

## **Is a “Smart Machine” The New Human Capital?**

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### **As Algorithms and robots get smarter, workforce planning systems need to incorporate the optimum balance between people and machines**

[Steven Hawking and colleagues warn](#) that “success in creating artificial intelligence (AI) would be the biggest event in human history ... Unfortunately it might also be the last.” From self-driving cars, to intelligent assistants on smart phones, to IBM’s Watson beating humans at the game Jeopardy, to potentially autonomous military weapons, the effects of increasingly sophisticated automation are undeniable. With leading companies like Google spending millions to acquire AI and robotics startups, financial markets are also betting that AI will become a bigger part of our lives and society.

When it comes to your strategy for people and human capital, the age of the smart machine is often framed in traditional terms of job losses and gains. [Oxford researchers predict](#) that 45 percent of American occupations will be automated within the next 20 years. The first stage will be using computational power to replace jobs that rely on such things as pattern recognition, data gathering and distillation and computational algorithms. Jobs like transportation/logistics, production labor and administrative support will go first. However, if you think your job is safe, they also predict that artificial intelligence will eventually put jobs in management, science, engineering and the arts at risk.

Can sophisticated jobs in finance and investing be automated? Consider computer traders, once epitomized by hundreds of humans shouting on a trading floor. An Economist article titled [“Dutch Fleet”](#) notes that the advent of trading algorithms in ultra-fast computer systems means that Amsterdam firm that formerly relied on traders and saw large bid-ask spreads now occupies a “high-volume, low-margin industry in which market-makers take a sliver of revenue from lots of transactions.” One firm saw a peak of 3,000 trades in 60 seconds. Trading is now the province of algorithms, software and millisecond decisions made by automated systems. In the arts,

The [analogy between commodities trading and human capital recruiting](#) is obvious. It seems likely that planning and managing your people will increasingly be done by algorithms, not humans. Algorithms can increasingly predict things like [employee turnover](#) and future job performance better than typical supervisors or hiring managers. [An equation outperformed](#)

[human applicant selection decisions by 25 percent](#). The recent HR technology conference provided stunning examples of the power of automation to improve and replace human processes in managing people, and admonished HR and organization leaders to prepare for a future driven by predictive analytics.

For CFOs and CHROs it is tempting to focus on the job displacement and economic cost savings that future technology will produce. Yes, it will mean massive shifts in the balance between the humans and machines doing the work, with the resulting impact on productivity and costs.

Yet, beneath the surface of this issue is something more nuanced. Your concept of work and human capital may need to change, not simply to think about machines versus humans, but a more nuanced future as humans and machines collaborate. For example, [algorithms can digest thousands of scientific articles](#) much more efficiently than biochemists, producing promising hypotheses for the scientists to study. [The U.S. Sloan-Kettering Cancer Center estimates](#) that only 20 percent of the knowledge that human doctors use to diagnose patients is based on published scientific evidence, because it would take at least 160 hours of reading a week just to keep up with the new publications. IBM's Watson computer has been trained to read the medical literature on certain cancer, as well as search up to 1.5 million patient records. IBM experts are already experimenting with putting Watson at the table with doctors, interacting through natural language, [presenting arguments about the best treatment](#).

I have written that [“deconstructing” work](#) will revolutionize talent management by revealing new opportunities to get work done, that today are obscured by typical job descriptions or organization charts. The job of “software engineer” includes software coding, project management and team leadership. Rather than hire software engineers to complete a computer coding job, why not deconstruct the job, take out the coding, and employ [TopCoder](#) or other talent platforms to post your coding tasks to thousands of freelance coders worldwide? Rather than maintain your own R&D function internally, why not form an alliance with other firms to pool your R&D, as [Eli Lilly and Immonocore did](#)?

Scientists working side-by-side with conversational algorithms show the power of combining the idea of deconstructing work with the idea of the smart machine. The trick, of course is to get the balance right. Today's human capital planning systems are still largely built on a platform of job descriptions and organization charts, that can lead to a traditional mindset of deciding whether to replace humans with machines. Learning to creatively deconstruct the work and your organization chart can reveal ways to optimize your talent and your work that strike a more creative balance of humans with machines. Essentially, an alliance with the machines.

The authors of *The Second Machine Age*, Erik Brynjolfsson and Andrew McAfee, are quick to point out [that machines are unlikely to take over all jobs](#), “I don’t think this means that everything those leaders do right now becomes irrelevant. I’ve still never seen a piece of technology that could negotiate effectively or motivate and lead a team.” They suggest that an increasingly important skill for senior managers will be to figure out “Where do I actually add value and where should I get out of the way and go where the data take me?”

Leaders should ask that question not only about their own jobs, but should partner with their HR leaders to answer that question about the full spectrum of current and future work. Deconstruct, automate and reconstruct.

Perhaps the future will see a conversational computer with a seat at the strategic workforce planning table? Let’s just not name it after Toby on the television show *The Office*.

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