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The Work Ahead in Life Sciences: Cures at the Speed of Digital

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Life sciences businesses have accelerated their digital-first journey to survive and thrive in a world where time-to-everything matters more than any other strategic imperative, according to our study. Digital ways of working and doing business forged and hammered in the COVID-19 crucible will not be scrapped.

THE WORK AHEAD

Executive Summary

The pandemic intensified the life sciences industry's urgency to change, with digital technologies shooting from a strategic priority to an operational imperative.



The life sciences industry has traditionally been slow to adopt digital technologies, primarily due to regulations that have encouraged a conservative approach to innovation. COVID-19, however, brought explosive – and urgent – change that will ultimately transform the industry's future.

From vaccine testing and production to care access and delivery, every facet of the industry had to adapt at speed and scale. New ways of working (remotely), new ways of doing business (all online) and new ways of creating value (safe customers and employees) made life sciences companies realize just what digital had to offer. In the post-COVID-19 era, "digital" will mean more than just applying technology to business processes; it will mean reinventing the business by connecting data, knowledge, people and insights, turning traditional life sciences into a proactive industry.

To understand how companies are preparing to survive and thrive in this changing world, Cognizant's Center for the Future of Work surveyed 4,000 business leaders from around the world, including 285 executives at leading life sciences companies (see methodology, page 21). Our research reveals that Internet of Things (IoT), artificial intelligence (AI), automation and data analytics will be at the core of the life sciences industry's transformation, enabling intelligent decisions, unlocking innovation opportunities and building long-term operational resilience.

Life sciences companies that thrive in the future will empower health consumers with insights, give them greater control over their well-being and, ultimately, build lasting trust. They will turn "life sciences" into "life care" by extending value beyond therapy administration and intervention to a more holistic approach to wellness. For example, more attention to nutrition and exercise may diminish the need for insulin treatments or knee replacement surgery. Digital technologies, along with the proliferation and standardization of data to power analytics, will enable new clinically and commercially driven value propositions.



To capture these opportunities, life sciences companies will need to develop new communities and partnerships across the industry value chain. As organizations prepare for this shift, this report offers a comprehensive, indispensable guide to becoming a life-care business.

Our key insights include:

- **COVID-19 set a new digital agenda for life sciences.** The pandemic intensified the industry's urgency to change, with digital technologies shooting from a strategic priority to an operational imperative. More than half (53%) of life sciences respondents said even more change was ahead when it comes to digital ways of working and doing business.
- Digital is the direction for future growth. On average, respondents expect to generate 8% of their revenue from digital channels by 2023, which is double that of today (4%), highlighting the need to overhaul business and operating models to support the digitally-enabled care access and delivery models accelerated by COVID. The emergence of digital therapeutics and coprescribed apps are just one example of how digital is redefining clinical and commercial value.
- **IoT, AI, automation and analytics are central to augmenting processes.** The top technologies being used to augment business processes are sensors/IoT (80%), data analytics (73%), AI (68%) and process automation (47%). The commercialization of cell and gene therapies exemplify how these technologies are integrated to drive clinical and commercial value.

Augmented processes will drive significant

business benefits. Improvements in operational efficiency (31%), decision-making (25%), innovation (25%) and operational effectiveness (24%) are the top four business outcomes respondents expect to achieve with augmented processes. For example, medical device manufacturers are deploying augmented tools and processes to improve field service on capital equipment and to enhance surgical training for surgeons and staff.

- Power lies in data, not devices. The top three tasks that will be performed by machines by 2023 will be execution of complex decisions based on real-time information (23%), sifting large data sets to filter and identify errors or actionable items (22%) and process improvement (22%). Empowering patients with data insights to proactively manage wellness and pre-empt potential ill health will become the new normal.
- Machines alone aren't the answer. Humanmachine collaboration is key. Decision making, innovation and learning will become the top three most essential skills in 2023. These skills are best performed by humans – not in isolation, though, but supported by the insights generated by AI and data analytics and by the efficiencies of intelligent automation. Clinical decision support tools may provide consistently high levels of diagnostic accuracy when compared with a weary clinician, but combining data processing power with a clinician's awareness of the social determinants that impact a patient's health would lead to treatment decisions that result in better health outcomes.

COVID-19: a turning point for life sciences

In about 12 months, the life sciences industry accomplished what has historically taken years, enabled by decades of supporting research, novel uses of Al for target identification and a collaborative regulatory and funding environment. Life sciences, we now know beyond a doubt, is far more agile than anyone could have imagined.

Life sciences companies have been relentlessly busy ever since the pandemic broke. The skyrocketing demand for diagnostic kits, medical equipment and life-sustaining drugs, coupled with the race to discover, test, manufacture and distribute novel vaccines, has monumentally changed how life sciences companies operate.

The COO of a U.S.-based life sciences company involved in clinical development told us his company's sales increased 12% globally during the first half of 2020. In all, 72% of respondents said the coronavirus had a positive to very positive impact on their business performance.

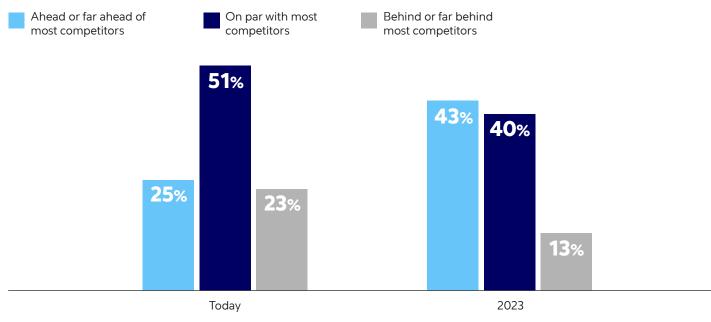
COVID-19 acted as a catalyst: The industry had to develop the most efficient solutions, systems and processes to help clinical researchers discover safe, effective treatments and to effectively manufacture and deliver those treatments. Life sciences companies had to transform their operating models almost overnight by moving every aspect of their business online, including engaging with clinicians and patients. Scientists raced to understand the disease; researchers enabled by Al sought treatments; device manufacturers collaborated with both scientists and researchers to develop tests first in the lab and then at the point of care; and in some cases, partnerships were rapidly established to expand manufacturing capacity for necessary COVID-19 equipment. Health authorities and the life sciences industry had to work at unprecedented speed. They collaborated across corporate and country boundaries to accelerate drug development, regulatory filings and vaccine approvals. In about 12 months, the life sciences industry accomplished what has historically taken years, enabled by decades of supporting research, novel uses of Al for target identification and a collaborative regulatory and funding environment. Life sciences, we now know beyond a doubt, is far more agile than anyone could have imagined.

Embracing a digital-first future

Currently, just 25% of life sciences companies in our study feel they're ahead of their competitors in applying digital technologies to transform business strategies, processes and services (see Figure 1). Fast-forward to 2023, however, and 43% predict they'll be ahead of the competition.

A digital injection ahead

Respondents were asked how their organization compares with others in applying digital technologies to transform business strategies, processes and services, now and by 2023. (Percent of respondents)



Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 1

Digital means money

Respondents were asked what percent of their company revenues come from digital channels, now and by 2023. (Percent of revenue from digital channels)

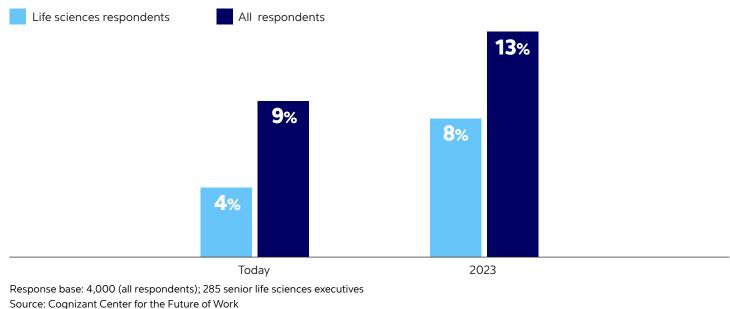


Figure 2

Clearly, life sciences organizations have no intention of abandoning the digital ways of working and behaving (remote research, "virtual" clinical trials, virtual consultations, among others) that they devised and implemented in response to the COVID-19 pandemic. In fact, 53% of life sciences respondents (compared with the global average of 50%) said the pandemic would further accelerate digital ways of working and doing business. The president of a clinical research company in Ireland said, "We are evolving to improve how we do a whole host of activities across the company – from drug discovery and patient identification, to optimized interactions with physicians using digital technologies."

While life science companies currently generate just 4% of their revenue from digital channels, on average, they predict that to double (8%) by 2023 (see Figure 2). The increase in digital revenue will be driven by the explosion of diagnostic data flowing into and around processes, resulting in better workflows across R&D, manufacturing and supply chain processes, as well as successive waves of innovative services targeted at patients. Although the industry continues to lag behind others in generating revenue from digital channels, due to regulatory constraints and clinician and patient adoption, the pandemic demonstrated both the need and capacity for change. Digital technologies rapidly advanced from a strategic priority to an operational imperative. To meet these ambitious revenue targets, life sciences companies must be prepared to serve the customer of the future (see Quick Take, next page). Clinician and consumer usage of digital engagement platforms exploded as a result of the pandemic, as did consumer use of pharmacy apps, fitness wearables and health sensors. With gyms closed, health and fitness apps usage skyrocketed,¹ and telehealth, in a matter of days, became a lifeline for patients and providers. One healthcare provider recorded a 154% year-on-year increase in telehealth visits during the last week of March 2020 alone.²

Do-it-yourself telehealth evaluations like Everlywell's athome tests, which advise consumers on how to live healthier lives, became the new normal.³ Process advancements in telemedicine and interoperable EMR/EHRs that travel with the patient (rather than sitting in disconnected health provider and insurance carrier silos) will help make consumers more empowered with their healthcare. The new data interoperability standard from the Centers for Medicare and Medicaid Services is another step toward democratizing data for health and healthcare.⁴ Decentralized, digital or "virtual"clinical trials will allow patients to more easily participate in clinical studies from their homes, integrating legacy digital enablement tools such as e-consent with more robust telemedicine tools and wearables that are clinical-grade.

Quick Take Understanding the customer of the future

Meet Tanya, an average middle-aged working woman. Tanya steps into her car after leaving her doctor's office and breathes a sigh of relief. When the doctor called last week to schedule some tests, she was worried. Although she was following her personalized health plan, data from her smartwatch and home scanners detected the earliest signs of liver disease.

Because these disease indicators were captured and assessed in real time, rather than at an annual checkup, Tanya and her care team can effectively manage and treat the disease. Now, Tanya's home scanners will regularly monitor specific biometric indicators, and send her personalized dietary, exercise and sleep instructions. Should these behavioral guided interventions be insufficient in delaying or eliminating the onset of the disease, therapeutic treatments can be designed based on her genome and microbiome. If needed, her voicebased personal assistant can remind her of her treatment instructions and regime, along with useful tips.

Tanya feels confident because she's in control of her health and her healthcare. She is emblematic of the new health consumer, who is empowered by technology and the wealth of health information at their fingertips. Companies like Chronomics, a UK-based startup, give consumers ownership of their health data and inform and anticipate their medical and lifestyle choices, transitioning the industry from blanket therapies to personalized medicines.⁵

By 2025, consumers will take their well-being and healthcare into their own hands. Healthcare and life sciences organizations will need to find their place in the digital ecosystems consumers have created to manage their health. Patients will be better informed, more health-conscious and have more intuitive and engaging tools to maintain their health than at any other time in the past. (Read more about the customer of the future in our report "Algorithms Over Brands: How to Reach Today's and Tomorrow's Al-Augmented Customer."⁶)

As <u>value-based reimbursement</u> models proliferate, healthcare and life science companies will evolve their business relationship to one where clinical, financial and operating risks are shared.⁷ As Al-augmented customers shape the future of healthcare, life sciences companies must assess which roles they undertake when assisting healthcare professionals and patients in a distributed care delivery market in which in-home, in-store and virtual consults complement traditional in-office doctor visits. In an interconnected care ecosystem, life sciences companies need to assess where and how they lead and collaborate with other industry participants.

A 'mesh of machines' will augment processes

While life sciences companies have only started leveraging digital technologies to augment their business processes, significant progress is expected. Clinical research (54%), clinical development (44%) and R&D innovation (33%) are the top three processes slated for augmentation by 2023.



Life sciences business models and supporting processes were formed long before digital technologies appeared on the scene. While these were designed to maintain regulatory compliance in a non-digital business environment, consumers, regulators and life sciences companies are now searching for ways to improve the development and delivery of safe and effective therapies in a digital-first global business environment.

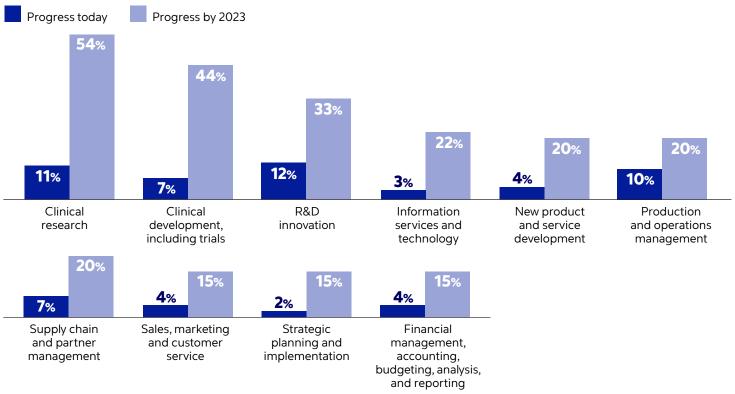
The development and approval of multiple effective COVID-19 therapies demonstrated that therapeutic discovery processes could happen at a surprising speed when predicate research is conclusive. The question is, which of the processes and tools could be replicated post-COVID to deliver value?

While life sciences companies have only started leveraging digital technologies to augment their business processes, significant progress is expected by 2023 (see Figure 3). Clinical research (54%), clinical development (44%) and R&D innovation (33%) are the top three processes slated for augmentation in the future.

Digital access to pre-publication scientific research, as exemplified by bioRxiv, is an example of how knowledge can be disseminated more quickly.⁸ Ubiquitous digital platforms and tools enable researchers and consumers to gather data into usable formats; an example is the "COVID tracking project," which could contribute to scientific advancement and clinical discoveries.⁹ Predictive analytics could also improve viral detection and therapeutic applications. Insilico Medicine is one example where analytics are being applied to accelerate the identification of potential treatments.¹⁰ It took Insilico's predictive system just four days to identify thousands of new molecules that could be turned into potential medicinal therapies to combat the virus.¹¹

A surge in process augmentation

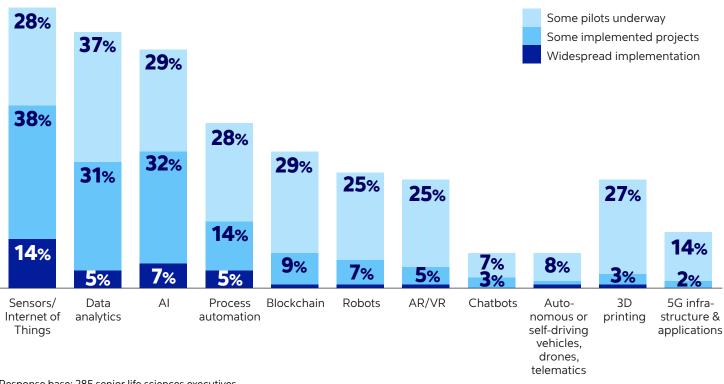
Respondents were asked to describe their progress made in implementing emerging technologies to augment workforce performance in several business processes, now and by 2023. (Percent of respondents rating their progress as "widespread augmentation" and "implementing projects/good augmentation")



Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 3

Leading technologies are IoT, AI, analytics, automation

Respondents were asked about the process they'd made in implementing a variety of technologies to augment business processes. (Percent of respondents)



Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 4

We also asked respondents which technologies they've put to greatest use when augmenting their processes. IoT is seeing the most attention, with 80% of respondents implementing it to some degree (see Figure 4). Life sciences companies are looking to IoT to reduce costs, improve health outcomes and keep workers safe. They're leveraging IoT with a dual agenda: to bring greater efficiency to manufacturing and the supply chain, while also looking for ways to better connect with consumers.

With sensors, devices and wearables, it's now possible to collect and analyze all manner of information within and outside of clinical settings, enabling automatic and hassle-free monitoring. IoT is also helping companies improve visibility and connectivity across the supply chain, a requirement for cell and gene therapies and beneficial for biopharma and medical device companies in improving control of product inventories, reducing loss and waste. While few respondents have run 5G pilots, the mesh of machines created by IoT and 5G will serve as a foundation for new levels of functionality and possibility.

The 3 As of digital-first business: Al, automation and analytics

Respondents have also made progress in implementing Al and analytics. A majority of respondents (73%) are expecting analytics to create value from data. With real-time insights and decision-making, companies can filter out production and supply chain inefficiencies, and remove human intervention in repetitive tasks, delivering new performance thresholds.

A total of 68% of respondents are in some stage of pilot or implementation with AI. AI use cases range from drug discovery and patient identification, to optimized physician interactions. Life sciences companies are using AI to boost the accuracy of risk predictions, make patient care more intuitive, determine the most effective treatment for individual patients, and support compliance via real-time insights. Zenith Technologies, a Cognizant company, is applying machine learning across biopharmaceutical and medical device manufacturing operations to improve productivity and time to market.¹²

According to the COO of a clinical development company, "We have developed several machine-learning algorithms and devices with the potential to predict the risk of certain serious diseases before they strike."

The fight against the virus reaffirmed the importance of machine learning and other AI technologies in speeding discovery of treatments and cures for all disease types. Deeplearning algorithms helped make sense of the gargantuan datasets for protein identification that were beyond the comprehension of data scientists.

The first system to warn of the outbreak was the deep-learningdriven BlueDot.¹³ The intelligent system sent an email to its clients warning of the virus a week before the World Health Organization alerted the general public.¹⁴ AlphaFold, a deeplearning system, is working to predict the interactions of protein structures with chemical compounds to facilitate new drugs or recommend current medicines.¹⁵ The increasingly sophisticated technologies of Al, machine learning and deep learning will alter how drug discoveries are made and may allow us to respond more quickly to future pandemics. Process automation is also no longer optional, with 47% of respondents at some phase of pilot or implementation. A senior executive at a leading life sciences company told us, "We have accelerated the automation in our production units to minimize the human presence and maintain employee safety." Clinical data science, compliance management, regulatory compliance, customer interaction, invoice processing, narrative writing and customer setup are usually the most addressable processes for massive cost savings. AiCure, for example, is an intelligent automation solution for clinical data science that is readily available for deployment.¹⁶

The combined use of data analytics, automation and cognitive techniques will transform clinical development by enabling decentralized clinical trials, and change how research organizations engage with patients and drive process efficiencies. For instance, a machine-learning algorithm behind a company's mobile app could allow patients in a clinical trial to integrate their health history, recognize variations and receive informed alerts when something is amiss.

The CIO of a drug manufacturing company in India commented, "We've started making use of a combination of AI, automation, analytics and connected wearables for the clinical trial and clinical research for protocol development." The "3As" (automation, analytics and AI) are emerging as a sophisticated and complex set of tools that need to be deeply embedded in processes for the future of work to happen.

47%

Process automation is also no longer optional, with 47% of respondents at some phase of pilot or implementation.

The new rule of work: human + machine

The top-valued workforce skills will increasingly tilt toward human capabilities that validate the need for human-machine collaboration: innovation, decisionmaking, leadership and learning.



Our life sciences respondents believe intelligent machines will take on more data-oriented tasks and complex decision-making between now and 2023, from about 15% of this work today to 23% by 2023 (see Figure 5).

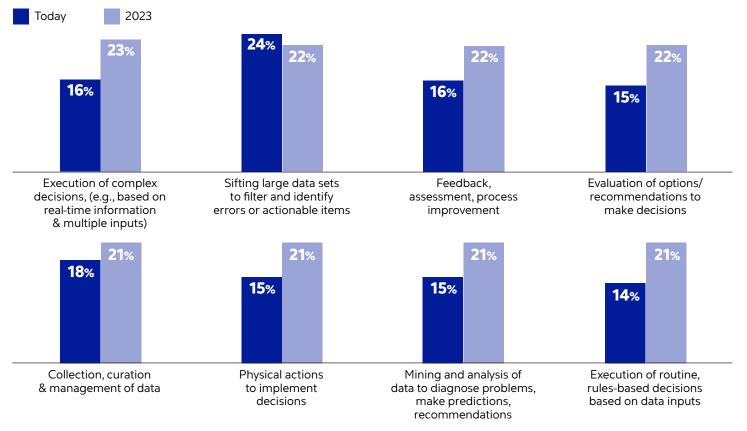
Smarter decisions can be made by linking an expanding set of data sources, such as wearables, sensors, devices, social media tools and electronic health records, via a digital platform and then applying Al tools.

For instance, AI platform KenSci incorporates big data and AI to forecast clinical, financial and organizational risk by taking data from current sources to predict everything from who might get sick, to the drivers of increased healthcare costs.¹⁷

Sensors, smart processes and smart drugs will impact how life sciences companies collaborate to create value. Using digital tools and approaches, clinicians and data scientists can already orchestrate tasks, merge and analyze data sets from drug trials and direct observations from other physicians, electronic medical records, online patient networks or genomics research. New, simpler data visualization tools will help ensure that doctors and scientists can visualize and interpret data without technical assistance.

Machines in action: from the routine to the complex

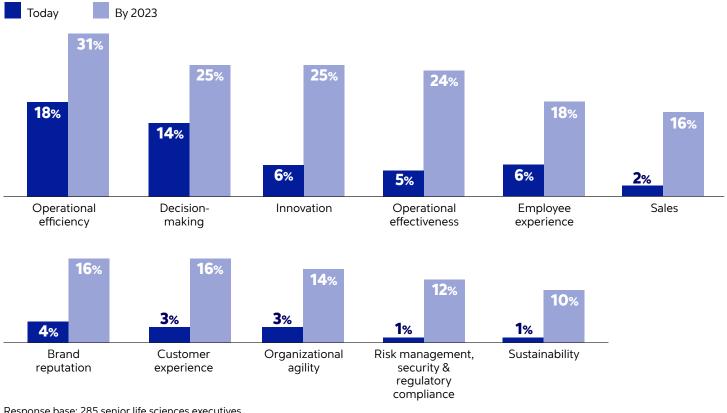
Respondents were asked the extent that machines will perform work vs. employees for a variety of processes. (Percent of work done by machines)



Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 5

Innovation, decision-making and efficiency are top expected outcomes of augmented processes

Respondents were asked what progress they expect in a variety of outcomes as a result of process augmentation, now and in 2023. (Mean percent increase)



Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 6

Data generated by processes that stretch across drug development, manufacturing, supply chain and patient aftercare can be collected, stored, sifted and mined for insights.¹⁸ For many companies, this calls for strengthening master data management architectures and strategies. Companies should consider establishing a data supply chain across the business for optimum machine-delivered insights.

From efficiencies to more strategic outcomes

When it comes to the benefits realized by augmenting processes with technology, most respondents appear to have focused on achieving operational efficiencies (see Figure 6).

However, increases in analytics and data should deliver even greater benefits in manufacturing resilience and supply chain flexibility.

More strategic outcomes, like better decision-making and innovation, are on the horizon. In fact, life sciences respondents expect greater improvements in innovation through process augmentation than the cross-industry average (25% vs. 10%). Once the hard work of instrumenting, automating, tracking and analyzing the business's core operations is completed, the application of machine learning will consistently deliver innovation opportunities. In a world of cloud services, open APIs, platforms and crowdsourcing, every organization has access to readily affordable tools with which to build the future of their work.

Redefining skillsets to thrive in a machine-oriented world

Study respondents are developing a more realistic view of humans' role in the age of Al. As Figure 7 shows, the top-valued workforce skills will increasingly tilt toward human capabilities that validate the need for human-machine collaboration: innovation, decision-making, leadership and learning.

Decision-making and strategic-thinking skills are best performed when workers are supported by the insights generated by AI and data analytics, and freed from performing rote and repetitive work by intelligent automation. The human role will increasingly focus on what gets done with data-driven insights, requiring a renewed focus on decision-making, leadership and strategic thinking. Augmented by technology, the healthcare workforce will combine people and machines at every touchpoint. From discovery to delivery and customer experience, the workforce will embrace change, adopt new skills, collaborate and align around a common purpose: the patient.

Innovation as a skill is in strong demand and projected to have sustained high demand through 2023. With increasing cost pressures and competition, life sciences companies will need to innovate their business model to find new growth opportunities, with the support of digital technologies. For example:

I **Product innovation:** Al platforms can help monitor a fleet of manufacturing machines, enabling fast recognition of which components fail prematurely and why. Bioserenity is using smart clothing, IoT and Al to co-create solutions that diagnose, monitor and test those suffering from epilepsy.¹⁹

Needed skills will require human-machine collaboration

Respondents were asked which skills were more important today than previously and which would become more important by 2023.

Today IMPORTANCE By 2023		
Innovation (56%)	1	(57%) Learning
Leadership (38%)	2	(56%) Innovation
Decision-making (37%)	3	(55%) Decision-making
Analytical (34%)	4	(55%) Strategic thinking
Strategic thinking (33%)	5	(55%) Leadership
Selling (27%)	6	(50%) Selling
Interpersonal (26%)	7	(49%) Analytical
Communication (23%)	8	(45%) Communication
Customer care (20%)	9	(39%) Interpersonal
Fabrication (18%)	10	(38%) Customer care

Response base: 285 senior life sciences executives Source: Cognizant Center for the Future of Work Figure 7

- I Process innovation: Al will monitor an instrumented workflow and quickly recognize existing bottlenecks and recommend new approaches. Organovo's 3D-printed tissues mimic key aspects of human biology and disease to accelerate the drug discovery process.²⁰
- I **Customer-led innovation:** A team can gain real-time and continuous insight on how products are (or aren't) being used and where areas for improvement (both incremental and exponential) exist.

Learning as a skill is also expected to become extremely important in the future, shooting up to first in the rankings by 2023 from below tenth place today. This is not surprising as the augmentation of the workforce in life sciences is still in its early stages. Companies have not reached the point where researchers, salespeople and other industry participants have an awareness of Al and other data analytics resources. The CFO of a pharma company in the U.S. said, "We initiated a pilot by getting around 3,000 sales employees to start engaging with AI for their work. The AI virtual assistant did all the time-consuming work like fetching information, synchronizing and visualization of data, and our employees could focus on the more human nature of the job like engagements and conversations."

Preparing the current and future workforce with relevant skills requires a reboot of traditional, decades-old training, learning models and approaches. To establish new learning models, businesses need to engage in more flexible partnerships, accelerate their response time, provide more proactive modes of delivery and offer new combined-skill programs. (For more on this topic, see our report "**Relearning How We Learn, from the Campus to the Workplace**."²¹)

A prescription for the post-COVID-19 world

COVID-19 accelerated the shift not only in where and how we access care, but also in the nature of healthcare and life sciences itself: from a reactive system, in which people seek medical help when they get sick, toward a predictive and preventative healthcare network.

Life sciences organizations can take several steps to ensure they gain or sustain the momentum needed to move from simply understanding that "something big is happening," to capitalizing on the massive shift in expectations that comes with digital's inexorable proliferation.

To meet their ambitious plans to get ahead of the competition, life sciences companies will have to prioritize digital-first investments, reimagine health consumer relationships and restructure teams. Here are some prescriptions for these organizations to follow:

- Inject "wellness" at the core of your brand. People are living longer and have greater access to data that gives them more control over their health and well-being. Consumer adoption of wearables and wellness/fitness apps demonstrates a growing desire to proactively self-manage and improve their own health, potentially reducing healthcare costs. Progressive companies are already moving ahead. Johnson & Johnson Consumer Health is investing \$800 million over the next 10 years to improve the health of both people and the planet.²²
- Become a data-driven business. How life sciences companies access, understand and interpret data will determine their ability to shape life-care delivery. By harnessing data, life sciences companies can gain real-time, actionable insight and make fast, accurate predictions to anticipate patients' needs and discover treatments. Health Bank empowers people to exchange their health data on a neutral and independent platform, with the goal of driving innovation in health sciences, from prevention to cure.²³ Companies need to make transparency core to their data strategy by clearly defining the health data they will collect from consumers, what they will do with it, and what consumers will get in return. Mastering this give-to-get equation is critical to earn and keep consumer trust.
- I Prioritize a focus on innovation. Establish a top-down strategic commitment supported by an innovation-focused governance model, process and metrics to explore data science, algorithms and AI across business operations. The focus should include R&D investments, innovation programs and development across the organization. Begin dismantling business and data silos to align IT, data science and business

domain subject matter experts. Establish a data supply chain, combining clinical data and consumer-generated data from wellness apps/devices and social media. Enable access to company-owned data to drive better research and clinical trial results and effective understanding of patient populations.

I Rethink organizational and team structures. As AI and automation take over more repetitive tasks, work demand will change team structures. Rather than larger hierarchical team structures, smaller teams will emerge that allow more fluidity and flexibility across roles and functions. A UK-based business's chief strategy officer said, "We are striving to develop cross-functional experts. This means that someone who is working in clinical trials can also be moved to the procurement team. Cross-functional roles will help us retain knowledge internally and enhance our strategies around planning, forecasting, supplier performance management, master data maintenance and real-time reporting indirectly." Build teams that blend science, technology and customer experience skills to humanize your products and services.

I Double-down on collaboration (and not competition).

Since coming together to fight the virus, more life sciences companies now recognize that sharing data (where they can) and co-investing in market development can catalyze a muchneeded makeover of their business models. Expect to see more such collaboration as life sciences companies unlock opportunities from data and create new ways forward in the healthcare/patient care ecosystem. Ten large pharmaceuticals companies, including Johnson & Johnson, AstraZeneca and GSK, embarked on the first collaboration to train their drugdiscovery, machine-learning algorithms on each other's data.²⁴

A collaborative approach will allow companies to share costs and find solutions faster, radically changing the economics of life sciences. In addition, partnerships between industry and academia, as well as patient advocacy groups, can bring deep insights into health and healthcare, accelerating industry development in rare and orphan diseases.

To meet their ambitious plans to get ahead of the competition, life sciences companies will have to prioritize digital-first investments, reimagine health consumer relationships and restructure teams.

The making of a life-care brand

We will never obliterate disease from society. COVID-19 accelerated the shift not only in where and how we access care, but also in the nature of healthcare and life sciences itself: from a reactive system, in which people seek medical help when they get sick, toward a predictive and preventative healthcare network. The transition is being enabled by algorithms that support early diagnosis and provide treatment recommendations, extending the capacity of physicians and the capability of healthcare workers.

With an aging worldwide population and the increase in chronic disease, predictive and preventative care can deliver on the health and healthcare promise of better outcomes at lower cost. In addition, novel technologies such as gene-editing will allow us to address more types of disease, supporting a change in focus from cure to care. The life sciences industry doesn't need to wait for the next pandemic before building a more resilient, continuous, consumer-centered system of care. 2021 marked the beginning of a life-care brand: a brand that genuinely cares about consumers' health and well-being through digital tools, systems and approaches.

Life sciences companies that transform their operating model from "treating a patient" to focusing on the well-being of customers will succeed. The biggest challenge will be using technology to humanize healthcare rather than treating patients like machines that need to be monitored and checked. The overriding message from our study is that now is the time to bring real change by moving from volume-driven to care-driven businesses. Life sciences companies that prove to be authentic change-makers will put humans before profits and, in due process, earn consumer trust.



Methodology

Cognizant commissioned Oxford Economics to design and conduct a study of 4,000 C-suite and senior executives, including 285 in the life sciences industry. The survey was conducted between June 2020 and August 2020 via computerassisted telephone interviewing (CATI). Approximately one-third of the questions were identical to those included in the 2016 Work Ahead study, allowing us to compare responses and track shifting attitudes toward technology and the future of work.

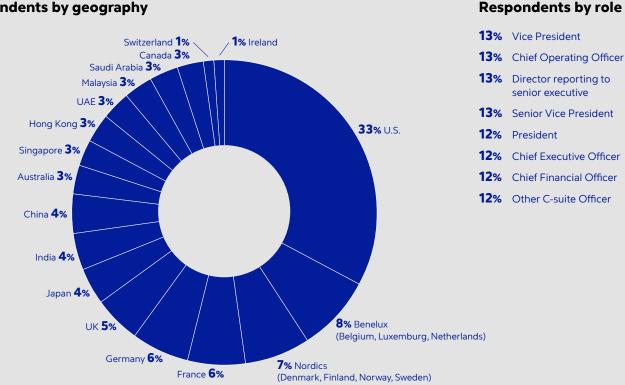
Respondents were from the U.S., Canada, UK, Ireland, France, Germany, Switzerland, Benelux (Belgium, Luxemburg, Netherlands), Nordics (Denmark, Finland, Norway, Sweden), Singapore, Australia, Malaysia, Japan, China, Hong Kong, India, Saudi Arabia and UAE.

They represent 14 industries, evenly distributed across banking, consumer goods, education, healthcare (including both payers and providers), information services, insurance, life sciences, manufacturing, media and entertainment, oil and gas, retail, transportation and logistics, travel and hospitality, and utilities.

All respondents come from organizations with over \$250 million in revenue; one-third are from organizations with between \$250 million and \$499 million in revenue, one-third from organizations with between \$500 million and \$999 million in revenue, and one-third with \$1 billion or more in revenue.

In addition to the quantitative survey, Oxford Economics conducted 30 in-depth interviews with executives across the countries and industries surveyed. Interviewees who responded to the survey have a track record of using emerging technology to augment business processes. The conversations covered the major themes in this report, providing real-life case studies on the challenges faced by businesses and the actions they are taking, at a time when the coronavirus pandemic was spreading around the world and companies were formulating their strategic responses. The resulting insights offer a variety of perspectives on the changing future of work.

The following figures represent the demographics of the 4,000 respondents from the full global study.



Respondents by geography

(Percentages may not equal 100% due to rounding)

About the author



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Brian Williams is Chief Digital Officer within Cognizant's Life Sciences Practice, responsible for designing digitally enabled solutions to facilitate care access and delivery. He is also the Global Life Sciences Consulting Leader, inspiring teams in North America, Europe and Asia that provide management consulting services to leading biopharmaceutical and medical device companies.

Prior to joining Cognizant, Brian spent eight years with PwC/Strategy&, where he advised senior executives of traditional biopharmaceutical and medical device companies on the transformations occurring within healthcare. He also advised senior executives at non-traditional companies, such as telecommunications, technology and consumer products companies, who sought to enter and transform access to and adherence to care and care outcomes. He was the lead author or co-author of numerous articles that defined the transformation of healthcare and its implications to the healthcare industry. His articles and perspectives resulted in him being a frequent speaker at industry events in the U.S., Europe and Asia.

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Endnotes

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