Machine learning has arrived in the enterprise, and companies are eager to reap the competitive benefits the technology can provide. From automating processes that enable faster business operations to applying algorithms to improve accuracy, Chief Information Officers (CIOs) are adapting the technology for a wide variety of uses—and transforming the way we work.

To investigate the rise of machine learning, we worked with Oxford Economics to conduct a survey of 500 CIOs in 11 countries on three continents and across 25 industries, alongside in-depth interviews with leaders in the field. We found that CIOs are increasing their investment in machine learning, but must overcome several barriers to achieve their productivity, revenue, and innovation goals. Unless CIOs turn their attention to updating not just technology, but talent and business processes, the full value of machine learning cannot be realized.
Nearly 90% of CIOs are Using or Planning to Use Machine Learning

Which best describes your organization’s use of machine learning?

- 89% using machine learning in some capacity
- 11% have no plans

Investment in Machine Learning will Increase Sharply over 3 Years

To what extent are you investing in machine learning, today and in three years?

- 63% by 2020, nearly double today’s investments
- 35% today, with either some, substantial, or major investment

**Process and People Challenges Limiting Adoption**

To what extent do the following factors interfere with the adoption and maturation of automated decisions at your organization?

- 51% Insufficient quality of data
- 48% Outdated processes
- 47% Lack of budget (for technology and skills)
- 41% Lack of human skills

**CIOs are Beginning the Necessary Organizational Changes**

Which changes, if any, has your organization made?

- 45% Developed methods for monitoring mistakes made by machines
- 39% Redefined job descriptions to focus on work with machines
- 27% Recruited employees with new skill sets

**First Movers Pave the Way**

- Focusing on innovation: 70% First Movers, 54% Others
- Focusing on automating routine processes: 50% First Movers, 33% Others
- Focusing on digitizing business practices: 46% First Movers, 27% Others
- Developed a roadmap for future process changes: 72% First Movers, 33% Others
- Developed methods of monitoring mistakes made by machines: 80% First Movers, 41% Others
- Implementing policies for ensuring data accuracy: 17% First Movers, 17% Others
- Changed job descriptions to focus on work with machines: 35% First Movers, 35% Others
- Set plans for workforce size and role changes: 30% First Movers, 15% Others