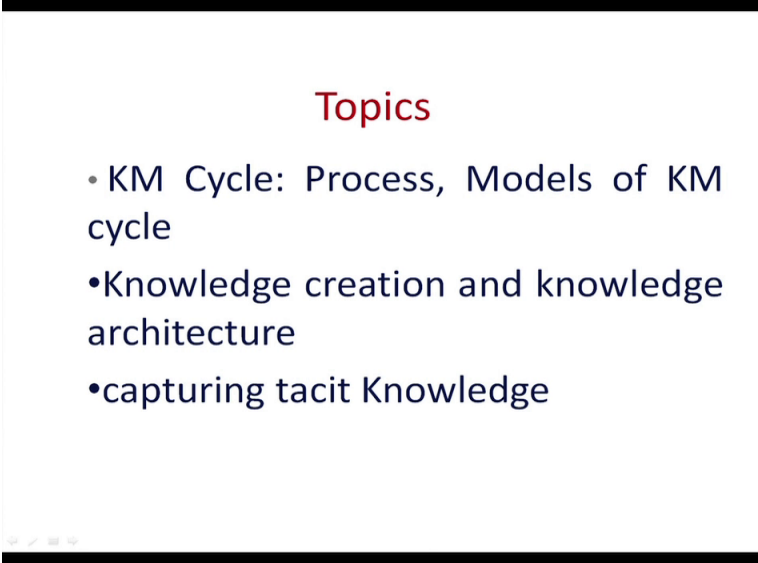


Knowledge Management
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Lecture 06
KM Cycle

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Topics

- KM Cycle: Process, Models of KM cycle
- Knowledge creation and knowledge architecture
- capturing tacit Knowledge

Okay, so we are going to start the second module of knowledge management and this module basically covers three major topics. That is knowledge management cycle. So, we will discuss about the process. Then, we will also discuss some of the important models of this knowledge management cycle. And in the next stage we will talk about knowledge creation and knowledge architecture in detail.

And finally that is very, very important that how to capture tacit knowledge and make it explicit because if that is the knowledge tacit then it remains with the people. Others will not be able to make use of it. So, it is very important to identify ways and means through which we are able to capture tacit knowledge and transform into explicit knowledge.

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KM Cycle

- Effective knowledge management requires an organization to identify, generate, acquire, diffuse, and capture the benefits of knowledge that provide a strategic advantage to that organization.
- A knowledge management cycle can be perceived as the route information follows in order to become transformed into a valuable strategic asset for the organization via a knowledge management cycle.



So, we start with the first part that is knowledge management cycle. So, what we are going to discuss here is that what is the cycle of creating knowledge? So, if remember we earlier talked about that we need to acquire knowledge thing that is create knowledge then you have to store that knowledge. Then we also need to see that we have retrieval mechanism.

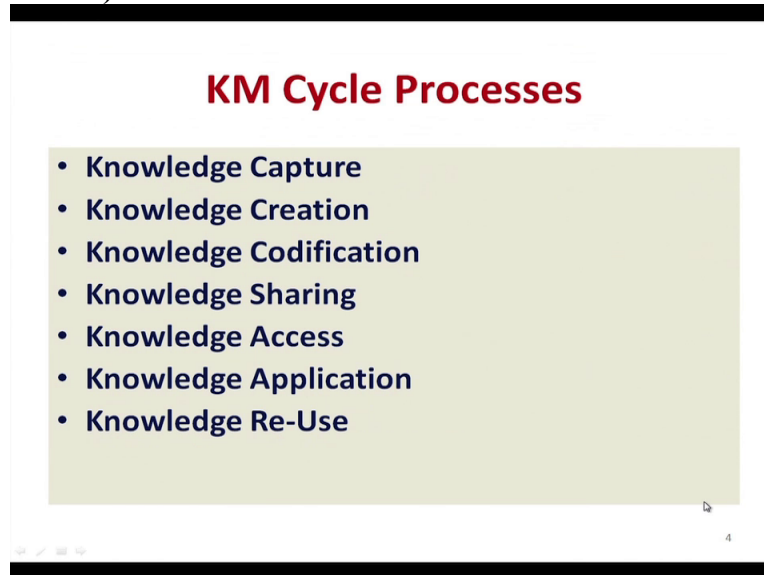
And then that knowledge is being used so that organisation is able to make use of it to gain competitive advantage. So, if you want to have an effective management system, so you need an organized structure form of creating, structuring and then retrieve knowledge. And this knowledge management cycle basically talks about these kinds of things.

That if you want to have a good knowledge management system in place then you have to identify where the knowledge is so you generate it, then you acquire it then you diffuse it, and distribute it and then you capture so that you are able to capture the benefits of the knowledge management. Otherwise what will happen?

The knowledge is available in some unstructured and unorganized form either with the people or with the organization; you will not be able to make use it because you are going to waste your time, energy, resources in order to find where it is. But, if it is available in some structured form codified, classified available in a very structured form then you can make use of it.

So, that is why we are going to talk about the knowledge management cycle. So, if you look at knowledge management cycle it could be seen as the root information which follows that how are we going to transform it into a well strategic asset. So, how knowledge could be used as an asset for the organization, okay and this happens through knowledge management cycle.

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Now, we are going to talk about what exactly the knowledge management cycle is. If you look at different processes which are related to knowledge management cycle it includes knowledge capture, second is knowledge creation then codification, knowledge sharing, knowledge access, knowledge application and knowledge reuse.

Now, if you look at each of these concepts of knowledge management cycle, the first is knowledge capture. That is how you are going to capture knowledge. Capture knowledge means you have to find out the source of the knowledge. Where the knowledge is? Whether the knowledge is available in documented form or whether the knowledge is residing with the people.

So, both kind of knowledge whether it is tacit knowledge or explicit knowledge have to be found out, which is going to be relevant and which could be useful for the organization. So, the first stage is capturing the knowledge. And for that you have to need to identify, to look at the sources of knowledge so that you can get it, okay.

So, that is related to knowledge capture. Second part is knowledge creation once you are able to find out where it is, then, you have to see that how are going to make use of it, whether is relevant to the contextual, whether you can use of it or not. So, when you are talking about creation it is nothing else. But identifying the knowledge and see that whether it is feasible, viable and whether you can make use of it or not.

So, that is that part is related to creation, I give an example. Have you heard about Archimedes? Archimedes principle and then he was able to identify and generate a new idea and when he came out of the bath, he said Eureka, Eureka. What was that? It means that he had identified something which was new, which was going to solve his problem okay.

So, that he once, he came to know that whether it is going to really solve the problem, the knowledge that he has captured just by jumping out of the bath because the water that was displaced was the volume was going to be different. In that way, he was able to generate an idea which could be useful, okay. But only generating the idea is not good enough.

What you need to do is that you need to put it to test. To see whether it is really useful or not and that is where you are going to create this knowledge. You come out with the theory, come out with a formula, come out with certain models and that is what knowledge creation means. So, you look at it and then you create out of it. That is knowledge creation.

The next part is knowledge codification. Then, once you have identified and created knowledge, new knowledge then you need to put them into place. What I am meaning to say by putting them into place that you need to put them in a structured format. This knowledge is related to what? In what way it could be useful, who is going to make use of it, where I am going to put it, right.

For example, if you look at the libraries, okay, it is highly organized form of codified knowledge because knowledge that is available in a structured format. It is classified and codified used in barcodes and other formats. So, that when you want to retrieve it or when you want to make use of it, you do not need to search entire library.

You go to a particular place and you can easily retrieve or get that kind of book or your knowledge that you are looking forward. So, once you have created the knowledge that you need to put them into a place in a very systematic way. So, that people who want to make use of it, at a later stage can get it. So, the codification is very, very important.

So, whether it is basically that kind of knowledge that is available in explicit form, that need to be codified, so that it is available for the use of others. Then, the next stage in the process is sharing. Now, knowledge sharing is very important because unless you share your knowledge with each other you will not be in a position to transform tacit knowledge into the explicit form.

So, it is very, very important for you to see that how you are going to share the knowledge. You need to create conditions, culture of collaboration, develop reward systems for incentives so that people come out and share their knowledge. You also need to make it a part of the performance appraisal system so that people come out and share their knowledge ok. So, that is the knowledge sharing part.

The next is knowledge access. What I mean to say about knowledge access is that is where you need IT enable system or technology and infrastructure because technology infrastructure or IT enabled systems helps you to get the knowledge. Now, you know that most of the knowledge today is available in the digitized form.

Now, when you are going to search some information, using say, for example, Google, so, what you do? You go to Google search type the intended word and then you get information. And then you try to make use of it depending upon the context and you see whether that kind of information that is available on the Google whether it is relevant to you or not in your context whether you make use of it or not, okay.

That is the second part. That is the application of knowledge but how Google has developed a search engine through which you are able to have access to the relevant information. What they have done classified and codified information, first ok. And they are ready to share knowledge whatever information they have with them. And then, they have a technology enabled system for accessing the information.

The same technology can be given for the organisations. Organisations also need to develop infrastructure and IT enabled systems to have access to that knowledge like we have this digitized library. In a digital library, you can have access to any book or general or any article that you want by searching it and you have access to it.

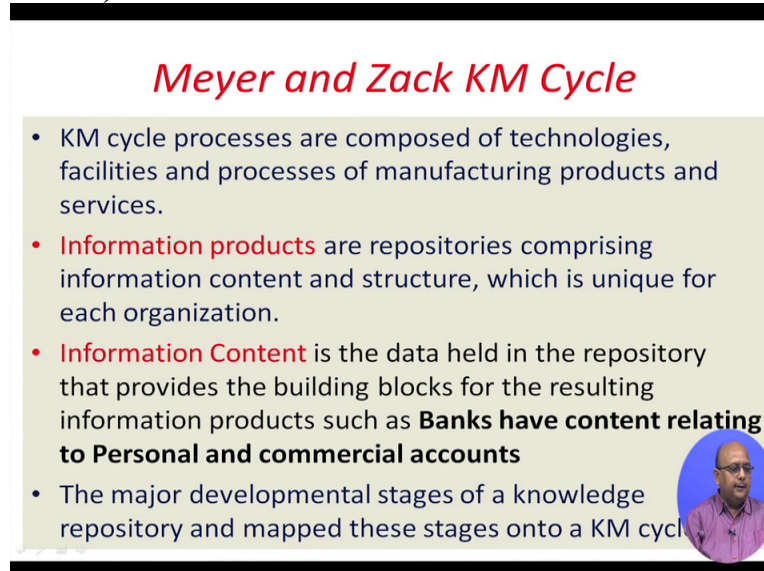
So, access is very, very important because if you are not having a nice smooth and easy access what will happen? You will not be able to get the things. Then, the next stage is application. Once access is there, then, you have to see that whether you are able to apply that knowledge or not, okay. And it depends upon certain personal characteristic also.

What is your motivation level, what is your interest and attitude whether you want to make use of it, because knowledge is available whether you are really able to apply with the kind of

knowledge that is available with the organisation or the system for doing your work effectively or not. So, you must learn or hire those skills which are required to apply the knowledge to perform the process. And that is where the knowledge application part is important.


And finally reusing, since knowledge is available so it does not mean that, it does not make sense that once you have used it, it is not useful or it is not delivered. Anybody who is looking for that kind of information can make use of it, right. So, it talks about knowledge reuse.

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Meyer and Zack KM Cycle

- KM cycle processes are composed of technologies, facilities and processes of manufacturing products and services.
- **Information products** are repositories comprising information content and structure, which is unique for each organization.
- **Information Content** is the data held in the repository that provides the building blocks for the resulting information products such as **Banks have content relating to Personal and commercial accounts**
- The major developmental stages of a knowledge repository and mapped these stages onto a KM cycle.



Now, after discussing this process in short, let us discuss some of the models that have been developed in the literature which talks about knowledge management cycle. And here I am going to discuss four important models. And then, I will try to integrate these models into one model. So, the first model which is commonly known as Zack model which was developed by Meyer and Zack, it is known as knowledge management cycle developed by basically Meyer and Zack.

So, they talked about KM cycle process and issues of technology, facility and processes of manufacturing products and services are important. So, if you want to have a good knowledge management cycle it helps you to basically come out with good products and services and for that what you need is: technology, facilitating, facilities and processes.

So, you need to identify the process through which things takes place, like technology because technology is the backbone because it provides the infrastructure okay and the system. And then, facilitates the support that is required to develop a knowledge management system, okay. So, he talks about two kinds of things: products and contents.

Information is a product basically. For knowledge management system, information is product because that is what you want to offer to the people, okay. So and where it is available? It is available with the repositories of the organisation. And what does it include? It includes the content and the structure. And this content is available in a very structured form.

So, if you look at the content and structure of the information it is unique in this case of organization. Say for example for a bank what would be the content? Content and the structure, the content is the database of the people, how much amount is with the people and it is available in every structured form with the organization.

So, if they want to look at the say using customer id, they can see that how much information is available or how much money is, amount is available with a particular person, okay. Now, this content and structure, this information product, it can be used by other stakeholders also. Say for example it can be used by service providers, okay.

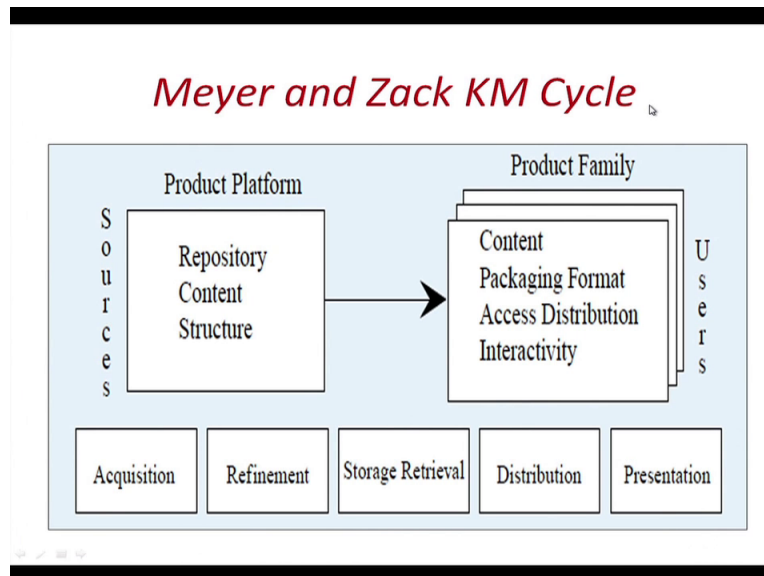
Suppose they want off offer you some services based on that so they can offer it. It can also be used by Income Tax people because they can see that whether your earning and whether you safe, expenditure is matching or not okay, so, this information as a product which is basically nothing else but repository in terms of content and structure.

Now what is content? Content is the database that is available with the repositories, okay. So, the content for Google is used. It could be images, it is the videos, it could be audios, it could be articles ok, it could be a PowerPoint Presentation. It could be PDF files, all kind of things. You can find in the Google, right.

That is what is available as a data in the repository of the Google, okay. And that provides building, for the, building block for the resulting information products, okay. Like one example I have given is that bank have contents related to personal and commercial accounts, okay. So, what are going to, based on this information, content and structure what he did.

He tries to develop a model and this model includes knowledge depositories and mapped into stages.

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Different stages of cycle so you basically talked about two things. There are two things one is the source and other is users. Sources include what? Repository that is in terms of content and structure and product family could be different kind of forms in which the content is available right to the users that is how it is packaged.

How it is distributed to the people, how you interact with the database, right. So, on the one side you have sources, based on the platform that you are going to use for archiving the database. And then, how it is going to be used by the users. So, kind of content that you are going to provide to the people, in what way it is available okay packaging format I talked about whether it is available in video format or audio format, or text format or PowerPoint presentations, okay whatever it is.

And then, how you are going to access, what is the channel through which you are going to access it, okay. It would internet or intranet and then how interactive it is right. So, depending upon the nature of technology it could be more interactive or less interactive. Now the different stage is which I am going to talk about knowledge management activities what we are already talked is acquisition, refinement, storage retrieval and distribution and presentation.

These are the five different stages which market sorry Meyer and Zack has talked about.
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Meyer and Zack KM Cycle (1)

- **Acquisition** deals with issues regarding origin of raw materials such as scope, breadth, depth, credibility, accuracy, timeliness, relevance, cost, control, and exclusivity.
- The guiding principle is that, highest quality source data is required, else the intellectual products produced downstream will be lower.



So look at the first part of his knowledge management cycle. That is Acquisition. Acquisition is that how you acquire the content? And it talks about various issues relating to the content, the scope of the content and the level at which it is available, the depth and width of the content. How credible the content is, how accurate it is, how relevant it is in terms of the timeliness, okay.

Timeliness whether you can use it right now or it is not useful. It is relevant for your use or not. You also need to look into in terms of cost, control and it is also content is exclusive. However this content is available with the other database, in the other forms also, okay. So, the idea of acquisition is that knowledge management cycle when we are talking about knowledge management cycle, when we are talking about acquiring certain content or the databases.

In forms of data or the facts that you want to have you make sure that the data is credible, accurate, relevant and cost effective, okay. And make sure that the quality is maintained. So, you must look for quality data because if the quality data is not there, then, probably you will not be coming out with good information products, okay.

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Stage 2

- **Refinement** may be physical (like migrating from one medium to another) or logical (like restructuring, relabeling, indexing, and integrating).
- Refining includes **cleaning up** (like sanitizing content so as to ensure complete anonymity of sources and key players involved) or **standardizing** (like conforming to templates of a best practice or lessons learned as used within that particular organization).
- This stage also adds up to the value by creating more readily usable knowledge objects and by storing the content more flexibly for future use.

So, the first part is acquisition then, we move to the next stage, that is Refinement. When I am talking about refinement, so, it includes what? When, how are we going to refine the data? So, once you have deleted to do if you need to organise them into meaningful way, right. So, it could be done physically or logically, okay.

So, you can migrate from one medium to another physical form. Say, for example the data is available, in say, one mechanical form. Then, you are going to have in digital form. So, that is migrating from one medium to another medium. Then our logical life you are going to restructure, relabel and reindex that is where you are going to organize, classify and codify and that is related to refinement.

In the process of refining the data, when you are going to move data from one medium to another medium and organize these databases, okay into a structured format, you also need to see that the content is cleaned, means you make sure that it is not biased and at the same time you also maintain enormity of the sources and the key players that is who are involved in getting the data.

And then, you also standardise that, right because you might be having certain best practices of putting the data into the system. So, you need to make sure that the data that you have is going to fit into your system as per the templates or the best practices of your system so that you can be, it can be used by your organization.

So, this is related to what we call the 2nd Stage that is refinement. And basically that is where you are going to create value. It means the raw data is transformed into a more meaningful organised data, okay.

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Stage 3 and 4

- **Storage or Retrieval forms** a bridge between the upstream addition and refinement stages that feed the repository and downstream stages of product generation. Storage can be **physical** (file folders, printed information) as well as **digital** (database, knowledge management software).
- **Distribution** defines how the product is to be delivered to the end-user (like fax, print, email) and encloses not only the **medium of delivery** but also its **timing, frequency, form, language**, and so on.

Then, the third and fourth stage basically storage and retrieval and distribution, okay. That is where basically you have a bridge between upstream addition and refinement stages. Basically once you have the repositories and you want to make sure that people are going to use it. So, you are going to store the data either into physical form or the digital form, right.

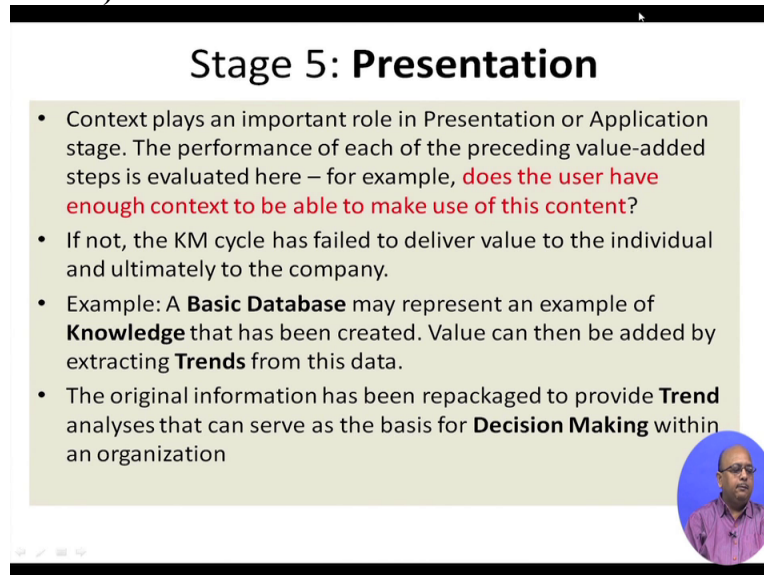
So, the physical form like folders, printed information, books are in a digital form databases or using software's for keeping the things, right. So, that is related to storage and retrieval because depending upon the form in which you are going to store the data, it is going to see that how are you in to retrieve it, okay, so, it could be either physical or digital.

Then Distribution of a data, now, how the product is to be delivered to the end user's, okay, then the information is available, so, if it is available in physical form then, the medium of delivery is different. If it is available in digital form then the medium of delivery will be more electronic. And if you are going to use digital delivery formats then, it is very, very cost effective okay. You are going to save time, resources and cost, right.

So, for example, if you want an article if you request me, I would send it. But if it is available in physical format means what will happen, I will get a photocopy and it involves cost and I will post it and then you get it, okay. So, that again involves cost and then again there is a delay also right. So, when a product that is information is available in highly organized and structured form that we have to say that how it is going to be distributed, right.

Or if the information is available I can say, okay you can go to the website, this information is already there, if you want, you can have it. And then, you have see that how frequently you are going to make use of it whether in what format is that whether the language is it able to you are not. So, these are the issues related to distribution that is involved.

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Stage 5: Presentation

- Context plays an important role in Presentation or Application stage. The performance of each of the preceding value-added steps is evaluated here – for example, **does the user have enough context to be able to make use of this content?**
- If not, the KM cycle has failed to deliver value to the individual and ultimately to the company.
- Example: A **Basic Database** may represent an example of **Knowledge** that has been created. Value can then be added by extracting **Trends** from this data.
- The original information has been repackaged to provide **Trend** analyses that can serve as the basis for **Decision Making** within an organization

Then, the fifth stage is Presentation, okay or Applications stage. How you are going to make use of that; because that is where the knowledge is going to add value to the organization. And for that, you need a context, to make use of that content, because you may be having the content but we do not know where to use it, how to use it okay.

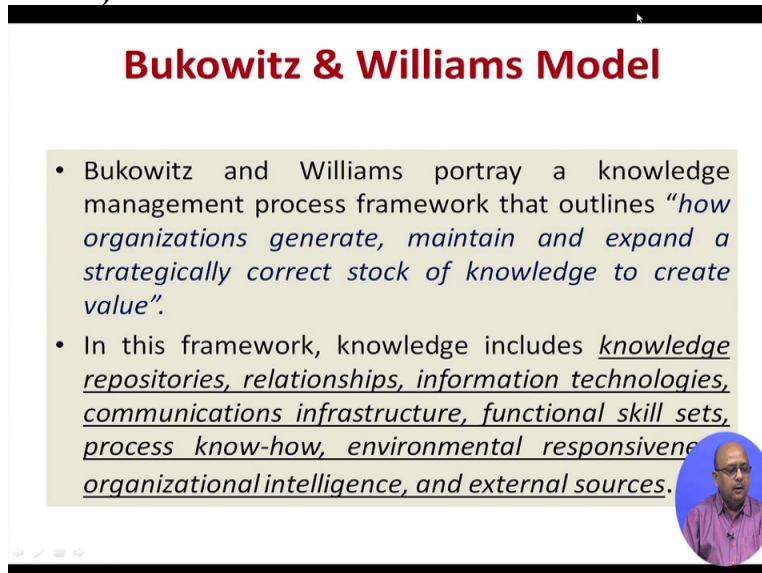
Then, probably knowledge management cycle fails, because if you are not going to apply, then information which is available in structured form, then, probably it is not going to deliver any kind of value either to the individual or to the organization. Now, one example I am giving here. For example basic database, okay which is going to represent an example of a knowledge that has been created?

How are we going to add value to the database, by finding out the trained competitors? Suppose, I give a database of the profits, is of a particular company, for the 5 years okay. This is the profit of the last 5 years of the company. Now, this is the database, okay which is given to you. And it is a very structured format which is available using different financial indicators. I tell you okay this is return on investment, this is return on economics, this is the balance sheet.

How much profit the company has been making every year. And this data is available in a structure form to you for the last 5 years. How you can add value to this? One way to look at it is, based on this data can you predict about the future, okay. What kind of profit the company is likely to make, provided this kind of scenario is there, value can be attributed by trade forms of the data. So, you go for some kind of analysis make use this data, infer certain things.


And that is where you are going to add value to that database, okay which is the knowledge, which you are going to apply to take certain decisions related to the organisation and its functioning, okay, so, that the information has been repackage to provide trained analysis and which can be used as a basis for decision making in the organization, right.

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Bukowitz & Williams Model

- Bukowitz and Williams portray a knowledge management process framework that outlines *“how organizations generate, maintain and expand a strategically correct stock of knowledge to create value”*.
- In this framework, knowledge includes knowledge repositories, relationships, information technologies, communications infrastructure, functional skill sets, process know-how, environmental responsiveness, organizational intelligence, and external sources.



So, these are the five different stages of KM cycle which is discussed by Meyer and Zack. Now this is another model which is more or less similar which is Bukowitz and Williams model. And what he says that he more or less talked about similar thing that how organisation generate, maintain, explain and expanded a strategically correct stock of knowledge to create value.

So, now if you look at the earlier model and this model they also talked about the similar things. That is, how we are going to generate knowledge, how we are going to maintain it and how you are going to find strategically correct stock of knowledge to create value of that. So, he is talking about the same thing: Acquisition, maintenance and use of that knowledge so that you can add value to the business, okay.

Now, what he did in his framework? He included certain repository, certain things and these concepts that he has used in his a framework include knowledge repository, relationships, information technology, communication infrastructure, functional skills heads, process to know how, environment responsiveness, organisational intelligence and external sources.

If you look at each of these concepts, let me explain briefly that is knowledge repository. What is the knowledge repository, okay? It is store house of where the knowledge is available, okay in some form, right. Relationships, it talks about how people interact and relate with each other. Then, the kind of IT system that you have, what kind of a communication structure, infrastructure you have.

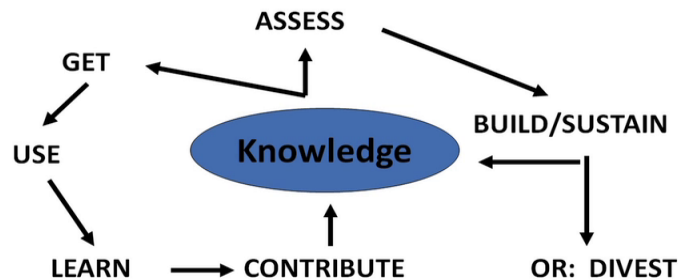
Both physical communication that is verbal or face to face as well as communicating through technology. That is using say e-mails, faxes, telephones and other forms of infrastructure. So, it talks about both technical communication and face to face communication. Then, what kind of skills should be required by the people, to make use of it.

Then, whether a knowledge repository also has the process information or only it has explicit information in the form of documents, books, guidelines and manuals ok. Then, whether it is going to help you to respond to the environmental requirements, whether the kind of knowledge repository that you have is going to be useful for you to face the challenges of the organisation in terms of coping with the challenges of the environment or not, okay.

And that is where the Organisation Intelligence comes. Organisation intelligence is nothing but the ability of the organisation to cope up with the challenges of the environment, okay. So, whether your organisation is intelligent enough to sense what is happening in the environment, okay and in order to cope up with the challenges what an organisation needs to act and do so that he is able to more responsive, okay. And what are the external sources of information that is available.

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Bukowitz and Williams



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So, if you look at this model, it talks about certain things ok. It starts with assets, on the one side it is get used and learn. That is how you contribute and other side talks about built, sustain divested it right. So, it talks about two things on the inside talks about get use and learn and on the other side talks about building and sustaining the knowledge base and divests it.

Why I am saying divesting it, because the knowledge base that to create they become obsolete data nowadays, okay over a period time. So, you need to create new knowledge; you need to build new knowledge means that is where you go for divesting whole knowledge system or old knowledge because it may not be useful, okay. So, he talks about both. One side he talks about creating and building knowledge base which is going to sustainable.

And at the same time he also wants to make sure that the kind of knowledge system that knowledge that you are going to build up is going to be more relevant and contextual for you.

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Bukowitz and Williams /2

- **Get:** seeking out information
 - Tacit and explicit
 - Being selective when faced with information overload
- **Use:** combine content in new and interesting ways to foster innovation in the organization
- **Learn:** learning from experiences
 - Creation of an organizational memory

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If you look at the explanation for this, it says that get use and learn; first part, okay. That is acquire the knowledge seeking out information where the knowledge is available, okay; whether the knowledge is available in tacit form or whether it is available in explicit form ok. Now, you have to be selective in when faced with information. There is lot information, what to do? Then, you identify the key elements and based on that you search for the relevant information.

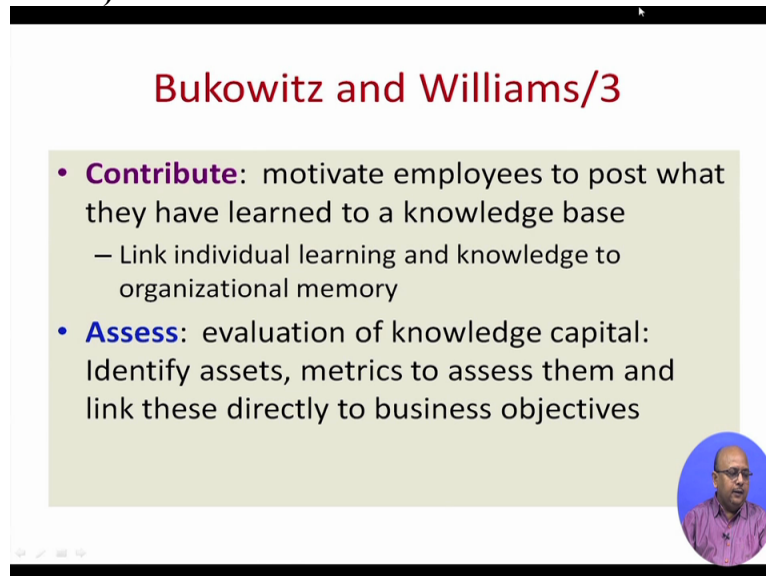
Say, for example, you are looking for certain information on Google what to do? Type that particular word okay, search it but you get lot of information. Maybe one word might elicit 1000's of responses from the Google and all of them may not be useful. So, then what you do you go through some of them and then try alternate key words and that is where you are going to be selective because in that case you get less information.

So, gradually and gradually when you; and as you search more and more, probably you become more selective and you try to get more relevant information. So you have seek out more information in tacit form from the people, interaction on relationships or collaborations or from explicit form that is available in documented way, right.

So, once you get that information then you use it, combine content in new and interesting way to create innovation. How you are going to make use of that information for doing some case; for something new, okay. So, when you are going to create knowledge, new knowledge that is where you are going to use old knowledge, your experience, based on that you try to develop something new. And that is what we call use of knowledge.

So, the content that is available to you, you look at it and used it, you created something that is new. Then, learning, learning takes place from the experience. As you go through this process of seeking out the information using that knowledge, then, you are used to it. And then, you create a repository what is called an organisation memory. So, whatever you learn that could be documented by you and put into the memory of this system, right.

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Bukowitz and Williams/3

- **Contribute:** motivate employees to post what they have learned to a knowledge base
 - Link individual learning and knowledge to organizational memory
- **Assess:** evaluation of knowledge capital: Identify assets, metrics to assess them and link these directly to business objectives

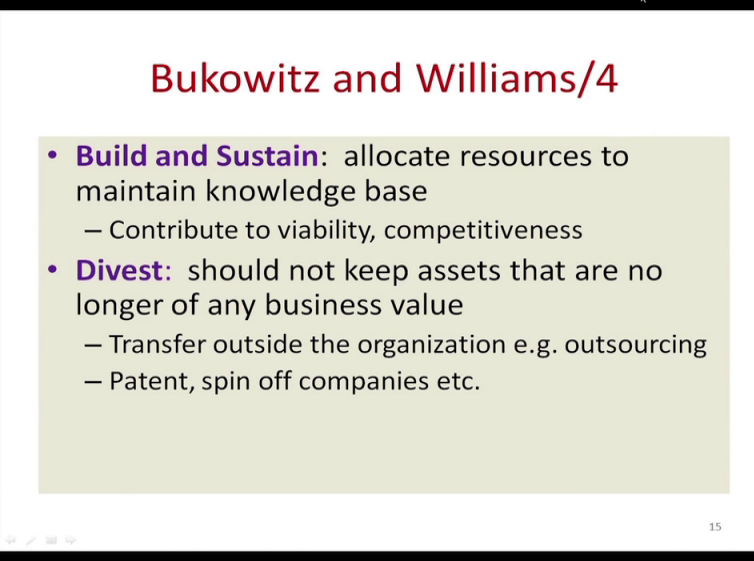
Then contribute; you also need to motivate people to post what they have learned through a knowledge base. He might be having a knowledge management system. But how is the content, is what is the quality of the content, it depends upon the people, whether people have really contributed to the content or not based on their experiences, their learning ok, If they contribute probably that would create a use and quality knowledge base ok.

So, what you need to do is that you have to link the learning of the people and knowledge to organization. So that you are able to transform that learning into the memory and that is possible through how? Not in tacit form but in explicit form. So, whatever you learn if you are able to document it, then, it becomes explicit which could be kept in the memory of the system, right.

And then assess, look at your knowledge capital. How good it is ok? Keep on regularly go for audit, or check the kind of knowledge base that you have, okay. So, you also use certain matrix in terms of effectiveness of knowledge management system, effectiveness of the learning system okay. You can develop certain matrix to see how the knowledge management system is effective.

And you can also assess each and every entry level, the extent to which it is going to be effective; whether knowledge acquisition level, contribution level, people are having knowledge but not contributing, okay. So, at each level, you can develop certain matrices and you can see that based on this matrix whether knowledge management system is effective or not, right.

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Bukowitz and Williams/4

- **Build and Sustain:** allocate resources to maintain knowledge base
 - Contribute to viability, competitiveness
- **Divest:** should not keep assets that are no longer of any business value
 - Transfer outside the organization e.g. outsourcing
 - Patent, spin off companies etc.

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And finally we have build, sustain and divest, okay. So, that is how we are able to build a good system of knowledge management which is going to provide you more competitive advantage. And then, you should not keep as if that is no longer of any business strategy. See that whether knowledge system that you have, keep only those kind of information knowledge which is going to be useful for the organization right.

So, you need to divest those knowledge which are obsolete, outdated and no longer useful, right. So, what you need to do? You transfer this to outside the organization. Divesting could be outsourcing. What you can do? You can involve others in the process of divesting so that if others make and make use of it they can get it.

If others find certain value in that kind of knowledge, they can make use of it. Like for example, have lot of books which may not be very useful for our system; because we are working on advance level of technology. But this kind of system may be useful for those who are working with different kind of technology. So, it could be divested to them, okay.

Then, out of it, you are developing certain patterns and trademarks which could be commercialized or it could be given outside world, so it could be use it and that is how we are going to divest certain things, thank you.