

Software Project Management
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Lecture - 48
Contract Management

Good morning. Today we will take up a new chapter on Contract Management.

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So, first we will see little bit introduction about managing the different contracts then we will discuss today what are the different types of contracts that one might have to what see in case of any organization.

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Introduction

- Many organizations choose to obtain their software externally. Given their limited capability for developing new and reliable software, this seems sensible.
- These organizations think that it is more cost-effective to employ outside software developers for new development while a reduced group of in-house software development staff maintain and support existing systems. *

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You know that many organizations they choose to obtain or to get their software externally, given their limited because their capability for developing new and reliable software is limited. So, getting it from outside from external suppliers it seems sensible it is viable.

These organizations think that, it is more cost effective that to employ outside software developers for new development. And then reduced group of their in house software developments staff members they can maintain and the support existing systems, they will try to purchase it from outside from a what third party from a supplier. Then they have some in house staff members less staff members, few staff members they can be deputed for maintaining and supporting the what, existing system.

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Introduction cont...

- The buying of goods and services, rather than 'doing it yourself', is attractive when money is available but other, less flexible, types of resource, especially staff time, are in short supply.
- It is essential that customer organizations should find time to clarify their exact requirements at the beginning, and to ensure that the goods and services delivered are satisfactory.

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Buying of goods and services, rather than doing it yourself is attractive under the following situation. When money is available, but other resources especially staff time they are in short in short supply; you are very having very less number of staffs, but you are having money in that case it is better to buy the goods and services from the market from the suppliers. It is essential that the customer organizations they should find time to clarify their exact requirements at the beginning and to ensure that the goods and services delivered are satisfactory.

See even if you will give contract to a third party to develop software, it is you who know about the detailed requirements for your organization. So, that is why the customer organization they have to find out what are their exact requirements at the very beginning. And those requirements they have to inform to the developer, then only the developers can develop a good and good quality what product or a good quality service.

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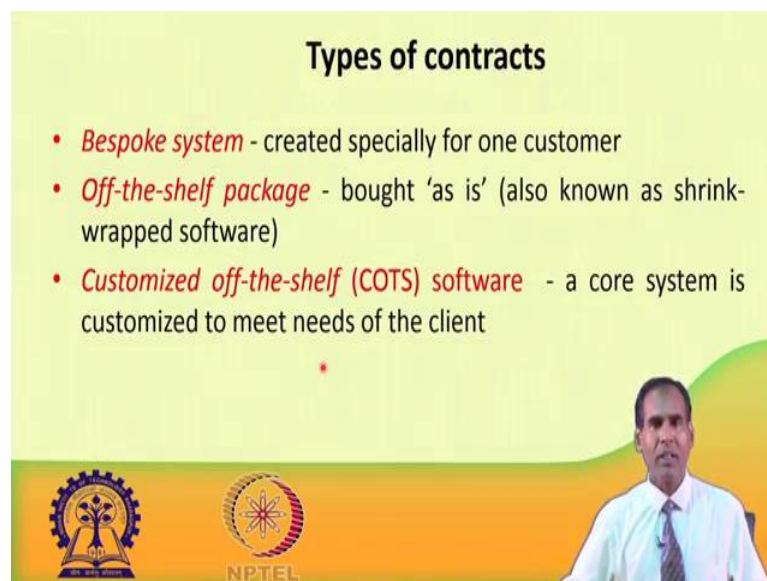
Introduction cont...

- Potential suppliers are likely to be more accommodating before any contract is signed than afterwards – especially if the contract is for a fixed price.
- Thus, as much forethought and planning are needed with an **acquisition project** as with **internal development**.

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Potential suppliers they are likely to be more accommodating before and contract is signed than afterwards. See this is normal tendency this suppliers they are likely to be a very much accommodating before any contract is signed but, once after signing these thing they are becoming very much casual they may not listen the complaints or request from the clients. So, especially if the contract is up for a fixed price then this problem will come accurately. So, thus as much as forethought and planning are needed with an acquisition project, same thing also it is also required with internal development, ok.

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Types of contracts

- **Bespoke system** - created specially for one customer
- **Off-the-shelf package** - bought 'as is' (also known as shrink-wrapped software)
- **Customized off-the-shelf (COTS) software** - a core system is customized to meet needs of the client

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So, as much forethought and planning as you require, in case of acquiring a project same thing almost what similar forethought and planning is also required for internal development. Now let us see the different types of contracts, there are different classifications based on certain parameters. The first classification we will see so, according to this classification there are three types of contracts; one is the bespoke system, another is off the shelf package, another is customized off the shelf or popularly this is known as COTS software.

So, bespoke system is a system, which is created specially for one customer for one organization because, depending up on their requirements their requirements are very much specialized. So, the third party or the software, the developer, the supplier may create a special software for that customer only. So, bespoke system means these software they will be created or the facility the service that will be created specially for one customer. And, off the shelf package means just it is what generalize software are available in the market you just go to the market and brought as it is.

So, off the shelf package, but as it is also known as shrink wrapped software. Actually this off the shelf what component you see very much applicable in the case of hardware, you suppose you want to develop what a motherboard. So, what you have to do? Go to the market see what are the different components are available, purchase all those components and the ICs, then on a board you just assembly all those things.

So, here what we are doing? Going to the market bought the components as it is and then we are assembling. Similarly in the off the shelf of a package, so we will see several generalized what packages, software packages are available and we will bought them as it is, then we may what link them we will interface them. Then another category is customized off the shelf or COTS software, this is basically a core system is which is customized to meet the needs of the client.

So, this is a basically what the; it is a core module kind of thing and it is a core system all the fundamental facilities are there; and then you purchase it and customize it, according to your requirements according to what just to meet the needs of the client. You can have seen just government have does in this housing schemes they prepare only core houses and then, the purchaser when he will purchase the core house, then he will what customize it according to his needs. So, he may put marbles or he may put different what

different arrangements for A Cs, different arrangements for lightening etcetera. So, this is that similarly in customized off the shelf cots software, you will just go and purchase a core system then that can be customized to meet the needs of the client; either you can do yourself the customization or the supplier he will customize the software according to your own need. So, this is known as something customized of the self or COTS software.

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Types of contracts cont ...

- Where an equipment is purchased, it is referred to as a contract for the supply of goods.
- With the supply of software this may be regarded as supplying a service (i.e. to develop the software) or the granting of a license (i.e. permission) to use the software which remains in the ownership of the supplier .

The slide features a green and yellow background. At the bottom left, there are two logos: the IIT Bombay logo and the NPTEL logo. On the bottom right, there is a small inset image of a man in a white shirt and tie, likely the presenter.

So, where an equipment is purchased, is referred to as a contract for the supply of goods ok. So, whenever an equipment or any hardware device it is purchased, normally it is referred to as a contract for this supply of goods; so, equipment is coming under the goods. But when you are going for software with the supply of software this is known as supplying a service, in case of what equipment we call it as supply of goods, but in case software we call it as supply of a service.

That means you have the what, vendor has to develop the software or write the software for you or it can be granting of a license so, or granting of a permission to the user, to use the software which remains in the ownership of the supplier. The supplier has the ownership of the software; he may give you license; he may give you permission to use this for a particular period of time depending on your contract. So, this is known as supply of service.

So, let us see again that if you are going to purchase the equipment, normally we call it has a what contract for the supply of goods and when you are going to purchase this software we call as supplying a service or granting a software license.

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Types of contract cont ...

Another way of classification based on the calculation of payment to suppliers is as follows:

- fixed price contracts
- time and materials contracts
- fixed price per delivered unit

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Now, let us see another classification; so, there is another way of classification, based on the calculation of a payment to the suppliers. How you are calculating the payment that has to made to the supplier. According to this there are three categories of a contracts fixed price contracts, time and material contracts, then fixed price per delivered unit.

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Fixed price contracts

- In this case, the price is fixed when the contract is signed.
- The customer knows that, if there are no changes in the contract terms, this is the price they will pay on completion.
- The customer's requirement has to be fixed at the outset, i.e. the detailed requirements analysis have already been made.
- Once the development is under way, the customer cannot change their requirements without renegotiating the price of the contract.

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Let us first see about what is the fixed price contracts. So, in case of a fixed price contracts, the price I just name suggest the price is fixed in case of this fixed price contracts the price is fixed when the contract is signed. So, at the time of signing the contract, the price is fixed. And here the customer knows that if there are no changes, in the contract term. So, in the contract owner signing that are some terms are some causes are mentioned. So, if there are no changes in the contract terms in near future then this price, then they will pay on completion of this contract, there is no change in the price.

So, the customers requirement has to be fixed at the outset. So, in this type of contracts the customer at the very beginning he has to fix the what, requirement. The customer's requirement has to be fixed, at the outset that is the detailed requirements analysis ok. The detailed requirement analysis and specification it must have to be done before this signing the contract or at the beginning of the contract. And it will be very difficult that change it later on because this is based on this fixed price based on the requirements the customer who will sorry the developer who will quote the price.

So, once the development is under way, then the customer cannot change their requirement please see this is the drawback of this type of contract. Once the development is underway then the customer cannot change their requirements without renegotiating the price of the contract. If you want to change some of the terms, if you want to change some of the requirements, then you have to again renegotiate the price with the customer with the developer, he may charge some extra money for what incorporating the new requirements you are saying. So, this is something about the fixed price contracts.

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Fixed price contracts cont ...

Advantages to customer

- known expenditure
- supplier motivated to be cost-effective

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Let us see what are the advantages of the contracts, here the customer knows that what is the expenditure this budget is fixed I have to pay. Suppose 1 lakh rupees for the surface and supplier is motivated to be cost effective also this supplier is motivated to cost effective he will give what a known value of the price it will be cost effective.

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Fixed price contracts cont ...

Disadvantages

- supplier will increase price to meet contingencies/absorb risks
- difficult to modify requirements
- cost of changes likely to be higher
- threat to system quality

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Let us see what are the drawbacks there are several disadvantages of this contract; first of all supplier will increase price to meet contingency absorb the risks. Because, supplier knows it is fixed, price is fixed later on he cannot what change or something. So and

during the development of projects several weeks may come; and in order to observe the weeks what you will do you will put some contingencies in each quotation quoted what quoted price. So, you will you will definitely try to increase the price to meet the contingencies or to absorb the risks.

And next is difficult to modify the requirements this I have already told you. In this type of contract the customer has to what perform the requirement analysis and inform all the requirements at the beginning later on you cannot change; if you will change then the what supplier will ask more money.

Cost of changes likely to be higher; so, once the what price is fixed and next you say that few changes then the developer will charge high price to you. So, cost of changes likely to be higher and threat to system quality; obviously, since the price is fixed then the developer will not be motivated to give what high quality service; because, you know whether I will put what kind of service my price is fixed. So, it is a threat to the quality of the system. So, these are some of the drawbacks or the drawbacks you can see from the books or from the internet sources.

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Time and materials contracts

- In this case, the customer is charged at a fixed rate per unit of effort, for example, **per staff-hour** or **per person-month**.
- The supplier may provide an initial estimate of the cost based on their current understanding of the customer's requirements, but this is not the basis for the final payment.
- The supplier usually sends invoices to the customer for the work done at regular intervals, say monthly / quarterly.

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Then, next one is time and material contracts. So, in this case the customer is charged at a fixed rate per unit of effort, ok. So, in this kind of contract the customer is charged at a fixed rate, rate is fixed per what, per unit of effort, ok. So, in this case the customer is charged a at a fixed rate per unit; you put may be per staff hour or per person month.

And the supplier may provide an initial estimate of the cost ok, this initially the supplier will provide a base cost the supplier may provide on initial estimate of the cost based on what based on the current on the standing of the customers requirement.

So, looking at the what, customers requirement, the supplier may provide an initial estimate of the cost. But this is not the basis for the final payment, this is not the final payment the supplier then what will do he will usually send invoices to the customer for the work done at regular intervals say monthly or quarterly. So, he will send the supplier will send what bills invoices to the customer, for the work done for that period at regular intervals may be monthly or quarterly.

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Time and materials contracts cont ...

Advantages to customer

- easy to change requirements
- lack of price pressure can assist product quality

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Now, let us see what are the advantages of this approach? The advantages are that it is easy to change requirements.

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Time and materials contracts

- In this case, the customer is charged at a fixed rate per unit of effort, for example, *per staff-hour or per person-month*.
- The supplier may provide an initial estimate of the cost based on their current understanding of the customer's requirements, but this is not the basis for the final payment.
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The slide features the IIT Bombay logo on the left and the NPTEL logo in the center. A small inset image of a man in a white shirt and tie is visible on the right side of the slide.

Now, since the price is not fixed, the charge is; the price is fixed or can say that the customer has to pay some fixed rate per unit of effort, may be per person hour or per person month this charge will vary now. So, the customer is charged at a fixed rate per unit of effort; so, if you want to add some new requirements. So, then again how much per staff per hour required or how much person month is required accordingly it will be multiplied by the price. So, there is no problem in what change changing the requirements. So, it is easy to change the requirements in case of this method, but and another advantage is that lack of price pressure can assist product quality.

Now, the customer the what, developer is not under pressure for this what price because, he knows not if the customer will say some new requirements they have to pay more. So, they will concentrate on improving the product quality which has not the case with the previous approach that is the fixed price contracts.

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Time and materials

Disadvantages

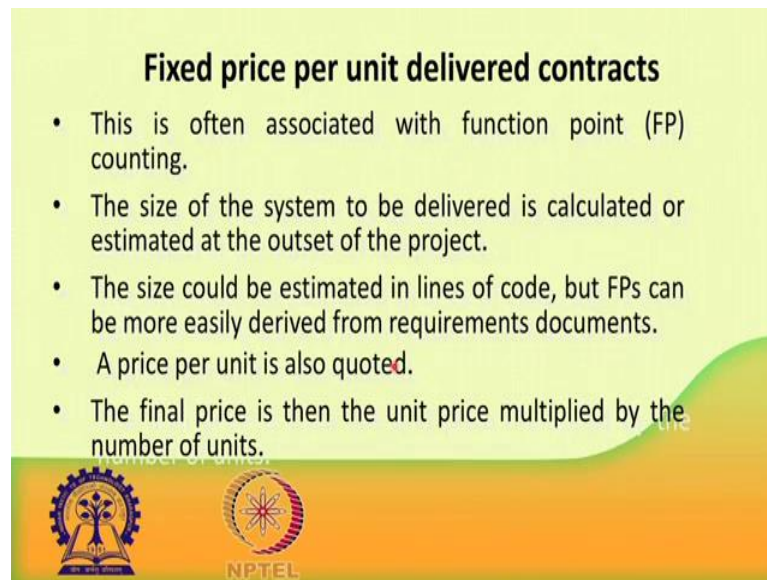
- Customer liability - the customer absorbs all the risk associated with poorly defined or changing requirements
- Lack of incentive for supplier to be cost-effective

The slide features a light green background with a yellow-to-orange gradient at the bottom. On the left, there are two logos: the Indian Institute of Technology (IIT) logo and the NPTEL logo. On the right, there is a small inset image of a man in a white shirt and tie, likely the presenter.

Now, let us see the drawbacks. Drawback is customer liability; the customer absorbs all the risk in the fixed price contract. The supplier absorbs the risk and that is why he keeps some contingency and he may make more and he may demand more money. But in this case the risk will be absorbed by the customer, if any change customer in the requirements customer will say that these are the changes for that the developer will charge extra price.

So, all those risks that has to be what absorbed by the customer; so, that is why this is the customers liability. The customer absorbs all the risks associated with the a poorly defined or changing requirements or adding new requirements everything that has to be borne by the customer; and the lack of incentive for supplier to be cost effective. So, there is a very lack of incentives for the suppliers to be cost effective.

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Fixed price per unit delivered contracts

- This is often associated with function point (FP) counting.
- The size of the system to be delivered is calculated or estimated at the outset of the project.
- The size could be estimated in lines of code, but FPs can be more easily derived from requirements documents.
- A price per unit is also quoted.
- The final price is then the unit price multiplied by the number of units.

IIT Bombay NPTEL

Then the next category is fixed price per unit delivered contracts. So, now, let us see what is meant by this; so, this is often associated with a function point counting; and here this says that fixed price per unit delivered contracts. And this approach is associated with a function point counting, while discussing about the cost estimation we have already discussed the function points LOCs (Refer Time: 15:55) etcetera.





So, this technique is associated with a function point counting; here the size of the system that has to be delivered is calculated or estimated at the outset of the project. So, at the very beginning, what will the size of this system that has to be delivered is estimated at the very beginning or at the outset of the project. The size could be estimated in terms of lines of code, you can estimate the size in terms of LOC or SLOC, but we know SLOC has several drawbacks. So, and function points removes some of the drawbacks of this SLOC. So, that is why a FPs or function points they can be more easily derived from the what, users requirements or from the requirements documents. Then a price per unit is quoted, ok.

So, based on this function points a price per unit is quoted, the final price is then the unit price multiplied by the number of units. So, how many so now, price per unit is quoted; you see your software will require how many units then the total price will be the unit price multiplied by the total number of units its very simple.

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Fixed price per unit delivered contracts cont ...

FP Count	Design cost/FP (in Rs.)	Coding cost/FP (in Rs.)	Total cost/FP (in Rs.)
upto 2000	200	700	900
2001-2500	240	760	1000
2501-3000	260	780	1040
3001-3500	270	800	1070
3501-4000	280	820	1100
4001-4500	300	840	1140
4501-5000	330	870	1200




Let us take a small example, suppose you have to develop a software and the charge is as follows. So, up to 2000 function points the design cost is 200 rupees per function point. And coding cost is a per function point 700 rupees and the total cost of development is 900 rupees per function point.

Similarly, the function points greater than 2000 and less than 2500 design cost is 240 coding cost per function point is 760 and say total each 1000 rupees. In that way for different ranges of function point counts, the unit prices for the design cost as well as the coding cost are given and from these the total cost is found out. Now let us see you suppose you require to develop may be a software, which has function points which is estimated that it will contain say 2700 of a function points, ok.

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Fixed price per unit delivered contracts cont ...

- The company that produced this table in fact charges a higher fee per FP for larger systems.
- For example, a system to be implemented contains 2700 FPs.
- The overall charge would be $2000 \times \text{Rs } 900 + 500 \times \text{Rs } 1,000 + 200 \times \text{Rs } 1,040 = \text{Rs } 25,08,000$.

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Suppose the company that produce this table ok; so, here the company that produce this table. In fact, charges a higher fee per function point larger systems you can see, up to 2000 is less, then for higher function points you see the value is the cost is increasing.

Now, suppose you require a system and that has to be implemented and the supplier for implementing this system it estimates that there will 2700 FPs ok. Suppose you have to you require a system the you have told you requirements to the developer, the supplier; the supplier has estimated that the system that has to be implemented it will contain 2700 FPs. And then he will charge for this system based on this calculation based on these rates. So, now, 2700 FPs means you see you can first avail up to 2000 then for 500 another rate. Then for remaining 200 this slob third slob will be applied.

So, then what will be total price? The total charge that supplier will make or he will quote for the customer will be how much 2000 into because, now I have broken 2700 means in order to fit in this slob two for 2000 this charge will be applicable. For five hundred another this charge will be applicable and remaining 200 function points this charge will be applicable. So, now, this will be how much, 2000 into rate is 900 plus 500 into 1000 plus remaining 200 will be charged at the rate of 1040 this.

So, this will what, this will come to or this is coming to 25,08,000. So, for developing a system which will be implemented at the customer site having or which has estimated which is estimated to contain 2700 function points will be approximately what priced 25,

08,000 based on what this fixed price per unit delivered counts. So, this is here we have chosen FP, we can also chose for LOC, but LOC has several drawbacks. So, you can use FP in place of LOC for this type of contract that is for fixed price per unit delivered contracts.

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Fixed price per unit delivered contracts cont ...

- The scope of the application can grow during development.
- It would be unrealistic for a contractor to be asked to quote a single price for all the stages of a development project: how can they estimate the construction effort needed when the requirements are not yet established?
- In this case, one approach would be to negotiate a series of contracts, each covering a different stage of system development.



The scope of the application can grow during development of course, during development you may require some more scope some more requirements. So, this scope of the application can grow during development it, but you see it would be unrealistic for a contractor to be asked to quote a single price for all the stages of a development project. So, if you are want software, so for the all the stages of the development project it is very much difficult the contractor cannot quote a what value it is unrealistic.

See, how can they estimate the construction effort needed when the requirements are not yet established; you do not know what will be the requirements. If requirements are evolving so, you the customer can the supplier cannot quote the full value for a single price for all the stages rather if this kind of things are there. Then for different what slob for different how many function points are there, even if it is increasing it can be accommodated some to this ranges or still this can be extended.

So, if your software development consist of many stages then what you can do in since it is difficult for the supplier to give a single price; in this case one approach can be or one approach would be to negotiate a series of contracts. Then what you can do, you can

make a series of contracts each covering a different stage of system development for each stage some price you can negotiate. So, what could be the possible stages for each of the stages you can negotiate what some prices you can negotiate a series of contracts and then the prices can be charged to the developers sorry to the customers.

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Fixed price per unit delivered contracts cont ...

Advantages for customer

- customer understanding of how price is calculated
- comparability between different pricing schedules
- emerging functionality can be accounted for
- supplier incentive to be cost-effective

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What are the advantages in this approach? You can see that the customer understands ok, customer understanding of how price is calculated because see everything is given may be in the form of a table or what unit wise this is given. So, how the price is computed? It is very simple mathematics. So, the advantage that customer can understand how the price is calculated. So, comparably between different pricing schedules, he can compare easily between the different pricing schedules. Emerging functionality can be accounted for if a new functionality you want to add, that depending up on the what situation or the time it can be easily added. And the charge it can be easily calculated by this supplier and supplier incentive to be cost effective of course, the supplier incentive here it will be much more cost effective.

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Fixed price per unit delivered contracts cont ...

Disadvantages

- difficulties with software size measurement - may need independent FP counter
- changing (as opposed to new) requirements: how do you charge?

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But the drawbacks are that difficulties with software size measurement, may need independent FP counter. So, how to what measure the software size? We have seen the advantage or drawbacks of LOC; and how the drawbacks of LOC can be removed we have seen also in FPs, but FPs also have some drawbacks. So, that is why difficult it will find some difficulties while software measuring the software size you may need some independent function point counter.

Similarly, changing as oppose to new requirements how do you charge see if you add a new requirements its easy we can use the per unit. So, or this range can also be extended. So, adding new requirements it is easy yeah; that means, the supplier can easily calculate the extra charge. But what is about changing requirements? The requirements is already there, you want to little bit changes then how you can calculate the charge. So, this is difficult in this approach.

So, these are the different what this is these are the different contracts based on another classification ok. So, this is a different classification of contracts or these are the different types of contracts based on the other another classification how the payment is calculated.

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Types of software contracts cont ...

Another way of classification based on the approach that is used in contractor selection is as follows:

- Open tendering process
- Restricted tendering process
- Negotiated procedure

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So, there is still another type of classification, another way of classification based on the approach that is used in contract selection is as follows. So, this classification is based on the approach that is used for contractor selection. So, number one is open tendering process, then restricted tendering process and then negotiated procedure or this negotiated procedure we call it as single tender or singly quotation process.

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The open tendering process

- Any supplier can bid in response to the *invitation to tender (ITT)* / *request for proposal (RFP)*
- All tenders must be evaluated in the same way
- Government bodies may have to do this by local/international law
- With a major project this evaluation process can be time consuming and expensive.
- Where the client is a public body, an open tendering process may be compulsory.

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Very simple the open tendering process so, here any supplier can bid the response to the invitation to the tender ok. So, basically first the client he will float invitation to tender or

he will what display he will advertise some request for proposals popularly know as RFP. So, any supply in open tendering process any supplier can what submit the bid in response to the invitation to tender or request for proposal. Here all tenders must be evaluated in the same way that is one important thing, how many tenders have submitted by different what bidders? So, all the tenders must be evaluated in the same way. And the government bodies may have to do this by local or international law.

So, what are the government bodies? They have to what follow this open tendering process while purchasing equipments or what services by this way. And the government bodies may have to follow this way by what observing the local and international laws; with a major project this evaluation process can be time consuming and expensive. So, this is what drawback that for major projects this evaluation process can be very much time consuming and expensive. Because, for publication of these what RFP or what advertisement you have to give some days minimum one month then for what you have to evaluate technical proposals then cost evaluation then you have to finally, award the contract unlike this there is according to the laws that is the timing gaps are given. So, this will take huge amount of time.

So, if you do not have sufficient amount of time then this method may not be suitable. Similarly where the, what client is a public body, an open input tendering process may be compulsory. So, for normally government organizations and public organizations or public bodies open tendering process normally it is a compulsory.

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Restricted tendering process

- In this case, bids are received only from those suppliers who have been specifically invited
- Unlike, the open tendering process, at any time, the customer can reduce the number of suppliers being considered at any stage

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Then we will see the next one that is the restricted tendering process. So, in this case the bids are received only from those suppliers who have been specifically invited. So, please mark the difference, here anybody else can supply the bid can quote the bid. But here the bids are received only from those suppliers who have been specifically invited.

You know in your locality also say these are the 5 or 10 what suppliers. You will send your RFP request for bids only to those suppliers; and when you receive only those ten to whom you have send this request for proposal their bid will consider others cannot apply. So, that is why this is a you can say that special case of open tendering process where everybody cannot submit, but to whom we have to invited to submit the bid they can only submit and you can evaluate their bids.

Unlike the open tendering process at any time the customer can reduce the number of suppliers being considered at any stage. So, in open tendering you cannot reduce the number of suppliers, but in open what restriction tendering process that is why the name is restricted. At any time you can restrict you can reduce the number of suppliers which are being considered any stage.

So, normally you have to say minimum perhaps six number of what these request you have to send you have to invite the bids from minimum 6 number of what firms or suppliers. Then how many are coming then you have to see you have to evaluate and then you have to what select the appropriate supplier for offering the contract.

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Negotiated procedure / Single tendering process

- Open or restricted tendering process may not be suitable in some particular sets of circumstances.
- For example, suppose, there is a fire that destroys some ICT equipment. The key concern here may be to get replacement equipment up and running as quickly as possible, and there may not be sufficient time to embark on a lengthy tendering process.

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Then the last one is known as negotiated procedure or single tendering process. So, because we see open or restricted tendering process may not be suitable in some particular sets of circumstances particularly when time is not there let us take two examples here.

Suppose there is a fire that has occurred and that in your computer center and that has destroyed some of the ICT equipments. Then what is now your major objective the major objective is how to get replacement the equipment up and running as quick as possible.

And there may not be sufficient time to embark on a lengthy tendering process; I have only told you these what open tendering or restricted tendering this take what a long amount of time because that time gap you have to maintain as per rule and you these things you require urgently. So, in this case you do not have time to go for this lengthy tendering process. So, what to do? So, the solution is this single tendering process or negotiated procedure.

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Negotiated procedure / Single tendering process cont ...

- Another situation might be where a new software application had been successfully built by an outside supplier, but some extensions are required to the system. As the original supplier has staff familiar with the existing system, it might be inconvenient to approach other potential suppliers via a full tendering process.
- In these cases, an approach to a single supplier may be justified, i.e. negotiate with one supplier.



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Let us quickly take another example, where a new software application you have just recently built or you have just recently you have obtained it which was supplied by outside supplier. Now you require some extensions to this newly purchased system. So, you know as the original supplier has this staff similar with or familiar with the existing system they can do it easily.

But it will go no I will go for the tendering process, then you see even if you get what firm with less price, but they are not conversion they are not familiar with the software. So, you will get so many technical problems, so that is why in this case also it is inconvenient to approach other potential suppliers by a filtering process. So, the solution is you should go for the single tendering process, who has developed who has supplied the what, software to you should approach that one following this single tendering process.

So, but in this cases so, in this cases an approach to a single supplier may be justified that is you have to negotiate with only one supplier. So, that is why you have a single tendering process may be here from where you have supplier, you have purchased this supplier from which supplier you may negotiate with that supplier with some original price.

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Negotiated procedure / Single tendering process cont ...

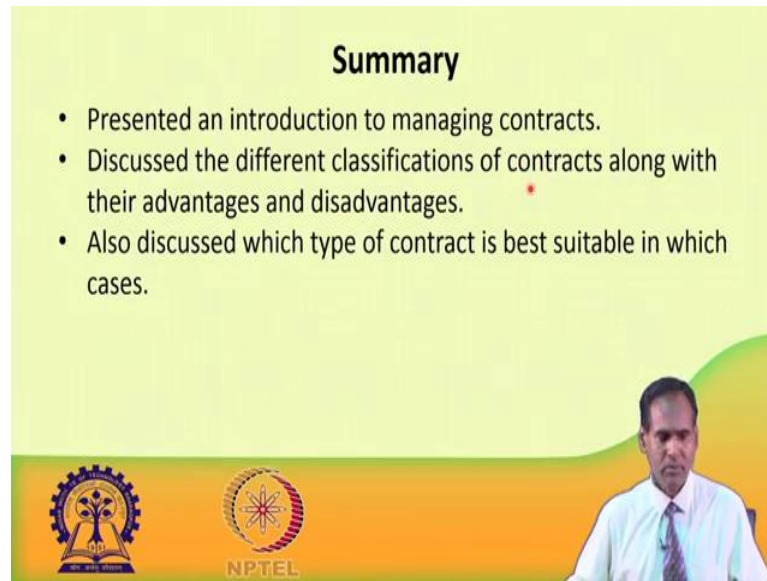
- However, approaching a single, supplier could expose the customer to charges of favouritism.
- So, it should only be done with a **proper justification**.



So, negotiated procedure or the single tendering process there is a drawback of this. So; however, approaching a single supplier a could expose the customer to charges of favoritism; you may get complaints that you have shown favoritism to that particular single person and you have awarded the contract so, you may get that sort of criticism.

So, whenever you are going for single tendering process, you have to give full justification, clear justification, proper justification, why you have gone for single tendering and two such examples I have already shown. So, with a proper justification you can go for single tendering process, so that the drawbacks of what restricted tendering or open tendering process can be avoided mainly the timing is used out. If there is no time very less amount of time you should go for single tendering process with a clear justification or with a proper justification.

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Summary

- Presented an introduction to managing contracts.
- Discussed the different classifications of contracts along with their advantages and disadvantages.
- Also discussed which type of contract is best suitable in which cases.

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So, in this class we have discussed a little bit of introduction to managing contracts. We have discussed the different classifications of contracts along with their advantages and disadvantages. We have also discussed which type of contract is best suitable under what circumstances.

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References :

1. B. Hughes, M. Cotterell, R. Mall, *Software Project Management*, Sixth Edition, McGraw Hill Education (India) Pvt. Ltd., 2018.

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So, this is the reference we have taken this material; and then we will stop here.

Thank you very much.