

The Current and Future State of AI in HR

Prepare for the rising wave of AI applications in talent management

2018/2019 Edition

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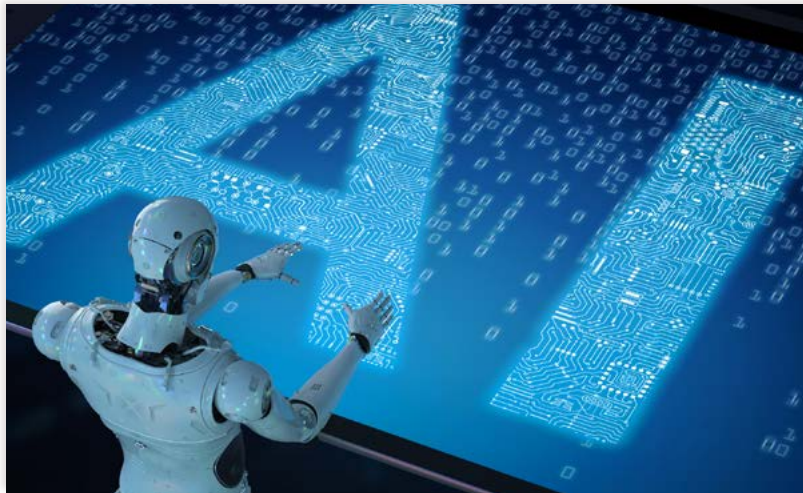
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Executive Summary

Artificial intelligence (AI) will continue to transform Human Resources (HR) technologies for the foreseeable future. In fact, it's happening now as companies begin to adopt technologies with built-in AI. The challenge for HR will be to keep up with the issues, opportunities, and challenges created by the ever-changing landscape of AI.



About this Survey

The State of Artificial Intelligence in HR survey ran in August and September of 2018. It was conducted by HR.com. There were responses from 626 participants with 447 responding to every question.

The participants represent a broad cross-section of employers by the number of employees, ranging from small businesses with under 50 employees to enterprises with 20,000 or more employees. Just under half of the respondents represented organizations with 500 or more employees.

Below is an overview of some of the key findings from the 2018 study:

Major Finding One: The AI IQ of Human Resources professionals is on the rise, and the percentage who plead ignorance about AI are now a minority.

- As a profession, HR is moving up the AI learning curve. Just one year ago, only 36% of respondents strongly or moderately agreed that they were knowledgeable about AI. In 2018, that number has risen to 43%.
- There are still two groups of HR respondents that can be distinguished by their knowledge or ignorance of AI in HR. In 2017, they were equally represented, at around 35% a piece. This year, the proportions are 43% knowledgeable and 29% unknowledgeable.

Major Finding Two: The usage rates for AI in HR are up, expected to rise quickly and are already important in several HR functions.

- Usage rates are on the way up and are expected to explode in coming years. The number of organizations using AI to a high or very high degree is now 10%, up from 7% a year ago. Looking ahead, 46% expect high or very high usage in five years.
- AI has the greatest potential to enhance HR in five functional areas:
 - ▶ analytics and metrics
 - ▶ talent acquisition
 - ▶ training and development
 - ▶ time and attendance
 - ▶ performance management
- AI is already having a sizable impact in these three areas:
 - ▶ Analytics and metrics: Thirty-four percent of respondents reported AI is already important or very important in analytics and metrics in their organization, and a further 30% said it was moderately important.
 - ▶ Learning and development (L&D): Twenty-nine percent of respondents reported AI is important or very important in L&D, and a further 28% said it was moderately important.
 - ▶ Talent acquisition: Twenty-eight percent reported AI is important or very important in recruitment, and a further 22% said it was moderately important.

Major Finding Three: Automation in both HR and management are widely expected.

- Chatbots and virtual assistants are widely expected to become viable for HR. Over three-quarters of respondents believe chatbots and virtual assistants will become an increasingly viable way for employees to get real-time answers to HR questions.
- Your next boss may be an AI. According to 60% of respondents, employees will increasingly take direction from AIs and only 11% said this would not happen.

Major Finding Four: The features that HR professionals want most in AI-powered HR applications are the ability to analyze and predict.

- Seventy-seven percent want such applications to be able to analyze, such as by running an automated analysis of a data set and then spotting patterns.
- Sixty-four percent want such applications to be able to predict, such as predicting which job candidates will result in the highest quality of hire.

Major Finding Five: Respondents still tend to see AI as a stronger force for automation rather than augmentation.

- Today's HR professionals generally believe that AI will be used more for automating various tasks (61% to a high or very high degree) than for augmenting employee capabilities (47%).
- About a quarter of HR pros expect AI to result in net job losses for their organizations, while only 19% expect net gains. However, most (55%) think AI will not lead to either net job losses or gains.



An Introduction to Artificial Intelligence

Artificial intelligence (AI) is increasingly pervasive in our technologies and, therefore, our work and personal lives. But what exactly is it? The English Oxford dictionary defines it as “the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.”

The modern concept of AI dates back at least as far as Alan Turing, the English mathematician who proposed the universal Turing machine in 1937. It became the basis for today’s programmable computer. He also introduced the famous “Turing Test” as a way of gauging intelligent behavior in computers.

It was John McCarthy, however, who coined the term artificial intelligence in 1956. In the 1950s, much progress was made in the field, including the development of a checkers-playing program capable of challenging the world champion. Since then, of course, much more progress has been made in many AI subfields such as machine learning, case-based reasoning, data mining, natural language processing, computer vision, robotics, game playing and more.

In recent years, investors have bet on the idea that AI will play an integral role in a wide range of commercial applications, and it isn’t only the largest tech companies that are making those investments. In 2017, AI attracted over \$5 billion in venture capital (VC) funding. In fact, some countries are betting AI will drive their whole economy. China [envisages](#) a \$1 trillion dollar AI industry by 2030.

These trends are already affecting the field of human resources. HR technology [leaders](#) foresee AI’s growing role in a variety of areas such as aiding recruitment, improving compliance, augmenting training, streamlining onboarding and more.

To gain a more detailed picture of how HR is currently using AI—and will use it in the near future—HR.com conducted the “The 2018 State of Artificial Intelligence in HR” survey in August/September 2018. Following are the primary findings and insights from this large and detailed survey.

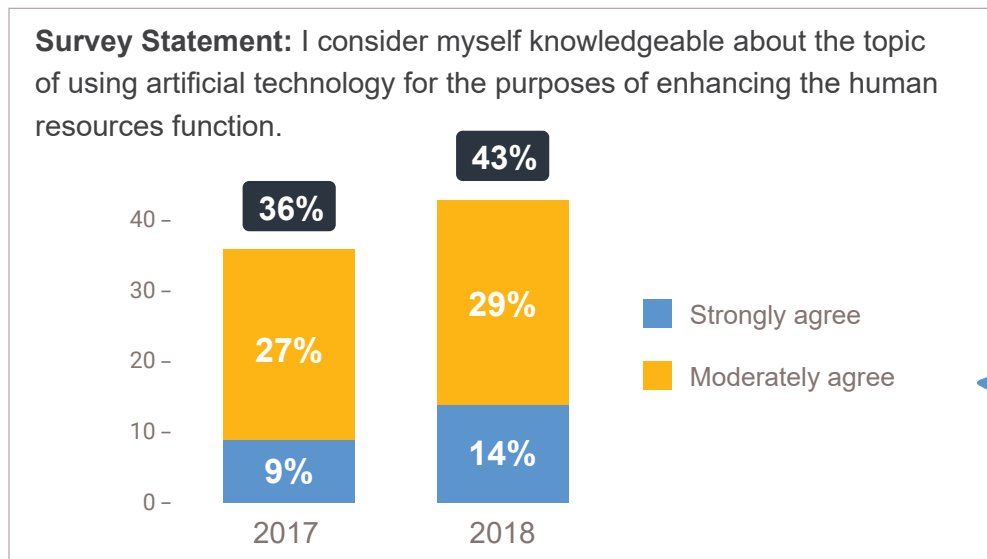


HR's Knowledge and Usage of AI

Finding: HR is steadily moving up the AI learning curve

In 2017, only 36% of respondents moderately agreed or strongly agreed that they were knowledgeable about AI. In 2018, that number rose to 43%. There is still a long way to go before the average HR professional is highly knowledgeable about AI, but this is an encouraging trend. In 2017, only 9% of respondents strongly agreed they were knowledgeable about using AI in HR, a number that rose to 14% in 2018.

Figure One



In 2018, 14% strongly agree they are knowledgeable about using AI in HR

For the purpose of this paper, we will use the data from this section to separate survey participants into two groups:

- **AI-knowledgeable respondents:** The HR professionals who agreed or strongly agreed that they are knowledgeable about the topic of using artificial technology for the purposes of enhancing the human resources function.
- **AI-unknowledgeable respondents:** The HR professionals who disagreed, to any extent, that they are knowledgeable about using AI for HR enhancement.

In some sections of this report, we will illustrate how these two cohorts view AI's future in the HR function in different ways.

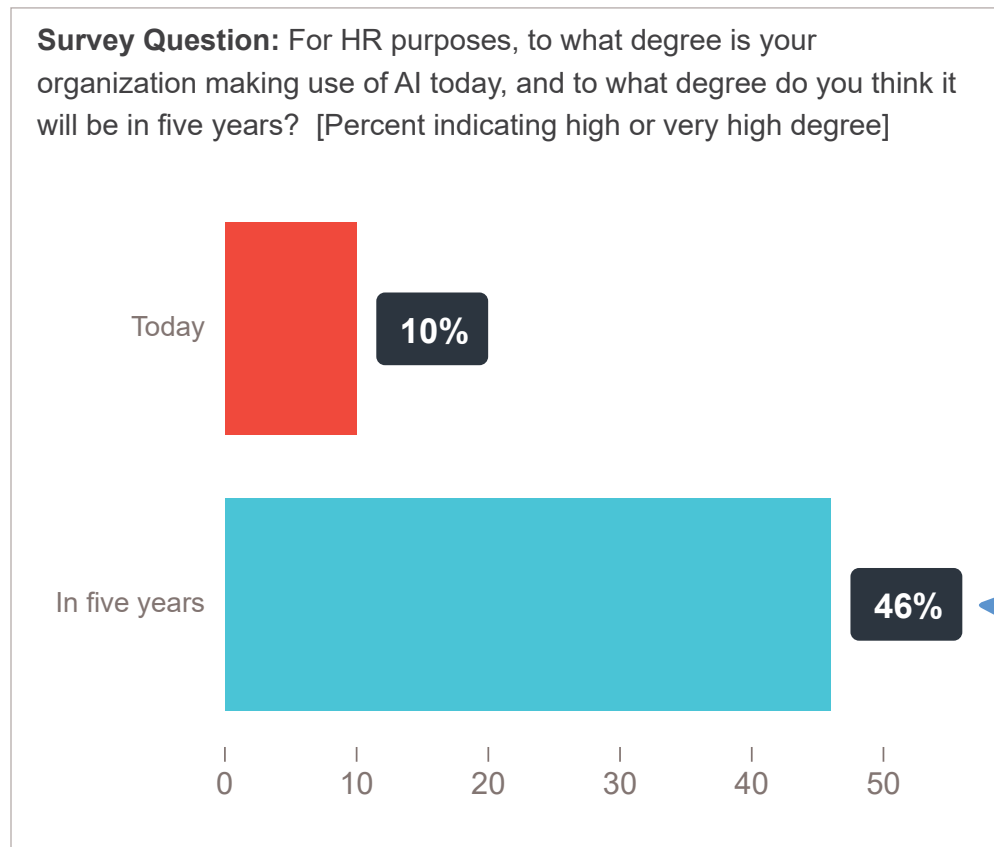
Finding: Usage rates have risen, though usage is not yet mainstream for the HR function as a whole

The proportion of respondent organizations using AI to a high or very high degree for HR purposes is now 10%, up from 7% a year ago. Looking ahead, 46% expect high or very high usage in five years. This data is derived from a question about the HR function in general. When we ask about more specific HR functions, the numbers are often higher, as we will see.

Moreover, respondents may not always be aware of when they're using an AI system. AI is being incorporated into many different types of software, just as many different types of software have built-in reporting tools or the inherent ability to be accessed from a mobile device.



Figure Two



AI usage rates are projected to be almost five times as high by 2023

Finding: AI-knowledgeable HR pros tend to have higher expectations

The AI-knowledgeable respondents have even higher expectations for AI’s future in HR. Close to two-thirds (65%) predict that their organizations will use AI for HR purposes to a high or very high extent in five years. In contrast, relatively few (32%) of the AI-unknowledgeable respondents make the same prediction.

What accounts for that wide divide? Perhaps HR professionals with greater AI knowledge have a more accurate insight into the future of AI in HR. If so, then AI will soon become even more important to HR than the average response would lead us to believe. On the other hand, perhaps the AI-knowledgeable respondents are more passionate about this topic and so overestimate AI’s future influence, even within the context of their own organizations.

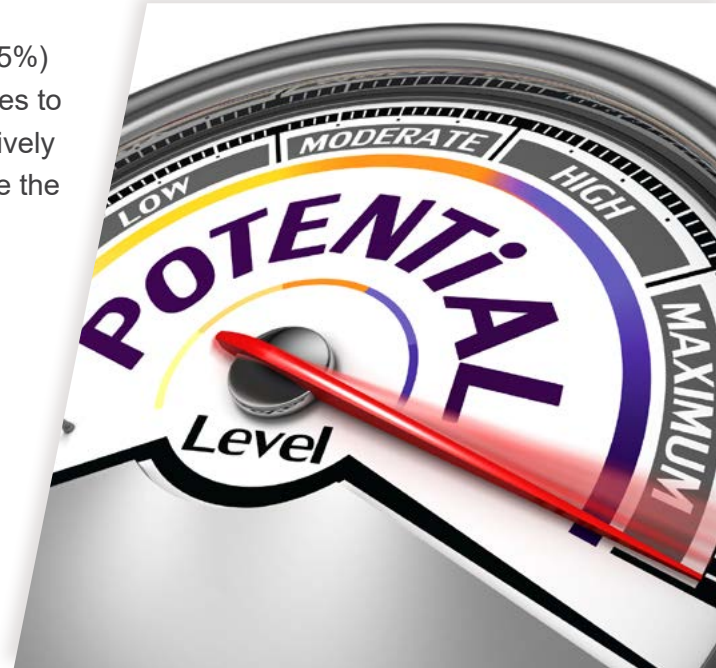
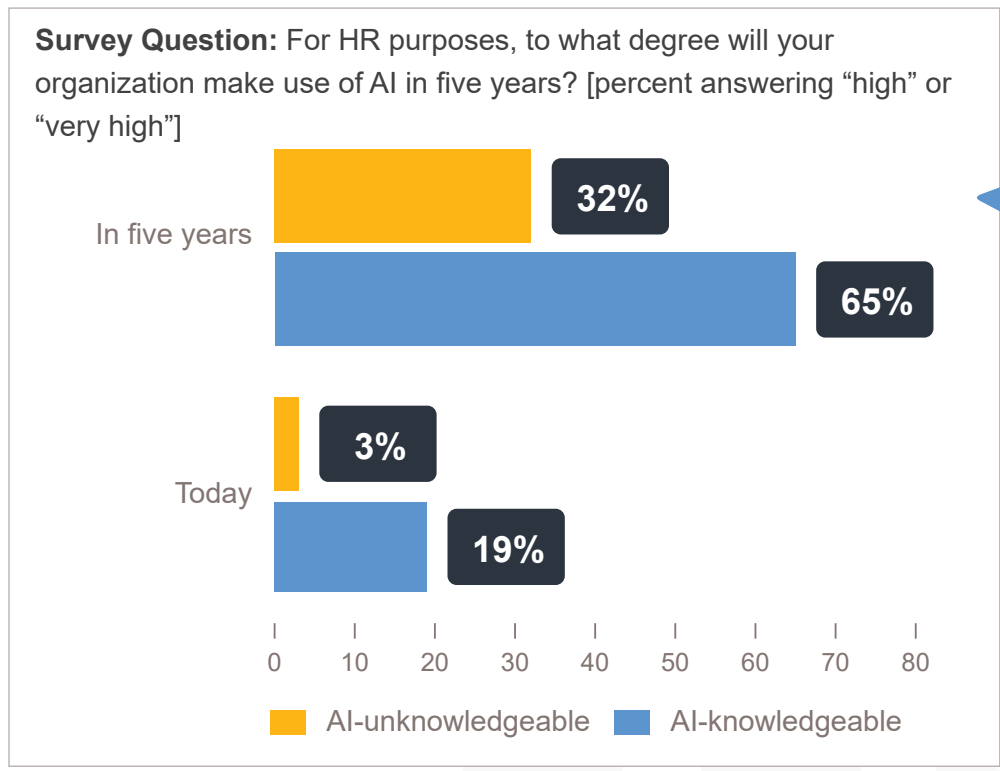


Figure Three



Among AI-unknowledgeable participants, only about a third said their organizations will make use of AI to a high or very high degree in five years

The Features HR Professionals Want Most from AI

Finding: AI has the greatest potential to enhance HR in five functional areas

When we asked respondents about where they thought AI has the greatest potential to improve HR in coming years, the most popular responses—by a wide margin—was analytics and metrics. We believe this is because analytics is a natural AI strength and because it can be applied across many HR functions.

The other top-rated response items are more well-defined by HR function. They include:

- Talent Acquisition
- Training and Development
- Time and Attendance
- Performance Management



Figure Four

Survey Statement: Select the areas where you think AI has the greatest potential to improve the HR function in the next five years. (select all that apply)



AI is viewed as having the highest potential in the HR analytics function



AI in HR Today and Tomorrow

Finding: Nearly a third of respondents say AI is already important to overall HR technologies, and three-quarters say it will be in five years

Although there's a consensus that AI will become more important in the near future, we should not ignore the fact that nearly a third of respondents (30%) said that AI is *already* important or very important to their overall HR technologies today. This finding emphasizes the fact that AI is not just a futuristic HR factor. It's a current factor in many companies.

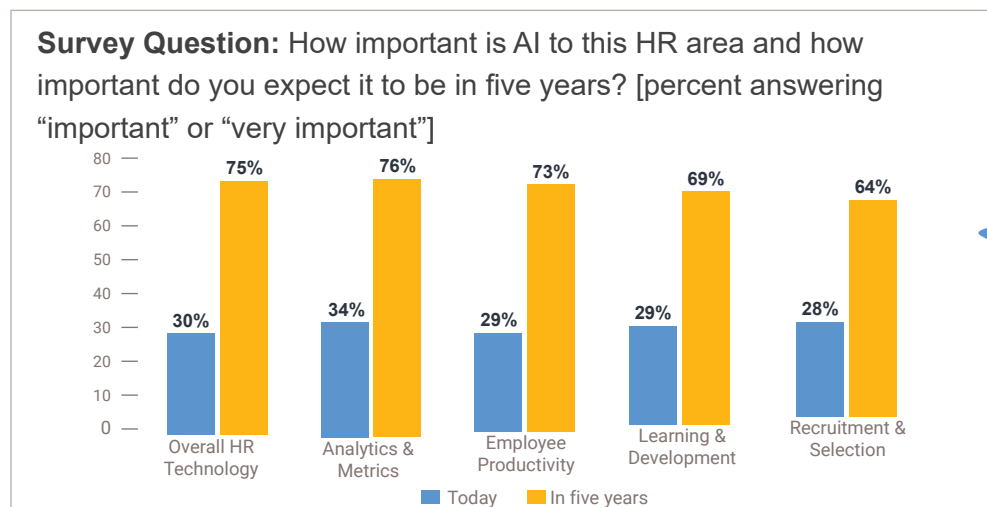


It is true, however, that AI will become even more important. In fact, three-quarters expect AI to be important to overall HR technologies in five years (see *Figure Five*). For the AI-knowledgeable cohort, the number rises to 81%.

Respondents predict huge jumps in importance for other areas as well. One worth mentioning is learning and development. Not only do 69% expect AI to be important to L&D in five years, that number jumps to 77% for the AI-knowledgeable cohort.

At a more general level, AI is expected to have a major impact on overall employee productivity as well as what we could call “cognitive productivity” in form of better decision making and strategic planning.

Figure Five



HR professionals predict dramatic increases in the importance of AI in six areas

Finding: There is a risk of AI hype in the HR function

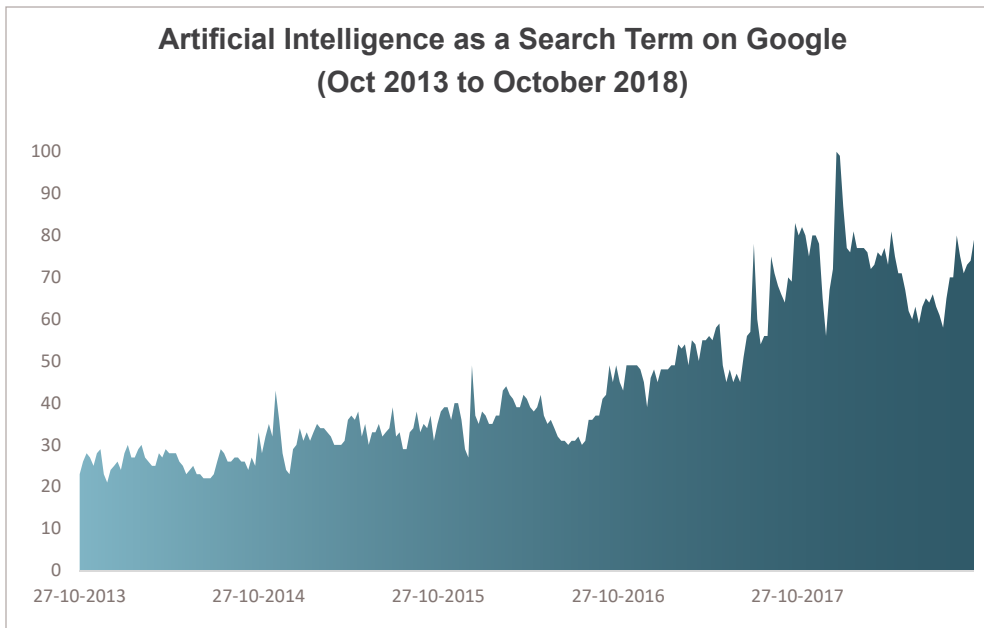
AI is continuing to attract a great deal of interest. Google Trends, which is based on global Google searches, shows searches for the term AI remained high through 2018. As interest in AI rises, the risk of market hype increases as well. In *Forbes* magazine, Roman Stank, the CEO at GoodData, [writes:](#)

While the hype cycle is still reaching its peak, this is a prime time for companies to be making preparations and building a solid data foundation so they can be prepared to implement AI when the time comes. Even though we're still a few years away from the peak, all that AI promises to deliver is surely worth the hype. Its use will span industries and provide companies with a way to make increasing amounts of data work for their benefit, though it remains to be seen how quickly we move from discussion to implementation and how effectively companies prepare themselves for its use.

It's all too easy, of course, for futurists to make enthusiastic predictions about the importance of AI and for vendors to claim they include AI in their products. HR professionals will need to hone their abilities to gauge the quality of those offerings and discern hype from reality.



Figure Six



*Note: Google indexes its data to 100, where 100 is the maximum search interest for the time selected. Other figures are a proportion of that 100 number.

The Role of AI in Automation and Augmentation

Finding: In general, HR professionals expect that AI will be used more for automation than augmentation

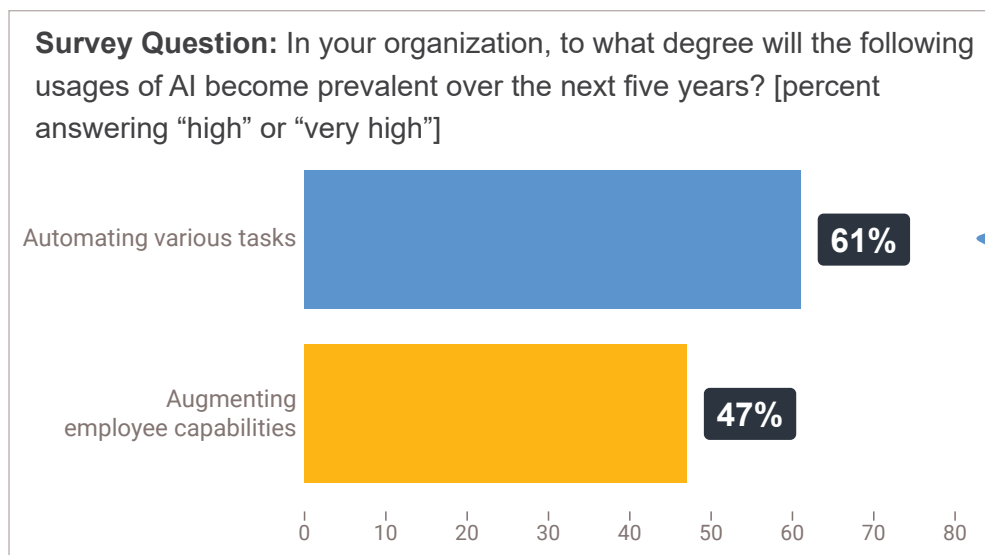
Although HR focuses on human beings, today’s HR professionals generally believe that AI will be used more for automation than augmentation in their organizations. Whether or not this is true, it highlights the mindset that AI-based technologies will tend to take over certain jobs rather than amplify or supplement the skills that human beings bring to their work.

That mindset is understandable in an age when so many manufacturing jobs have already been automated and there are hundreds of articles on how self-driving cars and trucks are going to wipe out millions of transportation jobs.

However, the real issue is whether we are thinking in terms of tasks or jobs. In their recent book *Reinventing Jobs: A 4-Step Approach for Applying Automation to Work*, Ravin Jesuthasan and John Boudreau argue that you cannot understand the impact of automation (including AI) at the job level. Its impact is at the task level. For example, we might see AI handling the *task* of screening resumes without taking over the *job* of the recruiter. Through this lens, we see AI *automating* tasks and *augmenting* jobs.



Figure Seven



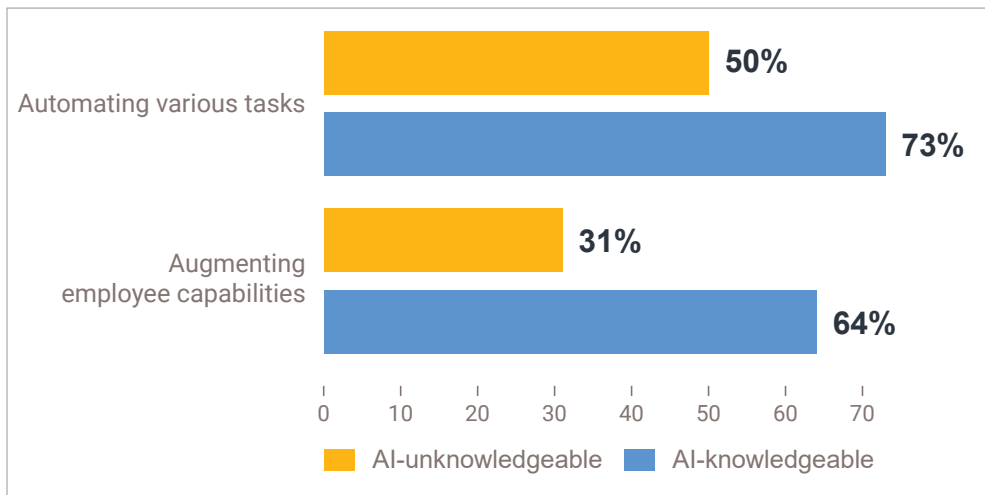
Over 60% said automating tasks will become prevalent to a high degree in their organizations over the next five years

Finding: Highly AI-knowledgeable HR pros are more likely to foresee high usage of AI for employee augmentation

AI-knowledgeable respondents were also more likely to give the nod to automation (73%) over augmentation (64%), but their responses differed in two ways. First, the predicted gap between the two uses of AI was narrower. Second, they were much more likely to believe augmentation would play a major role over the next five years.

Whereas 64% of AI-knowledgeable respondents said that augmentation would play a prevalent role over the next years, the same was true for only 31% of the AI-unknowledgeable cohort.

Figure Eight

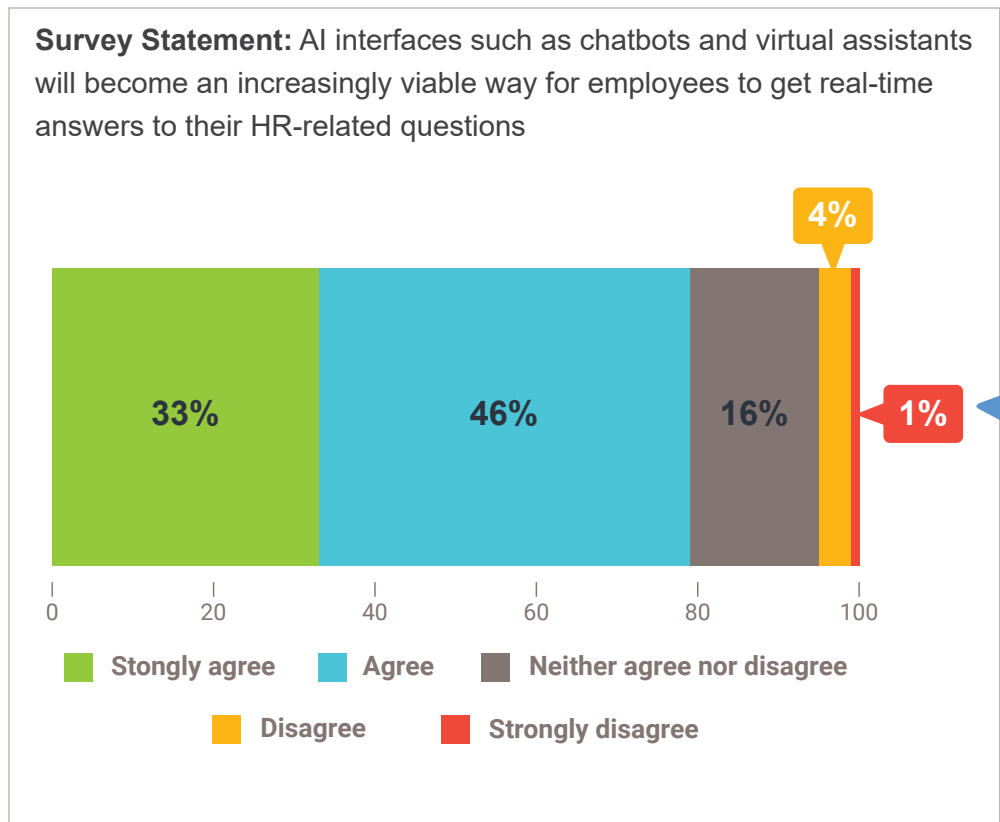


Finding: Over three-quarters of respondents report that chatbots and virtual assistants will become an increasingly viable way for employees to get real-time answers

Most HR professionals (79%) anticipate that chatbots and virtual assistants will become an increasingly viable way for employees to get real-time answers to their HR-related questions. Because such technologies can sometimes lead to high rates of frustration on the part of users, actual adoption rates will largely depend on how quickly these technologies advance. It's likely that success will come from accurately directing more straightforward and fact-based questions to chatbots while quickly routing more ambiguous questions to human operators.



Figure Nine

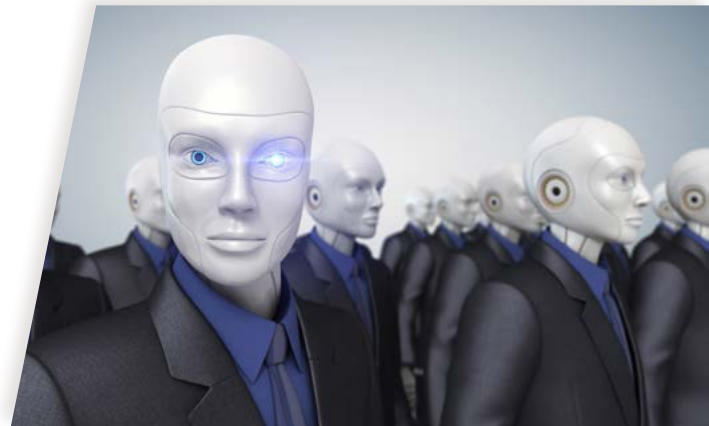


Nearly 80% of respondents agree that chatbots and virtual assistants have a future in the HR function

Finding: Your next boss could be an AI

Employees will increasingly take direction from AIs, according to 60% of respondents, whereas only 12% said this would not happen. Over two-thirds (69%) of AI-knowledgeable respondents agreed or strongly agreed with this assertion.

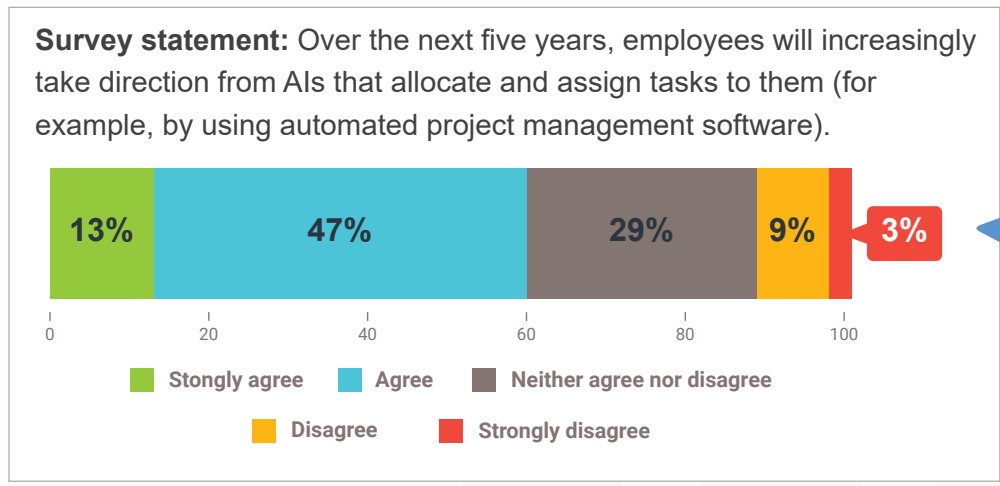
Will AIs actually manage human beings? That depends on our definition of “manage.” In a *Harvard Business Review* article titled “How Artificial Intelligence Will Redefine Management,” the authors [write](#):



“[M]anagers across all levels spend more than half of their time on administrative coordination and control tasks. (For instance, a typical store manager or a lead nurse at a nursing home must constantly juggle shift schedules because of staff members’ illnesses, vacations, or sudden departures.) These are the very responsibilities that the same managers expect to see AI affecting the most. And they are correct: AI will automate many of these tasks.”

AIs will not, however, soon be able to listen to employee concerns, make judgments, facilitate teams, address personality conflicts and the like. For this, human managers and leaders will be needed. Managers will likely view AI software as a powerful management tool and perhaps even a kind of colleague.

Figure Ten



Three-fifths of respondents say employees will increasingly take direction from AIs

Finding: More HR professionals expect job losses than job gains from increased usage of AI

A majority of respondents do not think AI-related technologies will bring about a significant gain or loss of jobs in their organizations, but more say there will be a net loss of jobs than say there will be a net gain (26% and 19%, respectively). The implication is that, while AI may not be the massive job killer some experts predict, it is expected to lead to fewer jobs overall in existing organizations.

Although AI-knowledgeable HR professionals are more likely than average to foresee job gains as a result AI usage, they are still more likely to predict losses of jobs (29%) rather than net gains (23%).

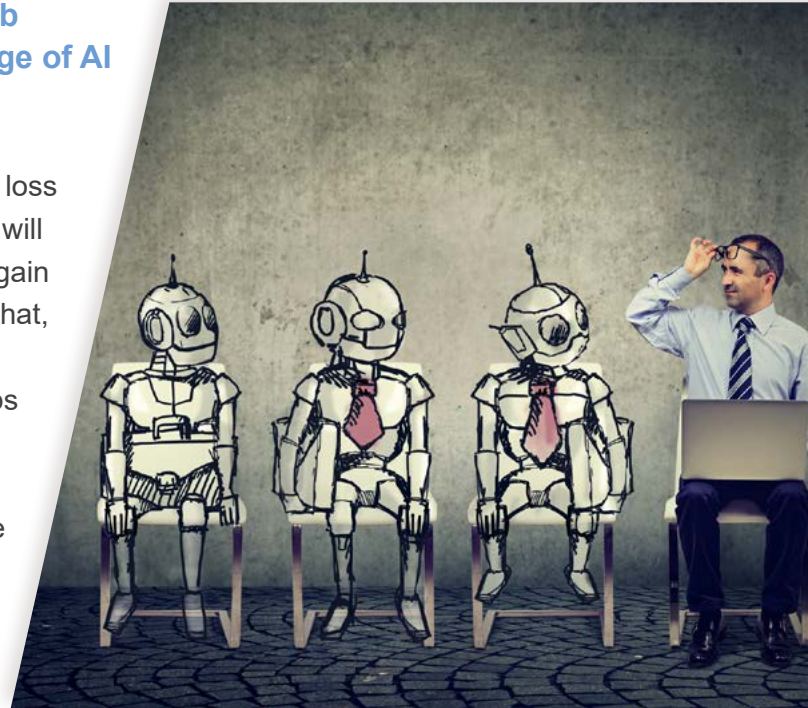
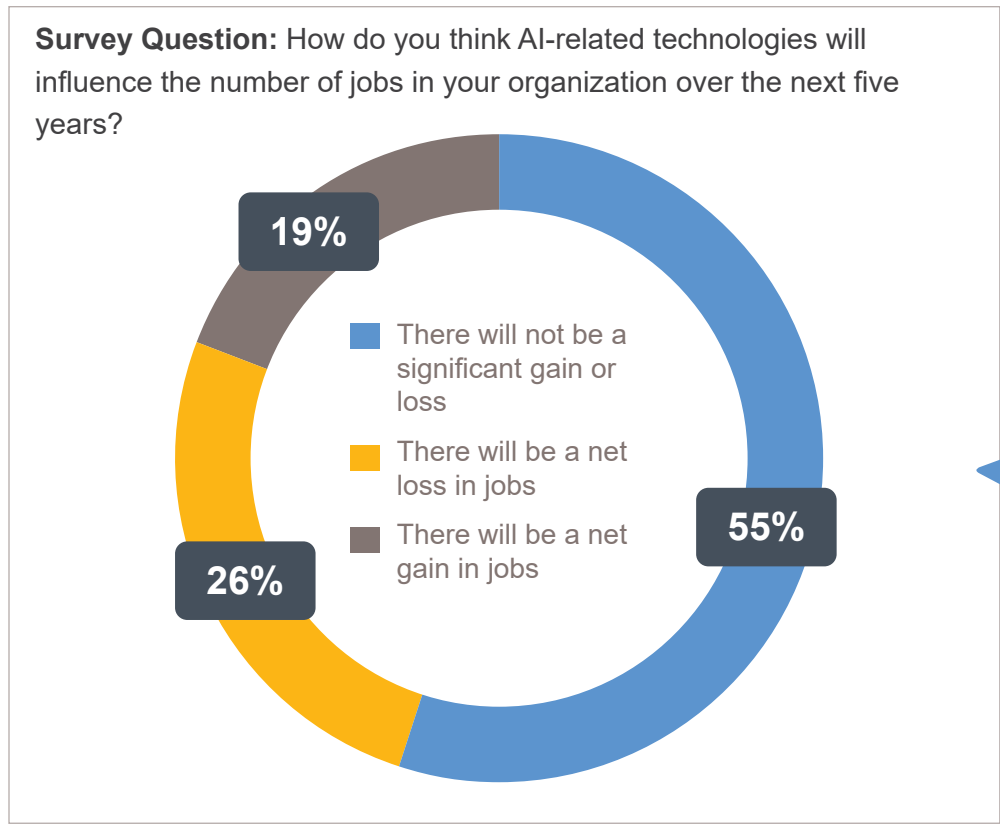


Figure Eleven



A majority (55%) do not expect significant job gains or losses from AI

Drilling Down into Learning and Development

As we noted previously (see *Figure Five*), most respondents (69%) agreed that AI will be important or very important to learning and development in five years. The following four findings look deeper into AI's impact on this topic.

Finding: Most HR pros expect the combination of AI and augmented reality to improve on-the-job training

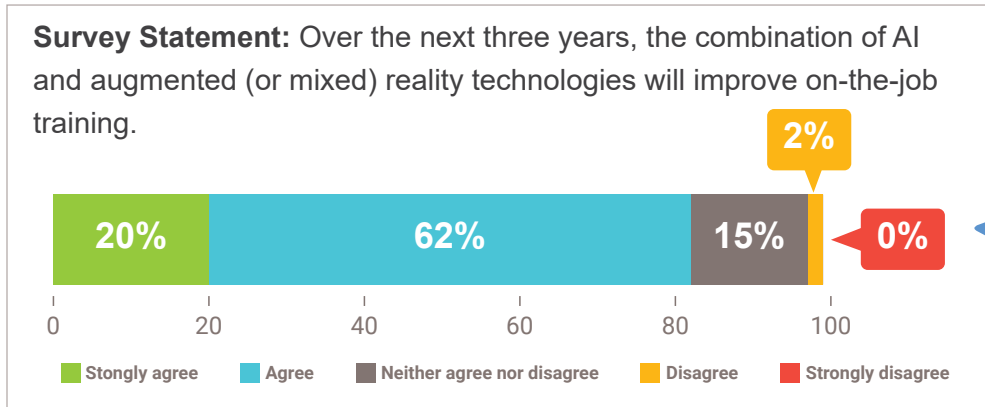
There is nearly a consensus (82%) that the combination of AI and augmented reality will improve on-the-job training. How this will play out depends on the job.

Augmented reality is most likely to be useful for jobs involving physical objects. For example, computerized/augmented reality glasses could allow an employee to look at a machine and see instructions on how to adjust the settings to get a certain result. In this case, the distance between learning and doing is very small. An AI-enhanced augmented reality device may point to which switch to turn just at the moment the employee needs it, just as a GPS tells you when to turn left. Augmented reality glasses could also help point out the safety procedures with a given machine or a part of the warehouse and show what to do to be safe, and what could happen if you don't follow the procedure.

The combination of AI and augmented reality could also be used in training for highly skilled jobs such as radiologist. Indeed, some research shows that virtual simulation can be an effective means of learning to diagnose and address certain conditions.



Figure Twelve



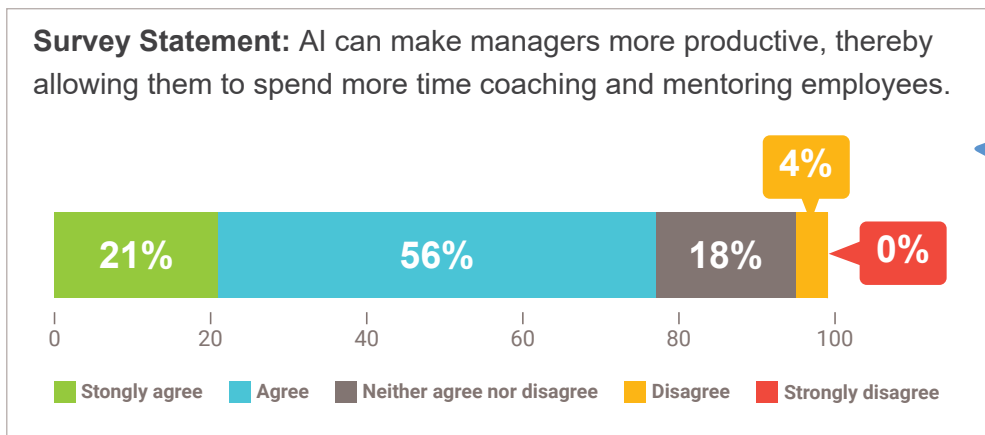
Only 2% of HR pros feel that AI and augmented reality will not improve on the job training

Finding: Over three-quarters of respondents believe AI can make managers more productive

We normally think about ways AI may directly help employees learn, but an indirect impact may be equally important. Most respondents (77%) feel AI will free up time managers often spend on administrative dues, thereby allowing them to spend more of their workday coaching and mentoring employees.

This would be a welcome change. Another recent report from HR.com, [Revamping Leadership Development](#) found that a lack of time is the mostly commonly cited barrier to effective leadership development. It also found most leaders are not very effective at coaching, so if AI can free up management time, some of that time should be directed at becoming better coaches and leaders.

Figure Thirteen



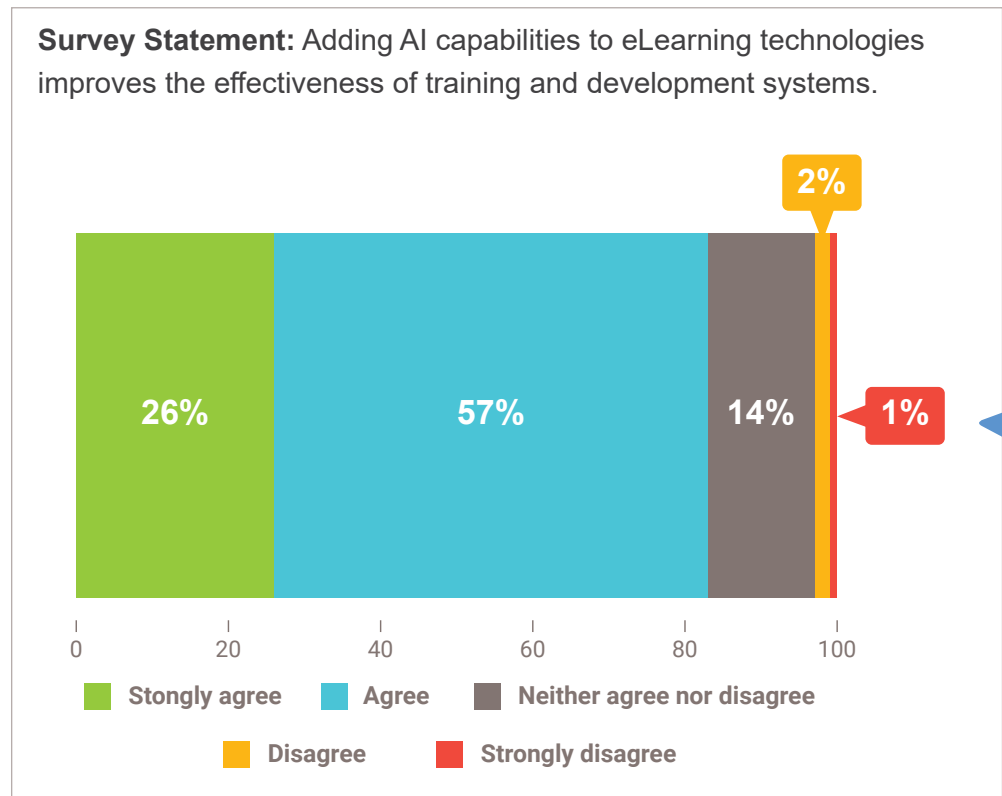
Only 4% of HR pros feel that AI will not enable managers to spend more time coaching and mentoring

Finding: Over 80% of respondents believe AI will improve the effectiveness of learning systems

An obvious application of AI is eLearning. An AI can be the foundation for eLearning-based recommendation engines or can tailor an individual eLearning program for an individual (e.g. a foreign language training program that notices strengths and weaknesses and adjusts the lesson to that). HR professionals clearly see the potential here, with 26% strongly agreeing and another 57% agreeing that AI will improve the effectiveness of training and development (T&D) systems.



Figure Fourteen



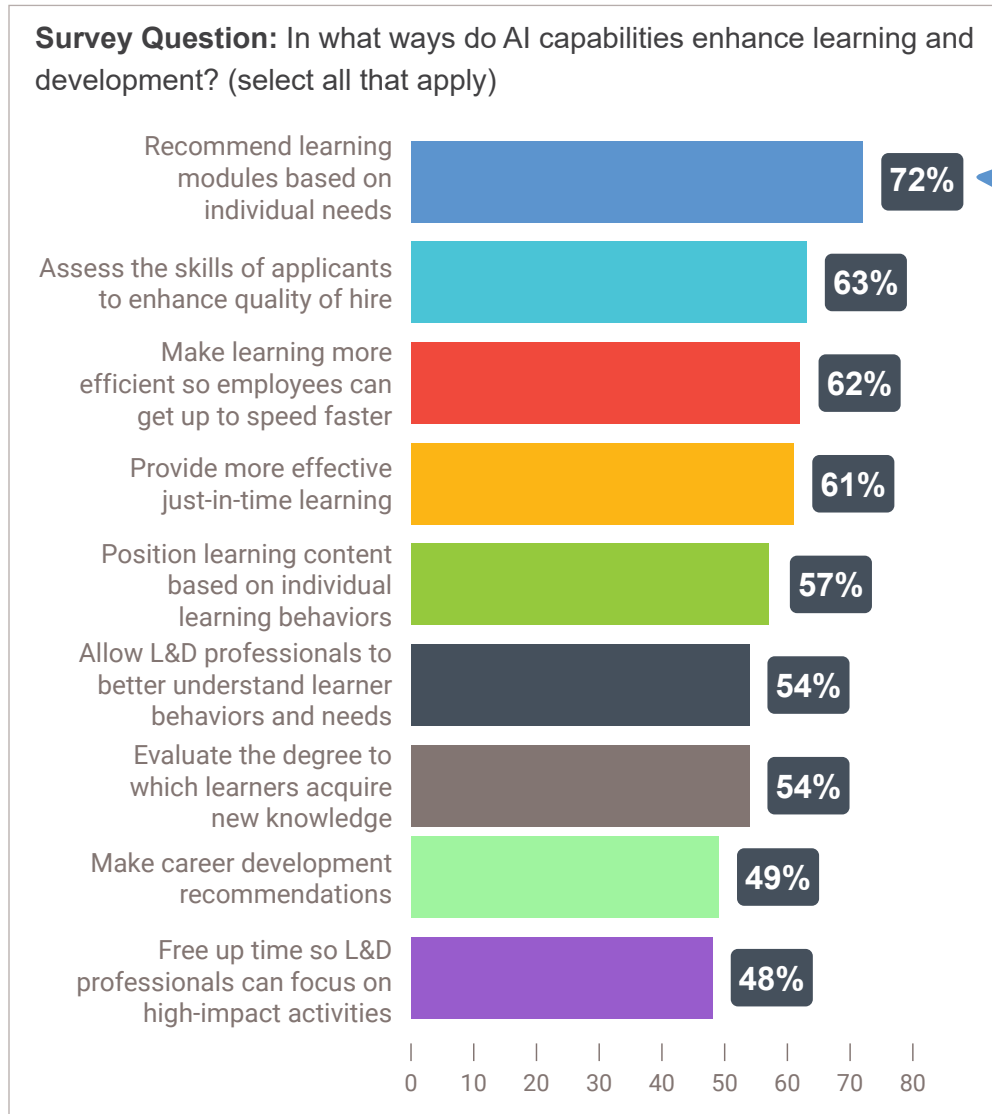
Only 3% of HR pros disagree with the statement that AI will improve the effectiveness T&D systems

Finding: AI is widely expected to enhance many different aspects of L&D

Figure Fifteen lists nine different ways in which AI could potentially enhance L&D. All of these L&D applications were chosen by at least 48% of respondents. The most positive response was in “recommending learning modules based on individual needs” (72%). Therefore, it’s clear that L&D will be enhanced and disrupted in multiple ways in the near future as AI finds a role in many of the function’s activities.



Figure Fifteen



Almost three-quarters of HR pros believe AI will enhance learning by recommending modules based on individual needs

The Conflicted HR Professional

Finding: Most HR professionals have mixed feelings about the potential power of AI to monitor and report back on employees

The application of AI to personnel and management issues is likely to trigger future quandaries for HR professionals. To further investigate this, we asked a controversial question: “How would you feel about AI software that tracks everything your employees do on their digital devices, analyzes those activities, and then regularly reports back to their supervisors with a summary and recommendations?”

The results to the question highlight the fact that HR professionals, taken as a whole, have mixed or even conflicted feelings about applying powerful AI to people management. Few respondents said they either love or detest the idea. Most said they either “like the idea but have some reservations” (46%) or “dislike the idea but it has some merits” (26%). Almost no one answered, “I don’t care one way or the other”.

In 2017, there was a slight edge in the direction of dislike/detest. It’s interesting to see how much that has shifted with a clear leaning towards the direction of love/like. It appears HR professionals are rapidly becoming more comfortable with AI’s interaction with (or some might say “intrusion into”) our lives. Aspects of our personal lives are already monitored by certain corporations that track our usage of search engines, social media and cell phones. Perhaps this has just become “normal” for many people.

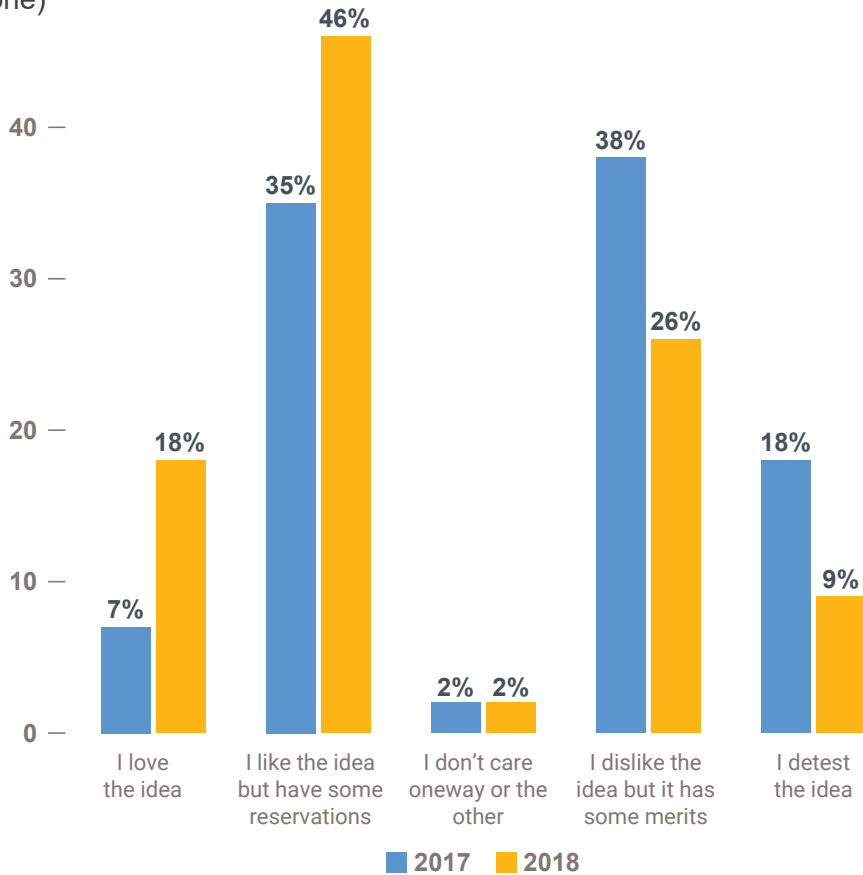
That said, the responses show that HR professionals are still of two minds on this issue. The bottom line is that as AI becomes more capable and powerful, HR professionals as well as other organizational leaders will not only need to determine what they *can* do with AI technology, but what they *should* do with it. Therefore, HR professionals should familiarize themselves with the nuances of AI-based technologies and clearly envision how these technologies can and should be used.

Perhaps the pragmatic conclusion is that AI undoubtedly will be used to monitor employees for certain situations where it will benefit everyone, whereas in other situations the drawbacks will outweigh the benefits. HR needs to consider the issue, case by case, to learn where to draw the line, and how to maximize the benefit of monitoring while minimizing any harmful effects.



Figure Sixteen

Survey Question: How would you feel about AI software that tracks everything your employees do on their digital devices (desktop, laptop, smartphone, etc.), analyzes those activities, and then regularly reports back to their supervisors with a summary and recommendations? (check one)



HR professionals are of two minds about using AI to monitor employees





Key Takeaways

In light of these research findings, what steps should organizations take? Below are eight key takeaways that may help.

1

Boost HR's AI IQ. AI has already become important to HR and will only become more important in the years ahead. On top of that, AI is constantly evolving and developing new capabilities. For the foreseeable future, HR professionals will need to invest in expanding their understanding of AI and keeping that understanding up-to-date.

2

Balance healthy skepticism and healthy optimism. Some vendors will inevitably make inflated claims for AI, and HR needs to be skeptical of those claims. At the same time, AI is already able to do things that were impossible just a few years ago (e.g. beat a champion Go player). So, HR needs to embrace a healthy optimism about AI capabilities. The most practical approach is to pilot technologies to see what they can do for you right now, and be prepared to re-look at technologies that didn't work a couple of years ago but may work brilliantly now.

3

Get all areas of HR involved with AI. AI is likely to have an impact on all areas of HR from analytics to compensation to training. Every part of HR should have people with a decent AI IQ and the requisite balance of healthy skepticism and healthy optimism.

4

Build good relationships with good vendors. Even HR pros with high AI IQs will rely heavily on technology vendors to guide them on how to succeed with AI applications. One must recognize that the vendors will be learning as they go too, so it's important to have a strong collaborative and honest relationship so that the vendor and HR work effectively together.

5

Consider how AI effects the workforce beyond HR processes. HR professionals will be most aware of how AI embedded in an HR process affects employees. However, the bigger impact on employees is likely to come from other AI systems that affect their work. HR should consider its role in helping employees manage the changes that flow from any AI systems adopted by the company.

6

Think in terms of augmenting employees by automating tasks. Organizations will get the most effective adoption of AI tools if employees see it as helping them do their work faster and better, rather than taking their work away. Most employees will be happy to see some of their tasks automated, freeing them to learn new skills and take on new types of work.

7

Investigate how the “AI bosses” will influence employees. As more projects and workflows are “managed” by AIs, employees will be affected in multiple ways, from the establishment of new work processes to the development of new work attitudes. How will this change the need for human contact? Does it increase or diminish social skills and emotional intelligence? Are some types of employees more suited for AI-management than others? HR professionals will need to track these issues and help human managers cope with challenges as they arise.

8

Ponder the hard ethical and legal questions in advance. As AI-applications evolve, they will become increasingly powerful. HR and other leaders will need to distinguish between what’s possible and what’s desirable. If, for example, AI *could* be used to monitor employees more closely than ever before, *should* it be used for that? How will that impact corporate culture, employee retention and other issues? How can HR weigh the costs against the benefits? HR and corporate leaders have had to deal with similar issues before, such as drug testing or email privacy. AI will raise more of such issues, and HR must be prepared to address them.



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