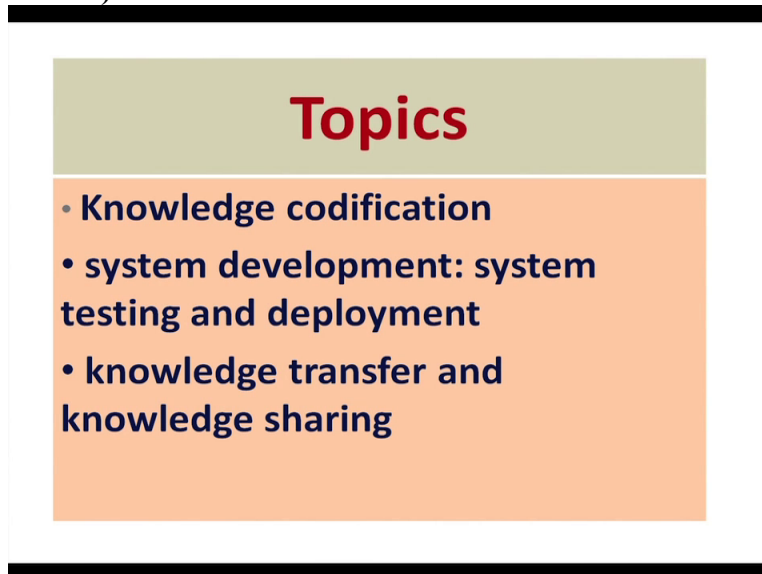


Knowledge Management
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Lecture 11
Knowledge Codification

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Topics

- **Knowledge codification**
- **system development: system testing and deployment**
- **knowledge transfer and knowledge sharing**

Ok, so, we are moving to the next module of knowledge management. After discussing about knowledge capturing process, now we are moving to next module ok, that is knowledge codification. First of all we talk about knowledge codification and then talk about system development and how it is going to be tested and deployed. So, that we are able to store knowledge and finally move to discuss about knowledge transfer and knowledge sharing.

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What Is Knowledge Codification?

- Organizing and representing knowledge before it is accessed by authorized personnel
- The organizing part is usually in the form of a decision tree, a decision table, or a frame
- Converting tacit knowledge to explicit knowledge in a usable form
- Converting undocumented to documented information
- Making corporate-specific knowledge visible, accessible, and usable for decision making



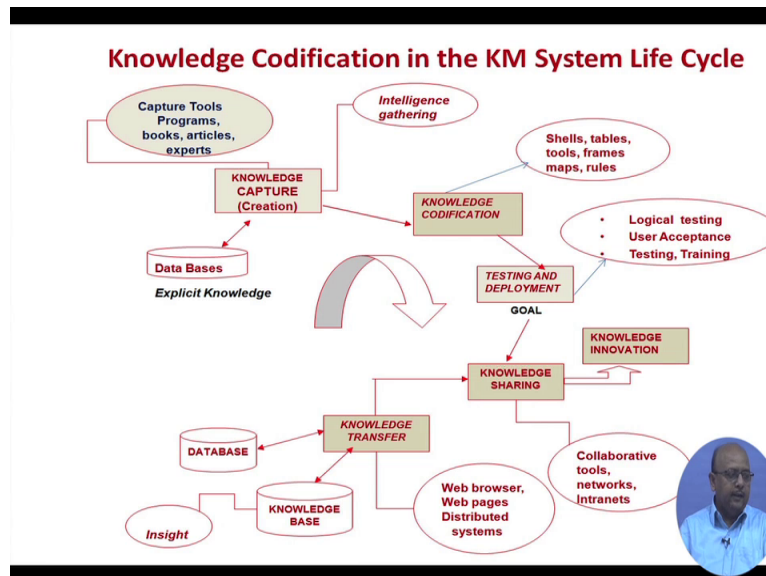
Now the first thing you are going to discuss here is knowledge codification. So, in the last session you remember we talked about how to capture knowledge using various tools and techniques. So, once knowledge is captured that is to be codified. That is the knowledge has to be represented in a structured format that, what I mean to say is that codified knowledge is highly organized and represented.

So, what needs to be done the codification is basically the process through which the knowledge is represented organized in a form so that people can have access to it. So, when I am talking about codification it is nothing else but organising and representing knowledge before it is accessed by people in the organisation.

Now organising part that is the first part that how you are going to organise captured knowledge ok is presented in the form of a decision tree or a decision table or a frame that we will talk about. And we also see that how we are going to convert tacit knowledge into explicit form because codification is nothing else but converting tacit knowledge into explicit form so, that people can use it.

Now that is nothing else but how you are going to put something that is not documented into a documented format ok that is tacit to explicit. And then we have to see that how we can organise it, in the sense that people in the organisation can have access to it, or able to see it ok, use it for taking certain decisions or doing their work.

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After defining knowledge codification if you look at the system life cycle which you have discussed earlier is that once knowledge is captured this part, then we move to the next stage that is knowledge codification. Now in the case of knowledge codification we have to see that how it is to be done. We create sales, tables, decision trees, tools, maps we follow certain rules. So, that is how knowledge is codified.

We are going to concentrate right now on this part then we moved to testing and deployment. And this testing and deployment help us to see that it is possible to access knowledge or share knowledge. For testing and development basically what we do, we try to see that use certain rules that it is logically tested to make it valid?

It is accepted by the users ok and users those were going to have it access it or train to use it. So, basically here we are going to talk about, more about knowledge codification process. And then we move to these processes right. So, this is the codification in the system life cycle. So, we start with capturing that we have already talked about it, how knowledge is created ok.

So, that is the database, now this database is basically nothing else but in the form of explicit knowledge but this explicit knowledge as need to be codified for access and use. That is why we go for organising and structuring knowledge into a format. So, that people have access to the and can use it. Otherwise this database not going to be used unless it is going to be organized into a meaningful way ok.

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Why Codify Knowledge?

- **Diagnosis**—KM system is given identifiable information through the users observation or experience. Addressing identifiable symptoms of specific causal factors
- **Instruction/training**: promote training among junior staff based on captured knowledge of senior staff
- **Interpretation**— Interpretive codified knowledge system compare aspects of an operation to present standards.
- **Planning/scheduling**—mapping out an entire course of action before any steps are taken
- **Prediction**—inferring the likely outcome of a given situation and flashing a proper warning or suggestion for corrective action



So, we are moving to this process but why to codify knowledge? Ok, now if you look at the KM system you are capturing knowledge that is either through observation or experience or interviews whatever process that you are going to use identify. So, it is important to codify knowledge for access and use of it.

So, the first thing that you have to do is that why you are going to do that? Why you need to codify knowledge and there are certain things that discussed in the four points that or five points that we are going to talk about is diagnosis, instruction and training, interpretation, planning and scheduling, prediction ok. So, if you talk about KM system it is nothing else but a given identifiable information ok.

It means that you have been able to capture the information through the user's observations or experiences ok. So, now the question is that how you are going to adjust these identifiable symptoms of specific colour factors. How this particular thing is related to a particular event. So, basically you try to see that ok this knowledge that you have identified is going to useful for what.

So, for that you need to codify because unless you codify put it into a domain, specific domain or area of knowledge it is not going to be very, very useful. So, you need to identify and organized what you call classified knowledge, so, that you can relate it with the events, now another important point is that you have to promote people not only senior people but also junior people.

So, you need to provide training, so that junior staff based on captured knowledge is able to make use of it that is captured from the senior people. So, you are going to capture knowledge from the senior people and then you need to train people down the line so that they can make use of it but they would be able to make use of it only when it is codifiable to some form.

Unless it is codified the observation, the experiences or the processes it may not be possible for the younger people to make use of that and they also need to be trained that how they are going to do it, so that is where the training is required. Then how are you going to interpret codified knowledge ok, so you need to develop a system for interpretation ok.

And then you have to use a standard process ok because unless you use standard process it may not be possible for you to make use of it. Say for example you may be having books ok but books may belong to different areas of knowledge. It may relate to mechanical engineering, it may relate to management.

Even in management it could be related to different field and that is where you need to specify whether the present knowledge confirms to the present standard of knowledge which is classified and organized. So, that you can add to that existing body of knowledge, so, it is very, very important to codify the sorry to interpret the codified knowledge right.

And that helps you to compare it with the present standard of the classification and organisation. Now next is planning and scheduling, how you are going to map out, the entire course of action before any other any other steps are taken. It talks about how do you go about codifying the knowledge? What are the various steps and the processes that you need to follow in order to codify?

That talks about the route that is to be followed in order to plan and schedule regarding codification of knowledge. And then finally the prediction ok, prediction is nothing else but how you are going to infer something out of it ok. So, that it gives information, let me give one example to explain it. Suppose you are going to use or codify certain knowledge.

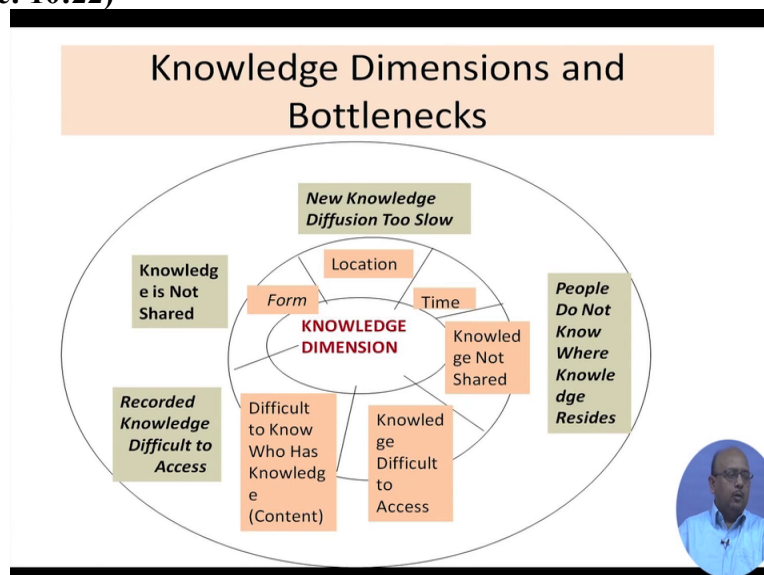
And you are going to compare with the standards now say for example boiler is going to work. You know that boiler is going to work above a temperature or below a temperature it is not going to be functional. So, what you do? You have created a standard and you are going to ensure that your boiler follows that standards when it is going to function effectively ok, that is ok.

So, that is basically you are talking about the interpretation so you are going to see that ok, the standard temperature is to be followed by the boiler in order to work effectively. Now you also need to see that if the boiler is not functioning effectively what is to be done ok. So, you create system or incorporate a system that if the temperature falls below that standard or goes above the standard you come to and abort it.

So, what you can do you can incorporate a system warning system, a sensor or anything which gives you information that the temperature of the boiler is either below standard or above standard, so, it is not going to function effectively. So, the idea is to develop a system to infer the likely out of it given situations.

So, that if you are able to know whether it is working or not and then also having a proper warning system or for taking corrective action. Suppose while it is not working properly the temperature has gone above so what are corrective action is to be done or taken you take it ok, so, that you can correct the problem.

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Now if you look at this codification process there are lot of bottlenecks which comes out and these bottlenecks creates barrier in the process of codification. Now look at this knowledge dimensions are discussed along with knowledge dimension look at the peripheral factors ok. These basically creates bottlenecks, the bottleneck are that say for example knowledge is not shared ok.

There is a tendency among the people not to share knowledge but to hold it. If you are not going to share the knowledge how you are going to capture or forget about codification. It is very

important to ensure that knowledge is shared by the people ok. At the same time how you are with diffuse this new knowledge ok.

Many places it has been found that the new that the speed of diffusion of the new knowledge is very slow, so in that it is not going to effective what you need to do is that new knowledge must reach to the people so that they can make use of it ok. Now another important issue is related to what you call source of knowledge.

People in the organisation do not know where is the source, where the knowledge resides. So, they know ok that their knowledge but they do not know exactly where the sources where the knowledge is. So, idea of having a knowledge management system is to ensure and have a place for knowledge management system and then we have to see that how you are going to access this recorded knowledge.

Unless you are able to codify the knowledge it will be difficulty for you to access the knowledge because there are number of things that is associated and which discussed especially in the inner circle of knowledge dimension. Now if you look at the inner circle of the knowledge dimension it talks about number of factors like form.

Which is basically related to what you call in what form the knowledge is available ok, because if it not available in the highly organised and structured form probably you will have difficulty in accessing the knowledge that is one purpose of codifying knowledge. So, you have to ensure that the knowledge is codified in a proper form.

Then location, that is where the knowledge is; you have to see that we have a system and people know where the knowledge is so that they can have access to the system to identify the knowledge. Then time, the time factor is very, very important getting the knowledge when it is required it is very, very important.

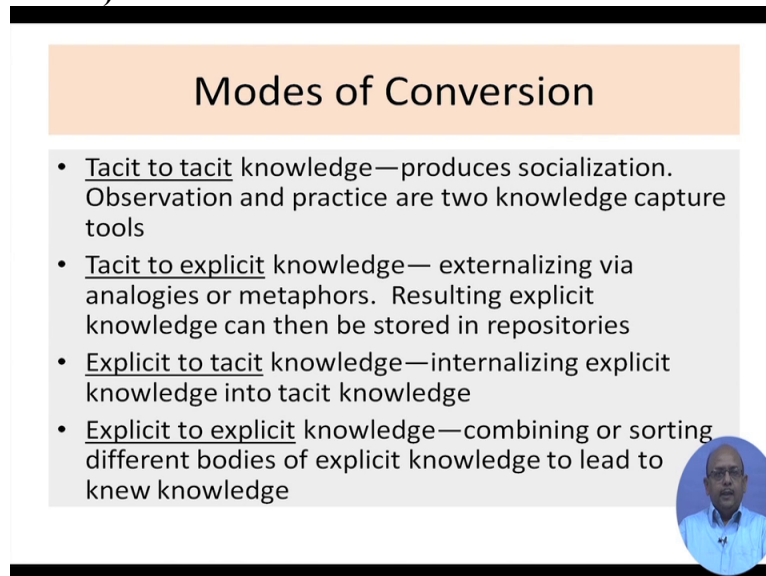
If you do not get information or the knowledge that is relevant to you when you are going to work probably it may not be useful. You have to be sure you have a timely access, so if you are going for highly organised system and a good knowledge management system probably it helps you to access information as and when it is required ok.

Another point that I have already talked about is, if knowledge is not shared, if it is not shared then it is very difficult to capture and codified it. So, these are some of the factors which are

related to what you called bottlenecks and that is why you need to ensure that knowledge located in a particular place.


It this available when you required, people share the knowledge available in a form that is understood by the people that it means that it should be available in highly organised form ok and if people do not have any kind of problem in accessing the knowledge right.

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Modes of Conversion

- Tacit to tacit knowledge—produces socialization. Observation and practice are two knowledge capture tools
- Tacit to explicit knowledge— externalizing via analogies or metaphors. Resulting explicit knowledge can then be stored in repositories
- Explicit to tacit knowledge—internalizing explicit knowledge into tacit knowledge
- Explicit to explicit knowledge—combining or sorting different bodies of explicit knowledge to lead to new knowledge



We are moving to and other aspects part of it we have already talked about you remember we talked about tacit and explicit knowledge and how you are going to transform tacit to tacit knowledge and we have talked about it that how to move from tacit to tacit and that is more personalized strategy for knowledge management ok.

And when you are moving from tacit to tacit means it is being transformed one person to another person or from members of the team ok or one person to a team. Basically this happens to the process of socialization and people interact and relate formally and informally with each other. Then you are going to observe others doing certain things then you try to internalize it and try to act upon it means that you are modeled it.

And then you try to imitate processes by yourself that is what is known as observation. And then practices, once you observe it then you try to adapt those practices ok. Observation is modeling and then imitating those things and that is how you also internalize that knowledge. So, that is mean that is basically related to tacit knowledge tacit transfer.

Now tacit to explicit is then when you go from internalizing moving to externalizing. Externalizing that using analogy metaphors ok, then if this is the thing then that will happen try to use the same analogy ok in another context and then this explicit knowledge is stored in the repositories ok, which you have access ok.

Now if tacit to explicit means you know about it and then you go about go for documentation. Suppose you know about certain things that how it is to be done and then the entire process is documented by you. So, what to do, you move from internalization to externalization right. And that is all knowledge is transformed from tacit to explicit form.

The next thing is explicit to tacit ok, explicit to tacit that ok from externalizing into internalizing that is you are going to internalize explicit knowledge. For example you have read that how to write a program in a text book or you watched a video and how to write a program and then whatever you have read or watched in a video for how to write a program.

Whatever you read or watched a video for writing a program you use it in order to write a program for a purpose right. It means that whatever you have learnt you are going to internalize that and you are learning from explicit sources. So, whatever you are going to learn from explicit sources maybe books, maybe videos ok or manuals and guidelines and you make use of it then doing certain things and that is what we call internalizing explicit knowledge into tacit form.

Then explicit to explicit it means you are going to see that how explicit knowledge that you have is used by you in doing certain things ok. And that is where you can also use different kind of explicit knowledge it means that you are using different sources of explicit knowledge suppose you want to write a program, to write a book, you ask a consultant, you also like to look at the video.

These are the different sources of explicit knowledge and then you combined these explicit sources of knowledge related to particular question or problem and then you make use of it based on combination of this knowledge from different sources and then you make use of it to do the job. So, there are different modes of conversation, conversions that takes place in different level.
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Things To Consider

- What organizational goals will codified knowledge serve?
- What knowledge exists in the organization that addresses these goals?
- How useful is existing knowledge for codification?
- How would one codify knowledge?



Now what are the things that we need to consider before we go for codification ok. Now it is very important that what kind of knowledge is being codified is very, very important. Are you going to codify each and every knowledge, whether it is related to routine task or non-routine task whether going to codify the knowledge that available with the experts or you are going to codify all sort of knowledge it has been created.

Now the thing is that any knowledge that needs to be codified has to be relevant, as a utility means that people are going to make use of it to perform their job in order to achieve their goals and objectives. So, the most important thing that one needs to consider is how this codified knowledge is going to help you to achieve the goals and objective of the organisation.

Any kind of codified knowledge that is available in explicit form will help you to do it only when it helps you to do the job, it means that it is related to event and it is going to be applicable to the particular context and that is why it is important to codify especially those non routine task for which there is no straight jacketed approach is available.

There is no fixed rule to do it because most cases we are not going to codify the explicit knowledge because that is already available in some documented form which is organised. But in most cases we are going to codify tacit knowledge ok. So, it is important to capture those tacit knowledge which is important which is available with the experts.

Whether it is related to task, whether that it is related to process or anything, so that it helps you to achieve goals and objectives for the organisation by performing effectively, so, when you do

your job using that knowledge, definitely you achieve a goal and objectives in the process you also contribute to the goals and objective of the organisation.

And now what knowledge is exists in the organisation that addresses these issues you are to see what type of knowledge available with the organisation whether it is explicit or whether it is tacit. And whether the explicit knowledge available is good enough, if it is not then we only go for creating new knowledge that would be required of the organisation.

In the process you need to also need to identify the gap in the knowledge base. We already talked about knowledge gap, the first point if you look at the goal or objectives of the knowledge serve basically you are trying to link KM strategy with corporate strategy must be aligned and help to fulfill in goals and objectives of the organisation.

If you look at the second point, it talks about the gap in the knowledge base. What is the current knowledge base that is present with the organisation now that this knowledge management system is going to address this kind of or not? In the sense that you need to identify the gap in the current state of knowledge

And required state of knowledge, so, you identify the gap and your knowledge management strategy should be to fulfill the bridge this gap between the in the current state of knowledge for codification and the future state of knowledge. So, now the third point is how useful is existing knowledge for codification.

Whether whatever knowledge available with the organisation can; is there anything to codify it. How codification is what is help it depends upon two parameters that you have to see that it is applicable ok and people are going to use it. Now the last question is that talks about the process, how are going to codify the knowledge.

Once you are captured different ways and means through which we are going to codify the knowledge, so, next in that you are going to discuss this related to the codification process.

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Problems With Codifying Tacit Knowledge

- Distinctive style of the expert
- Special knowledge capture skills to codify tacit knowledge effectively
- Certain knowledge is more of an art than a science and art is difficult to codify into rules
- Dealing with experts is not easy
- Many firms lack the transparency of company-wide knowledge
- Critical knowledge is often available, but no one knows where to find it



Now what are the issues that come out with the codification, especially codification of the tacit knowledge because explicit knowledge need not be codified because it is already available in explicit form and it is in terms of documents, books, videos whatever it is right? So, you have to see that when you capture knowledge, the tacit knowledge that is to be captured and how you are going to codify.

Are you going to use certain formula, rules of logic ok? So, what we need to see is that in order to codify the tacit knowledge what are the various problems that may come up ok. So, you have to consider this style of the experts, you remember he talked about four different types of style whether it is emphasizing on the process or methods or contents or he is trying to market it right.

I will try to explain, depending upon the distinctive style of the expert that we have already covered in the last lecture procedural type, content type, story teller type or salespersons type these are the different types of experts. Now we have to see that these different distinctive styles of experts will provide knowledge in a different way.

So, capturing and codifying this kind of knowledge is very, very important ok. So, you have to develop as a knowledge developer those skills to codify tacit knowledge depending upon the experts and their style. So, certain knowledge is more of an art than science it is difficult to codify it. That is if you look at knowledge part, not necessary that all knowledge is going to be technical ok.

Because technical knowledge codification is easy when compared to how to do certain things that is art, when it comes to application of knowledge in performing certain activities that is

related to an art. So, when it comes to processes ok it is related to art, so, codifying processes are more difficult than codifying techniques or equipments how to use these things ok.

Then another important issue if you remember you talked about how what kind of relations we develop with the expert and how you get information from them. What are the various tools that you use ok, in order to elicit tacit information from the experts you have to interact with them and relate with them, you need to talk with them and you need to interview with them?

And you are going to use other methods that we have talked about going for observations ok or having certain tools of decision making like nominal groups or Delphi groups other things dealing with multiple experts. So, when you are going to deal with multiple experts what you need to remember is that the basic objective of a knowledge developer is to elicit the tacit knowledge and codified it.

So, it is very, very important; it depends upon the personality, attributes of the person, personal characteristics and is understanding in terms of his skills both behavioral and technical which is going to help him to deal with the experts ok. Now, lack of transparency of companywide knowledge, now, what I am trying to tell you is very clear that how transparent you are when you are going to deal with the knowledge.

What I mean to say here is in terms of transparency whether the knowledge that is available to all or whether some people are going to deal with it or whether the everybody is going to have access to it ok. So, these are some of the issues related to it ok, then coming to critical knowledge, not all knowledge critical, especially knowledge related to non routine task are more critical ok.

But critical knowledge is not available so easily because it resides, it may reside with few people only ok. And though we say that it is available, where it is available but we have to find it. Sometimes critical knowledge is not shared that is another issue that is there. So, if it is not shared then it is very difficult to capture and codified it. So, these are some of the issues related to this.

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Tools and Procedures— Knowledge Maps

- A guiding function
- Identify strengths to exploit and missing knowledge gaps to fill
- Visual representation of knowledge, not a repository
- A straightforward directory that points to people, documents, and repositories
- Direct people where to go when they need certain expertise
- Recognize explicit and tacit knowledge captured in documents and in experts' heads

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Now coming to codification process you use some tools and techniques for this purpose and the one that is that we are going to discuss now is identifying knowledge map. The knowledge map are nothing else but it is representation how to go about and identifying or moving from tacit explicit ok. So, basically it is going to help you to guide that ok.

How you move from tacit to explicit, what are the processes and here actually we try to see that how you are going to identify the gap in the knowledge that is the first stage. If you remember we also talked about it. How you are going to identify gap in the knowledge and that is possible only when you find out what is the current state of knowledge and where you want to have ok.

And then you have to you are to identify, where is a gap ok, identify extents to exploit missing knowledge gaps ok, so, that you can fill those knowledge gaps. Then it is very, very important to have a visual representation ok. Because visual representation is help you to better understand and memorize that compared to repository.

Because knowledge that is available in repository people may or may not use it ok. If it is in an other form probably it will not create the kind of impression that it should have and that is why it is always good to have visual representation of knowledge because that helps you to understand in a better way ok.

And then you have to see that how people are going to make use of different kind of explicit knowledge that is documents, repositories and other kind of things ok. And then you also need a system to communicate people. So, this is where you can find out the knowledge ok and then

you have to see that explicit and tacit knowledge that is being captured is documented ok which is there in the people.

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How Knowledge Maps Work

- The map depicts visually the business issue or problem at hand
- Pace of the group's collaborative discussions guided by questions to create shared knowledge
- Facts presented to the group to focus on realities of the problem
- Nature of the collaborative discussion among peers should be an open environment, facilitated by a coach
- Post session follow-up activities are reviewed, and conclusions are drawn

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Now how it works you are to go for a visual representation, have a particular business issue or problem. Then you go for collaborative discussion guided by questions to create shared knowledge from the experts. Then this fact depends to the experts that is the group focus on the realities this is how to solve the problem.

And then this nature of collaborative discussion yes should be in open environment facilitated by the coach. So, that you can come out very clearly these are the things or these are things that has come out from the process ok. Then after the session completes ok you go for the review and conclude ok, this is what has come out and then you try to represent it into a visual map.

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The Building Cycle

- Once you know where knowledge resides, you simply point to it and add instructions on how to get there
- A company's intranet is a common medium for publishing knowledge maps
- Building criteria: clarity of purpose, ease of use, accuracy of content



Ok, thank you.