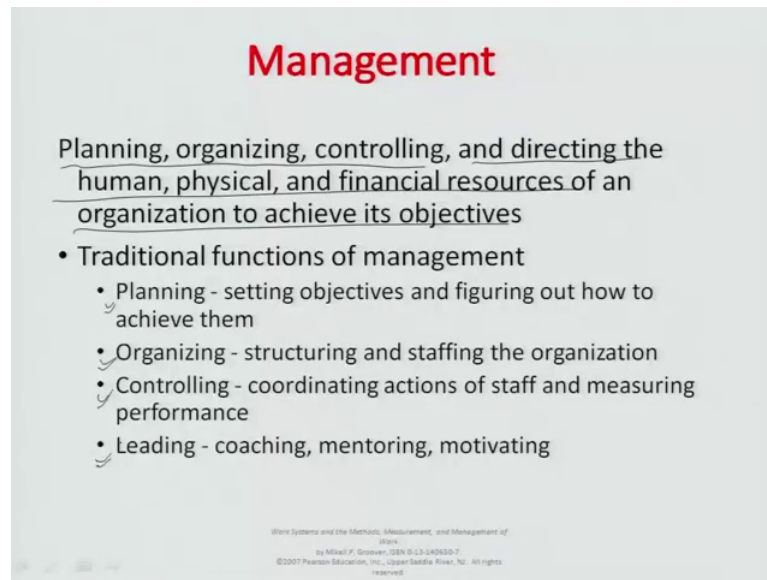
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And what is the importance level for such tasks, and then about compensation systems. Generally, if we look at organization ergonomics, there are certain sections which talk about organization principles, organizational structures. The basic function of

management particularly work management, is about planning, organizing, controlling, and directing the human physical and financial resources of an organization, to achieve its final objectives.

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Management

Planning, organizing, controlling, and directing the human, physical, and financial resources of an organization to achieve its objectives

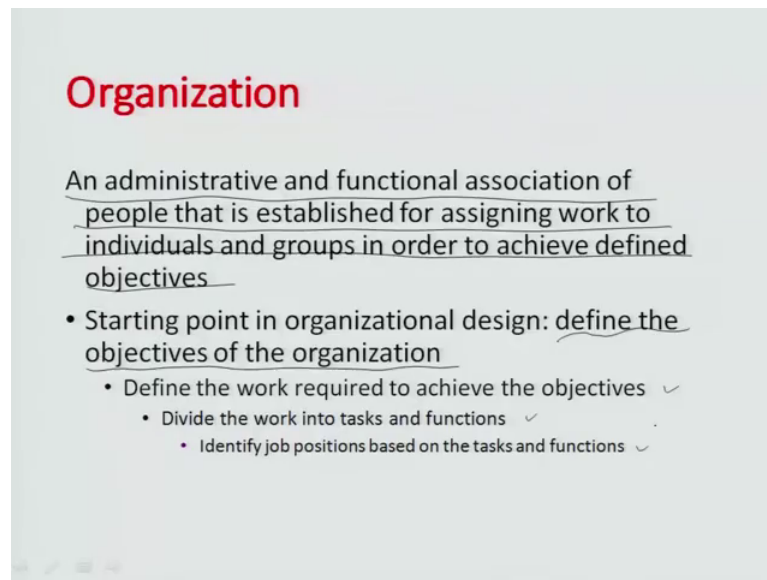
- Traditional functions of management
 - Planning - setting objectives and figuring out how to achieve them
 - Organizing - structuring and staffing the organization
 - Controlling - coordinating actions of staff and measuring performance
 - Leading - coaching, mentoring, motivating

Work Systems and the Methods, Measurement, and Management of Work
by Mikell P. Groover, ISBN 0-13-240950-7
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If we look at some of these traditional functions, and try to classify management into various functionalities. So, the first is planning, which is about purely about setting off objectives, figuring out how one can achieve those objectives in a limited amount of time, organizing, and you know it is about like, what is the structuring and staffing mode within the organization, what is the level of control that each person would have over others, and in what direction the information should flow. So, these are some things related to the organizing part, and there is also very big responsibility of management, which is about controlling. And controlling typically means coordinating actions of staff, measuring performance trying to give feedback.

So, that performance improvement can be envisioned, and this way a system would run. Then we talk about leading, which typically includes coaching, mentoring, motivating so on so forth. So, that is what management does in terms of different basic tasks, constitution tasks. And when we talk about an organization, really the definition you know of an organization.

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Organization

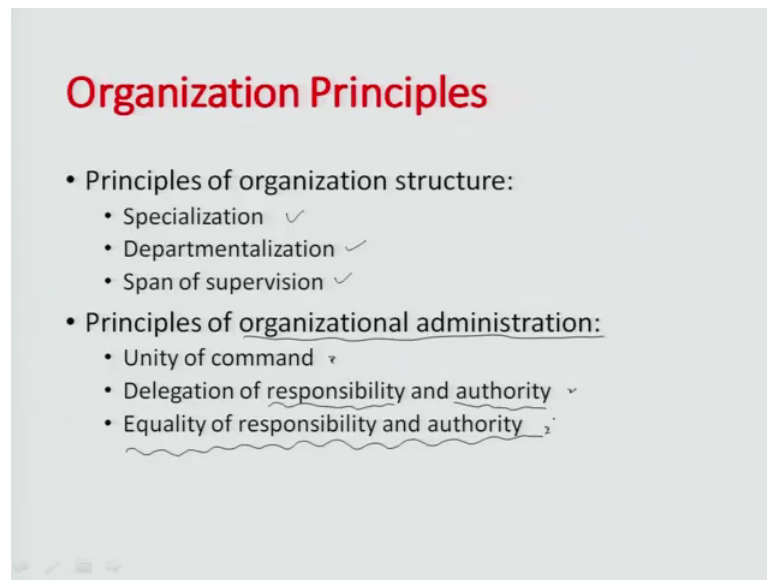
An administrative and functional association of people that is established for assigning work to individuals and groups in order to achieve defined objectives

- Starting point in organizational design: define the objectives of the organization
 - Define the work required to achieve the objectives ✓
 - Divide the work into tasks and functions ✓
 - Identify job positions based on the tasks and functions ✓

If we look at, is really, it is an administrative and functional association of people, that is established for assigning work to individuals and groups, in order to achieve defined objectives. The starting point in organizational design, is really to define such objectives for an organization.

And this can start with defining, and the work required to achieve objectives, or divide the work into tasks and functions identify job positions, based on tasks and functions. So, it is about really a structure, which needs to be in place for determining the flow of information, in the flow of work and tasks, and who does what. So, it is basically almost like a job assignment kind of an activity, when it comes to designing the basic organizational structure.

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So, some of the principles which are generally used as guidelines for structuring organizations are; it can be driven on specializations, for example, we can create cadres of people working for a system, or an organization who have similar kind of specializations, and competitively evaluate them against one another. There can be a way to departmentalize, or let us say put things into sections.

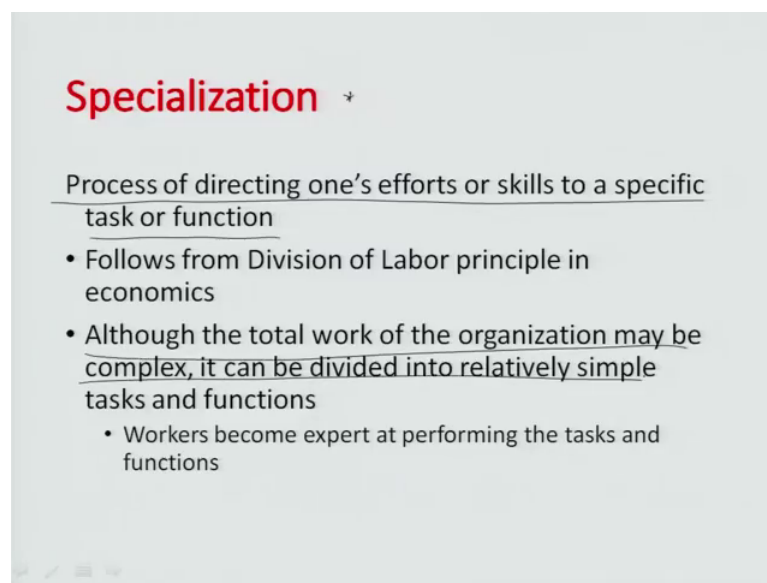
Where you know we can talk about separate activities in terms of value addition to a product line, or in terms of a separate class of service; that is being provided and try to associate specific functionalities with those smaller units, which would together contribute to give the overall product or service coming out of a work system. So, that is called departmentalization. Let us look at a for example, an automotive manufacturing unit. If we look at the automotive manufacturing as such, there are many different processes which add value to the automotive right, from the press shops there to the weld shop to the paint department to the assembly department, to the vehicle inspection. Let us say for example, to the q I quality inspection or q a quality assurance.

So, there are different such divisions, which are either directly involved in the process of the manufacturing. There are some auxiliary or support departments, which would be responsible for all the material, logistics material, flow logistics of finished vehicles, logistics related to different vendors, who are providing support services in terms of components meeting of schedules of delivery quality of the parts, which are coming in

and. So, each of such functionality which can be discretized is sort of departmentalized. So, you know organizations could be build on principles of such departmentalization. Similar kind of strategies can be followed in the service sector, just as we are following in the. I mean just as, one can see directly in the production sector also.

The basic principles that should be followed for organization structuring, is the span of supervision that what is the degree of control of one particular in charge or person, and what is the span over which such supervision can be exercised.

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Specialization ↗

Process of directing one's efforts or skills to a specific task or function

- Follows from Division of Labor principle in economics
- Although the total work of the organization may be complex, it can be divided into relatively simple tasks and functions
 - Workers become expert at performing the tasks and functions

For example, again coming back to; let say the production division of a company, there could be many stakeholders; one could be some kind of a division manager, who is responsible overall for the whole production division. There could be again some you know sort of deputy divisional managers, which are there at different levels. For example, if there were more than one plants within an organization. So, each plant would be quote, unquote reporting to the divisional manager of the production for steering the overall production activity, within the plant, but then each of such plants would have a sub divisional head or a deputy divisional manager, and this can again come down all the way to different departments within a certain division, which would be producing the main product or main, you know whatever deliverable is there for the work system so on so forth. So, each would then have it is own span of control.

For example, the D V M is responsible for controlling the vast majority of people, who are within the production unit is of the, that the company. Whereas, the plant one or plant two, or let say unit one or unit two would have again a sort of a sub unit, over which the control span would of the manager, who is going to look after that. This is sort of span of supervision based structuring of organization. Also there are, you know certain principles of organizational administration, which I will come and describe later; for example, unity of command delegation of responsibility, and authority. There are different associated definitions also with what, really we mean by responsibility or authority of individuals.

And then there is also principle of equality of responsibility and authority. So, there are different principles on which, again different organizations structures could be or organizational administration structures could be developed. So, we look at these concepts one by one in certain order. Let us talk about specialization. So, you know there is the ultimate goal of an organization is sort of characterize, or divide a sort of total amount of efforts, or skill sets to a specific task or function. So, specialization is really a process for directing such efforts, and this follows from division of labor principle in economics.

Although, the total work of the organization may be complex ,it can be divided into relatively small tasks and functions. So, I was talking about specialization and. So, basically this is about division of people, according to their expertise I think. I also mentioned that when we talk about expertise. For example, if we look at certain work system, for example, automotive shop, again you have people, who are expert painters, you have people who are expert at welding, you have people who are expert in basically repair and service. So, you could create categorization in an organization, based on their selected specializations and route the people accordingly. So, that the efficiency, efficacy; that is evolved in delivering the work maybe 100 percent.

So, you can also prepare organization structures based on this departmentalization concept. For example, you know in process of organizing positions with similar tasks and functions in two separate administrative units, you could create some things called departments.

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Departmentalization ✓

Process of organizing positions with similar tasks and functions into separate administrative units or groups

- Grouping usually based on:
 - Purpose - type of product or service
 - Function - type of work performed
 - Place - geographical location
 - Clientele - type of customer (e.g., consumer, industrial, government)

You know for example, again if we look at a work study system or a work system like an automotive shop. There could be departments related to the different aspects of the vehicle or departments, which would provide support services to those, you know basic production activities. For example, there could be main departments including the press shop, the weld shop, the paint shop, the assembly shop, the engine shop, you know the transmission shop, and the machine shop. And then also there are sub departments, which are again responsible for catering to the services, catering those services which are essentials. For example, there could be maintenance associated with each shops, which could have different departments. There could be parts quality inspection or a quality assurance department which checks the final product.

There could be a vehicle engineering department, which checks about different you know problems, where innovative problem solving is needed etcetera. So, there are so many different, there is a whole supply chain wing, which ensures that there is timely delivery of the product. So, there are different compartmentalization of these similar tasks, or similar task types into sections, which you know as departments, and you know the grouping can happen generally of those tasks, based on the purpose. For example, let us say we are talking about a type of product or service, product could be transmission housing, and so the whole activity behind a transmission housing would be something, where the basic housing comes from the vendor.

And then machining is subsequently done, and then some you know q a activity is done on that transmission housing. So, this could underlie, or this could come out all the

transmission housings of all the different products could come out under one department. So, with the purpose of the type of product or service; that is intended for there, could be task grouping. There could be task grouping based on functions. For example, in this particular case, when I was mentioning about machining shop, the basic activity or the task which is performed on to, either transmission casing or parts related to, let us say engine blocks or a head, which comes from engine head, which comes from the. Let us say the vendor end you know the basic task is machining.

So, therefore, you could categorize these under one department of machining, which does for different vehicles, and then further based on the workload content. If there are multiple plant units, which are there within one particular you know automotive, you know assembly center or automotive production center. There could be different models on different lines, they could be different departments. For example, typically you can divide assembly into assembly 1 2 3 4, depending on what kind of models are being introduced. And so there can be machine 1 2 3 4, engine 1 2 3 4, paint 1 2 3 4, and. So, basically there are subdivisions based on what is the quantum of work, that one single department can handle. So, that is function based distribution or structuring of the organization, there could be you know geographical location vice departmentalization.

For example if I talk about the service, providing service to the vehicles there could be one service center or work service office, head office, which could be in probably the north zone 1 or north zone 2, meaning thereby that some states are covered under that particular office. So, whatever is the service activity related to spares routing, or for example, even providing, you know service camps or even service at the dealer end; the training monitoring the quality of work etcetera. This can be taken care of by a regional, a certain regionally located center, which could be called service north 1. So, similarly if the place changes, let us say if there is somebody in the eastern sector catering to a few states, there could be service eastern sector.

So, this is the way that you could categorize into different departments, based on geographical locations. Finally, there could be clientele, based you know departmentalization, which is depending on the type of customer, example there could be you know a department of consumer products; the department of industrial products. Let us say if the type of customer is the government, then there could be a different department, based on, who is the particular customer. So, these are the different thoughts

that go in, while we are structuring an organization about the different compartmentalization, which can be done for this structuring.

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The slide is titled "Span of Supervision" and is underlined with a red wavy line. Below the title, the text "Number of subordinates under a given supervisor or manager" is underlined with a red straight line. A bulleted list follows, starting with "Influenced by factors such as the following:" and listing six items, each with a red checkmark to its right.

- Level in organization ✓
- Capabilities of supervisor ✓
- Capabilities of the subordinates ✓
- Employee turnover rate ✓
- Complexity of problems and issues ✓
- Nonsupervisory duties ✓

Again there can be structuring based you know on the span of supervision, and this really includes who reports to, who for example typically if the classification of an organization or structuring is done on the basis of the number of subordinates, under a given supervisor, or a manager. There could be certain zones, within which the manager operates, and this would definitely be influenced by factors; like what is the level in the organization, what is the capabilities of such supervisors, what is the capabilities of the subordinates, what is the employee turnover rate, the complexity of problems and issues evolved, while dealing you know in the supervisory level, or some non-supervisory duties if any.

So, basically you can categorize or classify again sections of the organization structure, which talks about span of supervision. For example, if I just look again at a vehicle assembly line, we could divide typically the assembly line into four different areas, which means you know there could be a trim line. There could be a chassy line, there could be again subdivision between chassy 1 and chassy 2; there could be a final line. So, what happens is, that in each such zone, where there are certain selected kind of tasks, there could typically be one supervisory authority, which is basically the. To whom

all the stuff of that particular section would report. So, therefore, such could be a sort of a classification of the organization, based on to whom you are reporting ok.

So, these are different strategies which one would typically use for creating of, you know organization structures. So, you know it basically again depends on what is going to be the top down order of the organization, and there are different kind of flow systems, where you can talk about structures, which are completely vertical or completely lateral, depending on how you would like the reporting to be done in what kind of task.

And so structuring could be done based on that as well, but we would like to wind up this particular lecture, but in the next module talk of some issues related to the organizational flow diagrams etcetera.

Thank you very much.