Course Name: AI in Human Resource Management

Professor Name: Prof. Dr. Abraham Cyril Issac

Department Name: School of Business

Institute Name: Indian Institute of Technology Guwahati

Week - 10
Lecture - 33

Lecture 33: AI-Mediated Knowledge Management

Hello learners, welcome back to the course on AI in human resource management. Today, we move to the last lecture of Module 10, where we'll be discussing AI-mediated knowledge management. Now, as someone who has been working in the research area of knowledge management for at least the last eight to nine years, I see that knowledge management is one of the most critical aspects of ensuring the sustainability of an organization. So, if you look into knowledge management studies in general—in any of the indices, be it Scopus, Web of Science, or any particular index—you will see that 95% of the studies have focused on knowledge sharing. But there is a critical aspect of knowledge hiding, which has been my research area. And I'm always quite vocal about this particular issue of knowledge hiding. We have discussed this in the Organizational Behavior course and on the NPTEL platform as well. But when you look into the behavioral side of knowledge hiding specifically, we see that there are different ways people exhibit knowledge hiding. There are many ways—some of which are empirically proven—such as playing dumb, evasive hiding, rationalized hiding. Sometimes, people go further and engage in counter-questioning. All these strategies are related to knowledge hiding. Now, why I wanted to mention this is that when you talk about knowledge management, people generally focus only on knowledge sharing, but there are inherent motives behind knowledge hiding. And there is a persistent practice of knowledge hiding occurring in every single organization. If you look into your organization—assuming you are associated with one—you will definitely notice some level of knowledge hiding. There is some level of knowledge hiding happening.

So when you are talking about knowledge management, the importance lies in actually facilitating the knowledge sharing. When you look into AI or bring AI into knowledge management or AI mediated knowledge management, see that AI is facilitating the discovery, knowledge discovery part. It is facilitating the knowledge preservation part. It is facilitating the knowledge retention part. So all these aspects are typically being enhanced or facilitated by AI. And let's look into that in greater detail. I'm Dr. Abraham Cyril Issac. I'm an assistant professor at the School of Business, Indian Institute of Technology, Guwahati. Now, when you think about knowledge management per se, Many a time what happens is that we see that, okay, it's our colleague. Why not? They will share the knowledge with me. But many a time we see that even your closest colleagues, even your closest co-employees, co-workers, they will tend to hide useful knowledge with you. Because they might feel that this is, you know, n number of reasons, one could be, they might not feel it necessary to share it at this point in time. Or maybe they feel that if I share this, he or she is going to take undue advantage of that and get above me.

Or there might also be a possibility where they might think that, okay, if I have struggled this much to obtain this piece of information or this piece of knowledge, why can't they work hard? Let them also put their foot. So there are many possibilities, many schools of thought that can come into play when people try to share knowledge. And this is essentially what prevents knowledge sharing from happening. One step ahead, I'll go and also mention the possibility of institutional memory. Please note, when an individual leaves the organization, there is a chance that whatever knowledge he or she has gained within that organization will also leave with them. So when you look into such situations, A person coming in to replace them or take up the position might not be able to acquire that particular knowledge, which otherwise should have been there—what we call in OB research, organizational behavior research, as institutional memory. Had the institutional memory been intact, The person could have just come in and used it or employed it wherever necessary.

So this certainly underscores the relative importance of knowledge management in that introductory background. Let's understand knowledge management, specifically

AI-mediated knowledge management. So in this lecture, I will explore the different facets, from knowledge discovery to knowledge preservation and retention, based on AI. So let's understand the relevance of knowledge management and AI. When you look specifically at knowledge management, it is nothing but a set of strategies and practices that focus on capturing, distributing, and effectively utilizing an organization's collective knowledge. So at its core, Knowledge management facilitates creating, storing, and effectively transferring knowledge across an organization to ensure that employees have access to relevant information and expertise. So knowledge management is essential for organizational learning, for continuous improvement, and certainly to maintain a competitive advantage. So you see that as organizations grow and the data within and outside the organization multiplies, so does the challenge of managing knowledge effectively, which is where AI technologies offer groundbreaking solutions. Now let's look into what could be the challenges that are posed or what are the typical challenges in traditional knowledge management.

Let's look into that. When you look into traditional knowledge management, information stored across various departments without cross-functional accessibility usually creates silos, limiting the flow of knowledge. So what exactly has happened is that the people individually who were or who were actually made to share knowledge worked in silos. So basically, information was stored in independent, discrete silos. So this actually prevented, or rather hampered, effective knowledge sharing. Another significant challenge was outdated information. You know, when you look into traditional knowledge management systems, they lacked mechanisms for regularly updating data, leading to knowledge decay. So many times, useful knowledge is only useful at a certain point in time. Let's say at time t it is relevant.

At time t naught the knowledge itself might not be relevant. So we are looking into an essential knowledge decay in that particular case. There are also situations where searching and retrieving knowledge assets from large database can be time intensive and counterproductive. So time consuming retrieval again emanated as a challenge in the traditional knowledge management system. And also we see that conventional knowledge management systems rarely cater to the individual user's needs, leading to generic content

deliveries. There was a lack of personalization, if I can term it like that. This were some of the typical challenges. with respect to the traditional knowledge management. When you understand the typical challenges in this traditional knowledge management system, you can understand and appreciate better the role of AI in knowledge management.

So let's look into AI as a catalyst for the knowledge management transformation. When you look into the artificial intelligence, there is no denying the fact that it serves as a catalyst that brings automation, accuracy and analytical depth to the knowledge management. So with AI, organizations can improve how they organize, how they analyze and how they distribute knowledge, breaking down the barriers of all the traditional knowledge management. So when you look into the knowledge management transformation, the KM transformation, you have to see ML as one of the catalysts.

You know, machine learning algorithms analyze data. They identify patterns and trends that aid in predictive and prescriptive decision-making within knowledge management. Also, we see that machine learning applications range from improving search capabilities to suggesting relevant content to users based on prior interactions. We also have to acknowledge the use of NLP. When you look into natural language processing, there is no doubt that it enables machines to understand and generate human language, making it a key component in AI-enabled knowledge management. So basically, when you look into NLP, it facilitates text analysis. It facilitates communication. Sentiment evaluation, language translation, and to a greater extent, content summarization. So basically, you look into all the documents, making documents and communications more accessible with the help of NLP. When you talk about AI as a catalyst for KM transformation, you will also understand—and we have seen it in the previous lecture itself—robotic process automation.

You look into RPA, Robotic Process Automation, which automates repetitive tasks like data entry, tagging, and updating information within KM systems. By reducing the human workload, robotic process automation allows employees to focus on strategic tasks rather than time-consuming repetitive actions. So when you look into AI as a catalyst, not only RPA but also cognitive computing takes up a larger stage in terms of applicability. Cognitive computing simulates human thought processes in real time aiding

in complex decision making and response generation. So it is particularly useful in developing AI assistants and chat boards that respond to user queries with high accuracy and relevance. So let's now look into the key applications in knowledge management with respect to AI and we'll start with knowledge discovery and extraction. So AI driven knowledge management systems make it easy for organizations. We have seen this to uncover valuable insights from large data sets.

Let's start with data mining, for example. You know, through machine learning and data mining, AI algorithms can sift through vast quantities of data. To identify patterns, relationships and trends that may be hidden from the human analysis. So these insights can typically guide decision making. It can improve the strategic planning and definitely foster innovation. There can be also a possibility of content curation and tagging. What do you mean by this? AI algorithms automate the categorization and tagging of content based on semantic meaning and context. So this semantic search or semantic meaning and context gets the relevance. So basically you see that the organized tagging

Structure simplifies content retrieval and makes it easier for employees to find relevant knowledge. So, content curation becomes quite easy with respect to available technology. In line with this, we'll also look into semantic search and, let's say, intelligent retrieval. So many times, unlike keyword-based searches, semantic search understands the context of a search query. This particular capability enables employees to find precise information without extensive searching, saving time and improving accuracy. Now, let's look into collaboration and knowledge sharing specifically here. AI enhances the ease and quality of collaboration. We have established that through the previous modules themselves. So, when looking into AI-enhanced collaboration with respect to knowledge management, we must understand the role that AI chatbots play. AI-powered chatbots answer routine questions, as we have already seen.

They provide recommendations and connect users to relevant content. Basically, they can help employees connect with subject matter experts or link employees to them, facilitating more collaborative problem-solving. Similarly, you also have automatic content summarization. AI algorithms can inevitably generate summaries of long documents. AI algorithms can generate summaries of long documents, making it easier

for employees to absorb key information quickly and efficiently. So when you look into content summarization, time is saved. The quality of summarization is better. We also have recommendation systems, you know, used when we employ machine learning recommendation engines such as relevant documents, relevant courses, or expert contacts. Based on user activity, preferences, and roles, this particular proactive knowledge sharing certainly fosters better decision-making.

And if you ask me, I'll say cross-departmental learning. Now, let's look into personalized knowledge delivery. Having seen the content generation part, specifically collaboration and knowledge sharing, and specifically knowledge discovery and extraction. It's time to look into personalized knowledge delivery. We have adaptive learning and training. You know, AI personalizes learning pathways based on employee roles, expertise levels, and individual goals. So this certainly helps employees acquire knowledge that is directly applicable to their work. We also have some contextual insights in real time. You know, AI can deliver information that is directly relevant to an employee's particular task. It could be, let's take an example, surfacing critical data during project meetings or decision-making processes.

We also do understand that there is a possibility of continuous improvement. It refines knowledge delivery based on the user feedback, which otherwise is not possible with the traditional knowledge management system. Then we look into the knowledge retention and preservation. So knowledge retention and preservation, please note AI enhanced knowledge management facilitates better knowledge retention, preserving valuable insights and expertise across, which is done through predictive analytics, mainly with respect to knowledge gaps. Please note AI can analyze knowledge patterns to predict areas where knowledge is lacking or it is simply outdated. So it guides organization in that context to focus on filling this particular gaps that are identified. There is also a possibility of expertise in mapping. So expertise mapping is a significant aspect because AI identifies expertise within the workforce, mapping areas of knowledge concentration. So what exactly happens is that it enables effective mentorship activities. And knowledge transfer strategies.

Another significant aspect which we can think of when we talk about the knowledge retention and specifically knowledge preservation is the document digitization. Document digitization and even I'll go to the extent and say archiving. So AI based digitization and archiving systems offer advanced search capabilities. retrieval and versioning capabilities, ensuring important documents remain accessible and up to date throughout the institutional existence. This is a long term commitment that AI actually brings in as part of knowledge retention and preservation to that extent. Now, having seen these typical factors like knowledge retention, prevention, knowledge discovery, and personalized knowledge delivery, it's time to move on to the benefits of AI-mediated knowledge management. Without any doubt, we can say that it improves knowledge accessibility because we have seen it in the personalized delivery angle, you know, with AI. Employers can access and retrieve knowledge easily. So even when dealing with vast data volumes, eliminating the time-consuming searches, it increases efficiency. It improves accessibility.

That also enhances decision-making. If you think about it, AI-based knowledge management provides relevant, context-sensitive insights that enhance strategic decision-making. That brings in problem-solving and also creates innovation. There is also increased productivity. Look into automating the routine tasks. AI allows employees to focus on strategic initiatives. So this will certainly increase. Productivity and it enables high-impact work to be taken up because a lot of mundane tasks, a lot of repetitive tasks, are being undertaken by the AI itself. Another possibility is with respect to scalability. We have discussed scalability in the previous modules, but with respect to the scalability of the knowledge management systems.

If you look into AI-based knowledge management systems efficiently, they handle large datasets and support global operations, making them highly scalable. Similarly, you see that there is reduced loss also associated with respect to AI-mediated knowledge management. AI preserves data. Institutional knowledge, as I mentioned in the introduction itself, about the institutional memory. So AI preserves this, which is crucial for organizations with frequent workforce changes or preventing valuable expertise from leaving with departing employees. So this is what we understand with respect to the

scalability and the reduced knowledge loss angle. So let's look into what the challenges and limitations of AI in knowledge management are. We look into data quality and availability. AI algorithms require high-quality, accurate data. Organizations may face challenges if data is incomplete, outdated, or poorly structured.

So when you are looking into the challenges specifically, we see that data quality and availability is a certain issue. We also have privacy and security. When you're looking into AI knowledge management systems handling sensitive information, ensuring data privacy and security is vital. So organizations need strong safeguards to protect knowledge assets. Similarly, you can always look into user trust and resistance as a challenge. Many a time, employees may be hesitant to trust AI insights or fear job displacement due to automation. So, building transparency and explaining AI decisions can typically mitigate these concerns. There could also be, you know, algorithmic bias. What do you mean by algorithmic bias? AI models can reinforce existing biases if not properly trained, leading to skewed recommendations or knowledge exclusions.

There can also be some technical and financial barriers. You know, implementing AI-based knowledge management can be resource-intensive. It requires substantial investment in infrastructure, data preparation, and even personnel training. Now, let's look into the ethical considerations in AI-mediated knowledge management. We talk about transparency and explainability. Please note, AI algorithms should be transparent, allowing employees to understand how decisions are made and ensuring accountability in decision-making. You have data privacy and compliance. AI knowledge management must comply with regulations that dictate the standards for data privacy and security. We also have certain considerations with respect to fairness. Bias and fairness—if you look into AI models, they should be audited regularly for biases, ensuring fairness in content recommendations and search results.

And also, we see that there can be a certain consideration with respect to accountability. and governance. Organizations must define clear accountability. They must have this accountability towards AI driven knowledge management outcomes, ensuring AI in science are ethically aligned with organizational values. So along with this, I'll also try to mention about accountability and governance, which also will take a bigger step when

you look into the ethical consideration in ai mediated knowledge management now having discussed about the past and the present let's look into the future the future friends in ai mediated knowledge management We look into this from an enhanced predictive and prescriptive analytics. So basically, future AI systems will go beyond predictions, offering prescriptive recommendations for addressing the knowledge gaps and emerging trends specifically. So what we see is that there is also a possibility of NLU and generation, you know, natural language understanding, not only NLP, but NLU and generation advanced NLU will allow the knowledge management systems to generate knowledge insights, providing valuable new perspectives. We also see that there is a possibility of emerging integration with technology.

So tech integration is going to be the future. When you look into the integration, integration with, let's say, IoT or blockchain, something which we have seen in the previous lecture, we look into this entire process of technology integration that will make technology, the knowledge management process more secure, more transparent, and more user-friendly. We can also think about something like cognitive search. Now, when you are looking into cognitive search and conversational AI, conversational AI will make knowledge retrieval more intuitive. It will make, you know... The support for employees will be more contextual and will include this contextual guidance through natural language interaction. There can also be the possibility of self-learning repositories, you know, something which is otherwise impossible with traditional knowledge management systems. Future AI knowledge management systems will be self-learning. They will update knowledge continuously and autonomously, ensuring relevance.

And finally, we have human-AI collaboration. AI will serve as a partner in knowledge-related tasks, augmenting human capabilities and supporting real-time decision-making. So what we understand here is what was not possible with traditional knowledge management systems. I gave an introductory input mainly to make you aware of this. The traditional knowledge management system. So whatever pitfalls or problems were associated with traditional knowledge management systems, we try to mitigate them with AI. We try to mitigate them with AI-enhanced knowledge management. So what are

the possible problems, like knowledge hiding, that can arise? Technology-enabled or AI-enhanced knowledge management is more robust and It is more transparent.

It is fairer. It is less biased. So, there are many possibilities. And as we have seen regarding futuristic trends, we see that we are in a good place, especially concerning knowledge management. We will try to retain that institutional memory, which otherwise we are losing. We'll try to create repositories. We'll try to create knowledge chunks or knowledge quanta—not like silos as in traditional systems, but more applicable, shareable, and useful to the entire workforce community. So, what is this? This is what AI-enhanced knowledge management will bring about. That is all about the AI-mediated knowledge management system.

We'll explore more details of AI and how it is helping the human resource management domain in the coming lectures. Till then, take care. Bye-bye.