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DESIGNING THE FUTURE OF LIFE SCIENCES:

How Automation And AI Are Creating A More Efficient Industry

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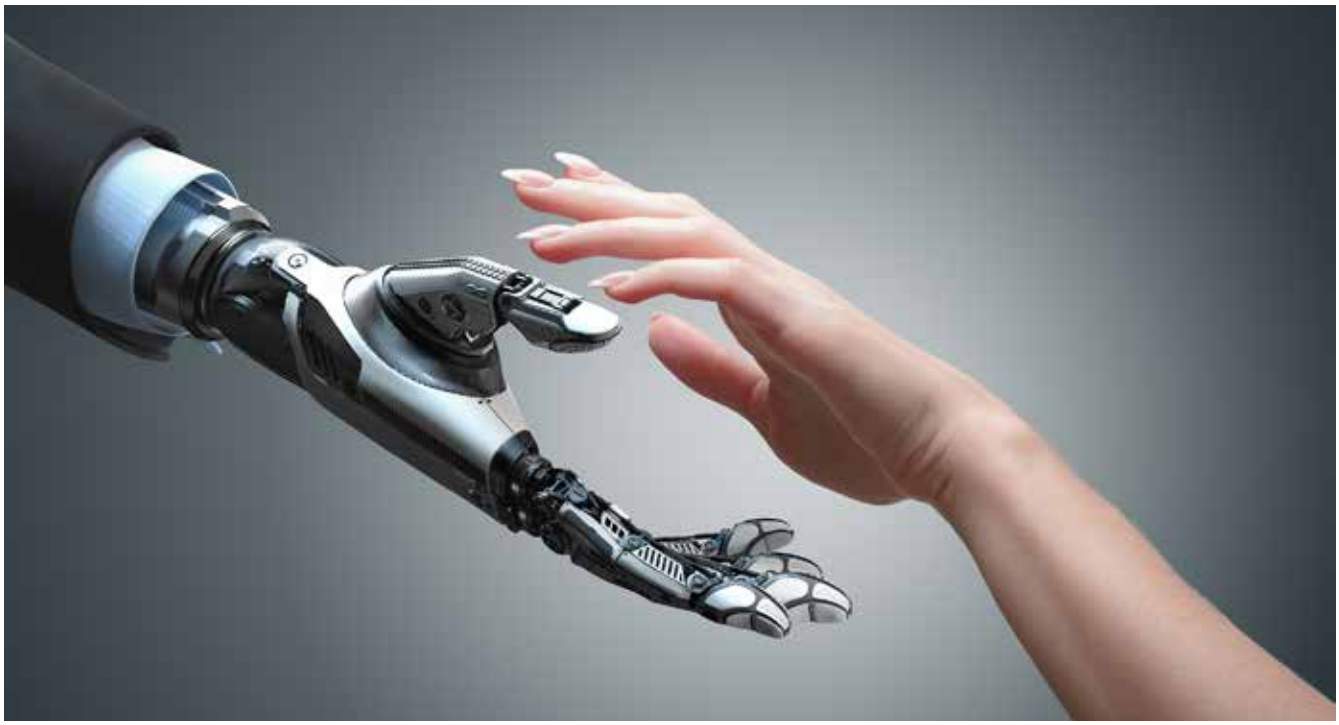

DESIGNING THE FUTURE OF LIFE SCIENCES: How Automation And AI Are Creating A More Efficient Industry

The life sciences industry is under intense pressure, with drug developers contending with falling productivity and medtech companies facing some of the biggest regulatory upheavals in decades. Something must change. Recognizing that, leading life sciences organizations are deploying intelligent automation to transform their operations, pointing to a new, smarter and more efficient future for the industry.

In this vision of the future, Digital Workers – intelligent bots that automate parts of traditionally defined job roles – will collaborate with their human colleagues, taking on manual tasks to free people to do more creative, fulfilling work. That vision has been around for decades and has been discussed increasingly as computers have infiltrated all aspects of work.[1] Now, Automation is making the vision a reality.

"Since the inception of our company, we have been focused on not just starting another technology company, but forging a completely new business category that would push boundaries. Today we are changing the way people will work," said Mihir Shukla, CEO and co-founder of Automation Anywhere. "We are enabling organizations to automate business processes that people have been completing manually. The result is far greater business productivity at a much lower cost driven by intelligent automation. Employees, working side by side with software bots, are being unleashed, ushering in a new age of unfettered human potential."

Today, many processes can be automated. Robotic Process Automation (RPA) has enabled the first batch of breakthroughs by the automation of tasks and workflows. More recently, artificial intelligence (AI)-enabled Digital Workers have begun automating whole segments of defined job roles. These Digital Workers operate beyond the limited rule-based contexts of their RPA bot predecessors, applying their enhanced transactional, cognitive and analytical skills to a wide range of tasks.

Digital Workers are driving the automation of more elements of work and act as true collaborators with their human colleagues. At the same time, automation is enabling AI to fulfill its potential.

"RPA is becoming a platform for AI solutions. Integration of AI into RPA enables end-to-end business process automation and delivers bigger impacts," said Marzieh Nabi, senior product manager at Automation Anywhere.[2]

Efficiency Gains From Automation And AI

Life sciences companies were quick to see the potential of RPA and, more recently, the value of pairing it with AI. Amgen, for example, began working with Automation Anywhere in 2010 and now has 35 automations running across its value chain, from research through to sales and marketing.[3]

The decade-long history of life sciences companies automating processes has created an extensive body of evidence validating the industry's decision to embrace the technology. Everest Group, a consultancy specialized in digital transformation, captured some of this evidence by surveying 52 life sciences enterprises about their experiences of investing in intelligent automation.[4] The survey found that more than half of companies feel intelligent automation has had a high or very high positive impact on customer experience. That impact and other benefits of intelligent automation are reflected in improvements in operational metrics such as process accuracy, cycle time, staff productivity and service-level agreement compliance. Companies surveyed by Everest reported 30% to 40% improvements in operational metrics.

These benefits are translating into improved top- and bottom-line financial performance. On average, the adoption of intelligent automation cut costs at the surveyed organizations by 30%. Perhaps more surprisingly, more than 20% of organizations report intelligent automation is driving revenue growth. Everest thinks more widespread revenue growth will be possible as the sector matures.

Coupled with fast implementation, the top- and bottom-line benefits of intelligent automation are enabling companies to quickly realize returns on their investments. Everest found investment in intelligent automation typically pays off within 12 months.

How Automation Is Benefiting Companies Today

The aggregate experience of companies revealed in the Everest survey results is in keeping with reports from individual life sciences businesses. Becton Dickinson, for example, saved $7m over three years and cut cycle times by 89% by rolling out 220 bots across finance, procurement, human resources, IT, and research and development.[5] BD has also experienced how automation can drive sales growth, landing a $5m contract after using RPA to transform a process that enabled it to win the business.[6]

Similarly, Boston Scientific used intelligent automation to cut the time it takes to respond to requests and ship products to customers.[7] Other bots working at Boston Scientific help with billing, inventory management and the generation of invoices based on SAP data. By the time Boston Scientific had bots automating more than 50 processes, it had generated annual savings of $240,000 a year and cut its error rate to zero.

Leading biopharma companies are also benefiting

from automation. Eli Lilly used intelligent bots to automate payment confirmation and the generation and delivery of notification letters at Japanese branch offices, saving $1.5m and 3,850 hours and encouraging it to apply the technology to more complex, highly regulated job functions.[8]

The generation of hard data on improved operational metrics has driven the proliferation of bots into more and more parts of the life sciences value chain. However, these metrics only capture some of the value of intelligent automation. The numbers say little about the big, positive effects intelligent automation is having on workers, who are spending less and less time on computer-based drudgery.

"Once [employees] have touched [automation] and are using it a little bit, they do see a huge value in it," said Neeti Mehta Shukla, Automation Anywhere co-founder and SVP of brand strategy.[9] "I often go to customer sites and I talk to people on the ground, not the strategic decision-makers, but the people who are actually implementing RPA into their daily schedule. And none of them want to go back to the old way of doing it."

What Future Applications Are Foreseeable?

The positive experiences of individuals and institutions that are using intelligent automation in some areas is driving companies to explore deploying the technology in new functions. Many life sciences companies began by automating back-office administrative processes. At Amgen, for example, 20 of the first 35 automations involved finance and accounting. Similarly, Everest estimates that sales and marketing and supply chain and distribution account for half of intelligent automation use by life sciences companies today.

There remains scope for intelligent automation to penetrate deeper into areas in which it is already well established, for example by optimizing shipment assignments and analyzing customer behavior. The largely untapped opportunities are found in other functions, though.

In production, intelligent automation will support continuous manufacturing plan monitoring and identification of process parameters, helping companies push back against trends that drove the cost of goods sold up 50% from 2004 to 2014.[10] There are also opportunities to automate research processes, such as the data-intensive task of genomic sequencing.

Everest expects use of intelligent automation to grow fastest in product development in the coming years, leading it to forecast that this subsection of the market will grow up to 70% between 2019 and 2023. The forecast is underpinned by recognition of the potential for intelligent automation to streamline some of the most expensive, time-consuming links in the life sciences value chain and, in doing so, increase patient access to breakthrough innovations.

Tasks such as patient recruitment, clinical data aggregation and integration, and pharmacovigilance are today done manually. This is not working. Administrative burdens have led pharmacovigilance to grow to 11% of R&D spending.[11] Patient enrollment typically takes twice as long as forecasted.[12] The emergence of intelligent automation creates an opportunity to improve these processes.

"Imagine a clinical trial that is shortened by months due to faster patient recruitment and error-free processing of data," said Catherine Calarco, Automation Anywhere's senior director global industry lead for life sciences.[13] "When life sciences companies spend less time managing what can be automated, you achieve communication faster, medicines to market faster and more creative energy focused on what you want."

Such improvements are desperately needed. The cost of bringing a new drug to market increased by $1bn from 2010 to 2018.[14] With patent losses

and other pressures constraining sales, R&D returns fell 81% over those years. The presence of another patent cliff, which threatens $194bn in sales, on the horizon and a political push to cut prices means commercial pressures may continue and even intensify in the years to come.[15,16]

The pressures are at least as intense on the medical device industry, which faces the prospect of spending billions of dollars to comply with legislation that "significantly modifies and intensifies the compliance requirements."[17,18] Some companies are already withdrawing devices from the market on the grounds that it will cost too much to comply with the new rules.[19]

The Bot-Augmented Future Of Life Sciences

The presence of intense pressures, which some people see as severe enough to constitute existential threats to the industry, and powerful automation technologies means there is the potential for life sciences to transform itself in the years ahead.[20] It is hard to predict how these forces will play out but extrapolating from the early years of process automation provides some clues.

Life sciences companies can already download plug-and-play Digital Workers from Automation Anywhere's Bot Store, the largest online marketplace for enterprise-grade, ready-to-deploy intelligent automation, from a vast ecosystem of seasoned developers, subject matter experts and Automation Anywhere partners. This has increased the likelihood that the recruitment of intelligent assistants will become part of the industry's broader hiring strategy. Digital Workers will be a routine part of the portfolio of graduates entering the workforce.

In these workforces, all human employees will be augmented by Digital Workers. The Digital Workers will handle the manual, low-value tasks that currently stop human workers from applying their skills and creativity to more challenging, meaningful activities.

That vision is a realistic, mid-term objective but realizing it will require effort. Companies will need to take a human-centric approach to intelligent automation, considering the ethics and consequences of their actions and taking steps to mitigate deleterious outcomes on individuals. The best results are likely to come from involving people across the organization in the rollout of intelligent automation and establishing retraining programs.

With persistence, adequate funding and a willingness to embrace and learn from failures, companies will be able to work through the challenges and adopt intelligent automation in a way that works for everyone. The payoff will be worth the effort.

The McKinsey Global Institute thinks AI will create $100bn of value for pharmaceuticals and medical products companies but that fails to capture the full impact.[21] Intelligent automation will make work more meaningful for millions of people employed in the life sciences industry, freeing them to apply their ingenuity to antibiotic resistance, neurodegenerative disorders and other huge problems facing humanity. We all stand to benefit from that bot-enabled liberation of human potential.

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