

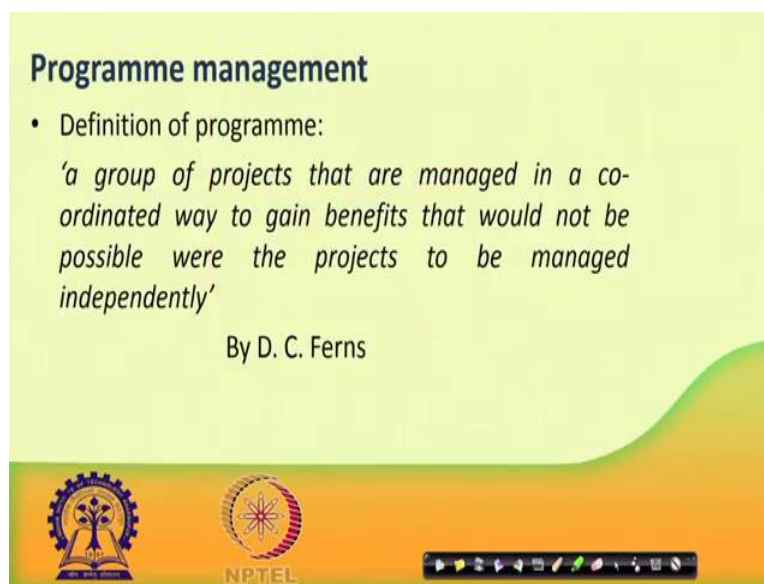
Software Project Management
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Lecture – 15
Project Evaluation and Programme Management (Contd.)

Good afternoon to all of you. Now, let us start the remaining part of the Project Evaluation and Programme Management. We have already seen about this evaluation of projects. Now, let us see about this programme management part.

So, in this lecture we will discuss first the various concepts of programme management, then what is the benefit, how benefits can be managed.

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Programme management

- Definition of programme:
'a group of projects that are managed in a co-ordinated way to gain benefits that would not be possible were the projects to be managed independently'

By D. C. Ferns

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So, let us first before going to programme management. Now, let us see what do we mean by a program? Project, we have already seen. So, programme means there are many definitions are there one definition is given by D.C. Ferns. So, according to this definition programme is a group of projects, it is a collection of projects, that are managed in the coordinated way to gain some benefits that would not be possible were the projects to be managed independently.

So, if the projects will be managed by independent persons; they will be managed by independently then, the benefits that will get it will be almost very negligible.

In other words, if a group of projects they can be managed in a coordinated way in a collaborative way, then the possible benefits, that we will get which must be on high which may not be obtained, if the projects will be managed independently. So, that is, what is the difference between projects and programs. Let us recall again a programme is a group of a projects, which are managed in a coordinated way, in a collaborative way to gain benefits that would not be possible, if the projects would have been managed independently.

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Different types of Programmes

- Strategic :projects implementing a single strategy
- Business cycle programmes: projects that an organization undertakes within a planning cycle
- Infrastructure programmes: projects performing the activities of identifying common infrastructure and its implementation and maintenance
- Research and development programmes: projects involved in developing new innovative products based on some research
- Innovative partnerships: projects based on collaboration by different organizations.

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Now, let us see what are the different types of programs available. These are the different types of programs one strategic programs. So, strategic programs are the projects which a group of projects a collection of projects, which implement a single strategy only those group of projects will follow they will implementing a strategy that is why they are known as a strategic programs. Business cycle programs these are the groups of the projects, that an organisation undertakes within a business planning cycle.

So, within a particular business planning cycle what category of the projects, what groups of projects that on under taken an organisation undertakes, that is known as business cycle programs.

Then, infrastructure programs so, these are the groups of projects, which are performing the activities of identifying some common infrastructure and its implementation and its maintenance. So, that is why since here the group of projects, they perform some

activities of identifying some common infrastructure. And, its implementation and maintenance that is why, this programme is known as infrastructure programme.

So, then R and D development or research and development programs more popular known as R and D programs these are very easy to understand. So, these are the groups of projects, which are involved in developing some new products, some innovative product, based on some current research work. So, this is known as research and development programs or R and D programs then innovative partnerships.

So, now a day's many companies they do some collaborative projects. They do combinedly some they tackle some projects combinedly collaboratively. So, this kinds of projects are the groups of similar types of projects are based on collaboration by different organisations is known as innovative partnership. Here the projects are based on some collaborative work performed by different organisations.

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Programme managers versus project managers

Programme manager	Project manager
<ul style="list-style-type: none">– Many simultaneous projects– Personal relationship with skilled resources– Optimization of resource use– Projects tend to be seen as similar	<ul style="list-style-type: none">– One project at a time– Impersonal relationship with resources– Minimization of demand for resources– Projects tend to be seen as unique

The slide also features logos for IIT Bombay and NPTEL, and a video player interface with a speaker icon.

Now, let us see we have already seen what is a project, we have already seen what is a program. Now, let us see what is the difference between a programme manager and project manager, why the resources for the what for the resource allocation or the resource allocation to programs, it will depend upon who are the end users. They could be that could be system analyst, database administrators, programmers, coders, etcetera. So, how the resources can be allocated to different projects or to different programs.

Before this so, for allocating knowing this resource allocation we must know, what are the differences between the programme managers and the project managers. So, mainly programme manager he is responsible for handling many simultaneous projects whereas, project manager he performs only one project at a time. Similarly, the programme manager he has personal relationships with all the skill resources working under him, but a project manager he does not have personal relation.

So, he has him personal relationship with the resources. The objective of programme manager is to optimal use of the resources. How optimally you can utilize the resources, but the project manager his objective is how to what give minimise demand for the resources? How he can put minimization of the demands, how he can achieve minimization of the demands for the resources.

Then the project manager; in case of project manager the projects tend to be seen as similar almost the projects are similar, but the project manager he use the projects or the projects which are under the project manager. They tend to be seen as unique they are not similar, they are the projects which are under a project manager, they tend to be seen as unique. These are the differences between programme managers and the project managers. So, accordingly the resources can be allocated to different projects.

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Strategic programmes

- It is a different form of programme management where portfolio of projects all contribute to a common objective
- Based on OGC (Office of Government commerce) approach

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Now, let us see about this strategic programs. So, we have to see the strategic programme management; so, actually we should know the before knowing this strategic

programme managements, we should know the strategic programme. Strategic programs, I have already told you that these are the projects which implement a single strategy only.

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Different types of Programmes

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So, now we can see about this strategic programme management. It is a different form of a programme management; actually title should be strategic programme management. So, strategic programme meant programme management is a different form of programme management, where portfolio of the projects. They all contribute to a common objective, they all work for a single strategy, they all contribute to a common objective.

So, this is another form of a programme management where the portfolio of the projects they all contribute to a common objective. It is based on what this OGC approach? Where OGC stands for the Office of Government Commerce previously it was shown as CCT.

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Strategic programmes

- Initial planning document is the **Programme Mandate** describing
 - The new services/capabilities that the programme should deliver
 - How an organization will be improved
 - Fit with existing organizational goals
- A **programme director** appointed a champion for the scheme

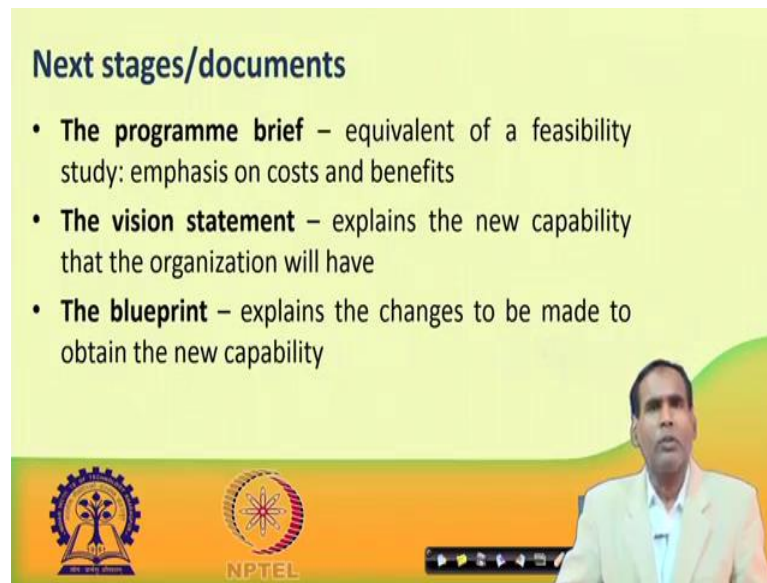
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So, the initial planning document that we have to use is a Programme Mandate. So, now let us see how to create a programme? What kind of documents are required to create a programme? The first document that, we required to create a programme is programme mandate. So, this is the initial planning document is known as the programme mandate. The programme mandate describes what the following things.

It describes the new services or the capabilities that the programme should deliver. So, what services or what capabilities, which are particularly new that the programme should deliver that should be mentioned in this programme mandate this document. Then, how an organisation will be improved? The suggestions, how the organisation can be improved further.

So, all those suggestions also should be put in the programme mandate, then fit with exiting organisational goals. So, whatever the services or the capabilities will do so, will perform. So, or it will deliver they must be fitting to the organisational goals, what are the organisational goals? So, these services capabilities as well as the suggestions for improving the organization they should be fit with the existing organisational goals or the objectives. A programme director appointed a champion for the scheme. So, normally live a programme director appointed a champion for this type of schemes.

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Next stages/documents

- **The programme brief** – equivalent of a feasibility study: emphasis on costs and benefits
- **The vision statement** – explains the new capability that the organization will have
- **The blueprint** – explains the changes to be made to obtain the new capability

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So, as I have already told you the first document, the first document for creating a programme is a programme mandate. Now, we must to see that the other documents, that must be used for while creating a program. So, we must use these kinds of documents for creating a programme. Now, first one the programme brief, as if name suggest, the programme details must be explained here briefly that is known as the programme brief.

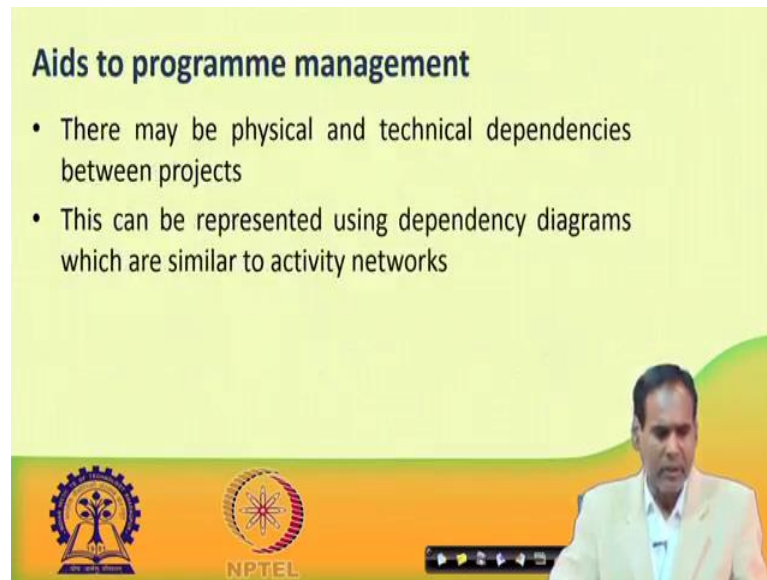
He it is just equivalent to a feasible study; feasible study we have already seen earlier that and the three types of feasibility we have studied, we have known technical feasibility, financial feasibility and operational feasibility. The most important one is the financial feasibility or the cost benefit analysis.

So, this programme brief it is just equivalent to a feasibility study. Here emphasis is given on the financial assessment or the cost benefit analysis, then there must be a statement there is a document containing the vision statement. So, every organisation what should have a vision statement, this document explains the new capability that the organization will have.

So, what kind of new capability the organization will have this document explains this thing then there must be a blue print. So, this document explains the changes to be made to obtain the new capability. So, in order to so what new capability that the organisation should have that is contained in the vision statement whereas, the changes they need to be followed. So, that should be in order to obtain the new capability, that is present in the

blueprint; just a master print, blueprint it has to prepared, since obviously in this meaning the it has the organizations they every organization they have a blue print. This documents it explains what changes they have to be made in order to obtain the new capability.

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Aids to programme management

- There may be physical and technical dependencies between projects
- This can be represented using dependency diagrams which are similar to activity networks

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Then, let us say, what are the aids to programme management, what documents or what diagrams or what tools they can be used to aid programme management. See there may be a physical and technical dependencies between projects. Many in many cases; in some cases the projects are independent, but in some cases the projects are dependent. That means, before completing one project you cannot go to another project.

For example, suppose let us see that two organisations, what two organizations computer sections they have to be merged. Suppose this is a project this two organisations computer sections or computer infrastructures they have to merged. So, this project is there. So, a previously the two organizations they are running in two different what say building.

So, since they will be merged, then this can be treated as a project. So, after merging suppose they will be shifted to another building. Then, you can see that this project that merging of the computer sections of two organizations is completely dependent on the new building. The completion of the new building because, unless the new building is

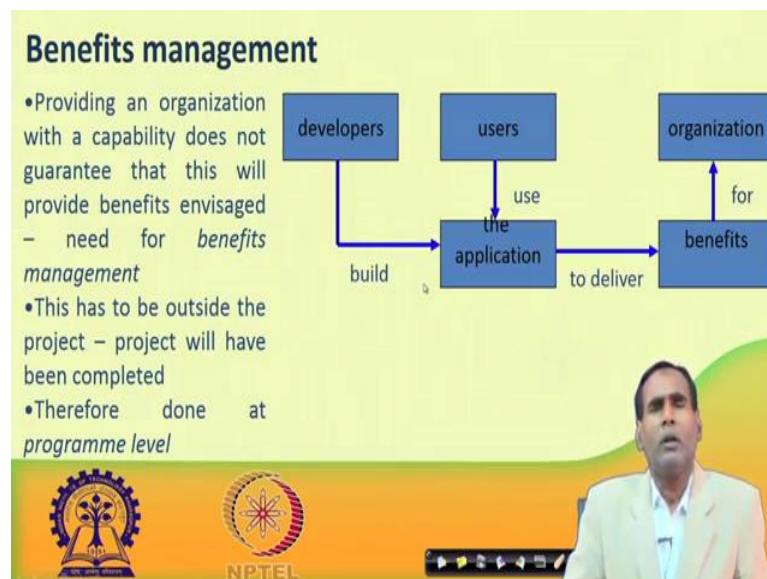
completely developed is completely furnished then, the computer sections of both the organisations cannot be shifted.

So, here that merging of two computer sections of the two organisations, this is a project and finishing of the new building is another project. So, here merging of the two computer sections of the two organizations is completely dependent on the second project that is this finishing or completing the new building.

So, how you can represent these dependencies may be physical or technical, how you can represent the dependencies between projects. So, several diagrams are there to represent this; so, one particular diagram there called as the dependency diagrams. So, this dependency diagram can be used to represent the physical and the technical dependencies between the different projects.

So, this dependence diagram just like activity networks those have are known PERT or CPM .So, they are you must have used activity networks so, this dependency diagrams just they are very much similar to the activity networks.

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Now, before going to see about the benefits management let us see, what is a benefit? So, after every organization they do some investment with an hope that after some years they will get back their money spent in investment as well as some profit they will get. So, that we call as the benefit. Benefits are of different types we have already seen earlier

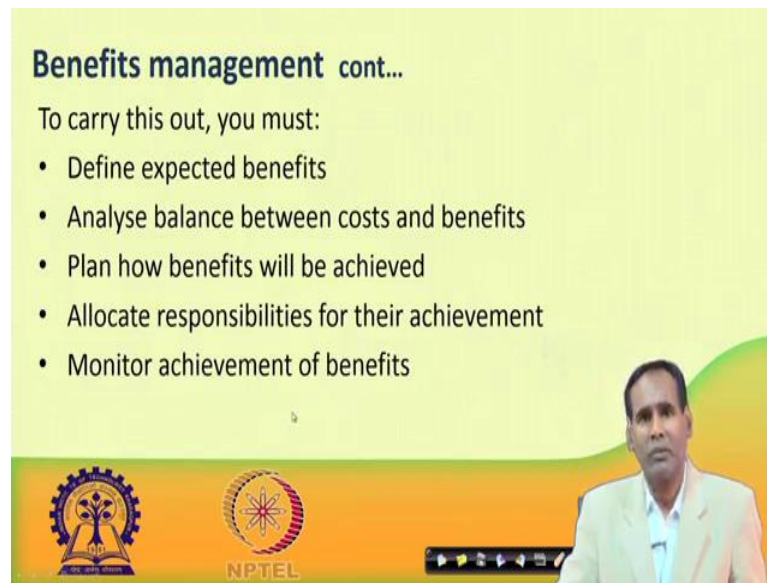
they can be tangible benefits or intangible benefits, they can be direct or indirect, they can be fixed or they can be variable.

So, now let us see these are the different types of benefits, you know that some of the benefits, they can be easily identified, they can be easily measured, they can be easily quantified. Whereas, some of the benefits they cannot be identified, some of the benefit they cannot be measured, some of the benefits they cannot be quantified. So, we have to if we know the different types of a benefits and which of them can be identified, which of them can be quantified, which of them can be measured, then that will help in managing the benefits.

So, this benefit management it provides an organization with a capability that does not guarantee that this will provide benefits in besides need for benefits management. Simply say, this provide that benefits management, it provides an organization with a capability that does not guarantee, that this will provide benefits in besides. It needs for benefits management you just get benefit does not mean that what you are always getting the benefits, you need to properly manage them; that they need for benefits management, this has to be outside the project; project will have been completed. So, project will be completed after a few days or few hours few years.

So, this benefits management is normally what handled outside the project. Therefore, it is done at the programme level, we want to have the benefit for the organisation. You know that some of the projects may give benefit some of the benefits may lead to loss, but at a programme level our objective should be to get more benefits, so that is why the benefit management it has to be conducted, it has to handle outside the project may be at the programme level.

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Benefits management cont...

To carry this out, you must:

- Define expected benefits
- Analyse balance between costs and benefits
- Plan how benefits will be achieved
- Allocate responsibilities for their achievement
- Monitor achievement of benefits

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So, what these benefits management or in order to carry out this benefit management, what we should do, what we should must try for? So, we have to define the expected benefits, in order to just like as we have seen the programme management. In order to carry out this benefits management, we have to first define the expected benefits; we have to identify the expected benefits, we have to define them.

But, as I have already told you some of the benefits they can be easily defined, but some of the benefits you cannot define them, then we have to analyse the balance between cost and benefits. So, we have to analyse the balance between the cost and benefits how much investment we have made those are the cost and how much benefits we are getting. Here you have to consider all sorts of benefits including tangible-intangible fixed and variable and direct and benefit what indirect. So, we have to take into consideration all the benefits.

Because, some of the managers they normally they do not take into account intangible benefits, because they are unable to measure them, they are unable to quantify the intangible benefit, they are not taking to consideration in the cost benefit analysis. But, it is required that all the possible types of cost including tangible and intangible direct and indirect and fixed and variable, they should be considered. Similarly all the possible benefits such as direct and indirect benefits tangible and intangible benefits fixed and

what variable benefits, they must be taken to account during the cost benefit analysis, then you have to analyse the balance between these cost and the benefits.

Then the next step is plan how benefits will be achieved? This time the organisation this year this much benefit suppose they have got, then they must be plan how to maximize the benefit the next year. So, they have to plan, they have to develop some specific plans, how benefits can be what maximized, how benefits will be; more benefits will be achieved in the future time. Then allocate responsibilities for their achievement. So, different persons involved in the project, different persons involved in the programme, they will be assigned responsibilities for their achievement. So, this should be in the plan.

So, we have to allocate a responsibilities for their achievement similarly, monitor the achievement of the benefits. So, whether we have made the plan, how to achieve the what benefits, then just making the plan is not sufficient enough. Then, we have to monitor them; regularly we have to monitor the achievement of benefits.

We have to see what is the target that we have to put this year and periodically we have to say in periodic intervals what is the achievement whether we are closer to the what target or we are lagging behind the target. So, if you are lagging much behind the target, what precautions, what remedial actions we should take so, that we should achieve our target benefit. So, we have to monitor and control the achievement of the benefits .

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Benefits

These might include:

- Mandatory requirement
- Improved quality of service
- Increased productivity
- More motivated workforce
- Internal management benefits

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So, how can do this as I have already told you we have to monitor achievement of benefits. How we can monitor the achievements of the benefits? So, for example, as I have already told you we are not able to what get the benefits, because our the service were providing or the product were providing we are not able to provide in the designated time.

So, we have to see why we are lagging, why there is a delay, so we can take precautionary measures so that, this delay can be avoided. If the delay can be avoided the service we can provide more services, we can sell more number of products. So, that will bring more profit. So, that is why we have to regularly what monitor the achievement of the benefits. If something we are lagging behind we must take remedial actions. So, that we can be closer to the targeted benefits.

So, now, let us see what could be the possible benefits for an what organization or for a what projects? So, these benefits, these might include mandatory requirement, what kind of requirements are must so, that you may get a benefit. So, mandatory requirement improved quality of service. So, this is called as QoS; so, the quality of service must be improvised. So, that automatically benefits will come in the example I have already showed you, I have already told you if there is a much delay in providing the services, if you are much delay in what producing the products then; obviously, the customer the end user will be dissatisfied.

And, we know what dissatisfaction of the customers is not a what benefit rather, the satisfactory customers even if it is a what intangible benefit, what that will bring, what reputation to the organisation we can get more profit. So, we have to improve the quality of service. Then increase productivity, how in less time we can produce more number of products, that is called as what this increased product productivity we may see what are different.

We may use different approaches may be we will use some automated tools or some other things so, that with less time how you can increase the productivity, how can increase more number of products in a given period of time, then more motivated workforce how we can motivated the people to work better. So, more motivated workforce we will also bring in profit ok to more motivated work force will also bring in profit to this organization. And similarly internal management benefit so among the

organization, how can create awareness, how can and to better management. So that, we can get more benefits.

So, for example, what like if you will create a awareness among the what employees say by giving some awards, awards etcetera and providing some scheme to them etcetera. So, we can internally manage what the benefits the employees they can be, what motivated to better and different kinds of benefits, those are internal to the management, they should be handled in a proper way.

See for example, the we are now suppose, what doing one thing to increase the number of sales. And, now if we want to the increase the number of sales, suppose that is happening the sales are in creating. And, now in order to get more number of sales if you will put some what employee to do overtime job.

So, time will come that the benefit due to getting more sales might it will be what is less that then the amount that will pay to the what the employees in overtime. So, that will not be considered as a benefit, rather that will be dis benefit. So, we should try to avoid this. So, this kind of things we must take care of in order to what improvise our benefits.

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Benefits - continued

- Risk reduction
- Economies
- Revenue enhancement/acceleration
- Strategic fit

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So, similarly another what benefit may come due to risk reduction. We have already seen the different types of risks such as what business risks and the project risks. So, our

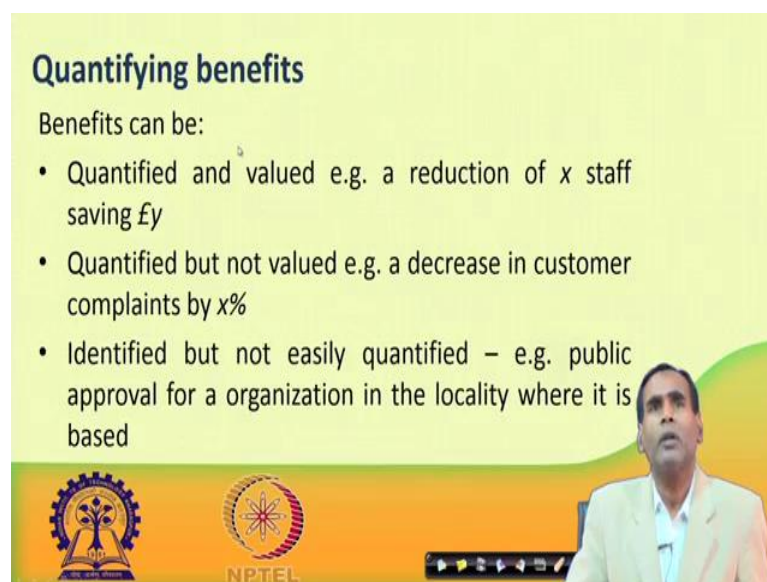
objective is to reduce the number of risks. Of course, where there is more risks, there is more benefit, more profit, but handling the risks will be much more important.

So, we will try to reduce the number of risks how the number of risks can be reduced so that, ultimately the benefits may improve. Similarly, we should see about the economics, what is the economical status of the organization, how it can be improved. So, if the economical status is improved and; obviously, benefit will come to the organisation, then revenue enhancement and accelerations. What steps you should, because see revenue enhancement is also treated as a benefit, what steps we must take to enhance to accelerate the revenue.

So, those steps if will follow strictly then automatically the revenue will be enhanced the acceleration and similarly strategic field fit. So, you must particularly improve the strategies in order to maximize the profit, in order to maximize the benefit.

So, these are the strategic needs or the organisation level, we must see then strategic level at the programme level, then strategic level; what strategic techniques or the strategic actions are the project level, they have to be defined clearly. So, that the benefits will be maximized for the a project or for the programme or for the organisation.

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Quantifying benefits

Benefits can be:

- Quantified and valued e.g. a reduction of x staff saving £ y
- Quantified but not valued e.g. a decrease in customer complaints by $x\%$
- Identified but not easily quantified – e.g. public approval for a organization in the locality where it is based

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So, next we will see about to quantifying the benefits, how we can quantify the benefits? So, we have known that there are some benefits which can be quantified and valued. For

example, there is a reduction of say x staff saving dollar y. Say, we have due to automation of the existing system previously it was manual due to automating it, we have reduced 10 staff members so, that we have saved say 200 dollars.

So, it can be easily quantified and valued. Some benefits they can be quantified, but they cannot be valued. For example, decrease in customer complaints, we have previously it was manual and now the system we have made it automated. So, the customer complaints that we are what getting now, there is what it is successfully reduced.

So, we can easily quantified it, but the value that we will get as the gain or the benefit that it cannot be valued. Similarly, some benefits they can be identified, but not they can be easily quantified. For example, public approval for an organisation in the locality where it is best suppose that and you take these mobile industries.

So, they want to put a tower in your area for that they have to take the approval of the local authority. So, if you will get; if you can they can put a tower then; obviously, they are what mobiles will be or there yes, their mobiles sims, they will be sold more and; obviously, they will get more benefit.

So, this kind of benefits like a public approval for a mobile industry to set up a may be tower in the locality.

If they get the approval then they can set up a tower and they can sell more number of their mobile sims and hence their benefit will be more. So, this so, this types of the benefits, they can be identified, but they cannot be easily a quantified.

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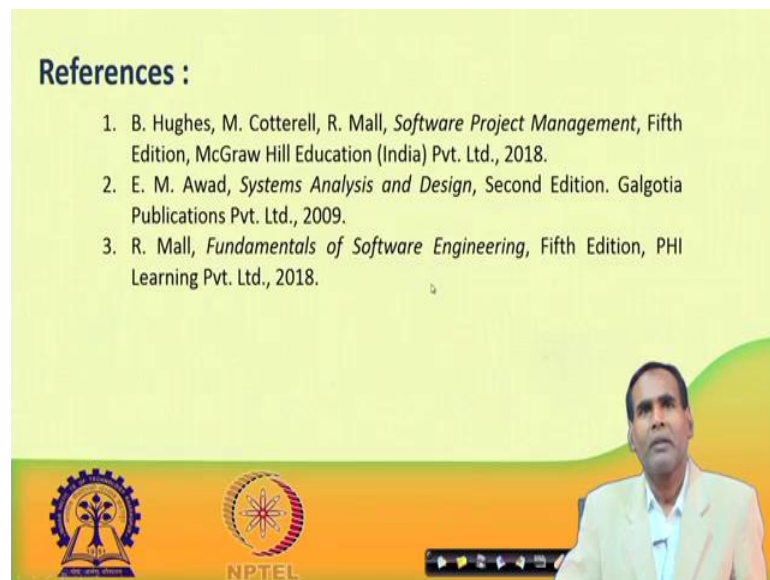
Summary

- Discussed about programmes and programme management
- Discussed about benefits and benefits management

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So, in this class we have discussed about what is a programme and about the some what details of different types of programme management, we have also seen what is a benefit, what are the different types of benefits and how benefits can be managed.

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References :

1. B. Hughes, M. Cotterell, R. Mall, *Software Project Management*, Fifth Edition, McGraw Hill Education (India) Pvt. Ltd., 2018.
2. E. M. Awad, *Systems Analysis and Design*, Second Edition. Galgotia Publications Pvt. Ltd., 2009.
3. R. Mall, *Fundamentals of Software Engineering*, Fifth Edition, PHI Learning Pvt. Ltd., 2018.

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So, these are the references and it is so, most of the things we have taken the reference number 1, only the different types of cost and benefits, we can see at reference number 2.

Thank you very much.