Artificial Intelligence: Competitor or Partner?

How the AI revolution will transform executive talent recruitment.

Introduction

Once the province of science fiction, artificial intelligence (AI) is fast becoming a reality. Companies are turning to AI technologies for a multitude of functions, from adaptable smartphone assistants to self-parking automobiles to life-saving medical equipment.

As is true of most technological advances, AI's business appeal boils down to three major goals: streamlining operations, improving productivity, and enhancing the bottom line. But applying AI to these goals in any substantive way is easier said than done, because organizational talent capable of leverage AI technologies lags behind the technologies themselves.

Complicating matters is AI's perceived threat to the employment of knowledgeable workers. It's true that some people fear AI for its potential to eradicate jobs— and perhaps entire industries. However, it's clear that the technology cannot achieve its full potential without experts and leaders who have the skills to develop, refine, and train AI systems. In short, AI needs humans, and those humans need AI-appropriate skills.

In addition, AI's potential to eliminate jobs is easy to overstate. Byron Reese, the CEO of GigaOm and an author of books about the future of technology, points out that previous generations of technology have prompted fears of mass unemployment, but that the unemployment rate has stayed between 5 and 9 percent (with the exception of the Great Depression, which was caused by economic factors, not technology).

"As profound as AI is, its primary effect is increased human productivity. I don't think it is as disruptive from a job standpoint as it is painted to be," Reese says.

This situation is similar to what we've seen with other technologies, such as data analytics and business-process automation, but to an extreme degree. Organizations must figure out how to close the talent gap, lest they fall behind competitors who are already using AI to improve operations, customer experience, revenue, and more. But once they do close that gap, they stand to gain in productivity—and in better employment.

In the near term, that means shoring up the data analytics and machine-learning capabilities of IT teams. In the near and long term, senior IT leadership as well as the entire C-suite need to get ahead of the changes AI will certainly bring about, and start planning for a more strategic use of AI—not to replace knowledge workers, but to give their companies lasting strategic advantages.

The revolutionary convergence of big data and machine learning.

In a November 2015 report, McKinsey estimated that 45 percent of work activities may become automated, including 20 percent of a typical CEO's workday (Chui, Manyika, & Miremadi, 2015). But that will take some time.

AI isn't exactly a new concept. In fact, in some respects it dates back to the invention of the first digital computers in the 1940s. That's when the idea emerged for machines to mimic human brain functions such as reasoning, inferring, problem-solving, and learning.

Often used interchangeably with AI is "machine learning," a subset of artificial intelligence that employs sophisticated, self-modifying algorithms to crunch massive amounts of data to detect patterns, trends, and anomalies for the purpose of making decisions and predictions. Machine-learning models require massive volumes of data to produce meaningful results. The more data fed into the models, the more refined the results.

Much of the recent advances in AI is thanks to "big data," another term that is easy to confuse with AI and machine learning. Big data refers to structured and unstructured data flows in and out of networks. When fed into analytics, AI, and machine-learning systems, this data can produce insights that inform smart business decisions.

AI, machine learning, and big data get a lot of press because they're at the center of technology innovations such as autonomous cars, financial trading, data-driven medical diagnoses, digital mapping, and employee recruitment—developments intended to enhance the overall human experience.

AI Applications

While the average consumer's familiarity with AI may be limited to digital personal assistants like Siri and intelligent car routing in Google Maps or Uber, the technology has virtually infinite applications.

Retailers use AI and machine learning to better model shopper behavior, enabling them to target promotions according to individual tastes. Carmakers and Silicon Valley innovators are racing to build connected vehicles that drive themselves and tell each other about road and traffic conditions. Medical-device makers are using AI to refine diagnoses; cybersecurity vendors to predict the next malware attack; intelligence agencies to fight terrorism—and the list goes on.

AI—and machine learning—can perform certain tasks faster and more accurately than humans, thanks to its ability to crunch mind-boggling data volumes. With the amount of data in the world doubling every couple of years, humans simply cannot keep up without help from this kind of technology (EMC, 2011).

Immediate impact: filling gaps.

The big data and business analytics market is on track to reach $203 billion in 2020, up from $130 billion in 2016, according to IDC (Forrest, 2016). More and more of that data will be fed into AI and machine-learning systems.

There are challenges. First, companies have to figure out just how to leverage AI technology. It's one thing to have a vision, but quite another to develop the strategic capability and organization agility needed to execute it.

Second, companies need the right talent to execute AI projects. Senior corporate leadership needs to understand the promises and pitfalls of AI at a high level. They also need to hire or train teams to handle the new technologies. Technologists and developers with experience in, say, Enterprise resource planning (ERP), Customer relationship management (CRM), or mobility can't just pivot to AI and machine learning overnight. There is a learning curve, and in most cases companies have to augment existing talent to meet the demands of the new technologies.

Talent Scarcity

Tasks associated with data analytics, machine learning, and AI were traditionally the purview of data scientists. But experienced, skilled data scientists are expensive and hard to come by. Hiring data scientists to automate back-room functions, invoicing, or new-hire recruiting would be prohibitive for most organizations, so CIOs must find other solutions to fill the AI talent gap.

Providing senior IT leaders with opportunities to learn new skills is an essential component. Chris Bedi, CIO at cloud-computing technology provider ServiceNow, has combined hiring with retraining to good effect. He has found the right balance with "a healthy mix of recent grads

and people who have been in the industry for a while." Bedi tells his staff that every project should have a machine-learning component: "It shouldn't be this thing that we do off in the corner. But most of the workforce today couldn't recognize the right use case if their life depended on it." So he's training his senior IT leaders to recognize when machine learning makes sense— anything that involves ratings, rankings, and forecasts, for instance. In time, he expects this will become second nature for all business analysts, developers, and software engineers.

Learning the Skills

Barry Libenson, CIO at global credit information company Experian, looks for people with specific experience in machine learning who can serve as mentors. But getting mentees up to speed takes time and effort. "It's not something where you're generally going to pick up a book and say, 'OK, I'm all of a sudden an expert on machine learning, or 'I'm going to start writing a bunch of algorithms or heuristics to solve a problem.' It's something that requires some studying and some expertise," Libenson says.

So investing time is a given. And in time, the technology will attract more and more talent. "I'm sure there's a whole ton of people that find the idea of self-driving cars to be absolutely fascinating," Libenson says. "They'll gravitate towards this because they want to work on self-driving cars. Then you're going to have other people who are just simply interested in the discipline of machine learning and its application in a number of different areas."

Renting the Technology

Besides recruiting new leaders and retraining existing staff, there's another path to AI and machine learning. Ralph Loura, CTO at skincare product maker Rodan + Fields, calls it "renting the technology." Rather than making large staffing investments, he's implementing software-as-a-service (SaaS) platforms that deliver the functionality he needs.

The platforms, he says, serve as a kind of teacher. "A year from now, I will no longer need the platform because I've essentially extracted all the information I need. I've learned on someone else's platform that I rented, and now I can go build that capability in-house where it's differentiating for me," he says. "Most of us don't have the appetite or budget or patience to go build our own. We're not Facebook. We're not Apple. We're not Google. What we are going to do is wherever possible leverage those platforms that others have built."

As such, rather than having to hire Ph.D.s in AI from MIT or Berkeley, the goal is to get Loura's IT leaders and staff to "ask the right questions, engage the technology in the right way, and drive outcomes from that."

Mapping business needs to transformative skills.

Whatever a company's approach to AI, it's a safe guess the required skills eventually will become standard. "Almost everybody who comes out of school with a computer science degree from a decent school is probably going to have to have taken some machine-learning course," says Libenson. That's certainly true for IT leaders and aspiring IT leaders, but a good understanding of AI will become critical for CEOs and the rest of the C-suite as well.

Just as more and more executives today have an understanding of big data and familiarity with technologies like software library Hadoop, the same will be true with the new AI technologies. And rather than focusing on new software-development talent, CIOs will seek technologists who can train machine-learning models and map use cases to business outcomes.

GigaOm's Reese suggests looking to the history of AI for ideas on where to apply it: Some of the biggest breakthroughs have had to do with AI's ability to defeat humans in games, such as chess (IBM Deep Blue versus Garry Kasparov in 1997), Jeopardy! (IBM Watson versus Ken Jennings and Brad Rutter in 2011), and Go (Google AlphaGo versus Lee Se-dol in 2016). That's because, Reese notes, games have easily defined rules and outcomes. So, he suggests that CEOs look for activities within their organizations that can be characterized as games—activities with clear rules and measurable outcomes—because those are the areas they should apply AI to. "Anything that can be made into a game is a good candidate for using AI," Reese says.

Tom Peck, CIO at AECOM, a multinational engineering and construction firm, envisions an environment in which a combination of a new generation of talent that understands robotics and complicated machine-learning algorithms will work alongside data scientists and business intelligence (BI) professionals. AI and machine learning, he notes, are a natural progression from previous technologies.

"We've been talking for years about predictive analytics. Well, guess what? From predictive analytics, the next step is machine learning. It is artificial intelligence. So, if we have progressive employees who can adapt and are agile in their thinking and their learning, it's very easy to make that step from traditional BI into machine learning and AI," he says.

Looking forward: replacing jobs?

Replacing human tasks with smart machines has its appeal, but what happens to the people who perform those jobs? This is the dreaded question. Technology can—and has—eliminated jobs: Automated cranes replaced longshoremen. Robotics commandeered assembly lines. The Internet killed travel agencies. Digital media shut down movie-rental and music stores.

Now solar and wind are replacing coal, taxi drivers are losing ground to Uber and Lyft, and hotels are competing with Airbnb. AI and machine learning will bring further disruption. Industries such as transportation, manufacturing, finance, and retail—to name a few—are among those with the most to lose. "We estimate that about half of all the activities people are paid to do in the world's workforce could potentially be automated by adapting currently demonstrated technologies. That amounts to almost $15 trillion in wages," states McKinsey (Manyika, 2017).

AI, however, cannot replace workers entirely. IT departments, for instance, will still need application developers, software engineers, and data-center managers. AI professionals will work with them to create and train the AI systems. More broadly, organizations will still depend on human interaction and human leadership. Creativity, empathy, compassion, and strategic vision are capabilities that AI algorithms will never be able to provide, yet they will remain vital to the long-term survival of organizations.

"There's a lot of fear wrapped up in all this discussion of AI and jobs that I think is deliberately sensationalistic," says Reese. For instance, he says, it's true that truck drivers who are replaced by autonomous vehicles

won't necessarily become roboticists. Instead the roboticist job is filled by a college professor, whose job is in turn filled by a high school teacher whose job is then filled by a substitute teacher, and then the truck driver may opt for the substitute teacher job. In other words, new technologies lead to a cascade effect, opening opportunities for everyone, even if the upward path isn't immediately evident. This, Reese argues, is the story of the last 250 years.

In the long run, humans will increasingly be working alongside machines in a collaborative setting, from the C-suite on down. Machines, Loura says, will "help make average workers exceptional." While jobs inevitably will be lost in some areas, whole new categories of work will emerge.

"We are not trying to displace employees," says Peck. "What we are trying to do is drive efficiencies so that people can focus on the client, so that they can focus more on the creativity of how they deliver, so that they can focus more on a crisp execution of a project, and possibly redeploy many employees into other new areas where we think there's growth opportunity, such as intelligent-transportation systems."

Recommendations

In setting an AI strategy, organizations must keep an eye on the future. Whatever steps they take now to fill talent gaps should be done with future needs in mind. Here are five recommendations for AI strategies:

- AI won't replace the workforce—or even the existing systems. It is a complementary technology that enhances processes and improves business outcomes. Companies should approach it from this perspective in order to set realistic expectations. Korn Ferry's Strategic Alignment solution can help them adapt to rapidly changing business conditions, such as those brought about by AI.

- Companies should evaluate existing talent to determine where there's potential for successful retraining. Remember, existing employees have institutional knowledge that any new talent acquired will lack. It's critical for companies to assess their existing talent in order to identify future leaders who will be able to make the jump to a new generation of AI-centric technologies as a means to impact business performance.

- It's important to be realistic about hiring. No recent grad—or even a more seasoned data scientist—will have the precise set of skills for the AI plans. The key is to attract the right balance of talent and to support the new recruits to facilitate a rapid time to contribute meaningfully after they are hired. Korn Ferry's employer branding and onboarding solutions can help here.

- Leveraging cloud-based and SaaS platforms give staff hands-on experience in AI and machine-learning systems. Eventually, employees can apply what they learn to projects that set the company apart from competitors.

- Developing a culture of humans working alongside machines, with one helping the other to meet organization goals, can allay fears of machines displacing workers. Korn Ferry's Culture Transformation solution can facilitate companies' efforts to forge an effective shared mission, vision, values, and goals.

Conclusion

Artificial intelligence has the potential to deeply transform how businesses operate and what customer experiences they create. Most organizations are not yet prepared for the long-term impacts of AI, as reflected in the comments of the IT leaders we interviewed. Most are focused on immediate impacts and have not yet embraced a long-term vision of AI's impact and strategic value.

The risk is that companies taking a short-term view of AI will find themselves unprepared for the depth and breadth of the technological transformation it is bringing about. As with previous technological shifts, such as the move to cloud-based architectures or to mobile platforms, many companies focused only on immediate opportunities without laying the groundwork for a strategic plan.

For the short term, organizations have to find and cultivate the talent they need to address immediate shifts in technology toward more AI-centric solutions. Longer term, serious engagement and strategic planning is needed, starting at the uppermost executive levels, in order to prepare companies to benefit from the long-term impacts of AI instead of being blindsided by them.

References

Chui, M., Manyika, J., & Miremadi, M. (2015, November). Four Fundamentals of Workplace Automation. *McKinsey Quarterly*. Retrieved from: http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/four-fundamentals-of-workplace-automation

EMC Corporation. (2011, June 28). World's Data More Than Doubling Every Two Years. *EMC press release*. Retrieved from: https://www.emc.com/about/news/press/2011/20110628-01.htm

Forrest, C. (2016, October 3). Big data, business analytics to hit $203 billion by 2020, says IDC report. *TechRepublic*. Retrieved from: http://www.techrepublic.com/article/big-data-business-analytics-to-hit-203-billion-by-2020-says-idc-report/

Manyika, J., et al. (2017, January). Harnessing automation for a future that works. *McKinsey Quarterly.* Retrieved from: http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works

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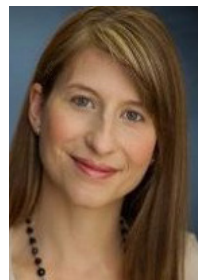
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