

## Driving Adoption of Artificial Intelligence in Human Capital Management: Less marketing and more math

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*Every year I identify industry buzzwords and avoid companies that use those words. The current buzzword in human capital management is “artificial intelligence”. – Statement made by a major venture capital partner at a recent conference.*

This statement bothers me. I am a strong proponent of applying artificial intelligence (AI) to human capital management (HCM). I have seen effective applications of AI to a range of HCM areas including employee selection, workforce forecasting, employee learning, and shift scheduling. But I believe the way many people in HCM talk about AI is setting the field to overpromise and underdeliver. Specifically, too many people talk about AI as though it is some magical way to replace human intelligence that will totally disrupt and transform HCM.

AI is merely a category of complex mathematical techniques that lend themselves to solving certain specific types of HCM problems. AI uses complex mathematical techniques to address specific types of HCM problems that impact organizational performance. It does this by repetitively sorting through masses of data to find consistent patterns. These are the kinds of problems people struggle to solve because they are too complex, time consuming, and boring for people to do well. But AI is neither artificial nor is it intelligent. It is just math.

### ***The term “Artificial Intelligence” is misleading***

The term Artificial Intelligence first gained widespread use in the 1960s to describe mathematical algorithms and computer programming techniques designed to model psychological theories of human learning and decision making<sup>1</sup>. The computer science of AI quickly diverged from the psychological science of human intelligence. My father Earl Hunt did [pioneering work in AI](#), and explained that “we discovered pretty quickly that computers aren’t very good at mimicking how the human brain actually works. But they are very good at solving complex problems that the human brain could never solve. And they do it by acting like computers, not by acting like people”. The computer science field of AI has since progressed to create powerful applications that combine complex mathematical methods with increasingly faster iterative computer modeling techniques.

Most of the computer problem solving applications that are associated with AI have relatively little in common with how actual people think or learn. Calling these complex mathematical models “artificial intelligence” is like calling [Starburst](#) candies “artificial fruit”. There may be similarities between the organic version and the artificial version, but treating the two as being remotely the same thing can lead to very bad outcomes. It would be bad for a person to go on a 3-day fruit fast substituting Starburst for actual fruit. Similarly, it is bad to talk as though AI can be used in the same way we apply actual human intelligence. This creates false expectations about when and how AI methods are likely to work.

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<sup>1</sup> AI should be differentiated from “intelligent applications”. AI refers to systems that process data using complex mathematical modeling historically based on non-parametric methods such as neural networks, Bayesian inference engines, and other techniques that I openly admit to not fully understanding. Intelligent applications use contextual data to proactively take action based on assumptions about what end users are likely to want to do. Intelligent applications may use AI techniques, but they can also use simple mathematical models rooted in basic “if-then” logic.

If we want to accurately describe AI methods, then we should avoid words like “intelligence” or “learning” that suggest what they are doing is human in nature. We should just call them what they are: “iterative mathematical modeling techniques”. Or simply “complex mathematical models”. That said, expecting HCM marketing departments to replace terms like “AI driven solutions” with “complex mathematical models” is like expecting beverage companies to replace the term “energy drink” with the more accurate label “caffeinated sugar water”.

***“Artificial Intelligence” complements but does not replace “Human Intelligence”***

Humans are amazingly adaptable problem solvers. We are very good at identifying problems worth solving even if we cannot always solve them. When our current solutions do not effectively solve a problem, we are able to create better solutions. In contrast, AI can only solve problems that it is told to solve by humans. And it is only able to address problems that meet certain specific conditions. The strength of AI does not come from its ability to mimic human thought. It is just the opposite. The advantage of AI is it is good solving the kinds of problems that humans struggle to solve. But it is a lousy substitute for human intelligence.

Unlike AI, humans are adept at developing solutions without fully defining the problem. This makes us amazingly flexible and considerably error prone. AI is just the opposite. The first requirement for AI is to have a precise empirical definition of what you are trying to model, identify or predict. For example, to use AI to identify high performing employees you must define what you mean by “performance” in highly measurable terms. In contrast, humans can identify high performing individuals at an intuitive level with no real definition at all. Granted, they are often misled. But people are far more accurate than an AI model would be if it was forced to use the same limited, non-quantitative definitions used by humans.

Unlike AI, humans are confident making decisions based on very small amounts of data. We find it hard to process large amounts of data. Sometimes our intuitive impressions based on small amounts of data are amazingly accurate, while other times they are totally wrong. In contrast, most AI methods require very large datasets containing matched pairs of “predictor data” and “criteria data”. Very large AI datasets are particularly important if the data lacks accuracy and the relationship between the predictor and criteria data is complicated or relatively small. The predictor data must also show some consistent relationships to the criteria data. AI is very effective at sorting through large dataset to find small bits of meaningful information. But it cannot find meaningful information unless it is reflected in mathematical patterns in the data. Increasing sample size does not make meaningless data more meaningful. The phrase “garbage in-garbage out” applies just as much AI as other modeling methods.

AI is a powerful tool for solving problems where outcomes have precise empirical definitions, there is access to large matched predictor-criteria datasets, and small but meaningful relationships exist between predictor and criteria data. Thanks to the amount of data made available through HCM technology, we are finding more and more situations that meet these conditions. Examples include modeling relationships between applicant characteristics and post-hire retention, job characteristics and employee turnover, and employee work characteristics and absenteeism and healthcare costs. But there are many HCM situations that do not meet and may never meet these conditions. For example, using AI to predict notoriously poorly defined outcomes like performance and potential. Or studying jobs staffed by small numbers of employees where there is not enough data to build AI models.

It is important to know when AI is likely to work and when it will not work. The kinds of problems AI is good at solving are usually the kinds of problems humans find difficult or impossible to solve, and vice-versa. AI should be positioned as a tool to support better decision making, not a replacement for human intelligence

### ***Managing expectations around Artificial Intelligence in HCM***

As companies start exploring AI, it is important that they see a return on their investment. This starts with using language that communicates what AI is, what it can do, and what it cannot do. Otherwise AI may quickly develop a reputation as being idealistic but impractical.

Saying a company is making HCM decisions using AI can also create anxiety for employees and candidates. People do not want computers making decisions that determine what they can do in life. This includes decisions that impact our employment and careers. We might lessen this anxiety if we stopped using words like AI that people associate with science fiction, and instead use terms that are more boring yet more accurate such as “mathematically developed models”. And emphasizing that these mathematic models do not work everywhere, but in the right situations they work extremely well.

AI is a powerful complement to human decision making that should be used more widely. But talking about AI as though it were some magical “black box” of machine learning will not help drive effective use of this tool. What will drive long-term adoption of AI is educating companies on how it works, noting when it does not work, and having meaningful conversations to define and address the kinds of problems that AI is uniquely suited to help us solve.