

# ARTIFICIAL INTELLIGENCE DELIVERS BUSINESS VALUE

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The introduction of artificial intelligence (AI), machine learning, robotics and other cognitive tools into the workplace ushers in a new age of industrial automation. It promises greater efficiencies, reduced costs, higher profit margins and other tangible benefits to companies investing in these technologies.

In 2016, companies invested between \$26 billion and \$39 billion in AI development for advances in robotics, autonomous vehicles, computer vision, language, virtual agents and machine learning.<sup>1</sup> McKinsey Global Institute estimates that automation and AI could increase global productivity by 0.8% to 1.4% annually through 2065.<sup>2</sup>

Most early investment in AI is being made by large technology companies, such as Amazon, Google and Facebook, that have invested heavily in digitization. The United States, China, South Korea and the United Kingdom lead in AI development and have created national strategic plans with substantial AI aspects.<sup>3</sup>

A recent study by McKinsey Global Institute found that early AI adopters tend to have digital business models, deploy AI across their technology groups and in their core businesses, and view AI as a way to increase revenue as well as reduce costs.<sup>4</sup>

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## AI DRIVING RAPID CHANGES

AI development is speeding up, due in large part to the massive amounts of data being generated by a range of networked devices. AI also is benefiting from advances in computing power, machine learning, new algorithms and sophisticated AI models.

The industry sectors leading AI research and adoption include financial services, technology and telecommunications, transportation and logistics, automotive assembly, and energy and utilities.<sup>5</sup> These sectors see great value for AI in research and development, production optimization, improved maintenance, targeted sales and marketing, and enhanced customer experiences.

Work processes most likely to be automated are structured, predictable and physical activities. McKinsey notes these work processes account for 51% of economic activity and \$2.7 trillion in wages.<sup>6</sup> The challenge for companies, industries and government is to find a way to transition from current manufacturing and business practices to an “augmented workforce” where employees, robots and AI combine effectively in the workplace.<sup>7</sup>

## TRADITIONAL JOBS IN TRANSITION

The increasing use of AI, robotics and automation will dramatically change most industries as traditional jobs are revised, re-invented and, in many cases, eliminated. Some experts are sounding the alarm about the negative impact on middle-class jobs as these technologies will replace many workers and make their skills obsolete.



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However, AI and related technologies are expected to boost productivity and create new kinds of jobs. Workers will need to adjust and adapt their skills to remain competitive and employable in this latest industrial revolution.

Essential human skills that machines lack will gain greater value. These skills include critical thinking, communication, empathy, personal service, persuasion, problem-solving and strategic decision-making.<sup>8</sup> AI and automation will enable workers to focus more on applying these human skills while machines handle the more mundane tasks.

Governments will play an important role in helping to retrain workers and by adopting regulations to ease negative repercussions. Legislation may help companies identify those jobs most likely to be automated and redirect affected employees into training programs to acquire new skills.

- 1 "How artificial intelligence can deliver real value to companies," by Jacques Bughin, Eric Hazan, Sree Ramaswamy, Michael Chui, Tera Allas, Peter Dahlström, Nicholas Henke and Monica Trench, McKinsey & Company, June 2017. Related report, "Artificial Intelligence: The Next Digital Frontier?", a discussion paper issued by McKinsey Global Institute, June 2017, is available for download at this page: <http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>
- 2 "Harnessing automation for a future that works," by James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott and Martin Dewhurst, McKinsey Global Institute blog, January 2017. Available at: <http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works>
- 3 "How artificial intelligence can deliver real value to companies," by Jacques Bughin, Eric Hazan, Sree Ramaswamy, Michael Chui, Tera Allas, Peter Dahlström, Nicholas Henke and Monica Trench, McKinsey & Company, June 2017. Available at: <http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>
- 4 "How artificial intelligence can deliver real value to companies," by Jacques Bughin, Eric Hazan, Sree Ramaswamy, Michael Chui, Tera Allas, Peter Dahlström, Nicholas Henke and Monica Trench, McKinsey & Company, June 2017. Available at: <http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>
- 5 "Artificial Intelligence: The Next Digital Frontier?", a discussion paper issued by McKinsey Global Institute, June 2017, page 19 and available for download (with related article) at: <http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/how-artificial-intelligence-can-deliver-real-value-to-companies>
- 6 "Harnessing automation for a future that works," by James Manyika, Michael Chui, Mehdi Miremadi, Jacques Bughin, Katy George, Paul Willmott and Martin Dewhurst, McKinsey Global Institute blog, January 2017. Available at: <http://www.mckinsey.com/global-themes/digital-disruption/harnessing-automation-for-a-future-that-works>
- 7 "Preparing for the 'Augmented Workforce,'" CFO Journal, a joint program of *The Wall Street Journal* and Deloitte, Sept. 19, 2017. Available at: <http://deloitte.wsj.com/cfo/2017/09/19/preparing-for-the-augmented-workforce/>
- 8 "Preparing for the 'Augmented Workforce,'" CFO Journal, a joint program of *The Wall Street Journal* and Deloitte, Sept. 19, 2017. Available at: <http://deloitte.wsj.com/cfo/2017/09/19/preparing-for-the-augmented-workforce/>

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