

Tech Trends 2018 | A life sciences and health care perspective

The no-collar workforce in life sciences and health care

When humans and machines team up, improvement in outcomes and job satisfaction can rise together

The nature of work across almost every industry is being disrupted by rapidly evolving digital technology that is driving increased automation, affecting the proximity of where work is performed, and giving rise to new and open talent models. Global trends such as changing work and career types, automation opportunities, and new uses for a tsunami of data are transforming the life sciences and health care workforces (See Figure 1). Technologies like machine learning, robotic process automation, cognitive technologies, and artificial intelligence (AI) have advanced to the point where they are becoming a part of the workforce—able to augment and automate work currently performed by humans.

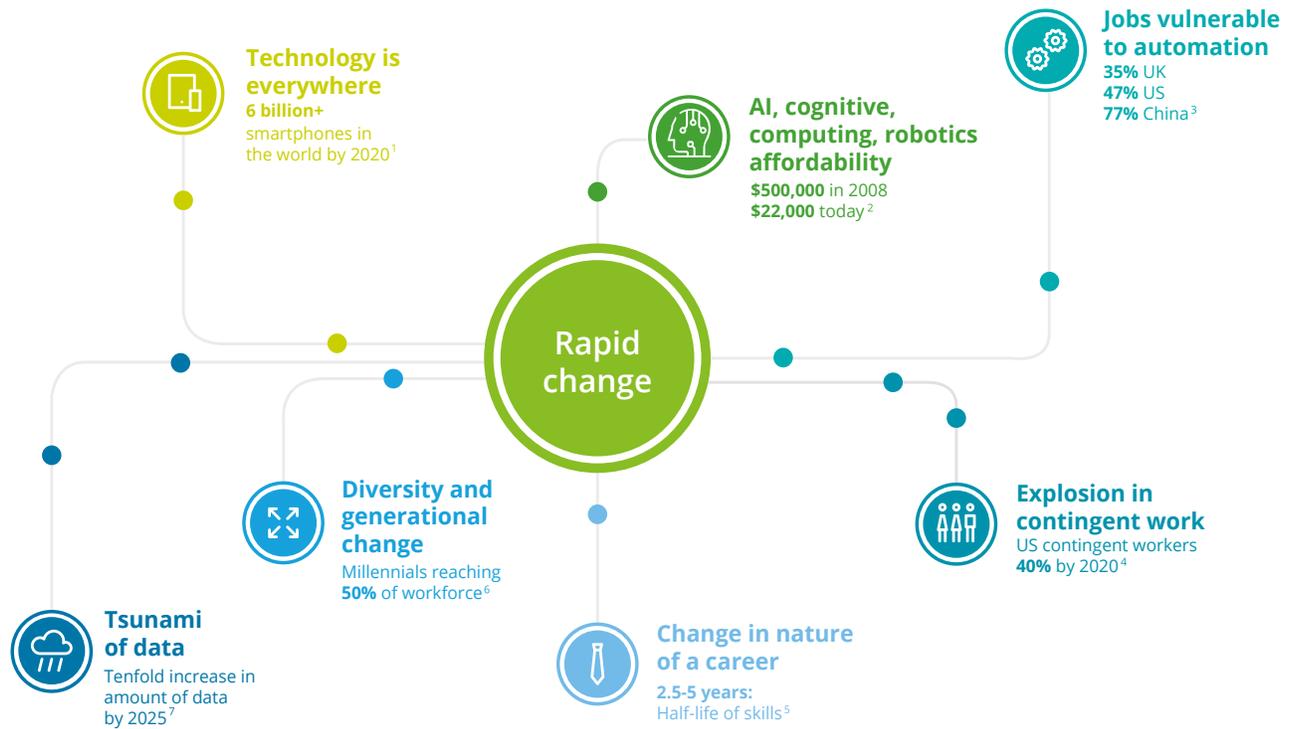
As these technologies continue to gain traction and drive shifts in the way work is performed, organizations across industries have a tremendous opportunity to reimagine worker roles to serve more strategic objectives by considering the human, value-added skills

necessary to support a hybrid workforce model in which technology augments human performance.

The term “no-collar workforce” references a powerful collaboration of humans and technology where the unique strengths of both can be leveraged. This augmented way of working could present significant benefits across industries:

- It has the potential to resolve talent gaps by automating work and offering a broader mix of talent to complete a job via the rise of open talent models like crowdsourcing.
- It automates repetitive, rule-based tasks, allowing people to focus on more strategic activities and find more fulfillment at work.
- It expands the proximity of where work can be performed, allowing for more flexibility and balance (See Figure 2).

Figure 1. Trends transforming the future of work



The confluence of these dimensions—the growth of digital technology and automation, rise in open talent models, and changing proximity of work—already has and will continue to change the shape of many jobs across industries. Despite much of the negative rhetoric surrounding the impact of automation on jobs, in many cases there will be positive impacts since the change creates an environment that allows more effectiveness, and potentially more enjoyment of work.

What does the no-collar workforce mean for life sciences and health care, and what do organizations need to know to prepare?

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Prospects by sector

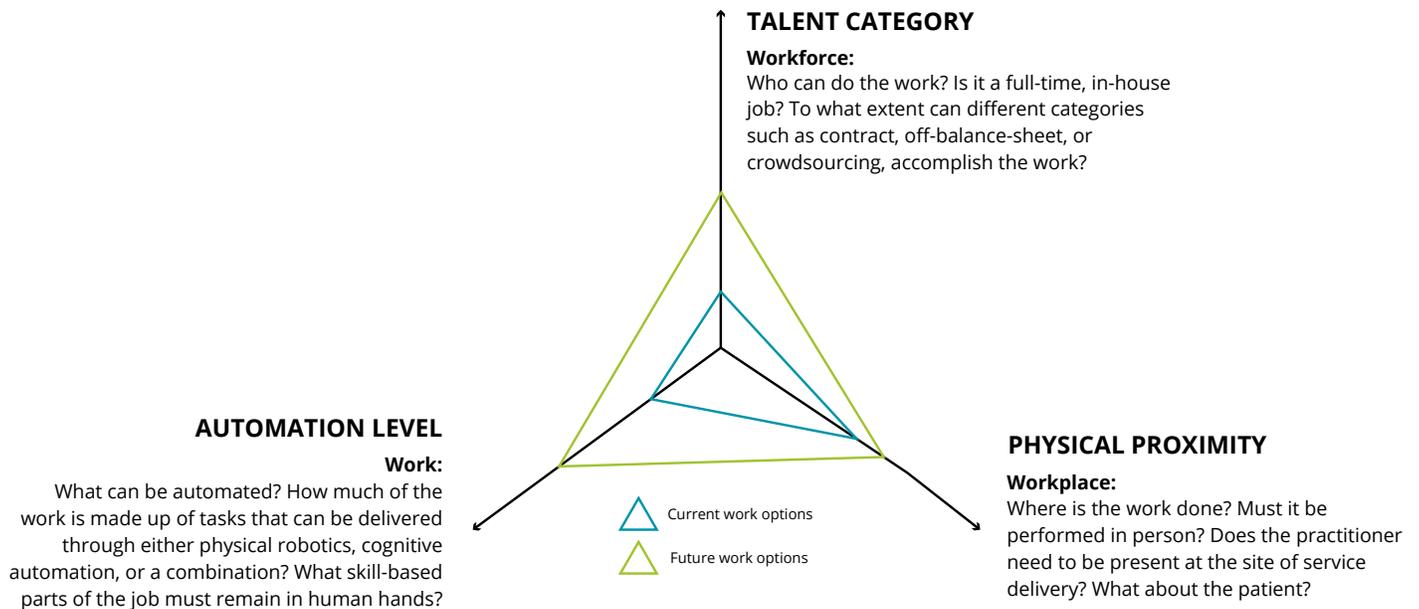
Across life sciences and health care, the move to a no-collar workforce creates a compelling opportunity to improve clinical outcomes, reduce per capita costs, enhance the patient and family experience, and allow for a more fulfilled and effective workforce.

Health Care Providers

In the health care provider sector, technology is supporting the automation of rote or repetitive tasks, while AI and machine learning enhance clinical care delivery. As the scope of technology grows and advances in complexity, the role of using it evolves: clinicians and other professionals will need new skills to use new tools, but with the time that automation saves, new areas of initiative will open. For example, monitoring and web-connected technologies can help promote preventive care and precision medicine, helping to enhance wellness, reduce the need for clinical interventions, and move some aspects of care into the patient home, which has the potential to both increase patient satisfaction and lower costs.

An example of how the future of work is playing out in health care can be seen from a hospital system that integrated digital technologies and well-designed robots into care delivery. Digital kiosks, motion detectors, and voice recognition transcriptions brought convenience to patients. Robots assisting with logistical tasks such as delivering linens, meals, and medical supplies

Figure 2. Three dimensions changing the future of work



provided staff more time for patient care. By integrating technology across all systems, this hospital system improved physician and staff productivity, which resulted in higher quality patient care and enhanced patient and visitor experiences. Another example of the future of work can be seen in a pharmacy environment where robots contribute to the increased accuracy of prescription dosing and speed of delivery to patients, allowing the humans to do higher-level management tasks.

Take radiology as another example. Diagnostic radiology is a prime area for change: it is plagued by burnout and turnover,⁸ is technological at its foundation, has a high volume of repetitive activities, and often does not require the radiologist to be at the same location as the patient. Machine learning technologies, such as Computer-Aided Detection (CAD) can assist radiologists in analyzing images. CAD aids radiologists in accurately identifying relevant imaging abnormalities so the radiologist can review images at a more efficient pace and free up time to interact with patients. Furthermore, the teleradiology model, where radiologists can provide remote diagnosis, can be progressively extended to distribute interpretation work more evenly across sites and organizations with varying volume, which can lead to alternative work arrangements that suit individual radiologists.

Lastly, there may be an opportunity for radiologists to provide crowdsourced radiology interpretations to patients through online

platforms to deliver fast, accessible results. This new form of care model provides radiologists with more flexibility, potentially easing the sector’s high burnout rate. With new technologies and diagnostic capabilities, radiologists will likely need to learn new skills and capabilities in order to adapt.

Life Sciences

R&D is one area that could benefit from evolving technologies, including automation and cognitive technologies. Consider clinical trials. Many of the processes behind clinical trials are resource-intensive, relying heavily on highly trained scientists and doctors at virtually every step. And the costs add up: An analysis of 12 large biopharma companies reveals that it now costs these companies almost \$2 billion to bring a drug to market.⁹

Now consider the actual work being done to support the trials. PhDs, for example, are frequently engaged in repetitive, transactional tasks—generating first drafts of documents like protocols, statistical analysis plans, and data management plans; adverse event processing and follow-ups; and quality control of regulatory submissions for completeness. These jobs could be automated to free up time for other strategic activities related to the trials. Just as important, these additional activities, and the use of automation in other areas such as site initiation and contract negotiations, could accelerate the entire clinical trial process significantly.

These examples are only scratching the surface of what's possible in clinical trials based on readily available technology today. It's not difficult to imagine using robotics and cognitive automation to transform the process of patient recruitment, for example, in reviewing clinical records to find patients who might fit the criteria for recruitment.

Supply chain is another area ripe for disruption. Currently, the production of biopharmaceuticals or medical devices is highly manual, often requiring a large volume of labor to perform repetitive tasks. Consider quality control. The current biopharmaceutical production process includes technicians sampling batches and performing analytical tests. If a technician discovers an incident or unplanned deviation, in a worst-case example, the shop floor might close for an extended period of time while all non-essential personnel vacate for meticulous cleaning to occur. Through the use of sensors on the shop floor, this becomes an automated, in-line, continuously monitored and verified process that enables real-time testing of product and eliminates the need for destructive testing. This technology not only saves time, it frees up the Quality function so that it can move past mitigating compliance risks and focus on partnering with the business more closely. To enable this, the function's talent needs shift from highly technical to broader business capability. This is an example of how supply chains have an opportunity to reimagine talent, work, and skill sets as new technology enhances their processes.

Health Plans

Cognitive automation could help speed insurers' approval processes by allowing automatic reading and analysis of authorization requests. The system could then generate a recommendation that a nurse could approve in minutes. On the member relations front, AI can handle policyholders' queries and provide details about coverage, benefits, and procedures, freeing live customer service representatives to handle more issues such as repeat callers, queries regarding claim denials, requests for exceptions for coverage rules, and grievances.

Additionally, health plans are under constant pressure to reduce administrative costs and prioritize spending on medical care. Process automation in shared services such as finance, HR, and supply chain could reduce administrative costs by leveraging skills and knowledge built and proven across multiple industries.

The path ahead

To realize the opportunities presented by the shift to the no-collar workforce, organizations need to take a proactive stance in understanding how work will be done in the future. What should the workforce look like? How should it be organized? How can advances in technology increase the mission-effectiveness of the workforce segments that will drive the business forward? How can advances in technology reduce burnout, improve resilience, and bring more fulfillment to the practice of health care?

Across life sciences and health care, the move to a no-collar workforce creates a compelling opportunity to improve clinical outcomes, reduce per capita costs, enhance the patient and family experience, and allow for a more fulfilled and effective workforce.

Questions like these, and many more, must be answered in order for an organization to remain competitive within its industry, including in the talent market. Life sciences and health care organizations should be proactively planning for a number of potential challenges and opportunities presented by this shift, including:

Work and job redesign for the augmented workforce

- More automation, increased talent options, and new workplace options
- Design of new career models, learning solutions, and reward incentives for talent
- Checks and balances to recognize faulty or insufficient analysis completed via AI or cognitive intelligence tools

New talent models in an Open Talent Economy

- Greater use of contingent workforce of contractors, "gig" employees who are hired for specific projects, and freelancers as an alternative to full-time employees
- Organizations that stretch beyond their four walls to draw upon global talent sources

New skills and capabilities to develop and hone

- Greater emphasis placed on cognitive and social skills as a complement to technical skills
- Rise in a multi-skilled workforce in which individuals must develop beyond a single skill set to work at the next level and drive tangible insights across the value chain

Organizational design for increased agility and flexibility

- Increased ability to rapidly incorporate and scale new and unknown capabilities (buy, build, or borrow) to remain competitive and relevant
- Real-time responses to social media and crowdsourced talent insights

Continuous learning for on-demand and lifelong-learning needs

- A new generation of millennials that move and change fast, pursue their passions, shape their career paths, and engage in lifelong learning
- Changing incentives and rewards that shape what people pursue and how organizations can motivate them to grow and learn
- Continuous need for lifelong training and self-reinvention given skills are quickly outdated
- Knowledge management strategy to maintain institutional insights that a large, permanent, on-site staff used to maintain

Conclusion

In technological terms, the future is already here. Advances in AI, cognitive technologies, and robotics are upending time-honored assumptions about jobs, careers, the role of technology in the workplace, and the way work gets done. The move to a no-collar workforce will be a balancing act for both organizations and their employees. But for both, this trend offers the opportunity to reimagine an entirely new organizational model in which humans and machines complement and enhance the other's efforts. This unified digital workforce could allow employees to provide even greater value and focus on mission-oriented, fulfilling work.

For more on this trend, visit:

www.deloitte.com/insights/no-collar-workforce

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Endnotes

¹ IHS Markit press release, More than Six Billion Smartphones by 2020, HIS Markit, January 18, 2017, <http://news.ihsmarkit.com/press-release/technology/more-six-billion-smartphones-2020-ihs-markit-says>.

² Global Future of Work Center of Excellence (2016). Future of Work Disruptions Index. Deloitte UK.

³ World Development Report 2016, World Bank Group.

⁴ The Intuit 2020 Report: Twenty trends that will shape the next decade, Intuit.

⁵ 2017 Global Human Capital Trends, Careers and learning: Real time, all the time, Deloitte Insights.

⁶ The Deloitte Millennial Survey 2017, <https://www2.deloitte.com/us/en/pages/about-deloitte/articles/millennial-survey.html>.

⁷ International Data Corporation (2017), Data Age 2025.

⁸ Peckham, Carol, Medscape Radiologist Lifestyle Report 2017, Medscape. <https://www.medscape.com/features/slideshow/lifestyle/2017/radiology#page=2>.

⁹ A new future for R&D? Measuring the return from pharmaceutical innovation 2017, Deloitte Center for Health Solutions.

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