KPMG

2020 CIO Survey

Pharmaceuticals industry insights

IT in the New Reality for Pharmaceuticals

Historically, given the fundamental societal need for medicines regardless of economic conditions, the pharmaceuticals sector has been largely resistant to recessions – and has also generally been less severely impacted than other sectors by COVID-19. Indeed, in many ways the pandemic has put the industry into 'surge' mode. Companies are experiencing high demand for select products and have even been forced to discontinue some of their initiatives to focus on producing critical supply for COVID-19 management and treatment and medical technologies that best position pharmaceuticals for the new reality.

The end of 2020 marked the much awaited COVID-19 vaccine and beginning of the vaccine roll-out. In pursuit of the race to develop a vaccine for the virus, there have been collaborations between some pharmaceutical companies that would have been unimaginable prior to COVID-19. The overall effect of the pandemic will be different in different parts of the life sciences sector: pharma and diagnostic companies with COVID-19 plays can be expected to prosper – they will likely find new capital and new revenue streams. Indeed, for a select few, success in developing COVID-19-related products could spark bumper financial rewards. However, businesses with weaker balance sheets and those with significant dependency on supplying medicines and products for a range of elective procedures that have largely been shelved during the pandemic will face bigger challenges; as will smaller biotechs that prove unable to recover pre-COVID-19 valuations.

The pandemic has forced accelerations in other areas of life sciences as well – including developing digital biotechnology and medical devices and equipment to help doctors and care providers shift to interacting with patients through telemedicine, telehealth, remote monitoring and mobile health apps. The innovation in life sciences is likely to continue with additional advances in technology such as remote surgical systems and CRISPR. With IT at the heart of enabling these technologies, tech leaders will be faced with developing a modern architecture of data and systems from the ever-growing life sciences ecosystem.

In terms of technology, pharmaceuticals is a sector where data and advanced analytics are king. It informs every aspect of the business: deriving it from trials and R&D, integrating it with other data streams through the pharmaceutical supply chain, running advanced analytics across complex datasets from testing and trials, sharing it with collaboration partners, and, just as crucially, keeping it safe from competitors and cyber criminals. The imperative for CIOs in the sector is to enable and support the data ecosystem at the same time as facilitating the increased adoption of digital and automation technologies to expedite delivery of value.

Board priorities & investment

With some pressures on liquidity and capital in the sector, 69 percent of CEOs in Life Sciences are placing more capital investment in buying new technology and digitization in preparation for the new reality (2020 KPMG Global CEO Outlook survey). However, 41 percent cited the lack of insight into future operational scenarios (new ways of working) as the greatest challenge in accelerating digital transformation. In a sector where M&A activity is high, pathways to acquire new technology have taken different shapes, such as joint ventures, major mergers, or developing new products in-house – all with the end goal of getting closer to the patient. While advancements around quantum computing and augmented reality are often being driven by the business (front office) more so than by IT (back office), CIOs reported that the number one business issue Boards are looking for the technology function to address is improving operational efficiency (61 percent), consistent with other sectors on average. Initiatives to accelerate time to market and new product innovation (with 91 percent of digital leaders doing better than their competitors), fueled by AI, RPA and digital technologies, are paramount to efficient research & development and manufacturing but will need to demonstrate a return on investment. With so much depending on collaboration and shared initiatives, facilitating connectivity and insight through the business value chain will be a key priority. Life science businesses need to 'think like a VC', making small targeted investments in their core business practices and adopting agile, fail fast practices to deliver value or pivot quickly – and IT needs to provide the responsive architecture to allow this to happen. Workforce enablement and delivering stable and consistent IT performance come close behind in Boards' expectations of the technology function: a reminder that any pharmaceuticals organization depends equally on the insights of its people and the effectiveness of the technology that enables them.

Top business issues that management boards are looking for the IT function to address:
Pharmaceuticals vs. overall

Pharmaceuticals

1. Improving operational efficiency
2. Enabling the workforce
3. Delivering stable and consistent IT performance
4. Developing new products and services
5. Improving customer engagement

Overall

1. Improving operational efficiency
2. Improving customer engagement
3. Enabling the workforce
4. Developing new products and services
5. Delivering stable and consistent IT performance

Most important technology investments:
Pharmaceuticals vs. overall

Pharmaceuticals

1. Automation
2. Customer experience and engagement
3. Office productivity and internal communications
4. Operations and production
5. Security and privacy
6. Systems of insight

Overall

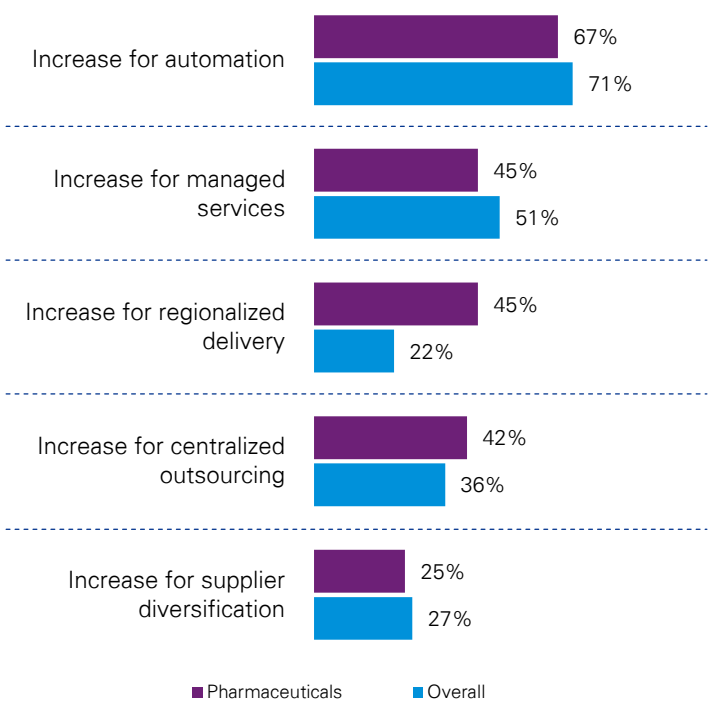
1. Security and privacy
2. Customer experience and engagement
3. Infrastructure/Cloud
4. Automation
5. Systems of insight
6. Technology development, management, and operations

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Strategy & operating model

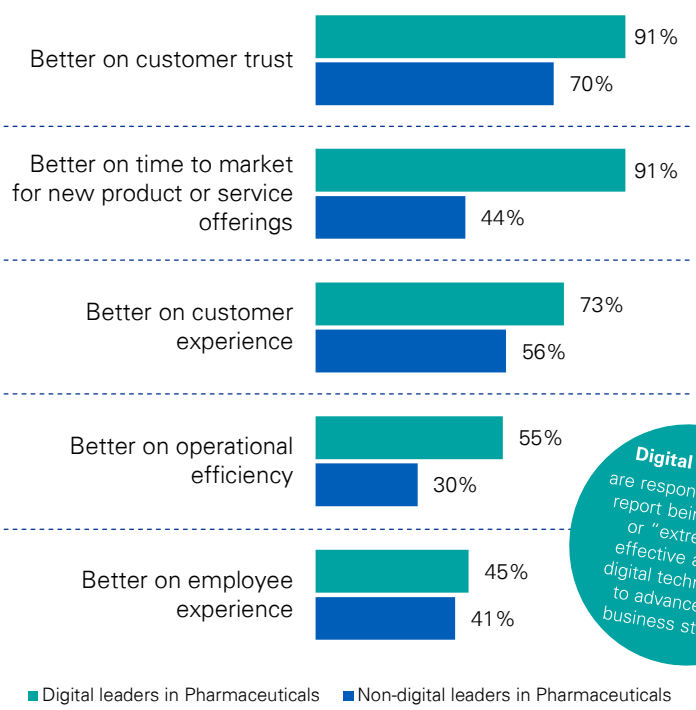
With the entire life sciences value chain trying to get closer to the patient, there is pressure on pharmaceutical companies to build brand awareness and provide the whole ecosystem to the patient in the form of holistic health services. As with almost every sector today, digital channels will be front and center in the go-to-market strategy for life science businesses. Many have accelerated the development of digital platforms – such as incorporating virtual clinical trial technologies due to the pandemic. Organizational agility will be key, and manufacturers will need to reimagine supplier engagement or consider vertical integration, optimizing processes with automation and digitization at the plant level. Some manufacturers could find themselves at risk of being disintermediated from end customers and will therefore need to reinvent, and reconnect with end customers and focus on value rather than cost. There is also a real threat to pricing with value-based pricing for commodity drugs on the rise. In response to the large impacts in pharmaceuticals, leaders in this sector are also looking for opportunities in portfolio optimization – sometimes through M&A. For two-thirds (67 percent) of life science organizations, increasing automation is high on the agenda, while a significant proportion (45 percent) also anticipate increased use of managed services and regionalized delivery as they seek to optimize the flexibility and responsiveness of their operating models. Digital Leaders are in a markedly stronger position than their counterparts in several key respects, scoring twice as high on time to market for new products or service offerings (91 percent vs 44 percent) and being far ahead on operational efficiency and customer experience.

Expected change to service delivery model:
Pharmaceuticals vs. overall



Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

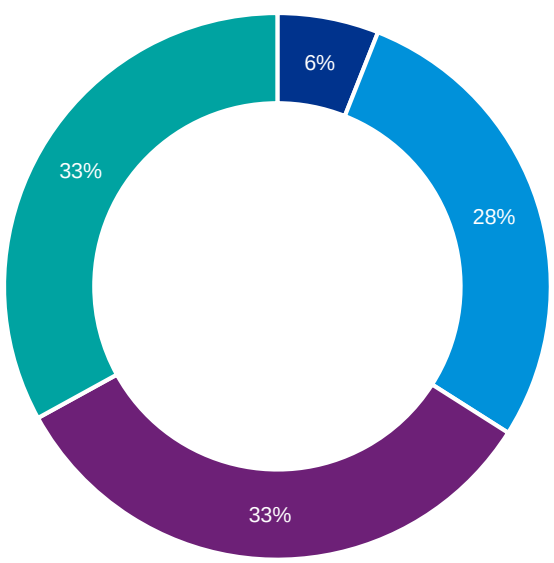
Organizations performing 'better' or 'significantly better' than competitors on the following metrics:
Digital leaders vs non-digital leaders in Pharmaceuticals



Digital Leaders are respondents who report being "very" or "extremely" effective at using digital technologies to advance their business strategy

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Four economic recovery paths:
Pharmaceuticals



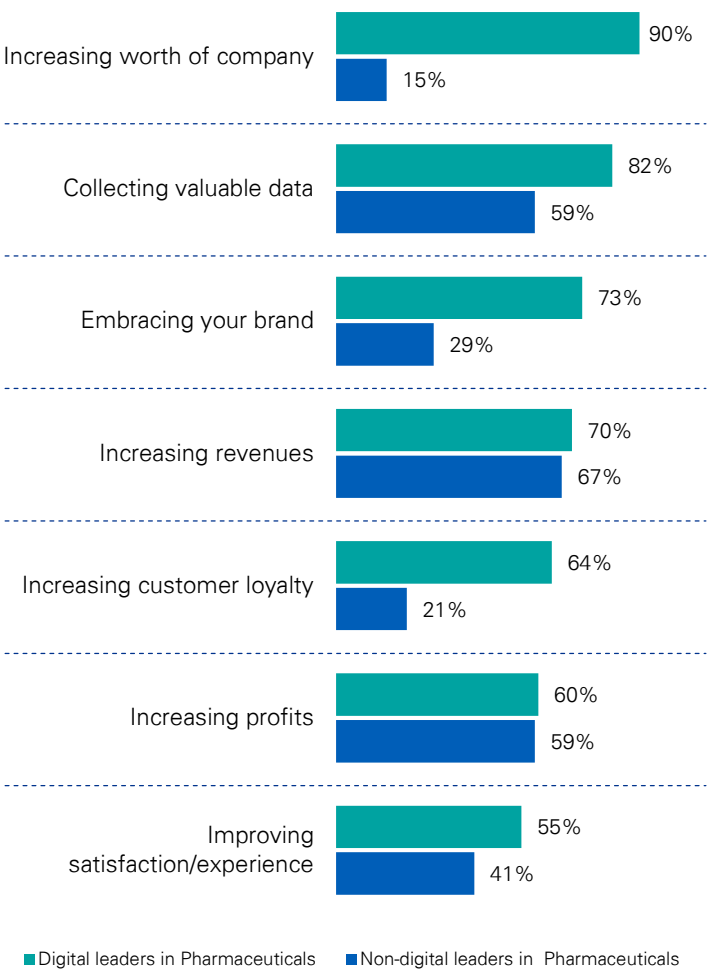
- **Hard Reset** — companies that struggle to recover from COVID-19 due to 'permanently' lowered demand for offerings, insufficient capital to ride out extended recession, and/or poor execution of digital transformation.
- **Transform to Re-emerge** — companies that will recover but along a protracted path requiring reserves of capital to endure and transform operating models to emerge stronger and more in line with changed consumer priorities.
- **Surge** — companies that scale post-COVID-19 as consumer behavior that was altered during the crisis is sustained in their favor. Investors sense their potential to lead and provide capital to scale aggressively during recovery.
- **Modified Business-as-usual** — companies seen as daily essentials will suffer effects of the consumer shutdown recession but are expected to recover more quickly as consumer demand returns in similar volumes.

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Delivering value at speed

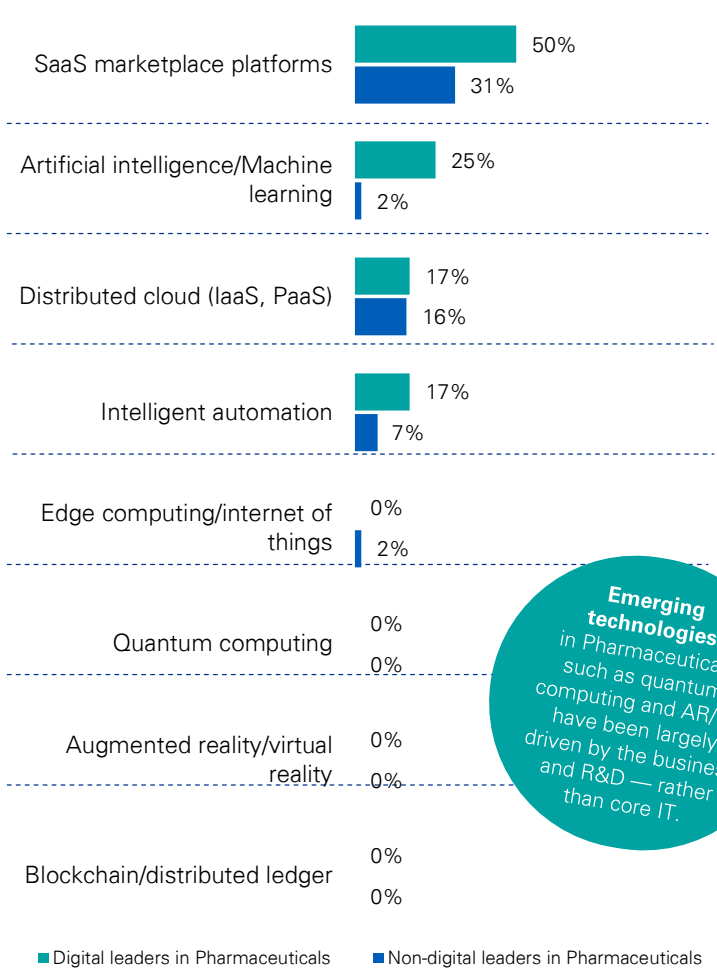
A high degree of fast-paced collaboration is paramount in the pharmaceuticals industry - and the pandemic has accelerated this to unprecedented levels across borders and sectors, including governments, academia, the private sector, and the philanthropic community. Continued collaboration will fuel innovation that in turn accelerates product development and the path to product approval – while reduced approval times can also be achieved by leveraging AI and developing drug repurposing capabilities. Growing momentum in telehealth adoption – as well as increasing popularity of self-monitoring health devices such as wearables, at-home diagnostic tools, or health and wellness apps – illustrate multiple channels by which customers receive (and expect) faster realization of value. To help keep pace, many life science businesses are looking to "shift left" – bringing risk & compliance activities such as testing, validation and compliance forward and embedding them earlier in the product development cycle so as to speed up the end-to-end process. Acceleration of R&D resulting from COVID is likely to become the new normal, with companies realizing streamlined time-to-market for new products. Significantly higher numbers of pharmaceuticals leaders (including functional leaders such as marketing, sales, distribution, etc.) in the sector have begun large-scale implementations of AI and machine learning, intelligent automation and SaaS platforms – and are outperforming their rivals in key metrics such as increasing the worth of the company and its brand (closely tied up with their IP and R&D), customer loyalty, and collecting valuable data.

Digital offerings to customers that were 'very effective' or 'extremely effective' at the following:
Digital leaders vs non-digital leaders in Pharmaceuticals



Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Large-scale implementations of emerging tech:
Digital leaders vs non-digital leaders in Pharmaceuticals



Emerging technologies in Pharmaceuticals such as quantum computing and AR/VR have been largely driven by the business and R&D — rather than core IT.

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

People & culture

With so much resting on technology, addressing skills shortages in the IT team must be a key priority. Individuals with organizational change management skills are in the highest demand, as the pace of change in pharmaceuticals has accelerated. It is notable that advanced analytics is the second most in-demand skill, a sign of the crucial role of data scientists in integrating all the vast swathes of data that life science businesses generate and ensuring they have the right models to compare and analyze it. While the sector has typically been in competition with the tech and information sectors for high-skill IT professionals such as data scientists, engineers and programmers, competition is now broader across numerous other industries including financial institutions, other corporates and professional services firms – so securing the right talent is getting harder. Ensuring there is a compelling employee offer built upon strong culture & leadership, attractive remuneration, career progression opportunities and a sense of purpose and values will be essential.

Most in demand skills:
Pharmaceuticals vs. overall

Pharmaceuticals

- Organizational change management
- Advanced analytics
- Intelligent automation
- IT strategy
- Business analysis

Overall

- Cyber security
- Organizational change management
- Enterprise architecture
- Technical architecture
- Advanced analytics

Top factors in engaging and retaining key technology talent in the new reality:
Pharmaceuticals vs. overall

Pharmaceuticals

1. Strong culture & leadership
2. Good remuneration
3. Career progression opportunities
4. Purpose of the organization
5. Work location and remote work opportunities

Overall

1. Strong culture & leadership
2. Good remuneration
3. Career progression opportunities
4. Work location and remote work opportunities
5. Training, development, & reskilling opportunities

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

33% in Pharmaceuticals believe **COVID-19 created a culture** of inclusivity in the **technology team.**

More than half in Pharmaceuticals believe **promoting diversity** improves **engagement with the business, trust and collaboration and accessing the right skills.**

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Proportion of enterprise that will remain predominantly working from home post COVID-19:
Pharmaceuticals vs. overall

Pharmaceuticals
47% Say half or more

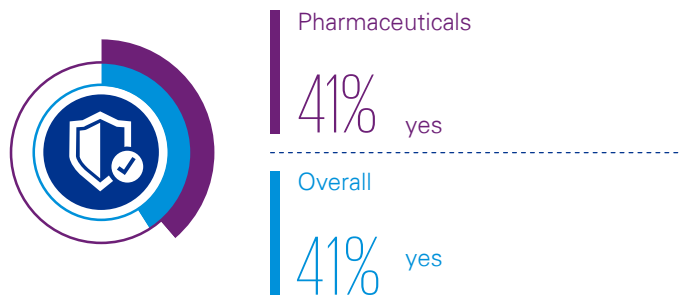
Overall
43% Say half or more

Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

The rise of cyber

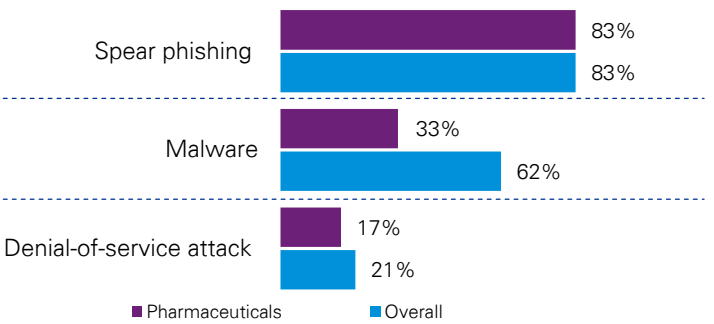
With COVID-19 causing the mass relocation of staff from corporate networks to home offices, bedrooms and kitchen tables around the world, organizations' attack surfaces also dramatically grew. As a result, more than four in ten organizations have experienced an increase in cyber security incidents – with life science businesses reporting an 83 percent rise in phishing attacks. Maintaining security of data is critically important to the sector. Life science companies extensively leverage Big Data, and such initiatives require not only data analysis, but data sharing – in real time, in the cloud, across borders, sometimes with competitors, and with agencies of varying size and cyber maturity. More sharing of data means more cyber risk. Some of this data relates to patients, including electronic health records (EHRs) – highly valuable on the black market for unscrupulous cyber criminals. The need to bolster and maintain the highest standards of cyber security is abundantly clear.

Organizations that experienced an increase in security or cyber incidents due to remote working:
Pharmaceuticals vs. overall



Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Increase in types of attacks:
Pharmaceuticals vs. overall

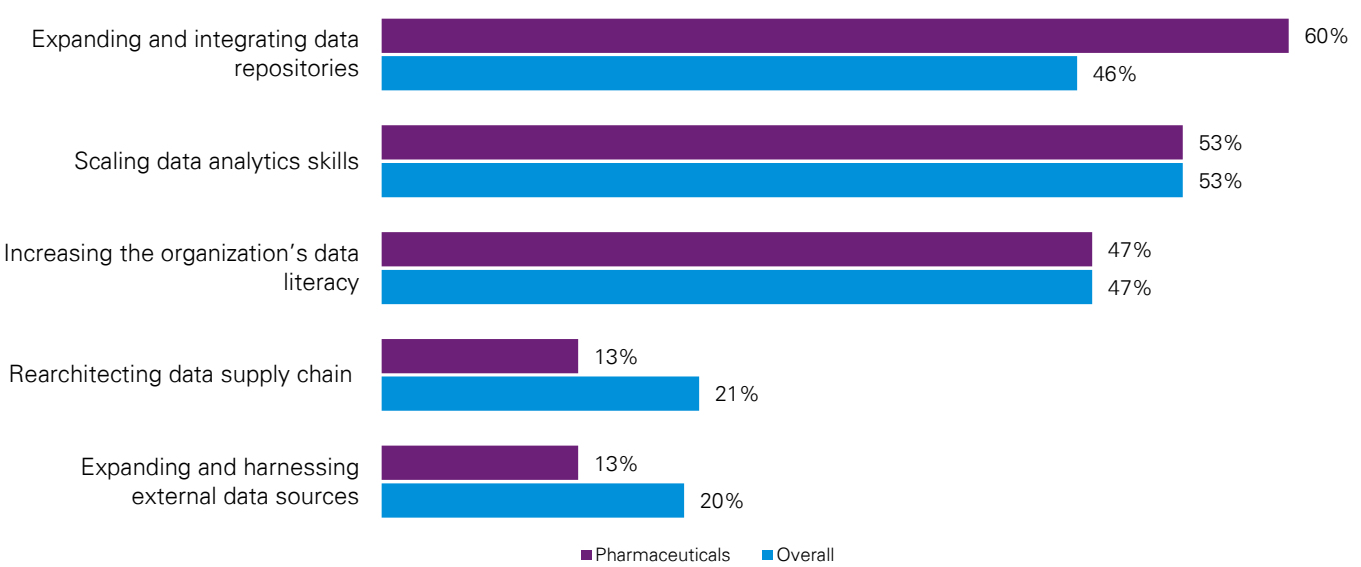


Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

Analytics & insight

Leveraging data and analytics to make better scientific and business decisions is critical to the pharmaceuticals sector. High performance computing resources with significant processing power have enabled companies to track the spread of COVID-19, process data for vaccine development, and understand patient treatment outcomes. Extracting, collating, integrating and analyzing data across multiple sources is key. But it is not only about backward-looking or static analytics: predictive modeling to anticipate ongoing and future demand is a pre-requisite too. All of this requires data systems that are inter-connected and unified – and so it is perhaps no surprise that expanding and integrating data repositories is the top data priority (60 percent) of tech leaders in the sector. Meanwhile, collaborative platforms to share scientific data are also important, for example the two notable online archives medRxiv and bioRxiv, for sharing of academic research globally before being published in journals. Furthermore, increased health literacy amongst customers – coupled with increased use of self-monitoring devices and wellness apps – will continue to grow the volume and variety of data and insights that companies can use for strategic advantage and product improvement. However you look at it, data is the life blood of life sciences and must be prioritized accordingly.

Priorities for your organization's data strategy:
Pharmaceuticals vs. overall



Source: 2020 Harvey Nash/KPMG CIO Survey, KPMG International

What now?

COVID-19 has changed the landscape. With technology more important than ever to organizations' ability to survive and thrive, the opportunity has never been greater for CIOs to work as strategic partners with the business. Seven in ten IT leaders report increased collaboration between the business and technology teams – this relationship is something that CIOs must build on to ensure their organization's digital transformation success.

For CIOs in pharmaceuticals, the focus must continue on supporting high degrees of advanced data analytics and predictive modeling, with the systems in place to enable secure and seamless sharing and collaboration; while continued investment in automation and digital platforms for faster time to market will be another non-negotiable requirement.

How KPMG can help

While KPMG firms are some of the largest providers of services to pharmaceutical organizations globally, we take a boutique approach to client issues with a focus on flexibility, adaptability, and innovation. We recognize that there are many on-ramps to supporting IT transformation and we've tailored our services accordingly:

Transform the business

- Strategy and operating model
- Organizational design
- Enterprise architecture
- Portfolio planning
- Merger and acquisition
- Integration and separation

Run the business

- Scaling agile
- Product management
- DevOps tooling
- IT financial management
- IT service management
- IT asset management

Modernize and protect

- Cloud strategy
- Data center strategy
- Continuity and resiliency
- Workplace transformation
- Network modernization
- Cyber, risk, and compliance

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