

Project Management: Planning, Execution, Evaluation And Control

Dr. Sanjib Chowdhury

Vinod Gupta School of Management

IIT Kharagpur

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Welcome to the course Project Management. Today we will be starting Module 3, which deals with organization structure and culture. In this lecture, that is lecture 6, we will deal with organization structure. The concepts that will be covered in this lecture are factors influencing success of the project. What is an appropriate project management structure? Then what are the types of project management structure? What are the characteristics of each structure? Which structure is best for an organization? All these we will be covering in this lecture and the next lecture we will be covering further on organization culture. So, starting with, organizational structure, there are factors that influence success of the project.

In fact, there are many factors on this and all these factors we will be discussing in this course and in different modules. But, here to start with, we must remember that empirical evidence suggests that there is a strong relation between the success of a project and the authority of the project manager, the power delegated to him and the power he commands. These are the major factors in the success of the project. Then we will also discuss what is the appropriate project management structure.

In the next half an hour, we will be talking about this, but you can always say that, that the appropriate project management structure is one which meets the needs of the project and that of the parent organization. So, there should be a match between the parent organization's need and the project need. That will give you the appropriate project management structure. We will be talking about on this in next few slides. Then the project management structures are predominantly of three types, we will talk about this, and there may be combinations of it.

So, what are these? These are the functional form or functional project management structure, dedicated project team or another variation is the projectized form or the projectized structure and is the matrix structure. We will discuss all of these in the next few slides. Now to start with, we will start with the functional structure. All of us know

what is a functional form of organization. Functional form of organizations are, as you know, what are these? This is a functional organizational structure where we know that the division of work, that is departmentalization, is done based on the specialty of work, functional specialty of the work.

Like there may be say marketing functional specialty, marketing departments, engineering department, manufacturing department, procurement department, HR department, finance department, these are the functional specialty, they are grouped together. These are the functional form of organization. In project management structure, how it is done? And another is when it is done, what is a functional structure? Functional structures and when do you use functional structure? Now when your, the standard products are the predominant products of your organizations, those are the revenue, maximum revenue and projects are few, very few. In that sort of situation, we go for the functional structure because you do not want to disturb. Because the projects are very few and standard form of your organization is the standard products, standard businesses. So you keep the functional structure intact and these coordination for the projects are done through these functional groups.

So here what happens? When the projects are delegated, different segments of the projects are delegated to different functional groups as per the appropriateness of the project. Say this project may be segmented in marketing part, engineering part, manufacturing part, procurement part, so different groups will differ, will do their, their part. And the overall coordination may be done by a higher ranking official. Generally what is done? If some functions will have the predominant role in that project, suppose it is a IT project, then predominantly it is the IT department, some manager or the higher ranking official will coordinate and the marketing, finance, then the, your operations, they will do their part and give it to them. So these are the functional structures.

It is suitable when the projects are few and the standard products are the predominant form of the business. So you do not want to disturb that. So this way we go for the functional structure. Now what are the advantages and disadvantages of this? The advantage of this structure is you do not make any changes in structure, existing structure remains, so no disturbances. Then maximum flexibility of putting appropriate staff, appropriate specialist because each functions have their own specialist pools.

So they can pick up the appropriate specialist for that segment of the project. So then there is in-depth expertise. It means if the project scope is narrow, then the functional expertise within the group is good enough, it suffices. So a pool of specialists of that functions may have that in-depth expertise. Then after the project is complete, the post project transition becomes easy, the people who were working on that project, they can

go back to their original work because they are remaining within their functional groups.

So their absorption in that group is a natural phenomena. So easy post project selection, but the disadvantages of these are it lacks focus. Since the project is segmented to different group, different groups look it as a additional work. The group's main objective is their standard routine work. So they think it is a secondary or additional work burden to them.

So it lacks focus for completion. Then the integration. So since each group is doing their part of the segment, no one is having the full picture of the entire project. So the integrations among different, different groups are bit loose, is not very cohesive. Therefore, there is lack of ownership because each group is doing their part of the work.

So the full picture as I said is not, they are lacking it and sometime the different groups have different priorities for the project. Suppose it is a IT project, IT group will have high priority, but for an operational group, it is not a, it is not a any priority for them at all. Similarly for a marketing project, marketing departments will have a high priority, but for a finance and all it will not attract that priority. So different priorities for the different groups, it lacks the ownerships and also it delays the project duration. Project duration is mostly gets delayed and the, it is a slow moving because in the functional channel, your information flow decisions goes through that silo, that group, group wise channel.

The horizontal communications among different groups or different levels and all are not there. So official channel, normal channel, that information flows, decision taken. So as a result the project completions is slow. These are the drawbacks for the functional structure. Next is the dedicated project team.

What it is? Dedicated project team is say this is the functional structure. In functional structure that marketing, engineering, all these are there. Now suppose there is a special project you wanted to do and the organizations is having, this is a high priority for the organization, say next generation's technology development or next generation product development. So what do they do? One way is a, you remain, you keep your, this functional structure as it is, one end you put a project team, dedicated project team, which is headed by a project manager. You assign a project manager who is responsible for the success of the project and the project manager pulls the resources or the resources are allocated to him from the, as per the requirement from different functional groups.

They can, it can draw it from the existing functional group of, functional groups or the project manager can hire it fresh from the market. So these groups work in, in a cohesive

manner. Integrations of this group or different specialists are very cohesive and the integration is first. So you create a, this is called a dedicated project team. Here when do we use dedicated project team? As I told you that organizations require a special project to be done and like, for example I will give you the Lockheed Martin case.

They, they used this dedicated project team for development of the next generation aeroplanes. Similarly IBM in 1980 wanted to come to the PC manufacturing. So they knew that if they put this team in their main office and all what happens, there is over abundance of computer knowledge, bureaucracy, so it will not be successful. So what they did is, they put this dedicated project team in a warehouse in Florida, so to develop the personal computers for newly emerging market in 1980. So these are the dedicated project teams.

So what are the advantages of this? This is a very simple structure. You retain your original, that functional or any other structure and create a dedicated project team which are very cohesive in nature because the specialists are working closely and there the cross functional integrations is easier here because one project under the one project manager who is guiding, so the cross functional integrations are very close and also as a result of this the project completion is faster in dedicated project team. It is found empirically that if you wanted to complete it in a, in a fastest way then you make a dedicated project team or a projectized form which I will come it to the next slide. But the disadvantages of this dedicated project team is, it is expensive because you are putting the specialist and all exclusively for this project, exclusively they will dedicate it to single project whereas in the matrix structure you can share the resources and there is also the economies of scale is you do not get, you know, when you are dedicating to one project and also there may be duplications of work from here to with the other projects and all.

So these are expensive. Then there may be internal strife, internal strife in the sense like this group dedicated project team is insulated from the rest of the organization. So there is always an internal strife conflict sort of thing go on. The other people look at this dedicated team in a very, very cordial way and all. So there is always internal strife between this team and the rest of the organizations. There is limited expertise like in the sense that the people who are dedicated to this project are the experts and projects expertise is limited to the specialist's knowledge, competence and the expertise.

But had it been in the functional group, you can get the expertise from a pool of specialist. So this is one of the disadvantages and the post project transition becomes difficult because these specialists are coming from different functional areas. They are away from their parent group for a long time and after the completions of the project,

when they want to return there might have been many changes, many developments in their parent group. So their post project transitions become a bit difficult. So these are the disadvantages of a dedicated project team.

Next we will be talking about another form that is the Projectized Organization Structure. What is Projectized Organization Structure and when do you use Projectized Organization? Structure? We will be talking about it. This is a Projectized Organization Structure. Say this is the central engineering system. Say there are groups, functional groups like marketing, human resources but there are number of projects.

If the organizations have number of projects like say project 1, project 2, project 3, project 4. So, when the dominant work is the project, more than 75 percent of the, of the businesses comes from the project and the standard business products are few. Then you go for the Projectized Organization Structure. In Projectized Organization Structure you allocate the, your resources to the project. Suppose project alpha, project beta, project gamma, delta, so each project is having their own resources and project is here, each project is having their functional structure, say engineering, manufacturing, productions.

Under engineering there may be electrical, mechanical, software, all these. Under manufacturing fabrication, assembly, test, everything, this may be there. So the, all these, these specialist group of people, functional structures, this is under one project. So these are the, called Projectized Organization Structure and we use it when the number of projects are more in the organizations. Now what are the advantage and disadvantage? We have similar to the previous one, we have talked about.

When it is first completions, your completions of the project duration become faster, like dedicated project teams and all. So when the priority is to complete the project in time, you go for this. When there are too many projects you use this Projectized Form of Organization Structure. Then another is the Matrix Organization Structure. Matrix organization structure looks like this.

Here we will be explaining what is matrix organization structure and when do we use matrix structure. So here, what happens? The horizontal project management structure is overlaid on the, on the functional structure. That gives you a matrix organization structure. So in essence, matrix structure is a hybrid structure. It is the combinations of project management structure and functional structure.

Therefore, it has dual authority, dual reporting, for the people who are working there. Dual command of chain, one is the project management chain, another is the functional management chain. It compromises between the line management and the functional

management. So if you look at it, here it is the director of projects. So there are engineering group, manufacturing group, marketing group.

So director of projects is looking after the project administrations and he has the responsibility, accountability of all the projects. Project A, project B, project C, each project, there are n number of projects and each project has a exclusive project manager. So the project manager controls that project and the project team draws their, their specialist from the different groups, say from engineering group. They get the design, then the electrical engineering, then mechanical engineering, technical administration, these are the number of people they draw from manufacturing, assembly, testing half means this one person is shared in two projects.

So similarly project B, project C. Matrix structure evolved out of necessity because the resource crunch, resource availability is less, then you have to share the resources like say, in organizations it is often found, if you have 100 projects, you do not employ 100 accountants or 100 testing people. So what you do, generally the resources are 3 to 4 times less than the number of projects. So one accountant, one testing person, one quality engineer may be shared with 3, 4 projects. So you are sharing the resources, for that you are optimizing in a way.

So this is the matrix structure. So as I told it is a hybrid structure, it is two organizational forms, the project management, horizontal project management form is overlaid on the functional structure and it gives to the matrix structure. So when do we use matrix structure? When the number of projects are many but the resources are less, then we use this structure. So suppose your number of projects are 50 percent and your standard products and all businesses are 50 percent, then you go for a matrix structure. So as I told it is a hybrid organizational structure and it optimizes the resources, it optimizes the resources, okay, that we have discussed. Then what are the different form of matrix? The matrixes may be weak form, balanced form and strong form.

Weak form of matrix is more aligned, more aligned to what? More aligned to the functional structure. You know here, here functional manager predominates and he pushes the project and the project manager role is only coordinating or assisting, making a schedule. So his role is very, very limited. So it is called weak form of matrix.

There is a balanced form of matrix. Here both the project manager and the functional managers are both equally 50 percent, 50 percent equally important. Here project manager makes the plan. He coordinates, he pushes the plans to the functional managers and functional managers to the job of their segment, of their appropriate work and that goal. This is called balanced form of matrix. This is called one of the, one of the best

way of doing it.

Another is the strong form of matrix. Strong form of matrix is the project manager is the heavy weight. He dominates, predominates and he makes the plan. He, he pushes for those plan for the implementation and here the role of functional managers are that of subcontractor. They do their part of the work as per the requirement of the, of the project and as the project manager ask for.

This is called strong form of matrix. Now the advantages of the matrix form as I told, it is the efficient utilizations of resources because you have seen it the, if you have say less number of say people or material or equipment, so you share it with the other project teams. So, it is that way utilizations of resources are more efficient. Then it is more focus, you know focus for completions of the project. The project, since project manager has been appointed for the successful completions of the project, so the, it is the duty of the project manager to see the project is completed in time. So, it is more focused and the easy transitions of, transitions for the, for the project personnel to go back to their homeport, like they were dedicated for this project, but they had dual control.

The, these, the people, people report both to the project manager and their parent group functional manager. So after the completion of the project they can easily go to their homeport and it offers you the maximum flexibility, like you can put your staff, the staff there, what are the requirements from the functional manager group and all, it can be that the flexible appointment of the specialist that may be there. Then what are the disadvantages? Disadvantages are, this may produce dysfunctional conflict. What is dysfunctional conflict? Dysfunctional conflicts are, say they are the authority of the project manager and authority of the functional managers. So, there may be, the divisions may not be very clear cut and if the, the, the project managers and functional managers, they are not totally, totally synchronized, then what happens? There is a dysfunctional.

So suppose project manager wants the help of the, the logistics manager, operations manager, engineering manager, there may arise a dysfunctional conflict which is the disadvantage. Then infighting, you know, when resources are less, every project manager wants the best manpower, best specialist for him, even the equipments of the crane say or the shovel or the bulldozer. So, they fight for those resources. So there is infighting among the project manager to get the maximum resources or the best resources. And for each member of the matrix team, it is very stressful because when there is a dual control or dual reporting, you know, if the two bosses, project manager and the functional group manager do not have very good relationships, then it is very stressful for the specialist or the employees who is working in matrix structure.

And decision making requires the consultations among the, the various functional managers and the project manager. So sometime it may become slower decision makings and as a result project may take longer duration. These are the disadvantages of the project matrix organization structure. Here project management organization structure continuum, as we discussed, this is a pure functional organization.

The functional managers dwells the project. He guides or steers the project, pure functional manager doing the project. Then lightweight project managers, that is the weak form of matrix. Here functional manager predominates and the project manager's role is limited to scheduling, coordinating and assisting. Then in this continuum the project functional manager's authority a bit more, but even then functional managers is predominant.

Then this is called balanced matrix organization. Both project managers and the functional managers are equally doing the importance and all, as we discussed. These are the heavyweight project managers. Here project manager dominates and the functional managers acts as subcontractor. So the continuum is going on and this is the pure projectized organization. Here project managers takes the decision, project manager pushes through and the functional managers is a subcontractor.

This is the, this is the called the, the increasing project orientations or the, this is called the project management organization structure continuum. Next we will be discussing about the, what is the right project management structure, but due to the paucity of time we will take up that in the next lecture. For now we will be going to the conclusion, what we have learnt for till, till now. We can conclude in this lecture, this module we have discussed an appropriate project management structure and the factors that influence the success of a project. An appropriate project management structure balances the needs of the project with the needs of the organization.

There is a strong relation between success of a project and the authority, autonomy and authority of the project manager, that is the power he commands. We also found that there are mainly three types of project management organization structure, namely functional structure, projectized or the dedicated project management structure and the matrix structure. The characteristics and suitability of each structure, their advantages and disadvantages and project management organization structure continuum have been elaborated in this lecture. So, next is the references, these are the books you can go through, you can refer and enhance your knowledge on this further. Thank you very much for attending this class.