

Applied Ergonomics
Prof. Shantanu Bhattacharya
Department of Mechanical Engineering
Indian Institute of Technology, Kanpur
Dr. Ankur Gupta
School of Mechanical Sciences
Indian Institute of Technology, Bhubaneswar

Module – 03
Lecture – 14
Organisation Ergonomics

Hello and welcome to this Applied Ergonomics, lecture 14. We were talking about the different strategies which can be used for structuring of organizations and. So, in line of that we saw some of the basic themes; like specialization based structuring or departmentalization based on grouping task of similar types under one domain, or even you know depending on the span of supervision one could possibly structure certain organizations, and in principle. All these are followed from time to time, even in a single organization when we talk about decision making regarding the structuring of system related to such organization. So, let us look at some aspects, particularly in the area span of supervision just.

Because there is a issue of control of you know many subordinates by one authority, or one supervisor. There has to be a certain unity of command line, which has to be followed. It should not appear as if you know one person is reporting to multiple stakeholders or multiple supervisors and taking instructions which are conflict in nature between the different supervisors. So, that there may be some kind of issue about the tasking process. So, in or designing certain organization structures, one has to keep a view of the fact that, if supposing we want to have a line diagram for an organization, there should be, by enlarge a possibility of very less crisscross as far as reporting is concerned, of a certain employee of a certain subject to a certain supervisor ok.

And. So, in general one should avoid multiple supervision activities, unless the task involved are very interdisciplinary in nature, where there are multiple organizations stakeholders, which are involved in taking decisions. So, we need sort of you know the unity of command principle in order to structure organizations.

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Unity of Command

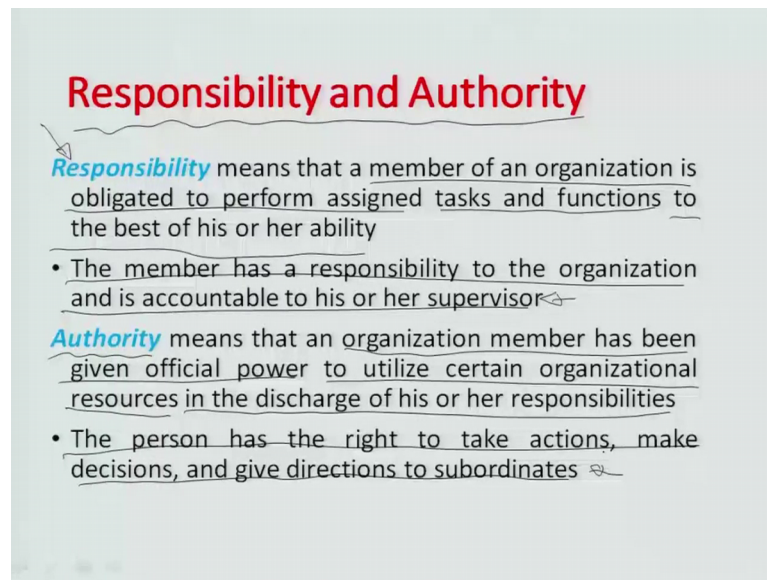
One person is in charge of each administrative unit at each level of the pyramid, including one person at the very top of the organization.

- Person at the top has overall authority and responsibility for the whole organization.
- Every employee reports to only one person (e.g., foreman, manager, VP, etc.).
 - No worker should report to more than one boss.

So, therefore, one person you know is in charge of each administrative unit, typically that is what the strategy is, what is followed, and that is at each level of the pyramid including one person at the very top of the organization. The person at the top has overall authority and responsibility for the whole organization, and every employee reports to only one person, example for you know you can report to either a foreman or a foreman can report to a manager.

And manager can finally, report to a wise president etcetera. So, there should be a sort of a vertical line drawn between the different you know subordinates, reporting and reporting authorities. So, the principle that I again generally describe before an, it is followed in globally, is that no worker should report more than one boss; otherwise there may be issues related to the responsibility and authority of such members.

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Responsibility and Authority

Responsibility means that a member of an organization is obligated to perform assigned tasks and functions to the best of his or her ability

- The member has a responsibility to the organization and is accountable to his or her supervisor

Authority means that an organization member has been given official power to utilize certain organizational resources in the discharge of his or her responsibilities

- The person has the right to take actions, make decisions, and give directions to subordinates

So, let us look at the definitions of all these two terms responsibility and authority. So, responsibility means that a member of an organization is obligated to perform an assigned task, and assigned function to the best of his or her ability.

So, this is something which is designated. For example, you have to define quantum of work in a work system, and you have to define different task for jobs in a work system, and as I think mentioned in my previous lectures, it has to be down to the level of even a very small task of picking and placing a material from one place to another. So, you have to divide the whole systems in to such tasks, and jobs. Now the question is, whom you are making responsible for, what set of jobs and task also need to be very well defined. For example, if I want to have a foreman in place at a certain area, looking after a bunch of workers in that particular area, then one should have give him a domain of responsibility.

Which he should carry forward and for which he should be responsible. So, that if there is any noncompliance to that responsibility, for which a task does not get accomplished or done, then one can hold him accountable for such a lapse on his part. So, therefore, responsibility basically has to be coined in terms of a good task structure, given to an individual the member has, of course a responsibility to the organization he is accountable to his or her supervisor. So, that is definitely where the information comes top down. So, if supposing there is a noncompliance, which is being felt; one has to

listen to the person; that is authorized to give instruction to the concerned person he has to believe ok.

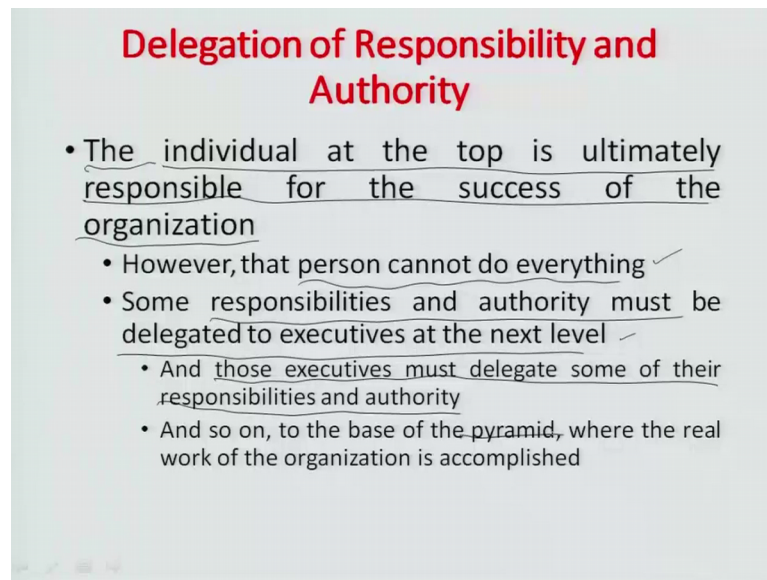
And. So, basically these are some associated you can say co responsibility is given to an individual, that one who listens to a top down information about noncompliance or about something related to whatever intended task, was meant to be executed, you know has to listen, has to act to the concerned supervisor or authority, to whom the concerned person is reporting. So, in line with that, we would like to bring out this system authority which means that an organizational member has been given an official power to delegate these responsibilities, to utilize certain organizational resources, and this direct these resources with the delegation of the responsibilities to the different people.

That comes under his span of supervision. So, that they can discharge the responsibilities well, which have been delegated. Now this person typically would have a right to take the action, make the decisions, give direction and in turn, is responsible to his higher up within the organization for getting a domain of work finished in times. So, now, this structuring of the task has been made in a manner. So, that the top down order can get distributed into many responsibilities centers.

And therefore, the span of attention of an individual can get more better implemented, because of such distribution. If supposing, if I alone for example, sitting in a manager's position, who are responsible for the whole domain or a whole quantum of work. Of course, I am responsible, but I have a subordinate whom I can entitle to be responsible in a certain area or division of that task.

So, this definitely makes this span of attention more close control. It also definitely makes the monitoring of non compliances much more close control, and depending on how you have laid out structure, really a efficacy or efficiency of an organization would come out. So, therefore, it is about dividing the responsibility and authority in a judicious manner, which would prevent, which would let an organization structure be very different in terms of its performance.

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Delegation of Responsibility and Authority

- The individual at the top is ultimately responsible for the success of the organization
 - However, that person cannot do everything ✓
 - Some responsibilities and authority must be delegated to executives at the next level ✓
 - And those executives must delegate some of their responsibilities and authority
 - And so on, to the base of the pyramid, where the real work of the organization is accomplished

So, when we talk about delegation of responsibility and authority, the individual at the top obviously is ultimately responsible for the overall success or failure of an organization, and therefore, if some problem arises. Because of which there is limb and life loss, or some safety concern is there. Or let us say for example, something related to the quarterly performance of an organization comes forth. Sometimes the people who are at the top or the helm of fair at that administration level are the first to take the casualty.

So, therefore, the individual at the top has to have the necessary qualifications to distribute task in an appropriate manner within his organizational structure, where he is quote, un quote responsible for any failure which would happen to the system. So, this is typically why delegation is needed, as I told you is that person himself cannot do everything, and some responsibilities and authorities need to be given or delegated to the next level and further these executives.

Where this has been deliberated, has to be delegating it to some other responsibilities, and authorities in this way a pyramid is built up, where the basic task is structured into many sub tasks, and in a very well defined manner. You have knowledge of who does what, in order to complete the whole overall you know picture in terms of success of the organization. So, typically such pyramidal structures are very common place, starting top down from the head of the organization to the smallest.

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Decisions ✓

At what level should decisions be made in the organization?

- General guideline: decisions should be made at levels as low as possible in the organization ↵
 - Provided that the decision makers have sufficient knowledge and information to make good decisions
 - Called worker empowerment when made at the lowest level in the organization
 - Avoids supervisors having to make routine decisions ↵

Let us say level of task accomplishment which happens for the running of an organization. So, let us now talk about decisions is very important, that when we are taking about organizational tasks.

And organizational structuring at what level decisions has to arise, and what are the kind of decisions are there. Any guidelines which should be followed regarding the decision making process has to be properly adjust. So, the basics central question, what is important here, is that what level should decisions being made in organization, and generally the guidelines which are there; say that decision should made at levels as low as possible in the organization, because again the philosophy is in some of the organizations is unless I am able to see the actual thing at the actual place, you know by going to the actual place, I should not be able to take the right decision to solve a matter ok.

So, therefore, if it is down the level that you are delegating the decision making responsibility, then you do not have to every time intervene, unless there is something where you need to make a systemic improvement and reorient the decision making process to a certain direction. So, this is called worker empowerment, when made at the lowest level in the organization. And if we can do this, we need as less supervisors as possible. believe one thing that needs to be believed at this kind of a top down structure, is the lesser the number of supervision authorities, the more would be the productive

work coming out, because some times, because of the human nature and associated you know system of this structure, there may be conflicting interest between these span of supervisions of two or more authorities at some middle level of an origination.

And because of such conflicts, there may be non performance overall happening which need to be removed. So, if the decision making is done at the fundamental level, at the route level. Then such problems may not come out, because now you empowering almost everybody which is in the work chain from top down all the way to the. So, from down the minimum level all the way to the top. So, that you know you can have these span of supervision only limited to certain extent, you know to certain task or certain responsibilities, not over the whole lot of responsibilities.

So, typically if one can avoid supervision or supervisors to make routine decisions that is typically the best example of a working or a running organization. Otherwise there will be time delays, there will be conflicting interest, there will be all sort of you know non compliances which happen.

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Routine Decisions

Decisions for which rules have been formulated to guide the decision maker

- As long as the situation fits the rules, then the decision is more or less automatic
- Nonroutine decision making situations:
 1. Policy-making decisions
 2. Exception principle

Because of such decision making challenges on different levels. So, what are the kind of decisions that people would typically take. So, there are routine decisions for which rules have been formulated to guide the decision maker. So, you just go by what is written somewhere, and documented somewhere to arrive at a decision you know. for example, if I wanted to be a quality supervisor, and if I would look at, let us say a production line I

would exactly know what are the parameters that I have to monitor for a certain week, for a certain month, for a certain day, and how many times I have to monitor that and what is the measurement yardstick that has been used to monitor that and then how to record that data.

So, I would exactly be ruled driven on that in terms of the knowledge; that is recorded documented somewhere for my action to be. So, the decision making, that I have to do, is just follow that guideline which is there in order to implement the task or responsibility; that is there in my hand. So, these are routine decisions, and as long as the situation fit isthe rules, then the decision are more or less automatic. You need not worry even at the supervisory level, why a person is doing something in a certain manner, as long as there is noncompliance, which is involved from the rules. There is no supervision which really is necessary, if supposing; however, there is a deviation from the set rules or the set guidelines, then there is a need to look at, and there is some involvement of the supervisory authority.

So, therefore, and then there can be non routine decisions. These are routine decisions. earlier whatever I mentioned non routine decisions, could ride a situations where we talk about some kind of a policy change, you know for today; for example, in a lean manufacturing system, I am operating at about 20 percent more inventory, and I feel that there are lot of bottle necks, which are there, because of the later arrival of the system of the trucks which are delivering the material and. So, therefore, a policy decision needs to be taken that can, I raise this from 20 to 25 percent extra inventory. So, this is a decision which has to be arrived at with multiple stakeholders, not a single in stakeholder. For example, there has to be the involvement of the supply chain department. There has to be involvement of the Q A or the quality assurance department which actually records the part, and does inspection before sending it.

There has to be recording of the materials department, there also have to be a, say of the ultimate source where the material is routed into, it could be a well department or a press department or even a paint department or the assembly departments. All these people need to get together for making such a policy decision. So, these kind of decisions are typically known as non routine decisions, and we normally use. The non routine decisions in case of any exceptions any deviations which are not being thought of example.

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Nonroutine Decisions

- Policy-making decisions vs. operating decisions at a given level in organization
 - Policy-making - made at next level above ✓
 - Operating - routine decision made at the given level
- Exception principle
 - Circumstances of the situation not covered by the normal decision-making rules ←
 - Decision maker might want to bump the decision up to some higher level ↘

So, let us look at the non routine decision, in terms of policy making decision verses operating decisions. So, typically policy making decisions can be made at the next level above or.

Basically again at certain different levels, but not definitely at the level where the decision has to be taken, levels higher than those levels and policy ((refer time:14:41)) decision could be related to something, where multiple stake holding is involved. Now operating decisions or routine decisions are generally which are taken at that particular level. For example, today I have some material shortage on the assembly line. I will not definitely go to my supervisor above to see where the material is, but my responsibility is to look into where such material is, within the other different material sections and trying to arrange something. So, that there is no lines stoppage. So, that is my direct decision making, for which no supervision or no supervisory control is needed.

So, only thing is there is a system in place. Let us say for example, if I wanted to go to the materials store, or if I wanted to go to another line to get the materials. you have to do the respective, you have to follow the respective router system, including punching at that particular line, from where the material has been taken to addition in terms of computer punching, in the line stock, where the material is being transported to.

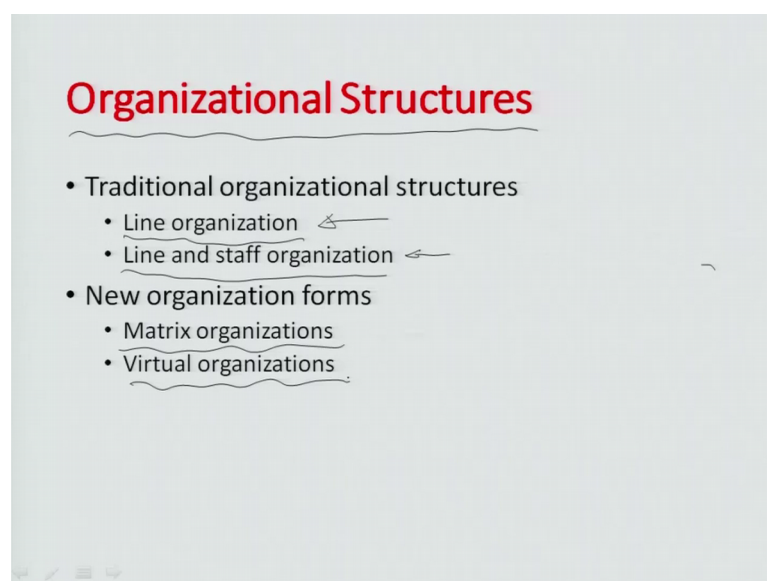
Now as soon as you take that decision, all the underline work which is there in order to implement that decision, also becomes your responsibility. So, that is how you take this

non routine decision making, probably which is above an, over and above the normal routine kind of decision making process, and then there are certain exceptions which would happen, while decisions are needed may be circumstances or situations, which did not arise before ok.

And did not and cannot be covered by the normal decision making rules. For example, let us say today there is a factory strike, which is there, because of certain demands of the operators, which are involved in a certain work system, and immediately the goal that happens is, how to solve the problem by looking into the route cause, and there are multiple levels involved, you cannot just do it. So, this is an exception principle that something which is happen all of a sudden, which probably was not there in the system, of which did not happens in the system, because of which decision needs to be arrived at. So, typically the decision maker might want to bump the decision up to some higher level.

So, who can actually help in order to each things, or in fact, at certain times he needs to have a collated thought or opinion among the several different members at the same level, before even going or approaching the up higher level, where some solution is proposed to the higher level for the final approval.

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So, these kinds of decisions are, what happens once in a while and they can be decisions needed, because of this exemption principle in terms of circumstances, that in an

organization may face. So, when we look at different organization structure. So, far we have discussed principles of how you can categorize different workforce into sections departments, based on span of supervision etcetera, but different structures that formulate as a result of all such principles are in traditional organization.

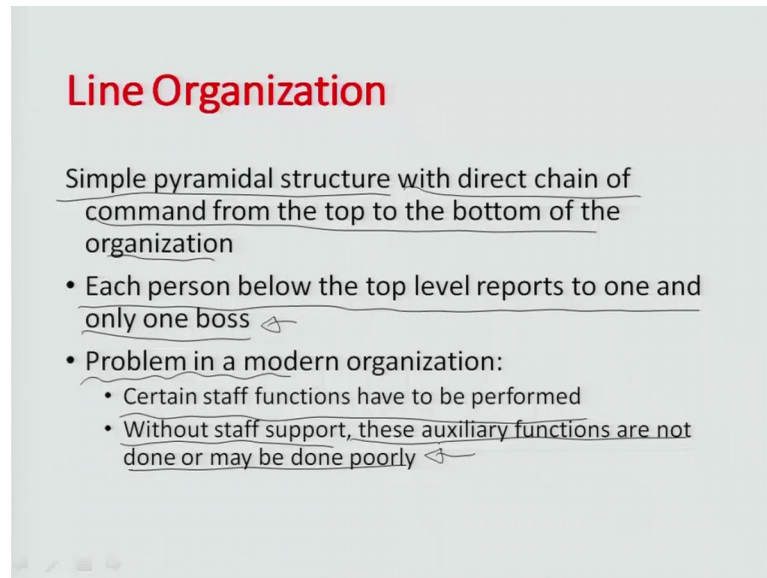
Where there are line based organizations, and line and staff organization. I am going to now individually do these two in little detail later on, and then there are these new organizational formats, which talks about matrix organization or virtual organizations. Also involving certain task or projects which are one of it is kind, where there may be more than one domain of supervision needed, or one you know involvement. So, for example, let us say if we talk about certain defect to be eliminated in an automotive, which relates to the different parts of the way that the automotive is being made. For example, it is a start at the press shop comes to the weld shop. There is some addition there, which need and everything is being reflected in terms of, finally, the defect which is coming.

For example we can look at a case of, let us say shower leakage. So, all these automotives which are produced on line, they do have tendency of leaking in rain water, while standing outside expose to the environment and shower leakage defect is considered to be a very sort of a red corner defect, because it generally creates a bad impression about the company, if a new automotive going out in a raining condition, or even condition of; let us say flooded the roads, where there are splashes etcetera start leaking, because of that. Now the leakage issue is a very compounded issue, where stake holding has to be from the sheet metal body itself, to even the weather strips or other small components, which are like related to how they would be giving enough pressure between the openable parts.

So, that there are full proofed ceiling of the automotive on all sides, and there has to be again involvement of multiple stakeholders. So, in such kind of projects which are highly specialized in nature. Typically there is a task force module which is created, which works in a matrix format by reporting, may be similar levels which are working together across variety of different departments, coming together to find out this solution for this quality problem. So, these kinds of a organizations are called matrix organizations. Of course, the same things happen now on a virtual level, given the digital era which has

come up. There are many organizations which actually work more on a virtual mode, and there these are the two new kind of organization structure which have you also.

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Line Organization

Simple pyramidal structure with direct chain of command from the top to the bottom of the organization

- Each person below the top level reports to one and only one boss ↩
- Problem in a modern organization:
 - Certain staff functions have to be performed
 - Without staff support, these auxiliary functions are not done or may be done poorly ↩

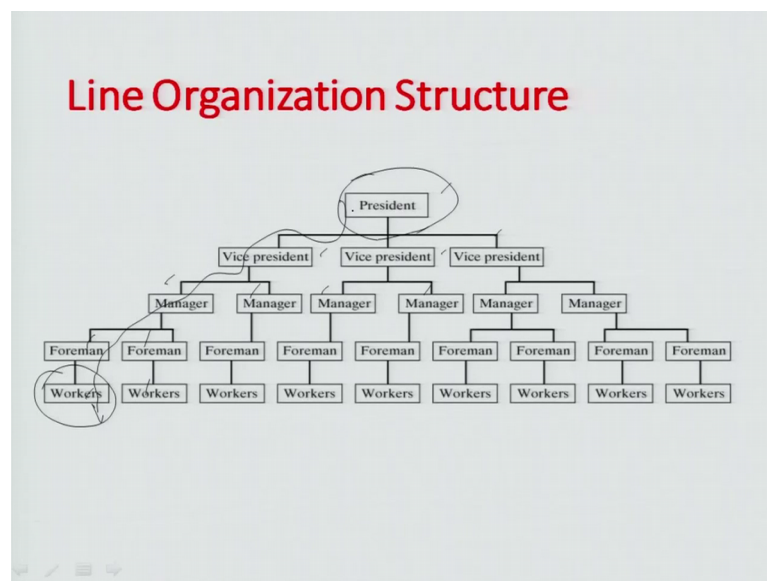
Let us look at a traditional organization structure first. the first one being the line organization. So, a line organization is typically a single pyramidal structure with direct chain of command from top to bottom of the organization. So, therefore, there can be probably a president, several wise presidents, several managers reporting to the wise president hence. So, there is a certain command line, which is being established from the top level all the way to the bottom level, and each person below the top level reports to one and only one boss, therefore, the person who is at the far end of the pyramid. Let us say the bottom of the pyramid will only be reporting to his foreman and not be accountable to; obviously, he is a accountable to the organization for running the show.

But he will not be accountable to anybody or answerable to anybody above his foreman, because this foreman has answerable to his next level so on so forth. So, this is a sort of a traditional approach in which information flow happens from top down, from bottom up in such cases so, but then there are certain problem associated with this line based organization, and particularly modern organization face all those problems, because of a some auxiliary service. Some times which are needed, which may not be able to get qualified as a real line organization. For example, without staff support any of the so

called higher ups in the organization may not be able to run the show, and their needs some staff supports at every level.

So, therefore, just reporting of several people to one person may not really be the only thing needed, but some other support staff in each level is also needed. So, therefore, sudden staff functions have to be performed in modernized organization, which has to be accounted for in the line, based on the organization, and without staff support, this auxiliary functions are not done, or may be done poorly, and it may reflect upon the overall success of the work system, which has been designed. And therefore, it is important that at every level we staff, and reports some or make some structures, which directly report to a single boss, whose job is completely define to that boss, apart from the main reporting, which is done from the value addition from the value chain, which goes into the product ultimately.

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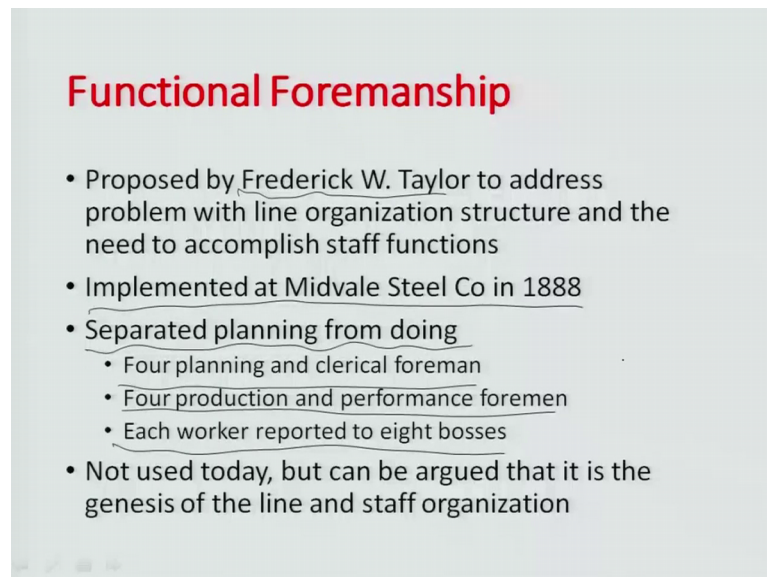


So, these are line organization structures, you can look at. There is a president, there are various wise presidents, for example, one could be marketing, one could be finance, one could be the H R. These are the different organizational aspects associated with the any organization. There can be managers reporting to each wise president, and there can be foreman's reporting to the manager, and finally, workers to the foreman. So, as you go along there is a top down approach, and there is a lined manner. So, this worker really will not ever meet even president. Of course, in modern organization the view is that the

interaction has to be not only top down, but also literally, because that way it will make people generally aware about the good things, which go on parallel. Of course, there is a shortcoming that even the bad elements or bad task structure.

Which is, let us say prominent at different levels may also come up, but then information flow in a way is useful, and therefore, this has to be a vertical as well as a literal kind of a information flow, as while the vertical information flow is more on a reporting mode. The literal worker information flow could be more on a peer flow. I mean a flow between the flow of information between the pears etcetera.

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Functional Foremanship

- Proposed by Frederick W. Taylor to address problem with line organization structure and the need to accomplish staff functions
- Implemented at Midvale Steel Co in 1888
- Separated planning from doing
 - Four planning and clerical foreman
 - Four production and performance foremen
 - Each worker reported to eight bosses
- Not used today, but can be argued that it is the genesis of the line and staff organization

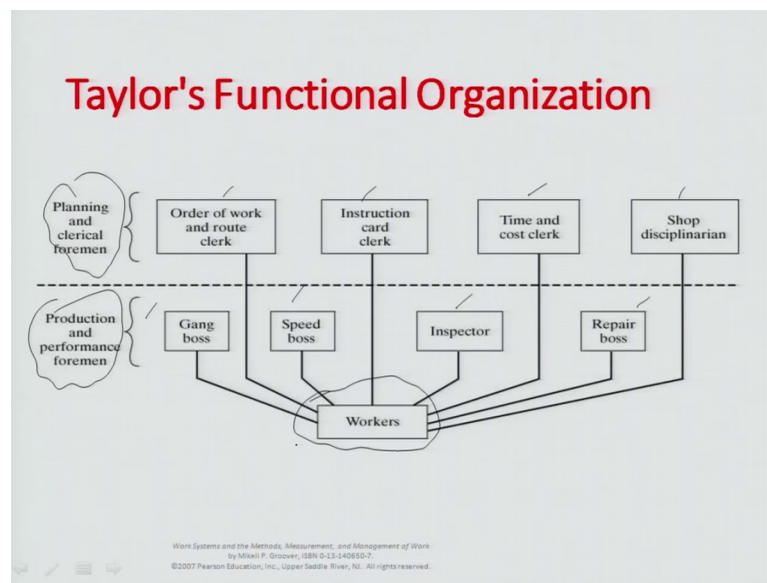
So, this is how a line organization structure would be typically generated, way back in 18 century proposed first time by Frederick W Taylor. This was implemented also at Midvale Steel Company in the year 1888, and this was one of the first instances when such a line organization was formulated. Although there was separated planning from doing mode which was carried out.

So, there was a staff function, which was typically in the clerical domain or planning domain, and a staff function which was staff function, which was there more in the doing or production or active manufacturing domain, and all the workers would have to report to both the planning domain as well as the manufacturing domain, which was really not considered to be a very good way, but then again this is the first time that one has evidence that there was a line organization structure being followed, or setup by some

corporation. So, there were four planning in clerical foreman, and four production and performance foremen, and each worker would report typically to 4 plus 4 8 bosses. Now this kind of organization structures are shall not used today. They can in fact, not be used today.

And it can be argued that you can suffice this through the line and staff organizational structure, which has been proposed later. So, typically this is how the plot looks like.

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So, you have a planning and clerical domain of work, and then you have a production and performance domain of work. There are foreman typically in all these different domains. For example, there could be a gang boss, a speed boss, an inspector or a repair boss, who are all in the production domain. and similarly there could be a work order boss, or a boss who is going to give instruction cards, or a time maintaining monitoring time clerk, or a again a shop disciplinarian, who look into the administrative activities, and typically each worker would have to report to all. So, although it is very inefficient form of organization structure.

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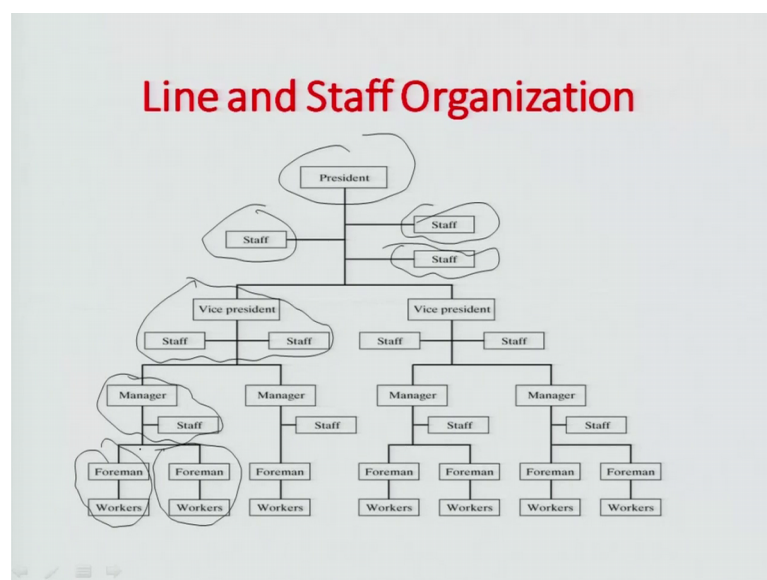
Line and Staff Organization

Basically a line organization with staff positions added at various levels to provide specialized knowledge

- Line components of the structure maintain the chain of command
 - Managers and supervisors can focus on managing
- Staff positions bring expertise to technical problems and administrative functions
 - Staff personnel can focus on auxiliary functions required to run the organization

But this is a sort of the first evidence of a line structure. So, this can be modified now into what you call a line and staff organization, which sometimes do prevail nowadays in bigger organizations. So, basically there is a line organization in principle as far as the reporting activity goes, and as far as the authority and the supervision span of control supervisory plan of control goes.

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And the only difference that line and staff organization would have is, that staff positions are added at every level to provide specialized knowledge. for example, let us look at this

particular you know line and staff organization pyramid. So, a president has individual staff, who may be responsible for giving him feedback. These are also known as advisors to the president.

One of them could be an expert on finance, one of them could be an expert on marketing, one of them could be an expert on some other domain, and so on. So, they would give advisement to the president, and then the similar staffing is done at every level. For example, even at the president level would have some staffing at the manager level, even would have a staffing. So, you may have a manager controlling two shifts, where he might put deputy managers, you know beneath him. Each of them responsible or making responsible for one particular domain of time, where the shift runs, and then there could be multiple foreman or a multiple workers various, based on; however, you are structured the organizations reporting to the manager and so on. So, this is how typically the line and staff organizational requirements are carried out.

So, line components of the structure maintain the chain of command, as you can see manager supervisors focusing on managing the show. And then you know the staff positions would typically bring expertise to the technical problems, and sometimes administrative functions and also they can focus on some auxiliary functions, which may not be really important for the value chain in a direct manner, but in an intangible manner they may be important to the value addition chain, and this is required to run the organization in a certain domain.

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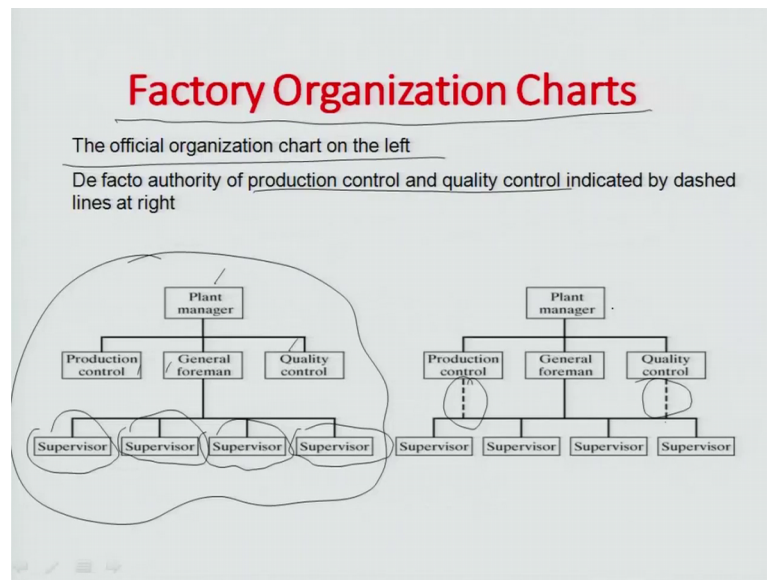


So, that is how line and staff organizations could be categorized. So, when we talk about staff functions, there could be again very nice description of different categories in which staff function can be performed.

There could be an advisory set of staff, where there is specialty functions in the areas in which managers need guidance. For example, legal public relation domain, economics domain. There can be control staff ,where functions that must be carried out throughout organization; like accounting or human resources carried out. There are service staff again which would provides specialty services. For example, there could be staff providing maintenance or helping in arriving at purchasing decisions, or even staff which would be responsible for the construction of different facilities or buildings within the framework of the work system. And there could also be coordinating staff which would provide, advice that must be carried out may be, let us say when we talk about P P C production planning and control or may be quality control.

These are the people who would actually not be associated with the value chain directly, but in a intangible manner, their presence is mandated by the various stringent norms that the market define or various norms, that even the proper you know working mode of an organization would define.

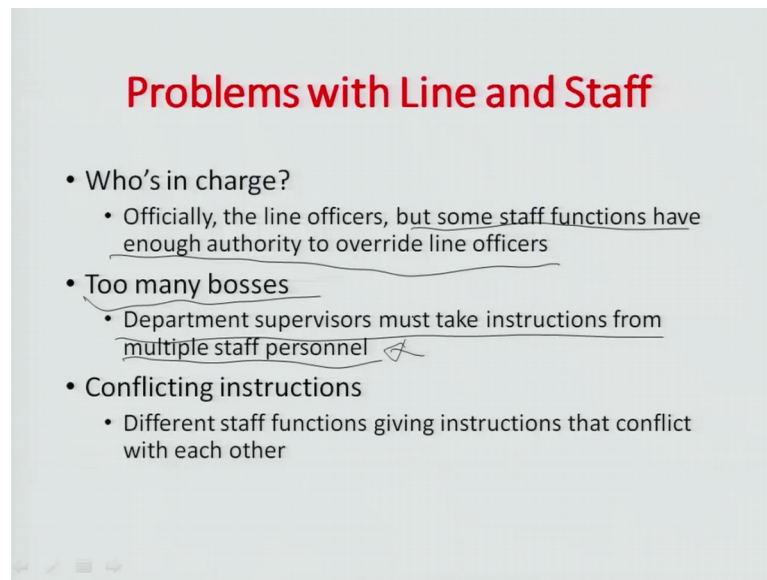
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And. So, these are the different categories into with staff functions, could be divided and typically a factory organization chart, which is prepared based on, again you know line and staff organizational framework is represented here. So, you can see a plant manager which is controlling again a general foreman, or a production control man or a quality control man, and general foreman looking into different supervisors each of whom have different work domains.

Which would typically produce something that are shop or plant has producing. So, the official organization chart is really, what this is on the left; although, the de facto authority of production control and quality control, always rest with the plant manager. Therefore, there has to be you know information through this dotted lines, as you can say directly transferred at times from supervisory level all the way to the plant manager through this routes so that the plant manager can take a decision based on, you know the quality control function, the production control function and also the actual production business, which is happening.

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Problems with Line and Staff

- Who's in charge?
 - Officially, the line officers, but some staff functions have enough authority to override line officers
- Too many bosses
 - Department supervisors must take instructions from multiple staff personnel
- Conflicting instructions
 - Different staff functions giving instructions that conflict with each other

So, it can be a decision in unity that is being taken. So, that is where we talk about factories, and how their organizations are laid out. Now there may be problems with the line and staff kind of organizations the first problem that would come in there is who is in charge. So, officially the line officers should be the in charges who are responsible for the value chain, which is happening in terms of value addition to the product etcetera, but then at certain times, there may be some staff functions; like let us say if I talk about production control or quality control. They are also in a way although, they are not directly reporting, because the line of command reports only to the plant manager, but then they may be intervening in the process of production, because of the requirements which are being set by or defined by the customer or the market or even you know.

So, basically there is certain degree of control, which is given to these auxiliary staff function. So, some staff function may have enough authority to override the line officers, even though the line officers are the one who responsible for the value chain more than any others, but then you can call this policing or a necessary evil, which is needed for; let us say proper quality to be maintained or proper timely delivery of products to be maintained, which are very encompassing reasons for the plant manager to take an executive decision about, you know looking at various non compliances in different areas etcetera. So, another problem which happens in line and staff function, is that there are too many bosses. For example, department supervisors must take instructions from multiple staff personnel.

A person in engineering department comes and says that a particular plans section of, let us say a component in weld, which is coming from a vendor has to be repaired before it is used on line. So, this is an instruction that he has to take, because ultimately this otherwise not going to argument the whole quality, and then there can be again, yet somebody who says that today we need to manufacture a particular models. So, many numbers in a line, which was earlier, schedule to manufacture something else. So, he has to quickly arrange all the materials around it. And in fact, all the others in the value chain including the material, as well as vendor has to be initiated in order to run it, but then the decision comes again top down, because there is a sudden requirement of a certain model in the market, which has come up ok.

So, these are some issues where line and staff organizations miserably fail, because they have to report to multiple bosses in a way, and sometimes even they are reporting in a proper manner, work is happening in a proper manner. There are conflicting interest which would come in. For example, different staff functions may give instructions to directly to the value chain or people associated with the value chain, where there may be conflicting interest of each other on the staff function.

There may be a problem that the PPC or the production planning and control want a certain model to make. Although the quality assurance team says that this model has a particular component, or may be a multiple set of components which are still flagged, because there is some quality problem which has been looked at. So, there can be a problem in terms of this conflicting demand from two different sections, which may lead to the complete stoppage of the production etcetera.

So, these are some of the socialistic problems with line and staff, organization would actually look at the matrix and virtual organizations. In later on module in the interest of time today and I am going to close this module again.

Thank you very much.