Knowledge Management
Prof. K B L Srivastava
Department of Humanities and Social Sciences
Indian Institute of Technology-Kharagpur

Lecture 12
Knowledge Codification (Contd..)

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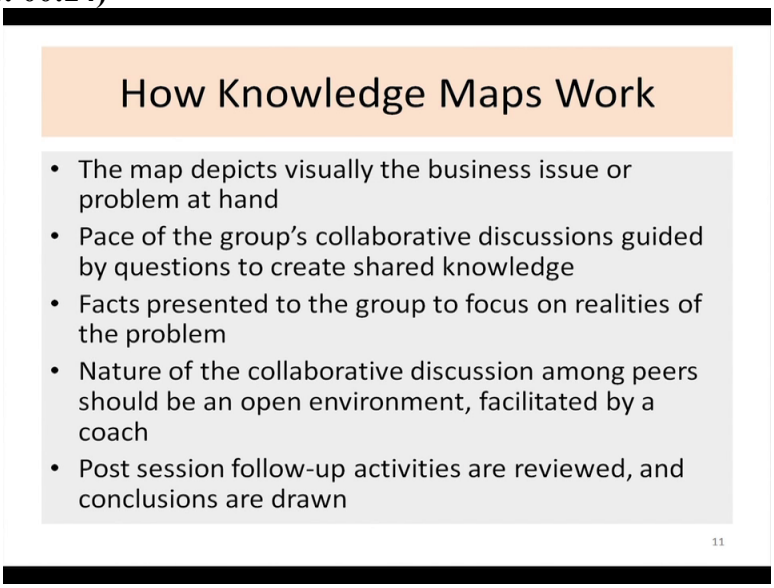

So we are going to continue our discussion related to this creating knowledge map.

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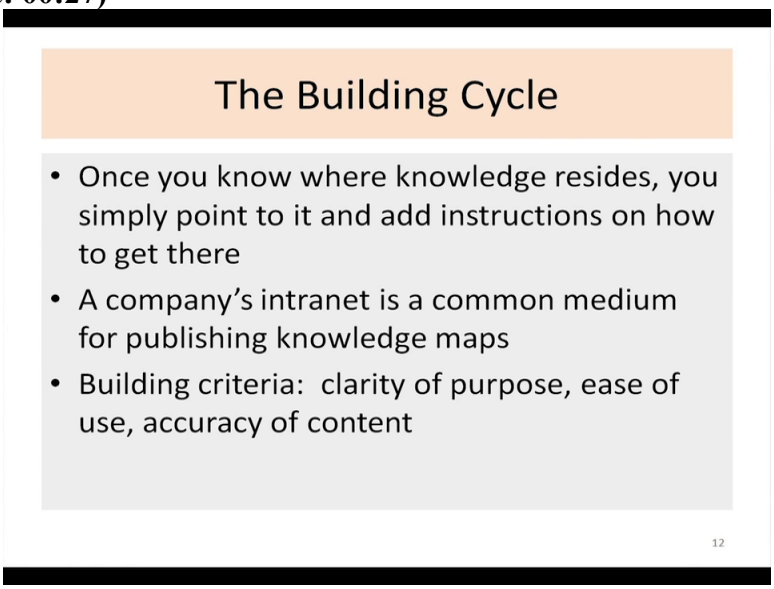

Now what we are going to discuss is that how we go about this building a knowledge management cycle that is creating a knowledge map and then moving further ok. Once people

come to know that ok this is where the knowledge is ok. And then you can tell people ok please go to this place or please meet this person ok and then you will get it.

And then you also tell that how to access it, it is very, very important for knowledge management system is that once you come to know that ok this is where the knowledge is, you are in a position to direct people ok, that ok you go there ok and also add instruction, how to access it, whether it is related to people or whether the system.

When it comes to accessing system it is good because but that does not create people but you do not have any interface with the people. You have interface with the technology and then access is smooth. But when the access or the interface is with the people then it is very difficult ok. And that is where you have see that how you are going to get knowledge that is basically tacit knowledge from other persons ok.

Now in order to help people most of the organisation has their own knowledge management system this is just connected to internet or that is a medium basically for publishing the knowledge map. So, if you look at internet it can be used as a mission because through internet you can share knowledge, you can capture knowledge, you can also see that how the knowledge that is being created helps you to codify the knowledge ok.

Now in order to build a cycle you have to identify certain criteria and that is discussed here like clarity of purpose, ease of use and accuracy of content. Now any knowledge management system that you are going to develop which actually stores codified knowledge ok. And this codified knowledge is not tacit knowledge, so what you need to do first you need to transform that translate to into explicit form.

And then you are going to store it using an IT enabled system and then you can use intranet to access or share that. For example we have a digital library like where knowledge available is explicit form and which is highly organised and codified knowledge. Now if you want to make use of digital library you do you no need to go to library ok.

What we do? we have a authorization we can use our login and password and then we can have access to books, journals, whatever is required by using certain search engines are keywords can be given and then you can have access to the databases or the information that is that is available

with them. Now in order to go for smooth access and use, you have to see that there is a clarity of purpose for what reason you want make use of it.

Why you want have it first, we talk about it later. Then how smooth is this it is to use that particular system ok and how relevant and accurate is the content. So, if you look at the accuracy of the content it talks about the consistency and that is reliability and validity of this content is consistent with the other contents first how authenticate is because accuracy of content.

Whether the content is consistent with other content first how authentic is because accuracy of content is one thing that helps you to get validated knowledge, there could be different sources where you do not get authenticated knowledge right. For example Wikipedia, Wikipedia is also a source of knowledge, where the knowledge is available but what kind of knowledge is available.

Maybe I do not know whether it is accurate or not but you can always doubt upon the accuracy of the content because it is not provided by the experts. Anybody who wants to contribute can upload the content with the Wikipedia. With that is sure then the content of the Wikipedia may not be very, very reliable and valid.

So, when it is to be used for the organisation purpose you need more reliable and valid knowledge and that is where the accuracy of the content matters. So the accuracy of the content is very, very is important. So, say for example if a paper is published in the scientific journal using the rigorous data then in that case you are sure that this is the more reliable and valid knowledge right.

Another issue is easy of use, how smooth it is for you to have access for that you need to see that weather that software or the hardware are configured properly. You have the bandwidth is available, so that you have easy access and whether all the information available or relevant information is available to you or not.

And but the most important thing is clarity of the knowledge. So, when I am talking about the clarity of purpose it talks about what, what purpose it is going to serve ok. That is where you remember you said that ok, this knowledge is going to help you to do your job in a more efficient way. It helps you to understand the processes in a better way or it is going to help you to do your job effectively.

So, why you want to access this knowledge and what kind of knowledge you to access that is very, very important. For example if you search Google if you give any keyword ok that could be related to say for example for your research. Then you come with thousands of things right, all these thousands of things may not be useful to you.

So, you are, have to very, very specific when you are giving search words. So, that you are able to generate relevant information that could be interpreted and used by you and it becomes a form of knowledge. So, it is very, very important to understand these criteria when you are talking about the knowledge management system.

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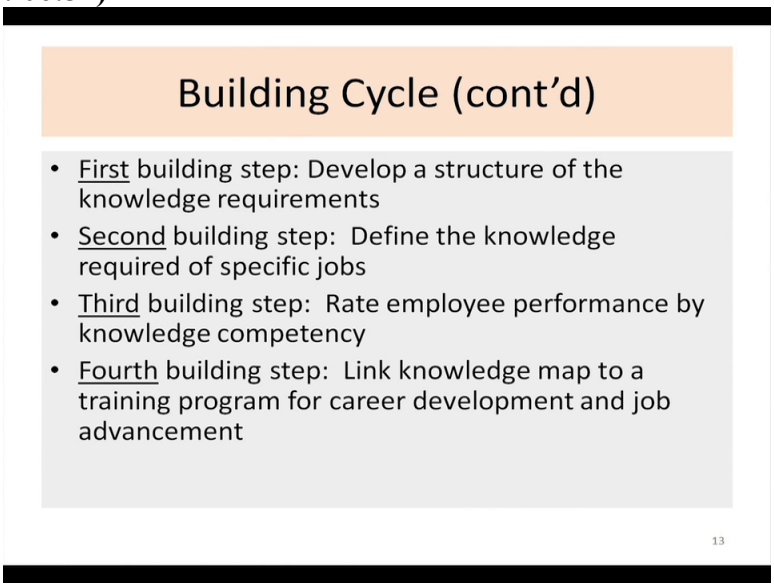

Now if you look at the system, building cycle then to start with you have to develop a structure of the knowledge requirement. And in order to develop structure of knowledge requirement what you need to do it. Look at the requirement of the organisation, what are the different activities that it is to be done to start because it has to be aligned with the goals and objectives of the organisation.

Once you have developed goals and objectives of the organisation you move further down and see in order to complete all these activities what kind of knowledge base or knowledge skill is required, both it could be tacit or explicit. Once you are able to identify the knowledge requirement.

Then the next job is to see whether the required or specific knowledge and skill which is linked with the goal and objectives of the organisation is available with the people or not ok. So, at the

second stage once you have identified the structure of the knowledge that is required for doing all the activities for the organisation.

At the next stage what you are going to do you have to see that what is the knowledge requirement for each and every job that is to be carried out in the organisation and whether there is a gap or not. So, the knowledge gap that is the skill gap is to be identified each and every level in the organisation; I am talking about the job.

So, once at this stage you are moving from organisation to the specific jobs ok and then you use the competency framework and at the third stage and say where is the gap in the competency that is the knowledge and skill ok. So, you need to look at performance of the employees you are performing both jobs or which they are likely to perform in the future growth.

And then look at the competency that is knowledge and skill to perform this job and whether there is a gap and the knowledge and skill which is required by them to perform either the current job or the future one. And then you create a knowledge map that is identify the gap once you identify the gap in the knowledge at the individual level then you move further to see that what kind of interventions you need to plan in order to do not to fill the gap.

The idea is that you can conduct certain programs, which are very, very specific after identifying the needs of the knowledge or the skills for different kind of employees related to different job ok, so that this gap is fulfilled. Now if you look at the building cycle it starts with what, first identifying knowledge gap at the organisation level then moving to the specific to the job level.

Then moving to the employee level and then planning certain interventions to bridge the gap in the knowledge and skill of the employees so that is able to perform his job right. So, this is the building cycle, KM building cycle.

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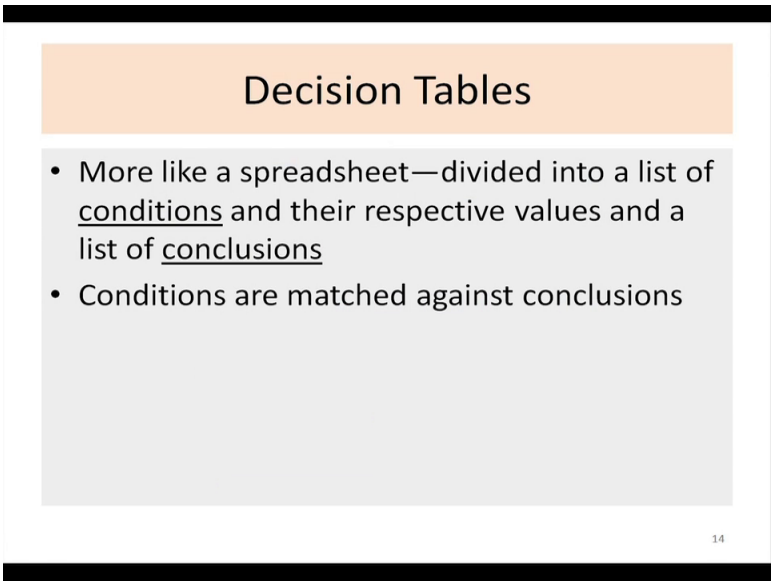

Another important issue that is there when we go about knowledge codification it must be of tacit knowledge decision tables. What are decision tables, basically decision tables are there to help you to identify conditions and you also find out the values related to each conditions and what will happen if you are going to work in under a particular conditions right. And then you identify a list of conclusions.

Now let me give an example suppose you need a person in your team with certain specification skills. Let me give an example of a match, cricket match in a cricket match you need 11 people you are looking for a person who is a good bowler now and you have 4 or 5 people who could be a potential bowler for your team.

Now how you are going to decide that which person is to be considered for including in the team. Now in order to identify you have to see that who are these people and under what conditions that, conditions are basically who you look into the knowledge and skill base of each person. In what way they are going to contribute.

So, you look into the facts, there records how they likely to perform, what are the advantages and the disadvantages associated with each condition each person. And then accordingly you are going to take decision that ok this person is going to be considered for this particular purpose ok and then you match it with the conclusions ok.

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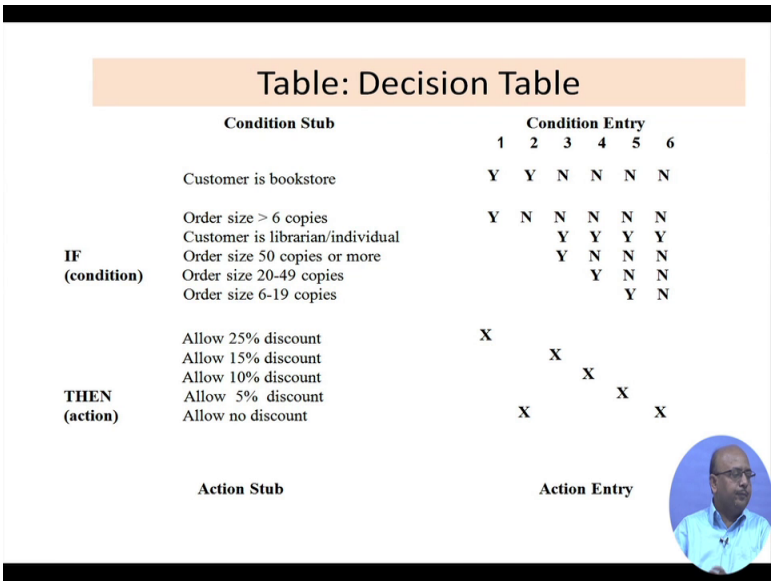

Let us see how it happens, look at this; it is presented in a format that is known as if then format ok. Now if you look at this condition step and the condition entry the customer is the book store. So, yes, yes, no, no, no now 2nd stage order size, greater than 6 copies yes, first condition other conditions are not met.

Second customer is librarian or individual yes, yes, yes, yes other four conditions are met, order size 50 copies are more, and so, one another condition is met ok. Now order size 20 to 49 copies you are meeting another condition or order size is less 6 to 9, another condition is met. So, the order size is different ok and accordingly you are going to decide what needs to be done.

And then how much discount you are going to pay ok. Whether you are going to pay 25% discount, 10% discount or are 5% discount or 20% discount ok. Depending upon how much how much discount you are going to pay, your action step and action entries dependent on that. So, you have to decide based on if this happens then what will happen ok.

So, suppose you are going to order for 6 copy how much discount you are liable likely to get ok. If you are going to offer, you are going to get 20 copies or 50 copies then what would be the discount because both are associated, condition or access, action is to be matched ok. Say for example you are going to order 50 copies ok.

So, if you order more copies then the publisher is going to give more discount, see if you say that if you order 50 copies or more then I will give you 25% ok right. In that case the customer is

a book store. Because it is book store is going to order more copies or purchase more copies ok. But if it is a individual probably is going to purchase some copy only.

He may not give any discount right, now this decision table to see we discuss further how it can be arranged into a decision tree.

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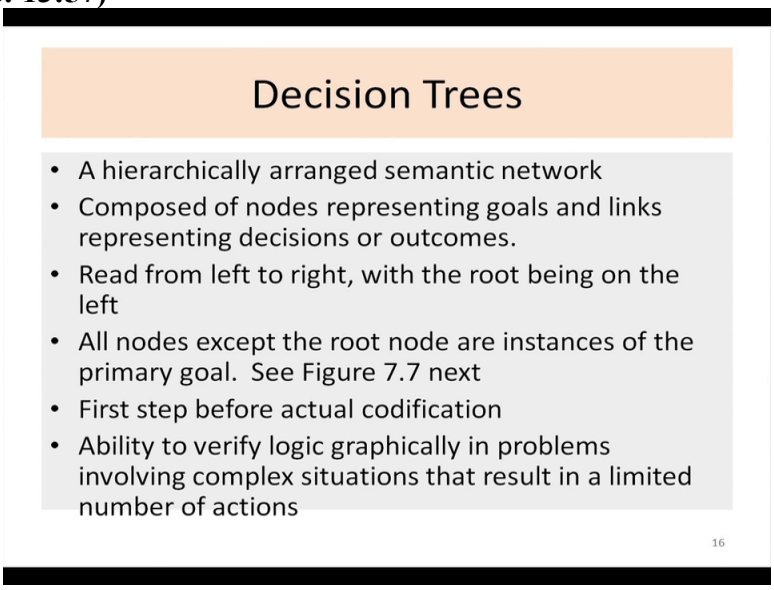

So, we talked about that and then we move to discuss about decision trees ok. So, decision tree is nothing but a hierarchical arranged semantic network right which has nodes representing goals and link representing decisions are outcomes. So, we move from right sorry left to right, so, suppose we say ok this is what we need to A and then to B, and then C.

And then accordingly suppose you are going to select cricketer, bowler these 4 bowlers and then select or not select, select or not select then for select these are there advantages, for not select these are the advantages. So, each one is connected with node and then you ultimately decide what needs to be done ok.

So, decision tree is required for actually codification purpose also and it helps you to take accurate decision and this could be presented graphically ok or may not be provide represented graphically it is very complex situation, if it is not that complex then you can go for it.

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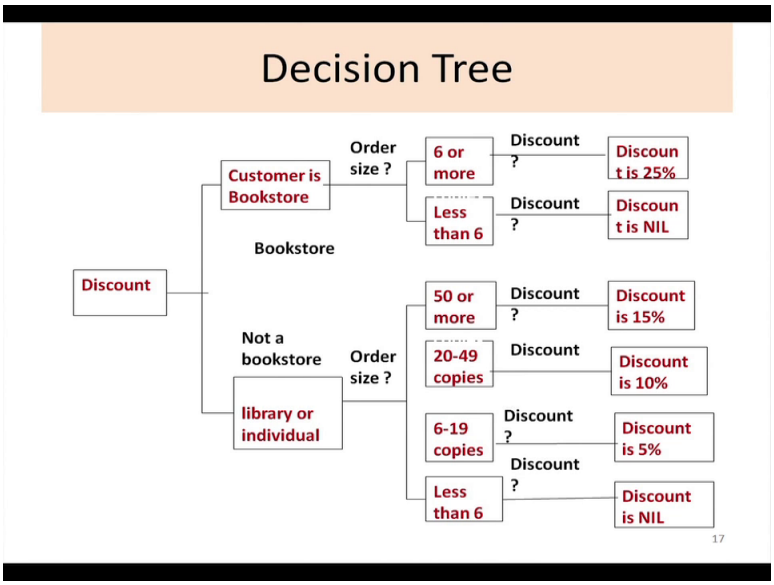

Now if you look at it, the same problem we are going to represent ok. Now if you look at this suggest that the customer could be a book store or individual right, either it is book store or not a book store the order size is going to be less or more ok or it is going to be in different sizes ok. Now the discount that is there is different and different cases.

And this is decision tree that is actually base upon this one; this is going to be graphically represented at here ok. Now if you look at it, it says discount how much discount is available, if customer is a bookstore then how much is going to buy and then the discount this much. If he is going to buy less than 6, no discount and if I am going to buy more than 6, 25% discount.

Because the discount for that book customer, book stores are going to be more compared to individual. So, if individuals, if they are going to buy more then it is 15% and if this is the number of copies which they want to buy then in that case it is going to be this much 10%. If they are going to buy 6 to 19 this discount is going to be 5%, if you are going to buy 6 less than 6 it is a discount is nil.

Now you see whether you are a book store or an individual if you are going to buy less than 6 probably you do not get any discount. But in other cases discount is varies from individual customer to a book store right. Now what is to be done, how you are going to take a decision. So, this will help you to decide what you want to do. As an individual if you are if you are going to buy this it will not be very useful when you for getting 15% discount.

Because you have to see whether you are required those many copies or not right. But here definitely they will go for this why because if they are going to have 25% discount and they are

going to buy 6 or more copies it will be beneficial to him. But the same decision if it is going to be more it may not be beneficial to you because what is the use ok. So, it depends upon the relevents and the context and the use of particular thing.

So, you are going to decide which what to do and here this is the most efficient decision. In this case even this may be more efficient decision even if he is not getting any discount. The reason is that this discount may not work for individual order right. Because it may not be required by him ok, even if the discount is provided to the individual it is of no use.

Because discount is to the book store is of very useful for the book store. Now the question is whether the book store is going to provide discount to the individual or not that is another issue that is where you have to see that how it is going to be worked out.

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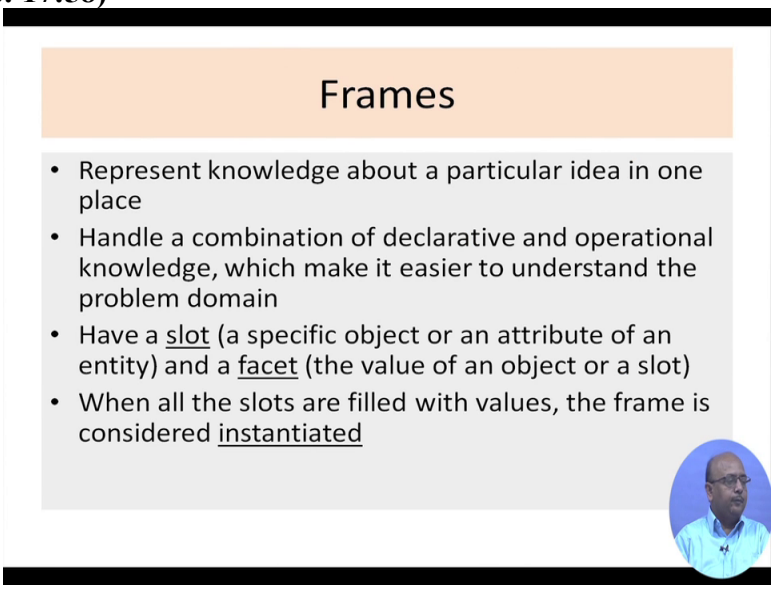

Now another issue that is frames, the frame is nothing else but you are going to represent knowledge about a particular idea in one place right, how it is done. So, we have already talked about declarative and operational knowledge ok. So, basically it is nothing else it is a combination of declarative and operational knowledge which makes it easier to understand the problem domain ok.

Now each frame it is basically which is called as frame of reference. This frame of reference is actually used for a specific object or an attribute of an entity. And another important dimension is facet. How much value that particular object or slot as. Based on this we talked about two things that is what is specific object or an object attribute of an entity and how much value is added to the particular knowledge.

When you are going to go codify knowledge you see whether it is related to what and how much value it is going to add ok. And for each of them there are different slots and then all the slots are filled with value it is known as instantiated, it means that it is going to be used or work.

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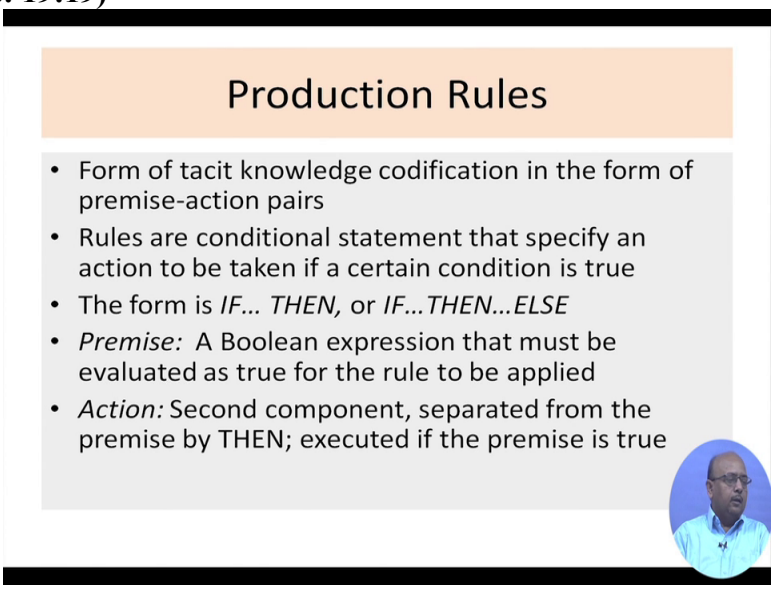

Now there are certain production rules that could be used. So, form of tacit knowledge codification in the form of premise action pair and that is where you are going to use logical thinking ok. And rules are conditional statements that is specified to an action to be taken in the form of, if then, if then else, this thing. Say for example if this problem is resolved then this will happen.

Suppose you think that ok if you are going to recruit 20 people then how it is going to affect functioning of the organisation or if you are not able to recruit what will happen ok. So, in this form you are going to represent it that is more logical because it is, you are going to be linked cause with the effect.

If this happens that will happen ok, if you are going to bring this machine it is going to help you to improve your production. If you are moving for more automation then it would result in less number of people right. So, you can go for right sizing ok, right sizing requires more and more automation ok. If automation is required you then you are go for right resizing. Or if you other way you can say you want go for right sizing then move to automation ok.

That is all you are going to relate it ok. So, you actually the premise is the bullion expressions that must be evaluated has to and for the rule to be applied and then you see whether it is correct

or not ok, the statement is correct or not ok. For example if you say x is y, y2 = z weather x is equivalent to z or not ok. So, whether the statement is correct or not that is to be understood ok.

Now this second component separated by premising then if executed in the premise store. If you say that if this is correct then the premise is going to be true or not the example that I have given can be used for that. Then planning now when it comes to codification you are to see that how you are going to arrange things ok.

Because organisation and classification though it is required you need to verify and validate it whether it has been properly organised and arranged or not ok.

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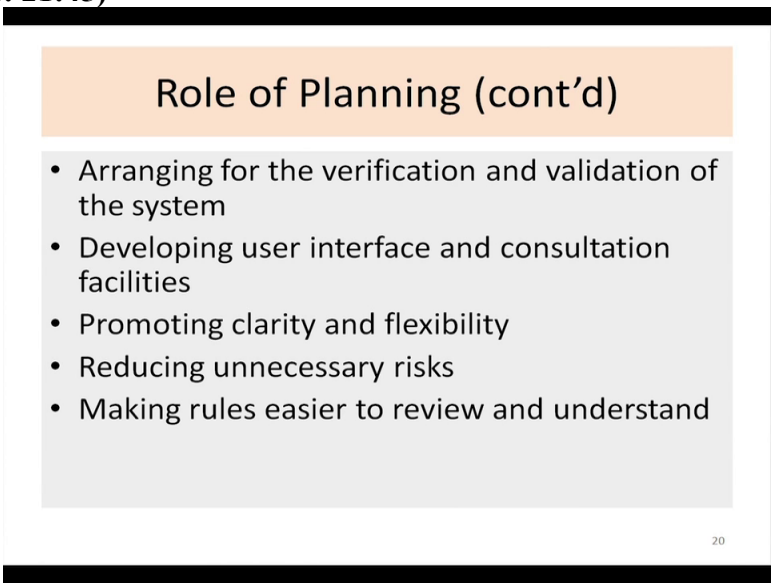

Then next stages you are going to develop user interface and consultation facilities. User interface means that you need to connect end users are the customer with the system right and it is very, very to create a user interface. And this user interface can be created using certain techniques like you have access to login and passwords and other things through which you can access to the information that is available in the with the knowledge management system.

And it must be able to create what you call clarity and flexibility because if it is not clear and flexible then it may be; there may be a problem ok. And then it also reduces unnecessary risk because if user interface is not available ok and if it is not clear you have a risk of either ending up with right kind of information or getting the kind of information which may not be useful to you ok.

These are the issues that need to be looked in when you are going to plan for arranging or validating the knowledge management system. And then you have the rules for review and understanding. Because since that knowledge itself is very dynamic keep on changing over a period of time, so, what you need to do is to ensure that yes whatever rules that you are framed for organising and codifying the knowledge ok.

It is reviewed on a regular basis ok so that you can incorporate new things in the knowledge system. Now infrencing and reasoning ok, infrencing is driving and conclusion based on statements only imply that that conclusion ok.

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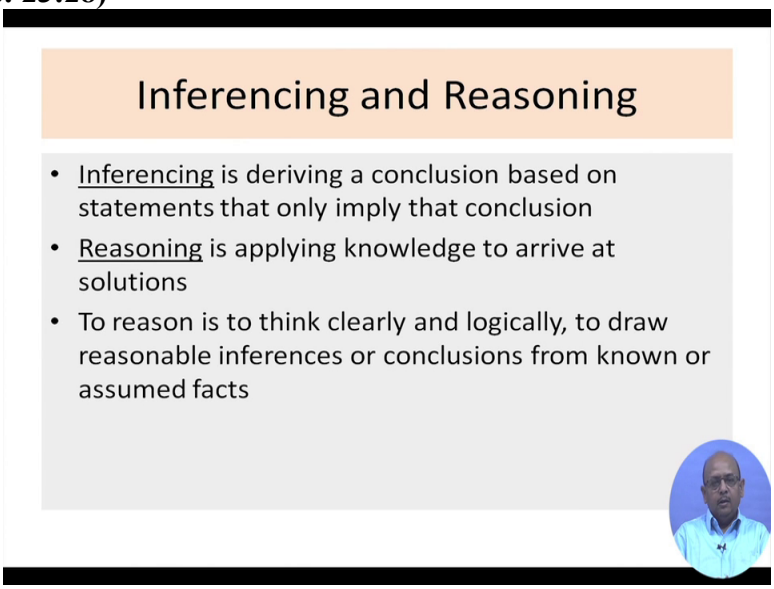

So, inferences are based on logical reasoning right now let us take an example of logical reasoning. Logical reasoning means what that you are giving logic to connect two things ok. Suppose if I say that if good rain happens then we are likely to have good crop ok. So, rain is associated with food grown that is there you are trying to inference and reason out based on certain things.

Now the thing is this kind of inference inferences can be made and but basically but you only implies the conclusions ok if this is happening then it will happen. But it may not be always correct that it would rain happens, you are going to have good crop because crop may be affected by other factors also right when.

So, you are going to inference certain things or derive certain conclusion based on a certain things, certain phenomena or objects arrived. Basically you are talking about the conclusions ok.

So, infrencing is what, it means that you are going to draw certain conclusion based on data and information that is statistics with you.

Say for example I have conducted a study to see that the extent to which the people share the knowledge in an organisation right. We conducted study in many organizations in India especially in knowledge intensive organisation which included R and D industries, IT industries, pharmaceutical industries and then we try to find out whether people share their knowledge with each other or not.

And based on the data that we received about knowledge sharing behaviour and the culture we found that in most cases there is no knowledge sharing culture and people are not willingly share their knowledge. Now this inference are what you call conclusion is based on what, the statements are the information that is provided by the management or the employees of those organisation ok.

So, this infrencing is only conclusion it may be correct or it may not be correct only thing that you need to do is, you need to validate whether this infrencing is correct or not that is very, very important. Now reasoning is basically applying knowledge to arrive at a solution. How you arrive particular solution that people do not share the knowledge.

Because that is where you are going to look at facts and information that is provided because that gives you user basis to say and that is what you conclude that ok. What we found that people where not sharing the knowledge, they are floating knowledge, you give some instances of that in organisational context.

See we have observed these kinds of things like people knowledge management department were not even having very good relationship with HR department or IT system was not that good for access. So, these issues basically created these kinds of problems and that is why knowledge sharing culture was not developed in the organisation.

Infrencing and reasoning is very, very important but it only provides conclusions the only thing that you need to make sure that it is based on certain facts and you should be in a position to verified ok that there whenever you are making inferences and reasoning based on facts and information that is given to you ok it is correct and it is validated. And it depends upon how well you have observed processes in the organisation.

Otherwise what will happen you are going to conclude based on certain facts which may not be correct or assumed by you ok?

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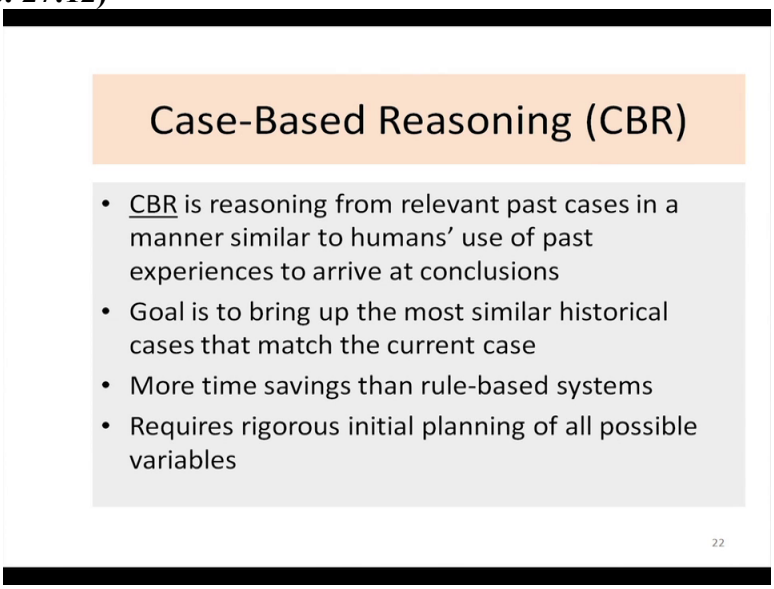

Another important factor that is related to this is case based reasoning. Case based reasoning is very important, reasoning from relevant past cases in a manner similar use of human use of past experiences to arrive at conclusions ok. Now what is this case based reasoning it means that in a particular situation context, you have used certain methods to do certain things ok.

Now that experience you are going to apply in a new context right your past experiences helps you to arrive at the conclusions in a new situation that but that may not be correct also at times. Because they context the environment may be different ok. So, you try to see that weather the current context is most similar to what you had in the past, so you try to match the current context and the earlier context.

Say for example as a HR manager you saw that there is there was a strike by the workers on a particular issue and you use certain things in order to solve it and then it was resolved and strike ended. Now again there is a strike are you going to use the same kind of thing in the in order to end the strike? So, you try to match the context and the condition, the environment because of which the strike is happened earlier and which is going to happened and right now.

And then based on that try to see whether it is matching and if it is matching then you can use the same rules of logic solve this kind of problems. Otherwise you use those inputs as experiences and then you try to apply that in this context to solve the problem ok. So, the idea is to match it

and see whether this kind of reasoning is going to help you to solve the problem based on the past experience.

It is more than time saving then rule based system because you already have the experience you solved similar problem which are going to help you to solve your current problem ok. But you need to plan all possible variable which are going to affect the current context and you are to see whether you have taken care of all the variables related to the current context.

Whether it is matching with the past context or not, if it is not so then in that context it may not be very, very helpful to you.

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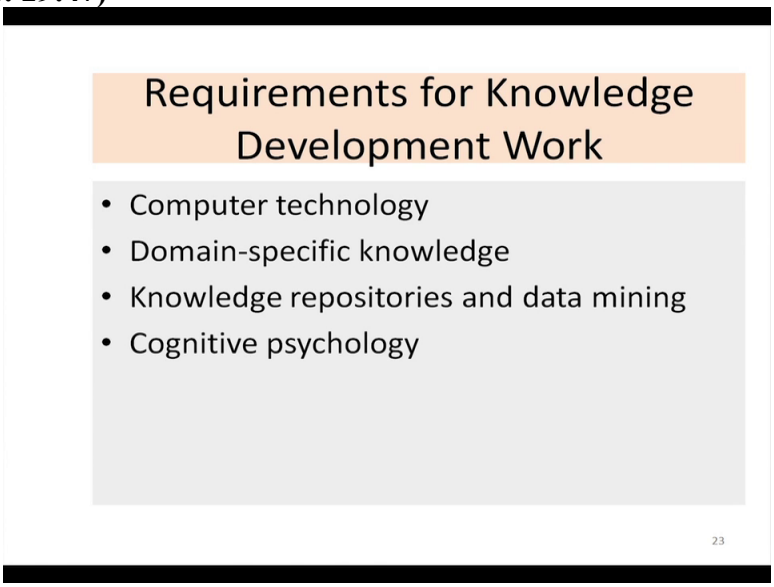

Now so, we are talk about different techniques for codifying; now how do you go about it for developing the knowledge ok. Now we use computer technology, we also use domain specific technology. We also go for knowledge repositories and data mining and you also go for cognitive psychology.

So, computer technology is going to be help you to archive and store knowledge. Then you are to see that how you are going to classify knowledge related to specific domains ok. And this domain could be related to different functional areas, different areas of knowledge also. And then you create knowledge repositories which is basically nothing else but organised and codified, organised, classified, knowledge in a very structured format.

And this knowledge repository is not organised properly then what will happen you will not be able to have access to the knowledge in a proper way and that it not smooth and it is not going to

be easy to use again. And then data mining, that data is there, huge repository of data is there but the thing is that how to relevant; extract relevant data from there.

It is very, very important, so you new certain data mining techniques and also cognitive psychology factor that we have discussed like you are using your perceptual processes, you also process the information, you and you thinking processes. What you are learnt, what is there with you as an input. So, you make use of all these things ok in order to go for it.

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And finally you have see, what are the skill requirement for the knowledge development? Ok. See for the knowledge developer going for tacit knowledge that thing that is required good communication skill ok, interpersonal communication skill is very, very important now and that is how you track with people ok.

Then ability to articulate project rationally ok how well you are able to comprehend present and understand the present the rational logic of having a knowledge management system to the top management. And then developing a prototype ok this is the kind of knowledge management system with the organisation would be required that is basically nothing else but the kind of designing blueprint for the organisation knowledge management system is very, very important.

So, you can say ok these are the that we can we are going to do with the knowledge management system and what is going to be stored here, who is going to stored, who are various stakeholders, who is going to use them all these kind of thing is very, very important ok. When you are going

to develop a prototype you need to ensure that people are going to develop have the skills for prototyping ok.

Then knowledge developer should also have certain personality attributes like the general mental ability. They should be very, very creative, persistence and they should not leave the persistence and also a good sense of humour. So, if you have all these personality attributes probably you will be in a better position to interact and relate with the experts and capture it and codified tacit knowledge, thank you.