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

Lecture 16
Knowledge Infrastructure

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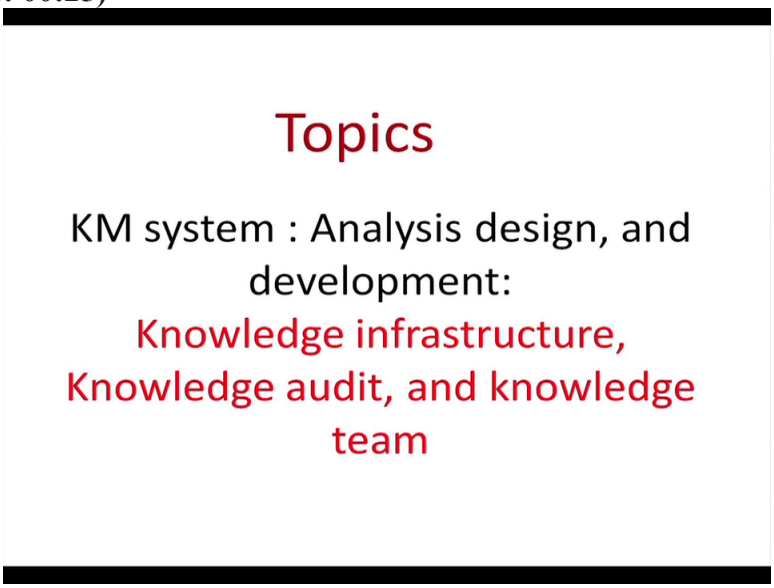

Ok, so we are moving to the next module that is the fourth module and here we are going to talk about knowledge management system that how you go about analysing the design part and the development part. And in this process in the first phase we have going to talk about how you are going to create infrastructure that you what you call it is more related to technology part I mean the technology part.

And then we talked about knowledge audit that how we are going to evaluate the kind of knowledge that is captured, stored and used in terms of its quality, accessibility and other issues. And then third part in this process is knowledge team which is responsible for managing and maintaining knowledge management system ok. So, what we are going to discuss to start with first of all you talk about knowledge transfer part sorry knowledge infrastructure part.

And then we move to the knowledge audit and knowledge testing, now when it comes to knowledge infrastructure basically if you look at the knowledge management system and its technology that is the base the technological base.

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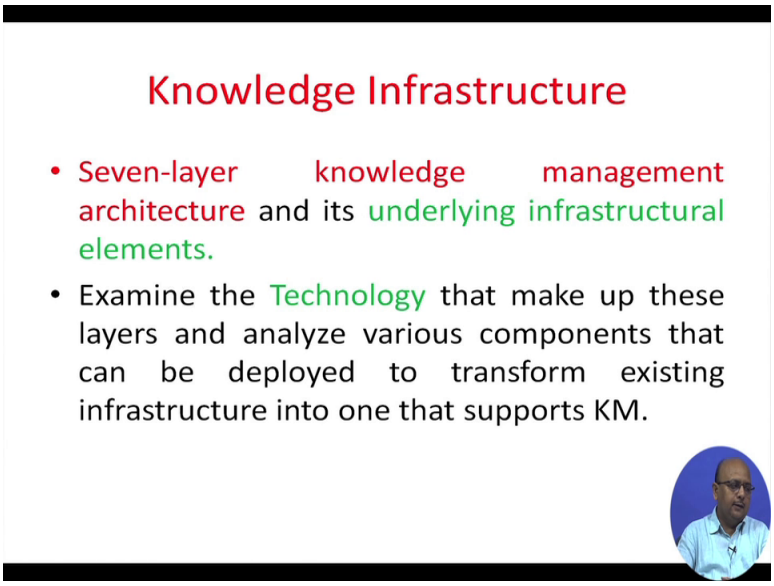

It has seven layer, knowledge management architecture and at each levels it as certain elements into the infrastructure and the technology. So, basically when you are talking about knowledge infrastructure we are going to talk about the kind of technology that is used in each of these seven layers. And we will also analyse various components which is deployed for transforming existing infrastructure into that suppose is knowledge management system.

Basically here we are going to talk about technology structure and how technology structure is going to support the knowledge management system. Now if you look at the seven layers ok, of knowledge management system you can see these are the various users U1, U2, U3 and U4 and something like that there could be number of users which are going to use the knowledge management system.

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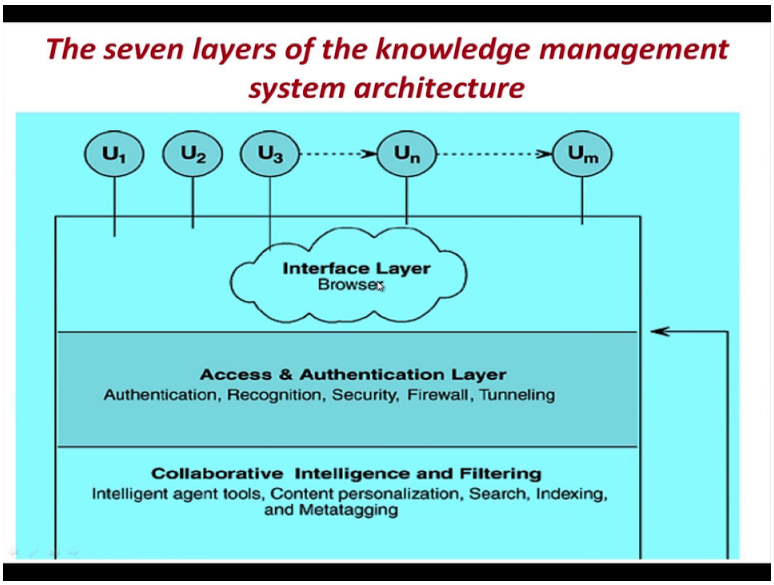

This is the top most layers that is what we call the interface layer. Interface layer that is through which you are going to use the knowledge as a user. So, this actually this layer, access the interface between the system and the users ok. So, we will talk about the interface layer first and then we move to the next layer. Before it is going to the user we go for access and authentication process.

We make sure that yes it is authentic the knowledge, authenticated and recognised security systems their medium through which the knowledge is going through you ok. And then we move on to the next part sorry the next part that is the collaborative intelligence filtering that is where you have tools, personalization tools searching, indexing and meta tagging.

And these things basically help you to codify the knowledge in a structured form. So, that and then it is authenticated and it moves to the interface layer through which people can make use of the knowledge now.

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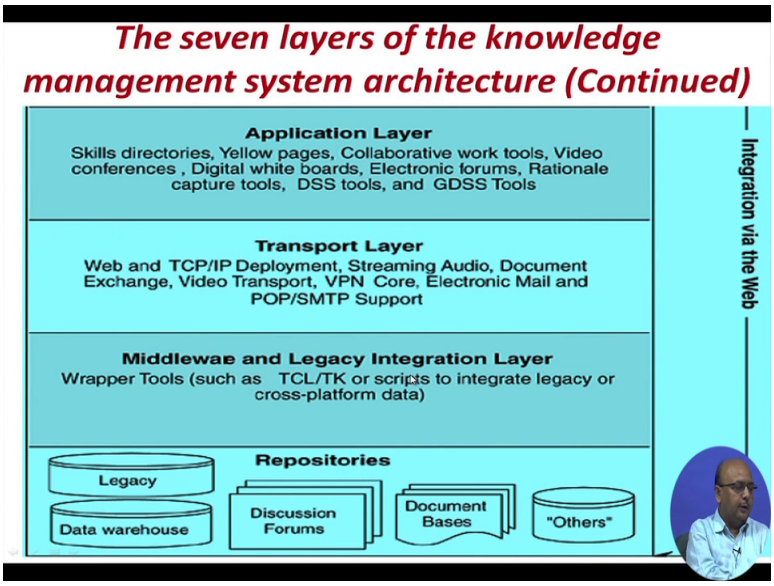

Fifth layer is application layer basically where you have different kind of things like directory, yellow pages, tools, video conferencing, digital whiteboards, electronic forms these kind of things which is basically the application layer that is how the knowledge is transferred and shared. Then the transport layer if you look at the transport layer that is where hardware is involved right hardware and software is involved.

Like you have Web Technology, audio, document exchange, video transport, virtual private network, emails and other kind of support basically this is a transport layer. And then you have middle layer and legacy integration layer that is how you are going to integrate ok legacy or the platforms, technology platforms with the knowledge management system.

And finally you have the repository where you have legacy, warehouses, discussion forms document verse and others. These are the repository that is what you call knowledge repositories. And this is integrated if you move to this, with the interface layer and this is integrated with via the internet with the repositories and these are the layer that is there in the middle.

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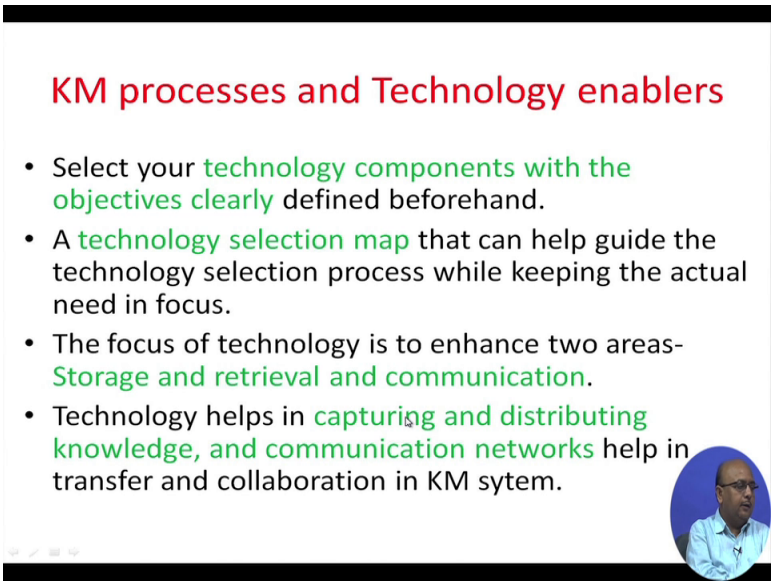

Now moving further we have to see that how technology helps in the knowledge management system. So, it is very, very important for you to identify what kind of technology that you are going to use. The objective should be that the technology is going to very, very clearly defined this is the kind of thing that we are looking forward to and this technology is going to help us. And that is where we need to identify what kind of technology, you are going to use.

So, the technology selection process is very, very important ok because you are not selected the right kind of technology probably it will not be able to help you to create any kind of things even starting with the user interface. Because suppose you are going to search something using a internet. So the best interface that is provided to you through a browser. So, that is how you are going to search the internet right.

In the process you have see that yes the browser is going to help you to search the stored information from the repositories. Then what kind of system it is, then what kind of software and hardware's that you are going to make use of it ok. So, when you are going to talk about the technology it is nothing else but the hardware and software which is going to help you to transfer the knowledge ok from the repository to the users ok.

So, the focus of the technology is basically two areas that is storage how it helps you to store the knowledge ok and if you want to store the knowledge it could be in digitised form, you can scan it, it could be a video format, it could be audio format ok, so, there are different kind of format that could be used for storage and then all the new also need a technology for retrieval ok.

And also similarly you need to communicate and so the basic level of technology in storage and retrieval and also communicating the knowledge to the users. And technology is also help you to capture and distribute knowledge and communication network like you help in transfer and collaboration in knowledge management system. So, technology is a very important factor in the process and that is what we want to see that how technology is going to help it.

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Knowledge process and technology enablers

Knowledge Objective	Technology Enablers
Find knowledge	Knowledge-bases in consulting firms; search and retrieval tools that scan both formal and informal sources of knowledge; employee skills yellow pages.
Create new knowledge	Collaborative decision-making processes; DSS tools; rationale capture tools; Notes databases; decision repositories; externalization tools.
Package and assemble knowledge	Customized publishing tools; information refinery tools; push technology; customized discussion groups.
Apply knowledge	Search, retrieval, and storage tools to help organize and classify both formal and informal knowledge.
Reuse and revalidate knowledge	Customer support knowledge bases; consulting firm discussion databases; past project record databases and communities of practice.

Now if you look at how it is going to enable say for example in order to capture the knowledge where is the knowledge is, it could be basically the technology enabler is going to see that ok how are going to get it, what are the different sources formal and informal sources and yellow pages and then how we can retrieve information from different sources.

Then when it comes to creating knowledge ok, in order to create knowledge you to see that how to make use of technology for decision making like you have decision support system, expert system, databases ok, repositories, externalization tools. Then for packaging and assembling also you have technology where you are going to use the desktop tools for publishing and this kind of things right.

For applying yes definitely you have search engines, storage and retrieval system ok which can classify both formal and informal knowledge. And finally for reuse and re-validate also require technology that how you are going to make use of the technology to enable customer support related to the knowledge ok, how you can record databases, cross projects ok.

And then you can also standardize community of practices that is what you call best practices and in all these areas you can see that the technology is going to be helpful.

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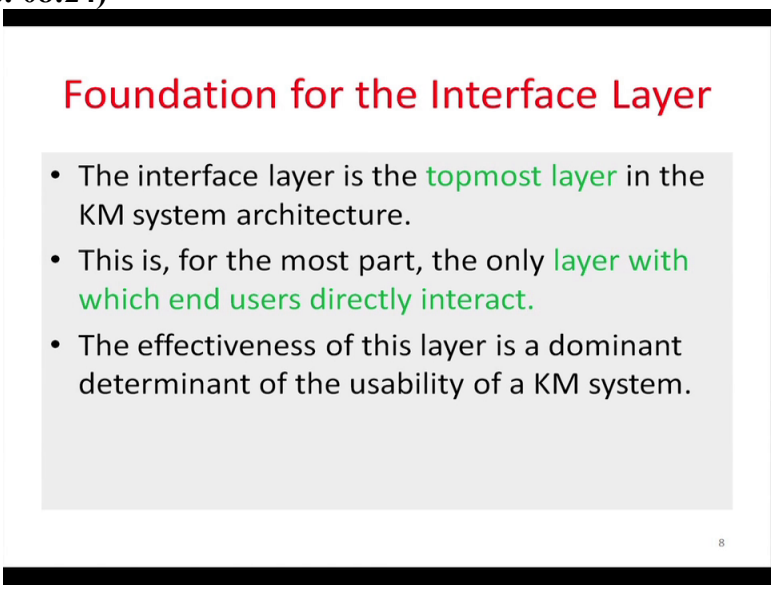

Now as I told you that most important layer is there top most layer which is basically known as the interface layer. And this interface layer is important because with the help of these interface layer you are going to use it right, so, with which you are going to directly connect yourself and that is why interface layer is very, very important ok. It is one of the important determinants in the knowledge management system that is how you retrieve and use information right.

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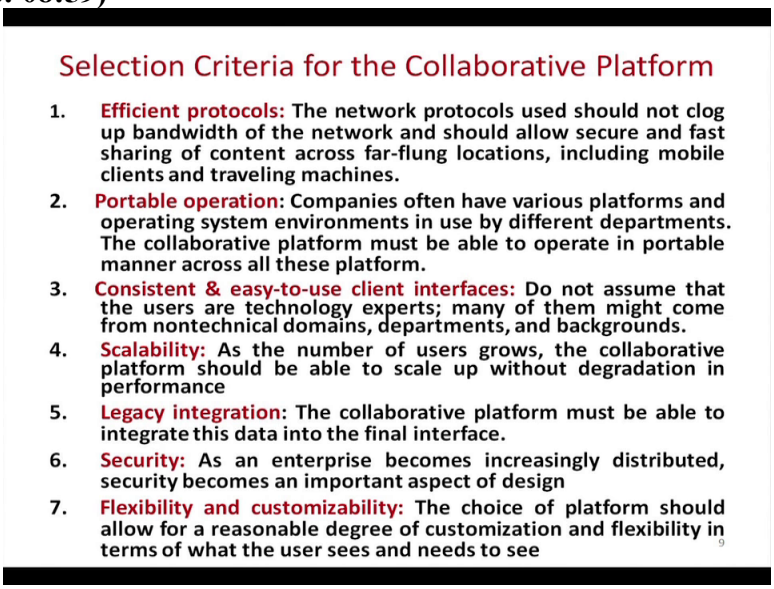

So, when I am talking about user interface and talking about interface layer you have to see that how it works ok. So, there are certain criteria that could be used ok in order to see that it is very,

very collaborative. So, you need to develop a platform which is very, very collaborative and then you have to see that efficient protocols, you have the bandwidth and network.

Which is fast and which allow access ok even in a different places across organisation right even if you are moving like for example if I want use my webmail services. If I am in it IIT than I can use it but if I were suppose if I am staying in Mumbai even then which is possible for me to have access and use my email system. And that is why you need to see that yes the bandwidth is not locked ok it is secure you can able to fast share the content across locations right.

It should be efficient similarly it has portability also ok so that you can transfer it one place to another platform also. And from one department to another department right you must make sure that yes you should be able to operate it in portable manner across platforms. Then another important issue is that it is yes easy to use client interface. The interface should be the interface layer it should be such that anybody can use it.

Because it is not necessary that those who are make use of this interface layer have the technical expertise. They may not be having the technical expertise they could be people from non technical areas or other departments which does not have; who does not have technical knowledge. So, you need to ensure that the interface is for everybody and anyone having either technical or non technical knowledge can make use of it.

It is not only meant for experts it is meant for everybody right. Then it should be established system right, so it means that it should consistently perform well without any degradation in the performance of the system, so that is very, very important for effective inconsistency working. Then legacy this platform should be able to integrate with other databases ok.

You have like you have accounting databases organisation or HR database it should be able to integrate other platforms and as well. So, you need to ensure that this platform should integrate with other databases in the organisation ok. So, that if I want to see that ok HR related issues I can see, suppose if I want to see the account related issue, it should provide interface to other databases.

And should be integrated with these legacy databases and the most important thing is this security make sure that it is secure. So, that you do not have any problem right and then at the same time database or the choice of the platform should allow customization and flexibility ok,

so that whenever I want to see it or whenever I need it I can get it that is what flexibility and customization it means.

So, these are the some of the criteria for which basically make this platform very, very collaborative when it comes to user interface.

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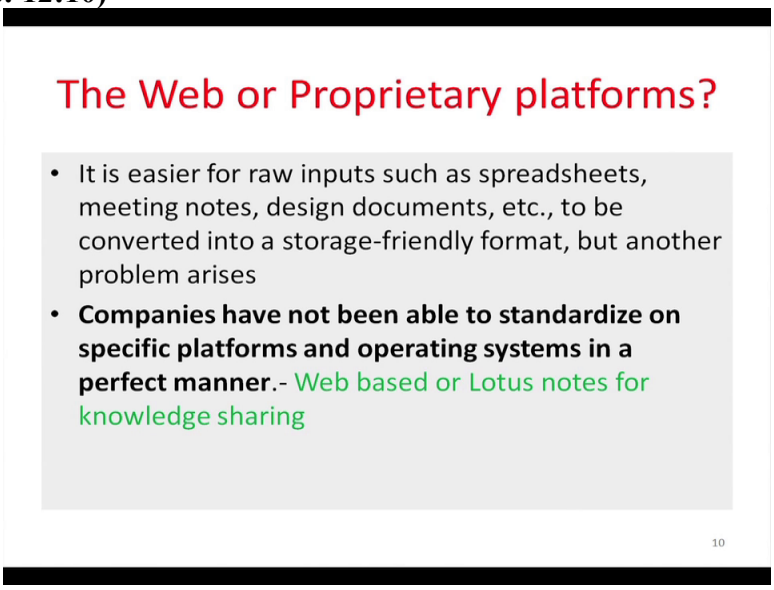

Then web are the proprietary platform, where web base systems are very, very efficient today and that is this that can be used like sometimes we use spreadsheets, meeting notes, design document, search documents etcetera and then you can convert into a friendly format like for using MS Excel you are preparing a spreadsheets and put into a system right but it has certain problem because it cannot be integrated with legacy systems right.

So, you need to develop standardized platform in the operating system and that is where either whether you are going to use your web based system or Lotus notes for knowledge sharing. You ensure that it is very, very collaborative and it is and what are the character and earlier we discussed like meet the protocol ok and it should be portable easy to use scalable also this should be integratable, it should be integrated to other things these criteria should be met.

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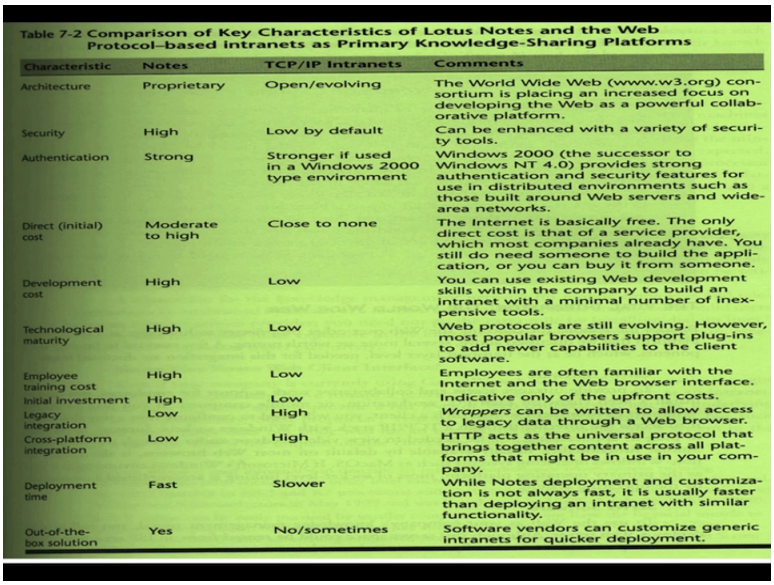

Table 7-2 Comparison of Key Characteristics of Lotus Notes and the Web Protocol–based intranets as Primary Knowledge-Sharing Platforms

Characteristic	Notes	TCP/IP Intranets	Comments
Architecture	Proprietary	Open/evolving	The World Wide Web (www.w3.org) consortium is placing an increased focus on developing the Web as a powerful collaborative platform.
Security	High	Low by default	Can be enhanced with a variety of security tools.
Authentication	Strong	Stronger if used in a Windows 2000 type environment	Windows 2000 (the successor to Windows NT 4.0) provides strong authentication and security features for use in distributed environments such as those built around Web servers and wide-area networks.
Direct (initial) cost	Moderate to high	Close to none	The Internet is basically free. The only direct cost is that of a service provider, which most companies already have. You still do need someone to build the application, or you can buy it from someone.
Development cost	High	Low	You can use existing Web development skills within the company to build an intranet with a minimal number of inexpensive tools.
Technological maturity	High	Low	Web protocols are still evolving. However, most popular browsers support plug-ins to add newer capabilities to the client software.
Employee training cost	High	Low	Employees are often familiar with the Internet and the Web browser interface.
Initial investment	High	Low	Indicative only of the upfront costs.
Legacy integration	Low	High	*Wrappers* can be written to allow access to legacy data through a Web browser.
Cross-platform integration	Low	High	HTTP acts as the universal protocol that brings together content across all platforms that might be in use in your company.
Deployment time	Fast	Slower	While Notes deployment and customization is not always fast, it is usually faster than deploying an intranet with similar functionality.
Out-of-the-box solution	Yes	No/sometimes	Software vendors can customize generic intranets for quicker deployment.

See here we discuss the characteristics of these things are discussed I am not going to discuss much in detail. But if you look at some of the characteristics of the Lotus notes and web based intranet ok, these are extensively being used for knowledge sharing ok. If you look at some of the characteristics like World Wide Web, Windows that is basically nothing else ok but it is very, very authentic in nature.

And internet with which basically free or if you have web development skills you can make use of it ok. So, you have to see that you are going to use technology basically the web related technology for this purpose is ok. And then you have a technology systems like it would be open or it could be closed ok. And then you also need to see that whether there is proprietary software, weather it is characteristics notes high or low this other thing that we need to look into.

But basic objective of comparing the characteristics is that you see that which one is the better knowledge sharing platform and both are equally good it depends upon the user and other things how you are going to make use of this.

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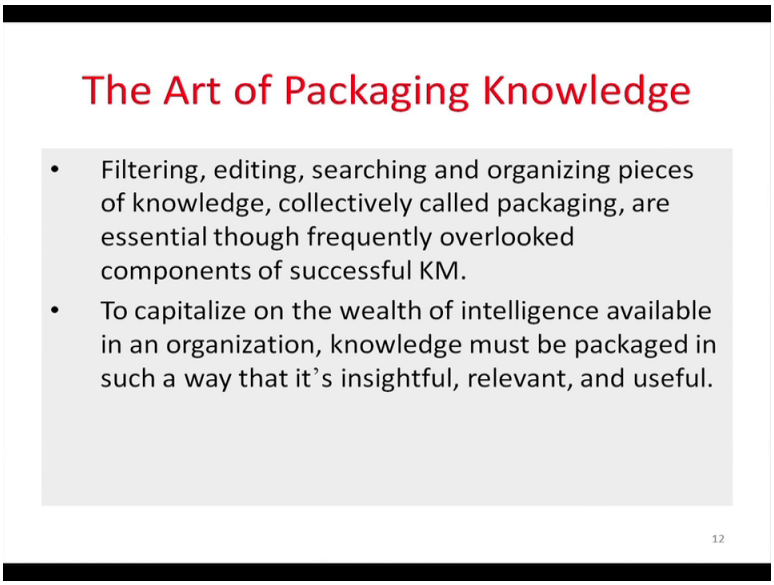

Another important thing issue is packaging, art of packaging knowledge once the knowledge is created or codified ok and then I need to put into the system ok. Then you have to see that how the knowledge is produced before the users that is very, very important. Before the knowledge is produced before the users it has to be packaged properly for example when you go and buy a product it is packaged properly.

There you have all the characteristics mentioned on the package so that you know what it is, what it is going to do, what for it is meant, how to make use of it and this kind of things right. So, similarly when you are going to produce knowledge and package it you also need to ensure that yes, what for it is, who is going to make use of it and you also follow certain criteria like filtered, edited, searched ok which is organised properly and then it is packaged ok.

So that when you produce it to the people who are going to make use of it may find it easy to use ok. Because since it is package is very packaging is very, very important, so that you need to basically keep in mind certain characteristics of the knowledge that is being packaged is consistent and accurate meets all the standard ok and it is organised and codified in such a way so that able to have access to it ok.

In the sense you can yes it is able to provide some kind of insight for you to work. It is relevant and useful for you and if it is package properly probably you find that is going to help you in your job and it relevant and contextual for you and if it is not properly package you do not know how you are going to make use of it, what it is about ok.

So, before packaging you filter it properly and make sure that only relevant information, you edit unnecessary things can you search it and then organise it in such a way so that collectively we produce a package which is going to be useful for the people who are going to make use of it packaging is important.

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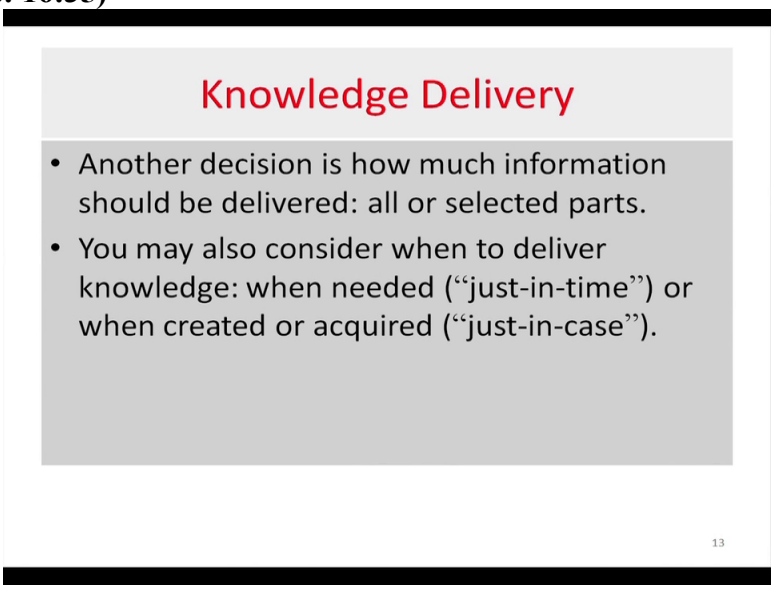

Another important thing is that how you are going to deliver it. Now when you are going to use these interfaces through web or internet to deliver the products that is knowledge basically. Now how much you are going to do it? How much should be delivered? Whether you are going to deliver all the information or you are going to selective in part.

Another important issue is that when you are going to deliver it, whenever it is needed by the person. Whenever it is acquired for example the institutes come out with something that is innovative and productive and then you put it on the web for information everybody ok this is how we are created, this is what we have acquired ok. So, that people if required they can go to the web and find it out.

Another important thing is that where ever it is needed just in time ok, you are going to deliver something whenever it is required by the people. So, that the two approaches that could be used to deliver ok just in case or just in time ok. That is when you needed and when it is created and acquired by you. So, any of them can be followed depending upon the requirement ok there is no; I cannot say there is an advantages or disadvantages of using a particular approach.

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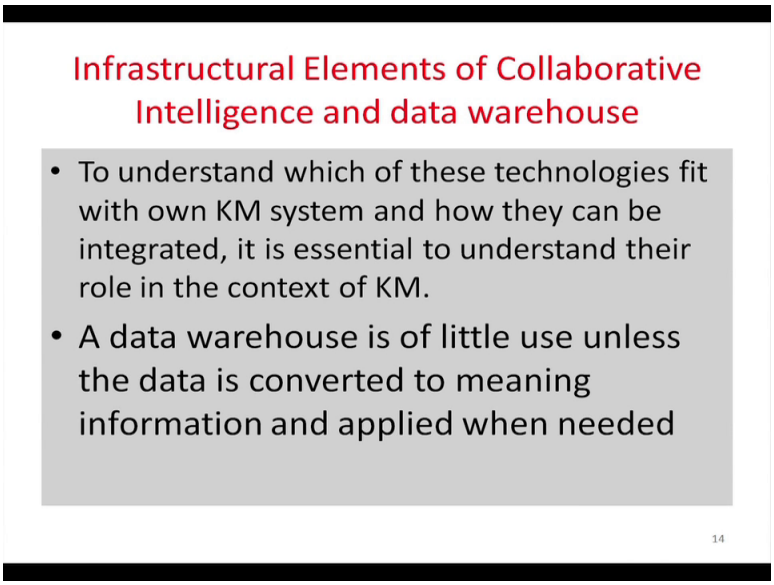

Now interface layer now we are going to moving to another layer that is collaborative intelligence and data warehouse ok. These are also very, very important elements of the infrastructure. When I am talking about important elements of the infrastructure how you are going to use this technology? How this technology is fit into the KM system and how they can be integrated ok.

And that is where we need to understand the role of technology basically in the context of knowledge management. Because knowledge management per see the technology the knowledge management as a system which starts with knowledge capturing, then creation, then codification ok and the lot of human elements that is involved. Once codification is done then comes to storage that is where the knowledge that technology comes into the picture.

The storage and retrieval that is very, very important, so you have to see that codified knowledge how you are going to store and retrieval and then communicate to the other person ok right, that is where it is very, very important to have and to understand the role of the technology. When you are talking about data warehouse, data warehouse is what? Data warehouse is a data, huge data that is available with your repository ok. But this data warehouse is not very, very important in the sense that because how you are going to make use of the data because it is not organised meaningfully.

And then it is very, very difficult for you to apply and interpret anything or infer anything out of this data. For example you might be having databases of thousands of students ok. But these are

only database, unless it is organised in a meaningful way we cannot infer or interpret it for making any decisions right.

Data warehouses are not very useful unless it is translated into meaningful information and that is what if you remember we talked about that we need to move from data to information. Data or facts that is available in unstructured format. While information is more structured and organised form and then because;

And then when you are talking about knowledge how you are going to make use of that information in a relevant context to do something that is where the knowledge comes into the picture.

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Table 7-3 Characteristics and Relative Fit of a Data Warehouse in the KM Infrastructure

Characteristic	Level	Downside
Response time	Low	Data might not be real time.
Scalability with growing needs	Medium	Depends on initial design optimization.
Flexibility of use	High	None.
Ease of use	High	Needs a good front end and interface for use.
Retrieval of data	Medium	The user needs to navigate through the interface and find the relevant data that helps make a decision.
Processing overhead	High	Not a relevant concern if the size is not too large. Parallel processing on x86 architecture and NT platforms makes it very viable. Cost might not be a major concern.
Accuracy	High	Depends on the quality* of data scrubbing. Accuracy is higher than the sources since "bad" data has been cleansed out.

*Quality is occasionally described as "goodness" of scrubbing and cleansing.

So if you look at that how data warehouse fits into the knowledge management system? It does not have much to do right. Because response time is very low ok the scalability is not very high ok, the flexibility of use is very high of course but you have to find out that in what way we are going to make use of it data of the data ok.

End use is also very high because you have all the data and if you have interface and if you are able to organise it then it is good or otherwise not. Retrieval is ok and navigates to the interface and find out the relevant data. Suppose I want to see that how many students of the fourth year have failed ok. So, we have ERP system I will navigate to the ERP system and can find out how many students have failed.

But this not going to fit into the KM structure unless I know or I have other details that ok, these are the students who have failed, what are the reasons and how are going to use this data to make certain important decisions related to students. Whether they should be allowed to the class or whether you are going to terminate from other program.

So, these decisions are taken based on certain information's, so you get this information, you retrieve this information but you need to make use of it that is very, very important ok. But processing over head is very high ok. For example you are going; it depends upon what kind of platform you are going to use ok.

And then accuracy since it related to data accuracy is very high provided accurate data is fed into the system. The data that is fed into the system is good and consistent and there is no problem. Another important thing is that there is no timeline ok the old data may not be very; very useful you need to ensure that all data are relevant or fed into the system.

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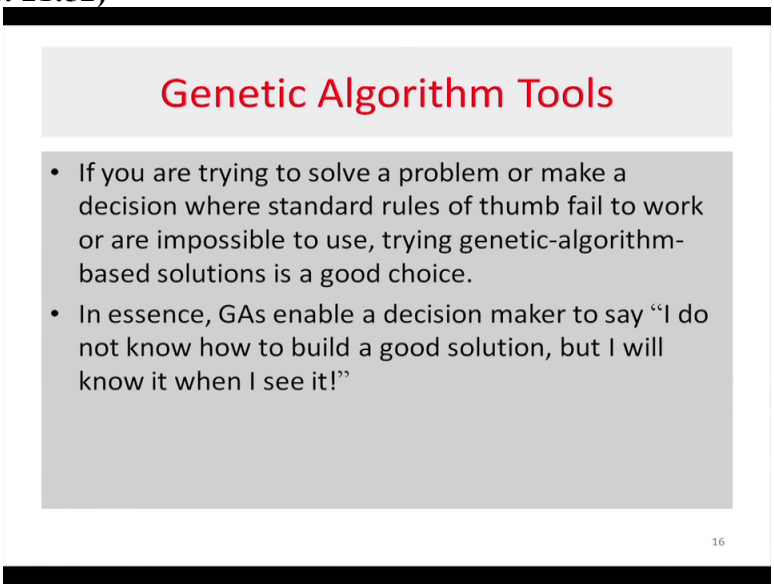

Then there are certain tools that can be used like algorithm tools. Algorithm tools are that they straight jacketed tool that can be used to solve the problem ok. Suppose you are using standard Thumb Rule, rule of thumb then what happened then you try to generate certain algorithm that is straight forward tools in order to solve the problem ok.

So, though you have the data but you do not know what to do this how you are going to use this data to solve the problem ok. But if you look at the data then probably you will able to derive

something out of it provided you are going to make use of the data, use certain rules ok say transforming the data into information and then make certain decision based on that.

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Table 7-4 The relative fit of GA-based tools in the KM technological framework

Characteristic	Downsides for Knowledge Management
Medium to high accuracy of solutions	Limited and relatively specialized applications.
High response speed/fast problem solving	May deteriorate as the problem increases in complexity.
Limited scalability	Computing resources often fall short of a complex GA-based solution. Some tools are available for Windows NT and Windows 2000 platforms and take advantage of the multi-processor capability that NT brings to the low-cost, high-performance x86 microprocessor family.
High levels of embeddability	Tools based on genetic algorithms tend to be highly dependent on software and the nature of the problem. While this specialization probably improves the performance of the tool, it also severely constrains its usability in other problem domains.
Development speed of typical solutions based on genetic algorithms is fairly high*	Solutions tend to be fairly specialized and have a narrow application domain
Low to medium ease of use	A majority of popular commercial tools available are for non-Windows platforms that are typically not used in most business environments.

*Several commercial tools are available to assist with such expedition.

So this genetic algorithm also used which is used as a technology framework, accuracy is medium to high ok, the speed in that sense is also good ok. The only thing is that scalability is very, very low ok is not very good. Its embedability is very high because you know that you have software and other things ok.

So, if you have a solution also you have a problem put into the software, if it is database software it is solve your problem. It will come out with the result but the issue is that how you are going to make use of it ok and the other problem domain ok. And then the solution seems to be fairly specialised ok and their applications because you cannot apply it in another situation. Ease of use is low or medium.

Because see lot of commercial tool are available today software's are there maybe they are non windows platform which you can use today. But you see the non genetic algorithm based tools are used but that they are not very good actually.

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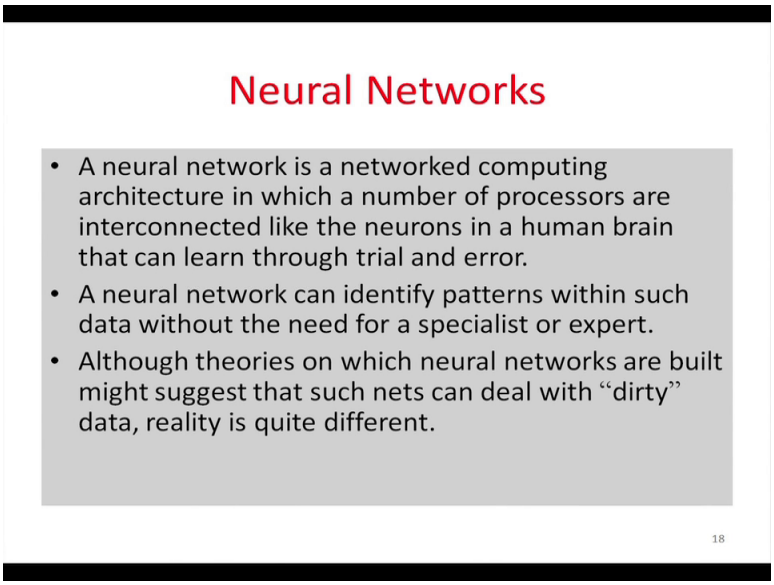

Then we also use neural network ok basically it is nothing but Computer Architecture ok, where you have different processes which are interconnected just like neurons with human brain ok. And the learning take place through trial and error like an individual when you do something find out mistakes next time when you try to do certain things you remember those mistakes and you correct yourself right.

Using this neural network you can find out what are the issues what are the patterns obtained from the data ok and then you make use of these things to take decisions right.

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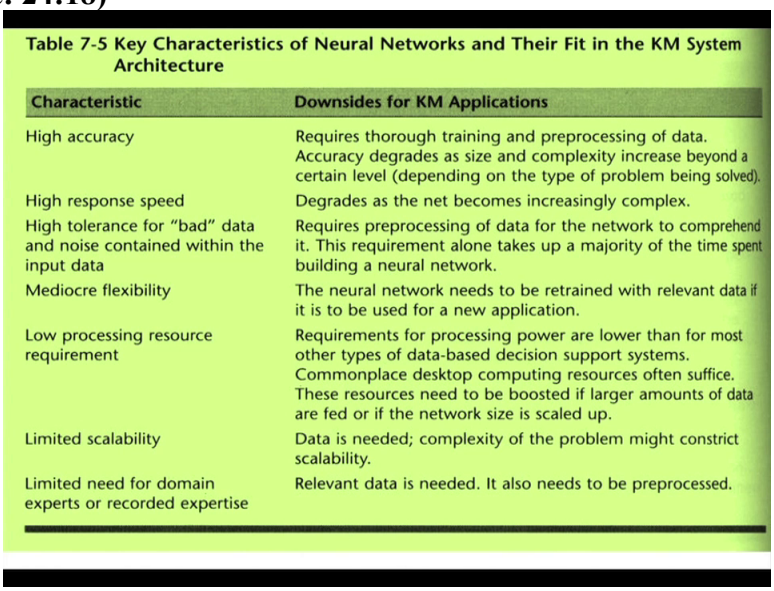

Table 7-5 Key Characteristics of Neural Networks and Their Fit in the KM System Architecture

Characteristic	Downsides for KM Applications
High accuracy	Requires thorough training and preprocessing of data. Accuracy degrades as size and complexity increase beyond a certain level (depending on the type of problem being solved).
High response speed	Degrades as the net becomes increasingly complex.
High tolerance for "bad" data and noise contained within the input data	Requires preprocessing of data for the network to comprehend it. This requirement alone takes up a majority of the time spent building a neural network.
Mediocre flexibility	The neural network needs to be retrained with relevant data if it is to be used for a new application.
Low processing resource requirement	Requirements for processing power are lower than for most other types of data-based decision support systems. Commonplace desktop computing resources often suffice. These resources need to be boosted if larger amounts of data are fed or if the network size is scaled up.
Limited scalability	Data is needed; complexity of the problem might constrict scalability.
Limited need for domain experts or recorded expertise	Relevant data is needed. It also needs to be preprocessed.

Now if you look at the neural network that is how yes it is very, very accurate speed is good ok. Flexibility is mediocre ok but it has a low processing resources requirement. Stability is limited because it depends upon the data ok and you cannot solve complex problem using this because

that require high scalability and limited need for domain experts because relevant data is required and also need to be processed ok.

Neural network sometimes helps but it is not always because it requires tuning and processing of data and other things right. So, when we have to see that there are lot of downsides of it in when it comes, its application in the knowledge management system. Now we have see, we have talked about computational network results algorithm based or whether it is neural network based or even sometimes used artificial intelligence.

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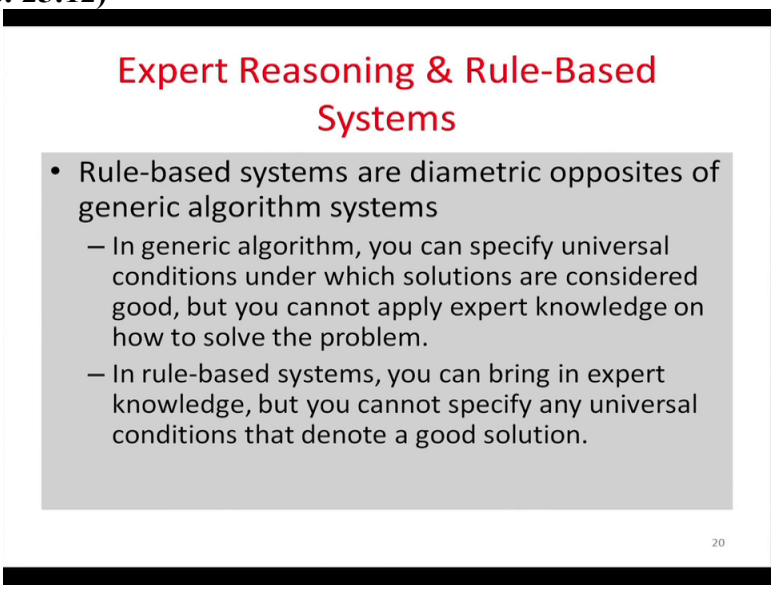

Expert reasoning and rule based system and I am talking about expert system or rule based system we have to see that yes they are just opposite of what you call this genetic algorithm or neural networks because genetic algorithm and neural network system or based on certain techniques and formulas you have software's and hardware's which can help you to solve the problem.

But when the problem is routine in task not very complex then that can help you, but when it comes to non routine or heuristic task then probably then you try to go for expert reasoning and that is where it is very, very important. So, what happens in genetic algorithm you have certain conditions in which solutions are considered good? But you cannot apply expert knowledge and how to solve the problem.

Expert knowledge is basically what you call tacit knowledge ok. In rule based system you can bring out expert knowledge ok. But you cannot satisfy any universal conditions that denote a

good solution ok because in rule based system you apply certain rules. The solution may be good or maybe bad ok and basically this is used for non routine task or complex task.

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Table 7-6 Rule-Based Systems and Their Relative Fit in the KM Infrastructure

Characteristic	Downsides of Using in a KM System
High dependence on domain experts and specialists	Extensive inputs from domain specialists are needed. Very often, expert knowledge is explicated only to a limited extent, since much of it is tacit. First cuts on elicitation of this knowledge range from poor to acceptable and rarely ever rise to the level of perfection.
Higher speed of development	Rule-based systems can be developed at a fast pace only if knowledge can be elicited from experts in a thorough manner. This often takes up the largest chunk of development time.
Low levels of scalability	As problems being addressed become complex or evolve over time, rule bases need to be refined. If rules change over time, experts often need to be brought in again to revalidate the rules in use.
Slow response speeds	If the datasets grow large, rules grow more intermingled and complicated. This can often pose a serious challenge to the computing power in use. As problems get complicated, a multitude of rules need to be matched, which again degrades the response speed.
Low to medium flexibility	While small bases are quite flexible, as the problem more complicated or involves new variables, the the system becomes an apparent disadvantage.

Now if you look at rule based system, rule based system if this happened then this happened or else this will happen either you follow these rules of logic like if then or if then else ok. So, this kind of rules are followed ok and so in expert system or rule based system what actually happens you get extensive inputs from the experts that is very, very important ok, so the expert knowledge is very, very important very much required and that is limited.

Then development high speed of development required because you have to be at work a fast phase otherwise it may not help you then you also need to see that whether help you to address to solve complex problem or not ok. The databases are very huge ok then it becomes very difficult to apply rules because it will become very, very complicated ok.

So, you have to see that computing power of the system, with the computing power of the system is good then you moved to a genetic or algorithm not heuristics. Because in heuristics computing power become limited actually ok and then flexibility is less. Because suppose there is a new variable or the system is not flexible or computing power is less. Then in that case this kind of things does not work.

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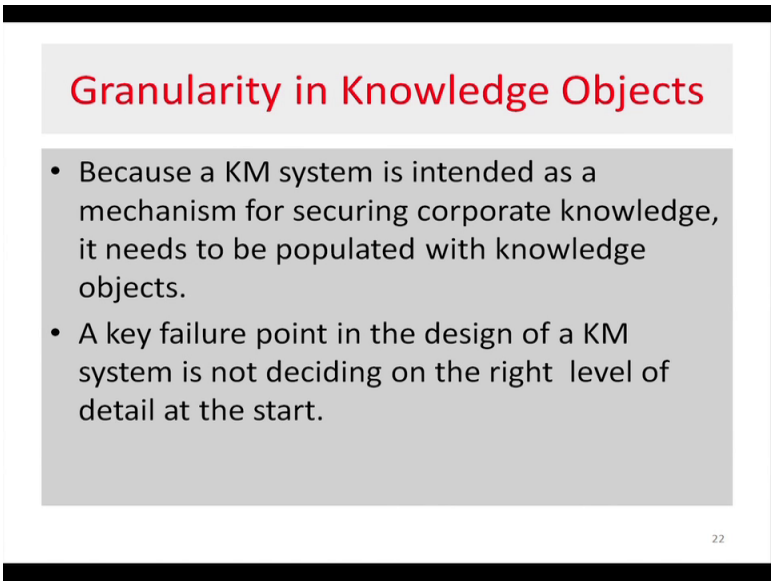

Then I will talk about another important thing that is granularity. Granularity is nothing but how you approach a problem that is very, very important ok. Since the idea of knowledge management system is to have a system mechanism to secure knowledge to get knowledge from the expert ok, in the organisation or the experts you have to see that how to approach and how to go about it.

And to what extent you go about it and the level of detail that up to move up to ok. I will give two examples one from the medicine and one from the corporate world.

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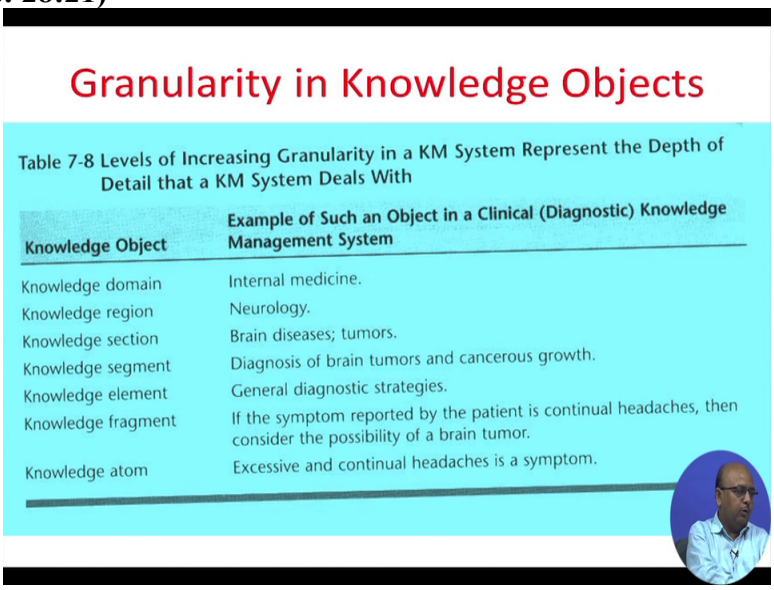

Look at the granularity in KM system which is basically related to medicines and diagnostic system ok. Now if you look at these kinds of things and then see how we get into the detail at the depth of a KM system that it can deal with right, now if you look at this table it shows different

knowledge objects and the extent to which this knowledge management system can move up to in terms of depth and the detail right.

Say for example the knowledge domain you identified it is related to internal medicine. The area you say is neurology and instruction is related to brain disease, it is a tumor. Then segment is ok what you are going to do you are going to see whether it is tumor is cancerous or non cancerous. Next then you go for general diagnostics study in order to find out whether these tumor is cancerous or not cancerous.

Then you go for fragmentation ok, if you look into the symptoms that are exhibited by the patients if he has headache and then it could be a brain tumour and if there is a excessivity of headache then you say ok, so it is definitely a tumour ok. So, what you do basically from broad area you narrow down find out your problem.

And then you see and try to use a system develop a KM system in order to solve a problem like this is related to medicine area.

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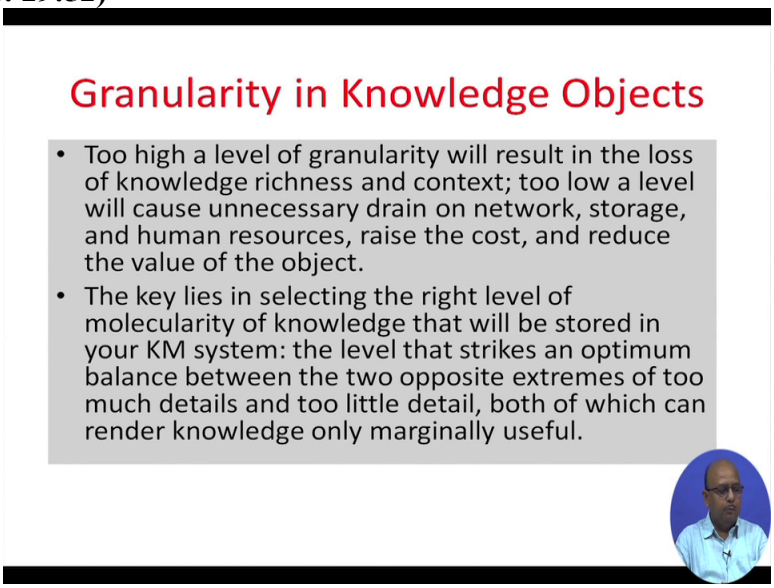

And now we are going to discuss a similar approach related to the corporate world ok. That to what level it can go to see that the problem is solved right. So, you are to find out right level of granularity of knowledge which you need to store in the knowledge system.

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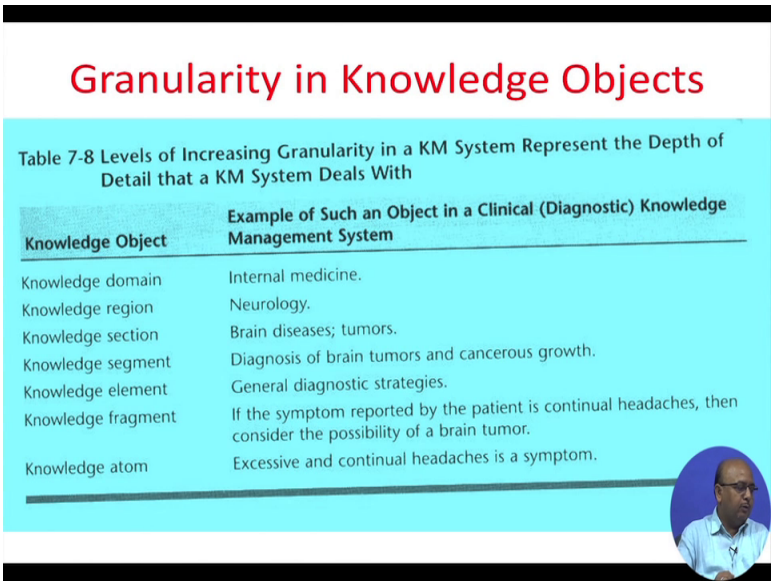

Starting with if you look at this example from knowledge domain to knowledge atom, so, the molecularity goes down it means atom is the smallest part, the domain is a biggest part in that case you have to see how do you deal with it.

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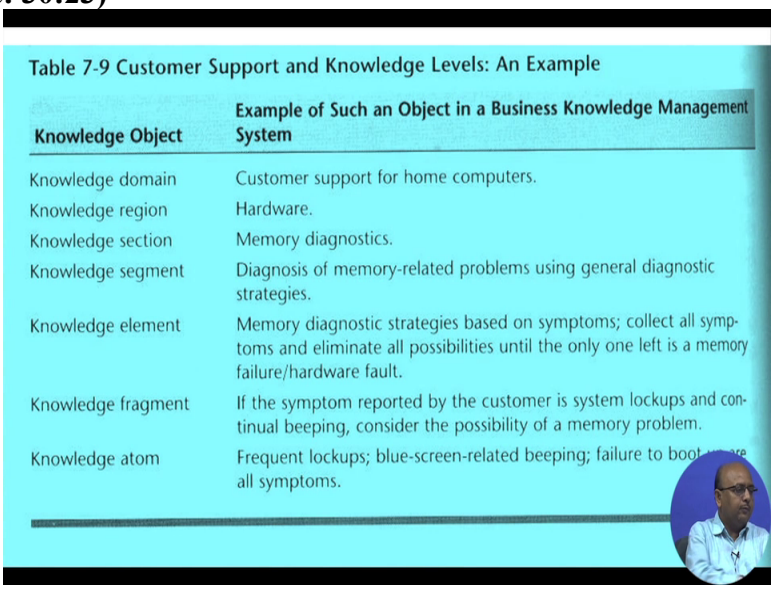

Now if you look at this example ok and this is basically related to customer support and knowledge level right, this is another example of knowledge management system in the area of business and if you look at knowledge domain it is basically customer support to home computing, area is hardware. Now the section is memory diagnostics then segment is diagnosis of memory related problem using general diagnostics strategy ok. The element is you adopt various system strategies ok.

You look into the symptoms and eliminate all possible units unless you find out the failure of the hardware fault ok. And then you move to the fragment what is the symptom that is reported to the customer to support it right. And then you move to the last step that is atom ok that is frequent lock of blue screen is coming and follow to boot up and to these systems.

So either you there are two approaches that you can go for either you from top to bottom or bottom to top for example in this case what you can do if you move from atom to domain ok or you can move from top to bottom. Similarly in this business case you can move from this to this. So, you need to create a KM system for customer support for home computers and you develop these things one by one.

So, that you are able to diagnose and solve the problem right and that is how it is going to help you to provide better customer service support.

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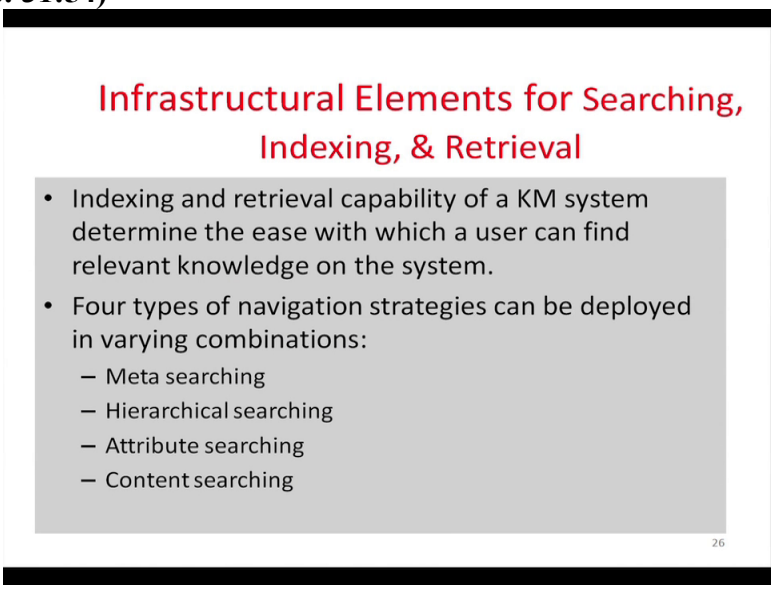

Now another issue is related to searching, indexing and retrieval ok and when I am talking about searching, indexing and retrieval of a KM system you have to see that how it happens ok and here we are going to talk about a different kind of navigational strategy ok which is known as meta searching, hierarchical searching, attributes searching and content searching.

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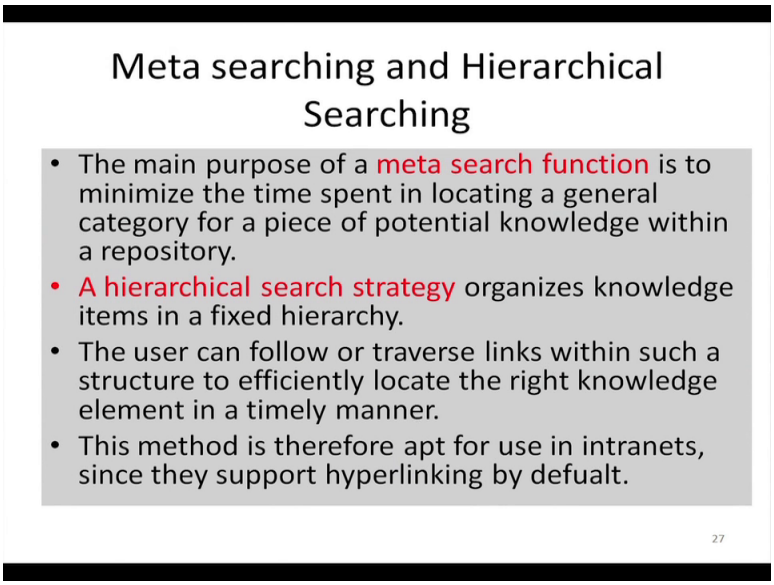

So, we are moving to Meta searching and hierarchical searching. Meta searching is basically where you are going to search knowledge and general category for a piece of potential knowledge with the repository. So, you give your look at the repository and see whether it is available or not ok like in your Google and give certain keywords and you see whether that information is available to you or not right.

Then hierarchical searching strategy is different basically knowledge or raised in a fixed hierarchy so what happens if you travel from one place to another place so you are looking for some knowledge for example if you go to Wikipedia. So, you certain things in Wikipedia, so you get some information, suppose you want to locate or identify some in depth information people find some links in the Wikipedia on that particular topic.

And if you click on that you are taken to another web page where you get more information and from there you can travel to another place ok. And this is what we known as hierarchical search strategy it means you have travels links with the structure to efficiently locate the right knowledge in a timely manner. So, from one place you would another place in search of knowledge right.

And that is where the internet is very, very useful right it helps you have a hyperlink through which you move to another set of data or information to get the kind of information or the knowledge that is you are looking for.

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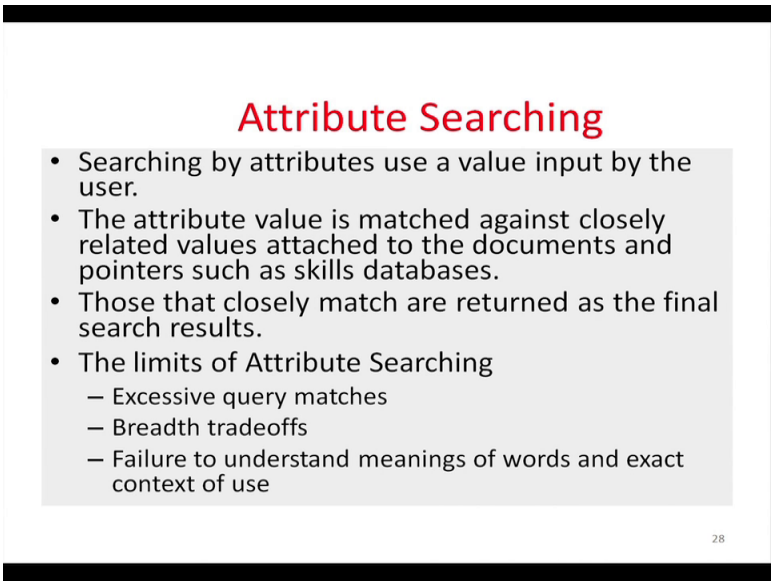

And another way to look at it is attribute searching, attribute searching basically you look to the attributes ok. And then you try to see the attributes that that you are looking forward is available or not ok. So, you for example if you have a skill database ok and then you see whether you are looking for a person which is available in the skill database or not. For example if you are looking for expert in a particular field ok.

So you type say expert in the area of organisational behaviour, expert in the area of operations management ok. So, this basically talks about and attribute which operation peoples have. So, if you look at it and then skill database is from where you can find such people ok. And if you have it the database it is available then you can get it otherwise you would not get it. So, these are the things that you can go for when it comes to attribute searching.

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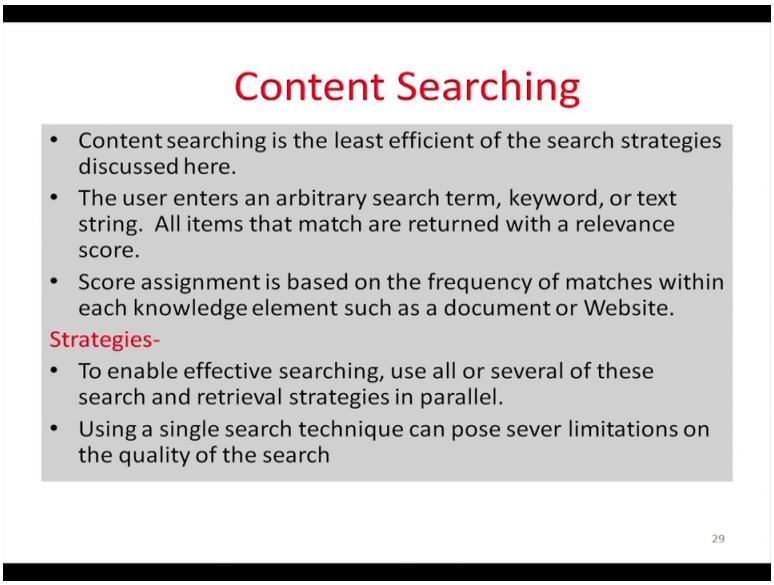

Then content searching, it is a least efficient strategy basically for example any attribute keyword is used to search ok and then you can get lot of information and then you see that which one is matching with that ok. So, you adopt various strategies when it comes to searching strategies ok. So, you can use the combination of these strategies, you can go for content searching, attribute searching and other form of searching.

Because if you are using one single strategy probably you may not get relevant information so, it is better to combine some of these searching and retrieval strategy all together so you get those information knowledge used it ok, thank you.