HOW AI COULD HELP—OR HINDER— GENDER DIVERSITY

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THERE'S LITTLE DOUBT THAT artificial intelligence (AI)—the ability of computers and other machines to work intelligently without human intervention—will transform the world in profound ways. When and where its impact will be felt the most are hard to predict. One thing is certain: AI will thoroughly disrupt employment patterns. Over the coming decades, tens of millions of jobs will be eliminated—and created. And AI will touch all of us in myriad ways as it pervades decision making and other workplace processes.

How will AI impact women and their jobs? How will it affect the number of women in the workforce? And how might it exacerbate—or mitigate—the current gender gap in the corporate-leadership pipeline?

The initial signs present cause for worry. The International Monetary Fund (IMF) projects that 11% of jobs currently held by women (a higher percentage than those currently held by men) are at risk of elimination as a result of AI and other digital technologies. And there have been reports of AI algorithms in talent management software generating results slanted against women because of a cumulative bias baked into the data on which the algorithms are trained.

In this article, we look at the potential gender-related impact of AI. The picture, although troubling, is not categorically negative. The challenge ahead is to ensure that, in the rush of change, AI does not cast women aside. In fact, we are confident that with prompt and proactive efforts, companies and leaders can make AI a net benefit to women.

Reskilling Will Be Crucial in Preventing Job Loss

Jobs that are stereotypically considered men's jobs, such as truck driving or working on factory assembly lines, are what might first come to mind when one considers AI's potential job-killing effects. Yet, according to the IMF, women are more vulnerable to job loss from automation and AI

than are men. A look at industry examples shows why.

Consider financial services. Women represent almost 50% of that industry's total workforce, but they hold only 25% of senior-management positions, many of which are insulated from the shocks of automation. Instead, women predominate in the routinized clerical and administrative jobs that are at high risk of elimination. In the US, for example, 85% of bank tellers are female. This pattern holds true across even female-dominated industries such as health care and education, which are less threatened by automation.

In the near to intermediate term, it's not so much that jobs will be eliminated as that tasks will be automated. Yet here, too, women may miss out on the upside of the AI and digital revolution because they are underrepresented in jobs that require science, technology, engineering, and math training—including jobs in AI itself. Women hold 56% of university degrees overall but just 36% of STEM degrees and make up only 25% of the STEM workforce. Only 22% of AI professionals are women, according to a study on gender gaps conducted by the World Economic Forum in collaboration with LinkedIn. And in machine learning, a branch of AI, women represent just 12% of leading researchers.

Government, companies, and women as individuals can take steps to reverse these trends. Much of the additional job growth will come in areas that require human-technology collaboration, such as managing data, working effectively with tech tools and applications, and identifying efficiency improvements. Many women are already adept in these areas. Reskilling and upskilling, then, can flip the odds and offer significant opportunities for women.

Research conducted by BCG and the World Economic Forum found that 95% of at-risk US workers could be successfully retrained for jobs that pay the same as or more than their current positions and offer better growth prospects. Reskilling would require a significant investment, but companies could profitably reskill 25% of their workers, and 77% of workers could be retrained through government programs or subsidies with a net cost benefit.

Neither individual businesses nor the economy as a whole can afford the costs of a widening gender gap in the workforce. As part of managing their workforce needs and to prepare for AI and other job-disrupting technologies, companies should assess the gender composition of their workforce across job descriptions. They need to be cognizant of the gender-related effects of job elimination, particularly in situations that indicate a strong business case for reskilling. Governments, too, need to invest in training for women. And women as individuals need to take advantage of opportunities to develop the skills needed for the jobs and career paths of the future.

Closing the Gender Gap in the Leadership Pipeline

Countless studies have shown not only that gender bias is real but also that it has significant repercussions. The pattern of diminishing representation on the higher rungs of the career ladder in STEM fields also holds true broadly in the corporate world: 56% of university graduates are women, yet women represent only 38% of the total workforce, 26% of the managerial ranks, 15% of executive-level positions, and 5% of the CEO ranks. How, then, will AI affect gender diversity in the leadership pipeline?

AI has the potential to mitigate the corporate gender and leadership gaps by removing bias in recruiting, evaluation, and promotion decisions; by helping improve retention of women employees; and, potentially, by intervening in the everyday interactions that affect employees' sense of inclusion.

Biased data is a source of risk. Of course, if not carefully designed, AI applications can perpetuate and exacerbate gender bias, further widening the gap in the leadership pipeline. If an AI application is trained on data that is biased, the algorithms it devel-

ops will likely be biased, too. And there are detrimental effects when such applications are used in human resources and personnel management processes, such as hiring or evaluating performance. Amazon found that an algorithm it had developed as a hiring tool was penalizing women: the data on which it was based had been culled from ten years of résumés—mostly men's. This, of course, is another reason why it is so important to increase the proportion of women in AI development.

Fortunately, governments are becoming more aware of the dangers that AI can pose to diversity. In April, the US Congress introduced legislation that, among other things, would require companies to audit their machine-learning systems for bias and discrimination and correct them. Other nations, including the UK, France, and Australia, are either drafting or have passed legislation to make tech companies accountable for their algorithms.

AI holds promise for recruiting and hiring.
Acquiring the best talent at every level of the organization is critical for any company. Unfortunately, unconscious bias can undermine this goal, despite good intentions and even well-designed hiring programs. Rather than allow emotions and connections to influence hiring decisions, companies can use AI to focus on pinpointing the skills needed for certain jobs and to match appropriately skilled candidates with job openings.

Intelligent text-editing software is already helping companies review job descriptions and identify biased language that could discourage qualified women and diverse individuals from applying for positions. Other AI tools mask age, employment history, photos, and even applicants' voices. Chatbots and so-called robo-interviews—at which a candidate sits in front of a computer and responds to a structured set of questions—are gaining ground. They not only reduce opportunity for bias but also, by automating parts of the process, allow recruiters to expand the pool of qualified candidates. The software offers an additional benefit that can be lost in more subjective assessments: it can evaluate candidates on such criteria as facial expression, word choice, and logic.

In fact, companies that use this new kind of software report improvements in gender diversity. They are finding better candidates, and the software identifies people who might have been overlooked through traditional recruiting means. Unilever reported a 16% increase in the diversity of its hires after it adopted AI-based digital hiring.

AI could yield solutions for improving employee retention and advancement.
Simply hiring more women is not enough to solve the leadership gap: companies must also work to retain and promote them. AI holds promise in identifying the most effective interventions at key career junctures. For example, in performance reviews and promotion and salary decisions, AI could be applied to the analysis of internal workforce data to make recommendations that would help narrow the gender gap. Similarly, AI could be used to help identify promising employees who might otherwise be missed by traditional means, to spot those most likely to resign, and to offer ways to reach out and retain key female talent.

Such applications have already been introduced (by, for example, Pipeline, a Denver-based startup) or are in development (CorpU, in partnership with the University of Michigan's Steven M. Ross School of Business). AI can also play a role in helping reduce day-to-day bias, whose cumulative effect can be profound. Joonko is a startup that has developed a tool designed to help managers and employees recognize unconscious bias and change their behaviors through the project management tools they use daily.

AI could lighten the load on the home front.
AI's potential for helping women advance at work doesn't stop at the office. Many women shoulder a disproportionate burden of home and family care, responsibilities that can impede their ability to invest in demanding careers. Part of the solution, of course, is personal action:

women can work with the men in their lives to even out the division of labor and mental load of household management. But AI may offer other ways to ease the burden.

We may still be far from an AI-powered robot that completes our chores for us, but there are ways that AI technologies could alleviate the mental load: for instance by automating household procurement, appointment scheduling, and family calendar management. In the future, AI could help reduce the burden of managing multiple interfaces, serving as interpreter and central coordinator of the many apps and platforms that power a household. Alexa-type tools are early examples of this technology and its potential to make an impact. Ideally, such technologies will reduce the stresses of balancing home and work obligations, making it easier for women to claim and stay in challenging and demanding roles that have leadership potential.

IN THE COMING years, AI will disrupt employment patterns on a massive scale. Companies, governments, and individual women must therefore be prepared to invest in reskilling for the new generation of jobs. And—taking a thoughtful approach— companies can capitalize on the emerging market of AI-based applications designed to help reduce bias in workplace hiring, retention, and promotion. That, coupled with using AI and related tools to lighten women's disproportionate household management load, could help propel women along the path to leadership.

We see as much (if not more) promise as peril in the coming AI revolution. But vigilance and focused effort are needed to ensure that for women, the upside of AI outweighs the threat.

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