Course Name: AI in Human Resource Management

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Week - 04
Lecture - 10

Lecture 10: HR Analytics

Hello learners, welcome back to the course on AI in Human Resource Management. Today, we move to the fourth module where we look into HR analytics. Now, this has been a topic that is gaining momentum over the years, especially with industry people. So, I would like to bring in an industry focus, specifically incorporating some case studies into the content. So, AI in HR analytics, people analytics, and smart HRM.

I'm Dr. Abraham Cyril Issac. I'm an assistant professor at the School of Business, Indian Institute of Technology, Guwahati. Now, when you look into AI in Human Resource Management, HR analytics, I would quote it like this, has become the backbone of AI in Human Resource Management. What we generally understand as Xerox is synonymous with the photocopying industry altogether. When you talk about AI in Human Resource Management, people generally talk about HR analytics. Now, let's understand what is HR analytics. It is not mere data analytics or predictions. It has gone beyond that. Now, things are descriptive. Now, things are diagnostic.

Now, things are prescriptive. So, there have been many dimensions that have evolved over the years with respect to Human Resource or HR analytics specifically. Let's look into that in greater detail. What is HR analytics? When you look into HR analytics, it's not merely data science. It's not just science. It's a blend of art and science. When you look into HR analytics as a topic or as a discipline, you will see that the art part, When I'm talking about it being a blend of art and science, the art part helps us to observe the world while the science shows people how to take action. So basically, there is the normative part, and there is a certain level of deterministic part associated with that.

Human resource analytics combines data from various sources like surveys, it could be records, operations to create an actionable view of current situations and potential futures. So when you look into HR analytics, it is an evidence-based approach which leads to more informed decision-making. So whenever we are talking about AI in human resource management, I'll try to encourage you to look into the topic from the decision-making point of view. Every single topic in human resource management or organizational behavior for that sake, you have to understand it from the decision-making perspective, whether it is increasing the ambit of decision-making, whether it is increasing the involvement of individuals per se in the decision-making. When you look into HR analytics, it helps organizations gain deeper insights into the workforce, make data-driven decisions, and assess the impact of HR metrics, ultimately enhancing business performance. So when you rely on data, HR professionals can actually make quite informed decisions. They can, rather than merely depending on instinct or opinion for that matter, Evaluate the effectiveness of HR policies and interventions based on solid data.

So analytics reveals why something is happening and what the impact is. When you look into, let's say, as an example, we can understand. Imagine your company discovers after analyzing data from, let's say, top-performing project managers or the top rank hierarchy. Previous experience in managing large teams isn't a strong predictor of future project success. If you get some insights like this, with this insight, you can actually now broaden your hiring criteria to include candidates with diverse management practices or management experiences. Rather than only those with a history of leading big teams. So, see how a clear-cut cue is helping you analyze the whole situation effectively and bring out decisions that favor the large sustenance of the organization altogether. We have to thank Professor Jack Fitness. He is known as the father of HR analytics. He pioneered initiatives like developing HR metrics to evaluate HR activities in 1978 and introducing HR benchmarking.

This was one of the foremost initiatives that Professor Jack did in terms of HR benchmarking, and it paved the way for HR analytics. So, it focused on setting the standard for best practices. When we look into HR analytics, we have to understand there

are certain terms. So, there are certain terminologies which are sometimes wrongly used. So, we have to bring a quite important clarity that is required and must be brought in before delving deep into the nuances of HR analytics. So, let's look into different aspects like workforce analytics. What do you mean by that? Let's look into people analytics. Talent analytics and HR analytics. Many times what happens is that we tend to understand HR analytics and all these workplace analytics, people analytics, and talent analytics as a subset of this.

That's why I've used a Venn diagram to show that it is not the case. In fact, there are some intersection possibilities. I do not disagree, but that said, it essentially has its own flavor. So, let's look into that. When you talk about HR analytics, talent analytics, or people analytics and workforce analytics, for that matter, they have become jumbled concepts, as I mentioned, they can be used here and there and are wrongly interpreted. So when we look specifically into workforce analytics, let's start with that. The first one is workforce analytics. It focuses on workforce metrics and optimization, applying statistical models to optimize human resource management. So, in a general sense, it relates to the size and shape of the workforce. So, this is what workplace analytics typically qualifies into.

When you talk about people analytics, it is about how people impact the business, how people influence the business. It combines employee data to forecast patterns. Specifically, it has a focus on enhancing engagement and customizing strategies. Customized strategies that typically align with organizational objectives. When you look into talent analytics, for that matter, talent analytics refers to the application of measurement and analytical methods to comprehend, enhance, and optimize the human aspects of business, often intertwined with concepts like big data and people analytics, etc. So, I hope that clarifies what workplace analytics is, what people analytics is, what talent analytics is, and how these are different from HR analytics, so this understanding was quite required before venturing into the details of HR analytics, which are the types of HR analytics. This is where I categorically mentioned at the beginning of the lecture that we are moving from descriptive to diagnostic to predictive and prescriptive. I'll take a moment here, I'll try to explain here. The evolution started with simple data analytics. We had some understanding of a workforce. Some data was triggered, maybe in terms of

recruitment, maybe as we have seen in terms of needing a certain bit of diversity in decision-making. Some data has revealed that people who have managed large teams do not essentially become efficient leaders. Some research has showcased that. This was never HR analytics.

It had the flavor of analytics. It was more descriptive in nature. But later, things evolved to diagnostics. Why does the problem exist? Why is there an issue altogether? Why is the organization suffering, and what is the typical cause of that suffering? So there was some light shed on that. That's how the second stage of evolution happened. Then came predictive analytics. So we understood what the problem was.

It was again in a retrospective mode. But when you are looking into the future, The futuristic mode would be more about predictive analytics. So predictive analytics gave a clear-cut idea of what we are actually looking at. And finally, now we are in the stage of prescriptive. We are going one step ahead. We are not stopping at the predictive level. We are trying to be more prescriptive. Let's say this would be the recommended pattern or this would be the recommended scenario. This has enhanced the horizon of AI in HR.

This has enhanced the horizon of HR analytics altogether. So ladies and gentlemen, boys and girls, I would like to stress this particular point. It is not merely descriptive in today's world. It was, there was no doubt about it. It was. But now it has moved to diagnostic. It has moved to predictive and it has moved to the prescriptive level. Let's look into that in greater detail. When you look into the diagnostic before that, when we look into the descriptive, we see that what happened was the concern what we were having. Traditional HR metrics, if you look into focus on efficiency, such as turnover rates, time to fill, hiring costs, or employee training, aiming to reduce costs and improve processes. This was the bottom line altogether. Descriptive HR analytics, however, identify and explain patterns in current and historical data. If you have come across the previous module or gone through that, you will see that we have described dashboards, scorecards, segmentations, and regular reporting as a foundation for analytics efforts. All this pertains to what we understand today as descriptive analytics. What happened?

That was the question you were asking typically answering. when you move to the next aspect, diagnostic, the question is: what is happening now and why? This is the question you are mainly concerned with when moving to the diagnostic pattern. So diagnostic HR analytics, it analyzes data to determines the underlying causes of past events and behaviors. Make no mistake, it analyzes data of past events and behaviors. That is not significantly different from descriptive. But diagnostic, for example, let's say, There will be some examination of data on unplanned absences to identify the factors contributing to absenteeism. So it is giving some diagnostic insights into what happened or what is happening now and why it is happening. This why part is something that is more critical, and the present tense of this why is making it more relevant. So, by investigating these patterns, organizations can gain insights into the reasons behind previous occurrences and make informed decisions to address similar issues in the future. Then, we have the next level, which is predictive HR analytics. Here, we are looking into the future, as I mentioned, to see what will happen. And again, the most significant question is: why?

Predictive analysis encompasses various methods, such as statistics, modeling, and data mining, which utilize current and past data to forecast future outcomes. So, it certainly focuses on probabilities and potential impacts, often using models to improve the likelihood of making accurate decisions. It could be in hiring, training, promotions, or whatever the functions of HRB are. So, this is the third development that has happened in HR analytics. And finally, we have the prescriptive part. What should you do about it? This is the most critical answer. If you have an answer for this even before the conceptualization of the entire scheme of things, you are at a greater pedestal. There is no doubt about it. Prescriptive analytics extends beyond predictions by offering actionable recommendations and strategies for workforce optimization. So, it certainly analyzes complex data to forecast outcomes such as decision options and illustrates different business impacts. For instance, it might use models to assess how various investments in employee training affect the financial results. So, this is the prescriptive part.

What should you do about it? Now let's look into the different data analysis levels that are observed in HR analytics. We'll start with the first one, the organized part. Here you'll see that it is still moving around the descriptive pattern. Then we'll move to the predictive.

Then we'll move to the prescriptive. This is how we actually try to jump. So when you are looking into the organizing aspect, we try to gather data. Predictive modeling in analytics actually involves using statistical methods. I already mentioned that to forecast outcomes.

Now, this process begins with collecting and organizing human capital data, which can be challenging since most corporate databases were initially built for accounting and not specifically for analytics. So those initial data management troubles are always there. That's why the initiation is always significant. So when you look into such initial hiccups, they are overcome over time. HR systems actually evolved. They mainly recorded data without predictive capabilities. So as a result, what happened was that installing new programs for analytics can be costly and time-consuming. So when the focus was not on the prediction part, it was just more of a descriptive scenario. Things have changed now. You have to adapt to the changing environment, and now things are costly. For example, a Fortune 20 company struggled for almost two years to adapt their database for analytics but had to scale up. There were no options due to the system's limitations. Now, this is what you understand in the initial descriptive phase of organize when you look into display.

What happens after organizing? It's common sense. After collecting basic data, many companies create dashboards to visually display performance. So this is the second important aspect. Often using, let's say, something like color codes: red, yellow, green. These dashboards, if you have gone through the dashboard part, The current state and the trends but focus on reporting past data, similar to accounting. Though it shows you a certain present-day scenario or state and the trend of today, it is again looking into the past data, so they don't predict the future as they lack assumptions about the upcoming conditions. There are no modeling or no heuristics that are actually considered. The assumptions about upcoming conditions, while trends aren't extendable, dashboards help perceptive users spot typical opportunities for potential improvements. When you look into the predictive part, as you move from descriptive to predictive, here you have the relate element. At the relating level, data is typically compared to, you know, external benchmarks.

Here starts a certain level of predictive analysis where you will see that there is a comparison going on, often using other companies as a reference point. So, however, accurate benchmarking, which I mentioned just now, requires ensuring those companies are truly comparable. Now, you are not comparing apples and oranges. That's the researcher's point of view. He or she or the company has to take care of that, ensuring the companies are truly comparable, which can be difficult without any direct contact. So misleading comparisons, please note, can arise without understanding the factors behind another company's success. If you don't have, Full information about an organization, how it has performed over the years, You are just making wrong assumptions, and based on the wrong assumptions, you will have obviously wrong decisions. So additionally, when organizations have, let's say, three types of capital, let's say capital in the sense of human employees.

Structural capital in terms of assets like equipment or, let's say, some relational capital like connections inside and outside the company, which is also very significant these days. Changes in one area can totally impact the others, making a broader analysis so very much crucial. Then you have the fourth element, which is the model. Here again, you are moving from predictive to the prescriptive part. Any level of statistical analysis, if you have gone through, you'll see that the moment modeling comes in, you are actually trying to move from the predictive to the prescriptive part. You are trying to predict something and finally you are trying to recommend. Every single research based on a conceptual framework or conceptual model happens to work on that basis. If you go through any research that is happening on a latent variable, you will acknowledge the fact that it is related to modeling. So when you look into the model at this stage, you are shifting from describing past data to predicting future outcomes. Descriptive data typically shows what has happened. But now you need to build a model for future change. Let's say, for example, if you're developing leaders. You might use, you know, some leadership assessments to gauge the current abilities. However, it's essential to align the leadership development with future market demands. Otherwise, it does not make any sense.

You are just, you know, for the sake of some leadership development, you are doing some trivial mundane activities. It does not make any sense. Once a leadership model is defined, it can be tested using analytics. Now, finally, when you move to the evaluate level, you'll see that prediction gives you a model for the future, as we have seen in the model level, but you need a prescription to achieve it. Let's say, like a doctor's diagnosis and prescription. Predictive analytics tells you what might happen, while prescriptive analytics shows the steps needed to make. That's the difference, specifically in business. This means, you know, connecting people, connecting policies and processes to improve the performance. So you can then measure the changes and use the model to sustain or improve the results further. When you look into AI in HR, specifically when you're looking into HR analytics, as we are going through the thick of the course, we'll see that something which is very critical is the application part.

So here is something important. Some discussion on the applications of typical HR analytics. This, again, is not an exhaustive list. As the field is emerging, you'll see that there are a lot of applications that are evolving. But that said, I have to give you a snapshot of what is happening today.

When you look into this application specifically, let's start from the job design part. Tailored job roles, you know, job design analyzes performance data to identify key role requirements and improve job satisfaction. So it helps tailor job roles to align with employees' typical strengths, typical weaknesses, and more importantly, organizational needs. So this data-driven approach enhances, you know, productivity and employee engagement. Then you have the talent acquisition part. You look into talent acquisition, you'll see that it aims to find the best fit for a job. We have seen this. If you have attended my OB course specifically, I had mentioned talent acquisition. When you look into talent acquisition, yes, you know, or as you are aware now, it aims to find the best fit for a job. So evaluating candidates can be, you know, very challenging.

It could be challenging if you think you will understand. It is challenging because of the inherent biases and complexities involved. So HR analytics certainly simplifies this by analyzing top performers' profiles to identify key traits. It could be key traits like

educational background or personal interest for that matter. So this certainly helps HR align their hiring process to attract candidates with similar successful characteristics.

We also have HR analytics being heavily used in compensation. When you look into compensation data, it helps HR managers make very critical, informed decisions about, you know, the packages, salaries, pay equity, rather than relying on similar gut feelings. You know, for instance, instead of just matching a competing offer based on instinct, HR can typically use the data to compare the employees' pay with others in similar roles and market rates. Why rely on your gut feeling when you have critical information available? So why not go into that? Let's say we have seen an HR consultancy, providing insights by analyzing compensation, performance, and other factors, helping managers make decisions effectively. Based on facts. So compensation has a certain level of applications in terms of HR analytics. When you look into applications of HR analytics, we'll see that in performance management. Also, it is greatly used by providing data-driven insights, you know, into employee performance and potential. For example, using analytics, a company can identify top performers of the company and analyze their traits to actually create targeted results. Development plans for others. You know, this data certainly helps set realistic goals, track progress, and provide specific feedback. So, as a result, managers can make informed, critical decisions about promotions, about training needs, about, let's say, something as simple as performance improvements, leading to more effective and personalized performance management.

Then you have a large chunk of applications going into what is more critical: the recruitment. Recruitment aims to attract the most qualified candidates. And here, analytics helps by applying marketing techniques. I'm trying to take a different flavor altogether. How HR analytics is taking marketing techniques to enhance the recruitment experience. So by analyzing data, recruiters can target job ads to specific groups and adjust results spending based on ad performance. For instance, programmatic ads use data to reach the right candidates and test different approaches to improve results and reduce the costs associated with recruitment. We also have applications in training. When you are driven by data and analytics, adaptive learning technologies typically customize

courses, activities, and test questions to match each learner's pace and preferred learning style.

So self-paced learning, Online learning, which we are seeing extensively nowadays, is often more cost-effective compared to removing employees from their work. Now let's look into the advantages of HR analytics very quickly. We'll see that data-driven decisions enhance accuracy and lessen reliance on intuition. This is something which is very critical when it comes to the HR analytics advantage. A deeper understanding of employee behavior can lead to better strategies for retention and engagement. There's no doubt about it. You know your workforce. You know how people are performing. You have a better insight. Even some of the things which are in their subconscious mind, if you are able to decipher them, if you are able to take action toward that. Action, you know, enhancing the performance. There is nothing like that. There could be recruitment and hiring that can be customized to meet organizational needs by analyzing current and potential employee data. You also have, as part of an HR analytics aspect, it can streamline processes resulting in cost savings in recruitment and training and even reduce turnover.

When you look into the advantages, you also need to understand and acknowledge that measuring HR initiative effectiveness typically allows professionals to show the return on investment (ROI) and justify their value to the leadership. And finally, when you have predictive analytics that can forecast such trends and patterns, it enables proactive actions. There is no doubt about it. Now, let's quickly look into the advantages we have seen. We also need to look into the disadvantages of HR analytics. Every coin has two sides. Let's look into the disadvantages very quickly. Limited statistical and analytical skills, as we are relying on these statistical and analytical skills. So, if that is limited within the HR department, it can impede the analysis of large data sets. Please note, there is no dearth of large data sets. As we are living in an era of data and information management, limited statistical and analytical skills will act as a disadvantage. You have varied management and reporting systems that can complicate data comparison. We just discussed the possibility of adapting to a newer system, which again becomes very expensive if your system is not already in sync with the futuristic changes or evolving

patterns. We see restricted access to high-quality data and analytical tools, which may pose challenges, and increased data collection, which can raise ethical concerns. Please make a note of it.

Finally, you have inaccurate or incomplete data that can result in misleading outcomes. Please note. Inaccurate and incomplete data can lead to misleading outcomes, making it essential to ensure data accuracy across the functioning HR systems. Now, let's look into some metrics measured by HR analytics. When we come to turnover, we have the percentage of employees who leave the organization. The formula is a good number of employees. The formula is easy. Number of terminations during the period upon the number of employees at the beginning of the period into 100. We have a similar matrix: cost per hire. So these are some of the variables that will effectively enhance our understanding of the workforce that is working with us or under us. You have the cost to recruit an employee as the cost per hire. Internal cost plus external cost both together upon the total number of hires. Then you have a matrix for absenteeism. Very critical. Regularly not showing up at work without a valid reason or notice is what you understand as absenteeism.

The formula is the number of absent days upon the total working days into 100. You also have metrics related to revenue per employee. When you look into revenue per employee, it is the average revenue generated per employee. Average revenue generated per employee. So the total revenue upon the total number of employees happens to be the revenue per employee. When you looked into absenteeism, you also have to look into the retention rate. The percentage of employees who stayed in the organization is what you understand by the retention rate. So when you look into the retention rate, it is nothing but the number of employees who stayed upon the total number of employees into 100. Finally, you have an offer acceptance rate, which is the rate of offer acceptance in organizations, which could be measured by the number of offers accepted upon the number of offers made into 100. Now, let's understand one of the most important and critical parts of today's lecture. For HR analytics, which is the LAMP framework, whenever you're talking about HR analytics, without doubt, you talk about the LAMP framework, how, you know, data is to be analyzed, how, you know, the logic is to be

presented, how the measures are done, and how the analytics is working. And finally, how the process is being streamlined. So the LAMP framework happens to be one of the most critical frameworks with respect to HR analytics. Let's look into that very quickly.

When you look into the LAMP framework, it starts with L, logic. What are the vital connections? That is what is being deciphered here to find valuable insights. So this particular logic step helps companies find valuable insights by linking data points to understand their meanings and make better decisions. It involves identifying connections such as between employee wellness and turnover or business practices and performance, etc. So this framework shows how HR practices affect employee attitudes, which in turn impact customer experiences, maybe sales also, maybe profits also. So understanding these connections helps companies make effective changes. So analytics reveals these crucial links. Then you have measures. Measures, the second part of the LAMP framework.

Good analytics is all about getting the numbers right. So a good analytics system ensures that measurements align with your organization's specific needs and provide accurate data. For example, if high turnover is a concern, focus on employees with key skills, or if absenteeism impacts call centers, you know, measure absenteeism. should be accordingly. It's crucial to understand the relevance of what you are measuring and how it affects your business to avoid misguided conclusions, as I've already mentioned. The third important part of the framework is analytics: finding the answers in data. This is typically the most important part of any HR analytics course: finding answers in the data. Analytics helps turn data into answers. For example, if employees are surveyed, they show high engagement, and customer service satisfaction is evident. Analytics can actually reveal if engaged employees lead to higher customer satisfaction. So, it allows you to explore the connections between data points and certainly gain meaningful insights. And finally, you have the process part: making insights valuable, motivating, and actionable. This part is more challenging, and that is what makes it more critical.

Change management involves using HR analytics to guide decisions and improvements within an organization by analyzing data. HR can transform information into actionable insights, leading to meaningful changes. So, this approach typically helps solve

people-related issues and presents valuable data to business leaders. When leaders understand that human capital decisions impact financial outcomes, they are more likely to support necessary changes for better employee performance and business success. Now, we'll quickly look into a case study and conclude the lecture with this case study. This case study is about Coca-Cola Enterprises (CCE) and how it has used HR analytics very critically and effectively. Let's understand the background first. In 2010, Coca-Cola Enterprises embarked on an HR analytics journey to centralize HR reporting across its global operations. So, please do not make the mistake of thinking that HR analytics is a very recent concept.

It is not like that. This initiative aimed to establish a robust network, a data analytics program that could enhance decision-making and provide more sophisticated insights beyond reporting. So, what were the key steps used? The first one was the foundation building. Now, CCE automated basic descriptive reports, reducing the time spent on manual tasks by almost 70%, allowing the team to focus on, you know, more valuable analytics.

It also had a certain advanced reporting mechanism, the introduction of an out-of-the-box system, which enabled CCE to implement standard metrics and descriptive analytics quickly. So, this shift allowed the team to progress towards more advanced analytics, such as correlation analysis and predictive modeling, etc. Then, you had a consultative approach in CCE by partnering closely with HR. The analytics team helped to uncover insights that informed more effective HR strategies, such as understanding the correlation between managerial communication and analytics. Business outcomes, and finally, you had the capability development. CCE emphasized building internal analytics capabilities within HR, ensuring that the team could continue to deliver high-quality insights. So, finally, we saw some stunning outcomes. CCE successfully transitioned from basic reporting to advanced analytics, which we have seen enabling data-driven HR practices that improved employee engagement, improved retention altogether, and even improved overall business performance. So, please note, by investing in technology and fostering a consultative culture, what we have understood is that the Coca-Cola Enterprise, CCE, has typically had an HR analytics journey in a significant, highlighted, and contributed

manner. for its business success. So, the journey was not without obstacles. Please note, it included resource constraints, the need to overcome, you know, the traditional views of HR as a very non-analytical function. I will repeat this: the traditional HR viewpoint is of a non-analytical function. Things have changed now. However, by demonstrating the value of data-driven decisions You know, CCE has established HR analytics as a critical component of business strategy. So, this was a typical case study which shows us the importance of HR analytics, the role HR analytics is playing in today's world.

Now, there are a couple of things, a couple of takeaways from this particular lecture. The first point which I mentioned is we have gone from what was just a descriptive mechanism to more of a predictive aspect, predictive analytics. Things have changed. And this is where another aspect comes in, where I have typically said, encourage you to understand that HR analytics is not a very recent phenomenon. CCE has been using it; that's why I had included the case study to understand or make you understand the impact of, you know, HR analytics, the impact of data analytics that can have in human resource management. You know, things have changed. You must have seen; you must have observed the outcomes.

How drastically, you know, Coca-Cola Enterprises was able to bring in, you know, a culture of more enhanced business performance altogether. So, ladies and gentlemen, please note. There can be certain nuances where, you know, there are certain aspects where HR analytics is actually evolving. But that said, HR analytics has been a bit of an old concept, not a very recent concept as we certainly misunderstand it. But that said, the way it is evolving is interesting.

From mere descriptive, it has gone to diagnostic. From there, it is going to more of a predictive and prescriptive nature. This is what you should take away from this class. I hope this session was fruitful. We'll come up with more details of HR analytics in the next session.

Till then, take care. Bye-bye.