



ARTIFICIAL INTELLIGENCE AND THE FUTURE OF WORK

Redefining how people will work with technology



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✈ Artificial Intelligence—or AI—involves the engineering and programming of computers to perform tasks that would normally require human intelligence. While AI applications vary in sophistication and impact, machines have surpassed automation to actually learn from examples without being explicitly programmed for their intended output.

Speculations about the impact of AI on life as we know it, run the gamut from utopian dreams to dystopian nightmares. Singularity theory subscribers expect that through machine learning, AI will surpass human cognitive intelligence, thus creating a superintelligence resulting in immeasurable changes for humanity. Though many see this as desirable, distinguished scientist Stephen Hawking warns that such advancements will allow computers to develop autonomous intelligence and overtake humans, posing a threat to our very existence.¹

While to date, major AI advancements have been made in terms of perception and cognition, it is only the tip of the digital transformation iceberg. As with many megatrends, the future is mostly uncertain, so it is crucial to formulate the right questions. In the overlapping fields of talent management and talent development, the top of mind question is to what degree machines will replace humans in the workforce, and as a consequence, how will that impact future employment needs?

THE FIRST WAVE OF ASSISTED INTELLIGENCE

Machines have already replaced many jobs that were once performed by humans. Menial and repetitive work that requires little-to-no analytical thinking skills, was the first to be phased out. The now-ubiquitous automatic teller machine began replacing

bank tellers in the late 1980s. While there was much uncertainty with regards to job security, in many cases employees stayed on board and were given the opportunity to develop other skills sets, which brought more value to the banks. The aviation industry has also benefited from automation, with the rise of self-service systems for passenger check-in, bag drop off, and border control, eliminating the need for many frontline airline, airport, and customs employees.

The technological advancements that make it possible to swap out machines for humans in the examples above fall on the narrow side of the AI spectrum, which means that the machines operate within a limited pre-defined coded and predictable range. It is easily foreseeable that similar jobs will be increasingly replaced by machines. While there was much uncertainty during the early days of automation, decades of these transformations have demonstrated that increasing talent development has, in many cases, allowed for workers to enhance their skillset and perform more valuable jobs. Nevertheless, in some industries, millions of workers have been left behind.

According to the National Centre for Education Statistics, enrollment in degree-granting postsecondary institutions increased by 21 percent between 1994 and 2004, and increased another 17 percent between 2004 and 2014.² All the while, the United States (US) population growth rate has been slowly declining. While it might not be the only factor for the increasing demand of a more competitive skillset, the near vacuum of positions for unskilled workers has surely created an incentive.

Though these figures are based on US statistics, trends are being observed globally – but not always with a positive outlook. The Massachusetts Institute of Technology (MIT) Technology Review conducted a survey with human resources executives in Asia, which indicated 70 percent of respondents were under the assumption that significant job losses were imminent in Asia in the face of advancing AI. They attributed this to the fact that a high percentage of the work force were occupying low-skilled jobs in comparison to more developed economies.³

THE SOPHISTICATION OF AI TOWARDS AUGMENTED INTELLIGENCE

In what some are hailing as the second machine age, AI capabilities are being pushed through supervised learning systems, which allow for a machine to receive large data set examples of what the correct answer might look like for a particular problem.⁴ The deep learning algorithms employed through such initiatives are generating predictions and recommendations that are yielding important advancements in several industries such as finance, security, and medicine. Such decision making scenarios are currently being tested in the aviation field, with Boeing projecting testing pilotless aircrafts by 2018.⁵

This stellar advancement opens up a plethora of questions from ethics to liability. In our field of talent management and development, concerns are growing as well. However, AI may also potentially solve a problem. The ICAO Next Generation Aviation Professional initiative put forward some startling statistics: airlines will need to add 25,000 new aircraft over the next twenty years to meet growing traffic demands, which will more than double the current worldwide fleet. This means that in less than a decade, there will be a need for 480,000 new technicians to maintain these aircraft and over 350,000 pilots to fly them.⁶ The rapid development of AI capabilities—along with the requisite policy and regulation—could provide an important piece of the solution to the predicted talent shortage. However, it is not the case in all areas of aviation. The question of whether or not there will be enough jobs to gainfully employ everyone, is front of mind for many organizations in many industries.

EMBRACING AI DISRUPTION

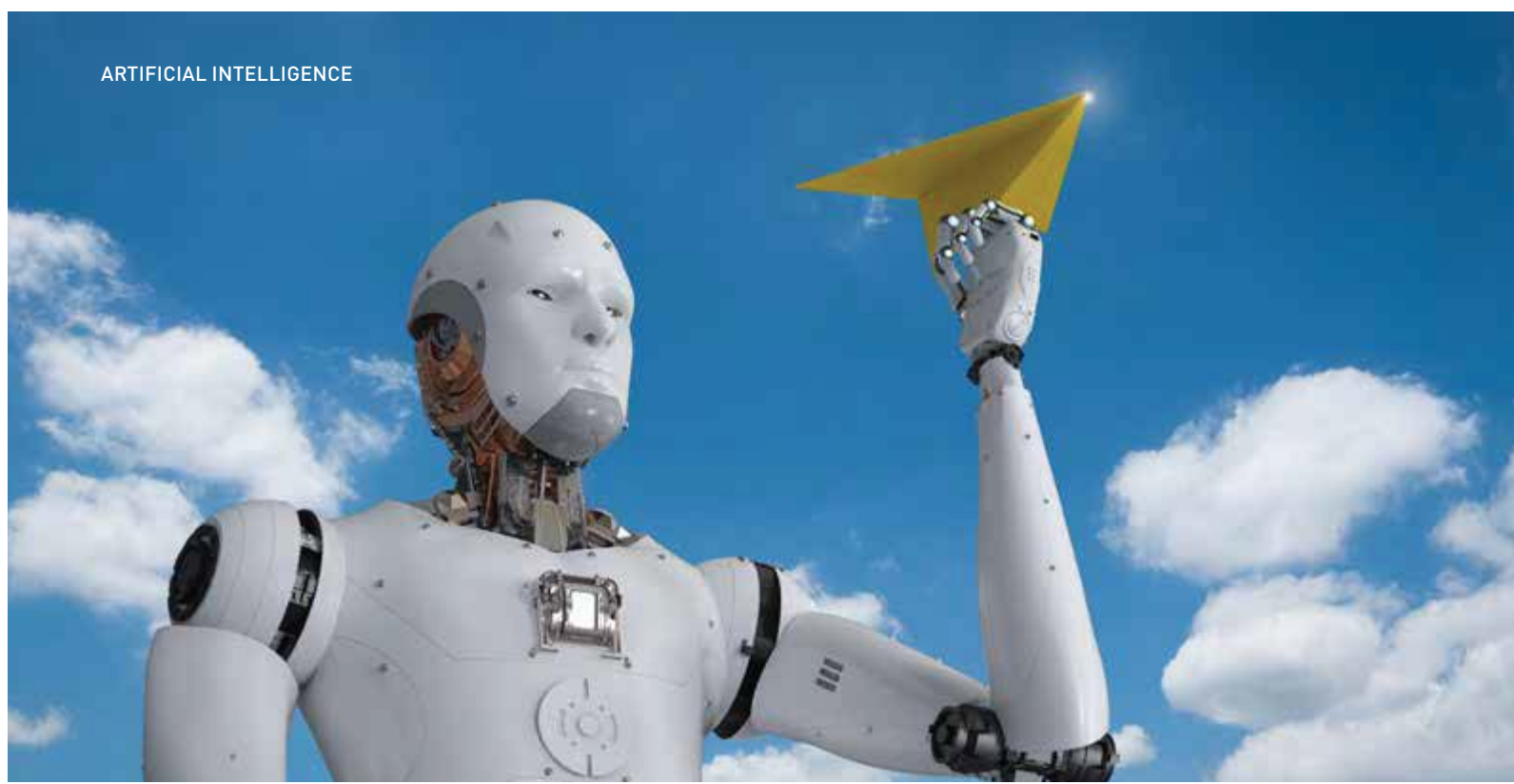
Advancements in AI will create disruption at many levels, and more specifically, will impact how humans interact with machines. Accenture, an international business consultancy, has leveraged automation to increase employee capacity, allowing them to focus on higher level and higher touch advisory services. Accenture reports that as a result, both revenue and business service offerings have increased.⁷

As a recent report produced jointly by the Human Resources Professionals Association and Deloitte Canada suggests, “human capability is wide and shallow. We can do a great many tasks, but none perfectly. AI, on the other hand, is narrow and deep: great at specific tasks, but within a limited range.”⁸ The report suggests that such contrasting core differences could yield remarkable synergies, enabling human-machine collaboration, and increasing overall productivity.

AI DRIVEN TALENT MANAGEMENT AND DEVELOPMENT

Within the practices of talent management, AI is enhancing the candidate selection process. While efficiencies are immediately evident with regard to processing large sets of data to predict optimal candidates, there is also the potential for reducing the bias in the hiring and promoting processes, so long as machines are taught to do so.

In the field of talent development, computer-assisted learning is not a new phenomenon, AI will provide a wider range of possibilities in this practice. The critical and time consuming needs assessment phase has both the potential of being faster and more accurate through the analysis of not only an organization’s data – website, plans, reports – but also market place and industry data. Another big data puzzle is the measurement of learning and development impact: with so many variables affecting performance, one of



the greatest challenges is being able to draw a direct correlation between a development activity and performance improvement. AI allows for the rapid analysis and cross-referencing of an unlimited amount of information, translated into quantitative reports.

At the individual level, AI can enhance learner engagement and personalize the delivery of knowledge by gaining an understanding of what motivates them, and adapting both the content and the delivery. In addition, smart interfaces are providing real-time contextual performance support to enhance service-level quality and efficiency, as well as provide on-the-job training.

Despite this, adding AI to the mix can create some unprecedented problems. One of the emerging concerns is around the “interpretability” of a machine’s decision, since humans struggle to understand how a system has reached its decision.⁹ As examples, the over-reliance or misunderstanding of autopilot maneuvers, and the degradation of manual flight skills has complicated the matter in the case of some recent emergency situations.¹⁰ Many more similar cases are to be expected as humans and machines collaborate to accomplish tasks.

ADAPTABILITY IS THE KEY

AI is not only replacing humans in certain jobs, but it is actually changing the nature of work. From a larger perspective, the field of education requires re-examination and re-engineering as the skillsets required going forward are very different than the ones for which we are currently preparing people.¹¹

Adaptability at the individual, organizational, and societal level are essential for navigating the rapidly evolving technological landscape. While there is value in embracing AI rather than fearing it, foresight and governance, along with a good dose of skepticism, will serve us well. ■

¹ Cellan-Jones, Rory. “Stephen Hawking warns artificial intelligence could end mankind.” December 02, 2014. <http://www.bbc.com/news/technology-30290540>.

² “The NCES Fast Facts Tool provides quick answers to many education questions (National Center for Education Statistics).” <https://nces.ed.gov/fastfacts/display.asp?id=98>.

³ “Asia’s AI Agenda: Human Capital and AI.” MIT Technology Review. December 02, 2016. <https://www.technologyreview.com/s/602998/asias-ai-agenda-human-capital-and-ai/>.

⁴ “The Business of Artificial Intelligence.” Harvard Business Review. August 07, 2017. <https://hbr.org/cover-story/2017/07/the-business-of-artificial-intelligence>.

⁵ Ahluwalia, Ravneet. “Pilotless planes could be possible by 2025.” The Independent. August 10, 2017. <http://www.independent.co.uk/travel/news-and-advice/pilotless-plane-remote-controlled-flight-drone-aircraft-2025-aviation-technology-a7884911.html>.

⁶ “About NGAP.” ICAO. <https://www.icao.int/safety/ngap/Pages/NGAPInitiatives2.aspx>.

⁷ Zhou, Adelyn. “Accenture Augments Human Capital with Artificial Intelligence to Stay Competitive.” Forbes. October 05, 2017. <https://www.forbes.com/sites/adelynzhou/2017/10/04/accenture-augments-human-capital-with-artificial-intelligence-to-stay-competitive/>.

⁸ “The Intelligence Revolution: Future Proofing Canada’s Workforce.” Human Resources Professionals Association and Deloitte Canada. October 18, 2017. <http://www.intelligencerevolution.com/>.

⁹ Harvard Business Review. op. cit.

¹⁰ Kessler, Sarah. “Technology is setting us up for a training crisis.” Quartz. July 17, 2017. <https://qz.com/1028532/technology-is-setting-us-up-for-a-training-crisis/>

¹¹ “What does the second machine age mean for our jobs?” World Economic Forum. <https://www.weforum.org/agenda/2014/09/video-second-machine-age-mean-jobs/>.