

DIGITAL TRANSFORMATION IN THE LIFE SCIENCES INDUSTRY



An expert perspective from IDC Health Insights

As an industry actively transforming itself in the pursuit of re-establishing long-term sustainability, life science organizations are just beginning to embrace true digital transformation. They are now adopting a more holistic strategy that embraces a broader organizational approach to transformation than the current incremental focus on near-term technological innovation, operational efficiency, and externalization of noncore competencies, common in industry

transformation efforts today.

Within the broader IDC view, digital transformation has the potential to fundamentally transform the organization, challenging the traditional approach to leadership, and incorporating technological advances (both near- and longer-term), more effective information usage, evolving social norms, and an increasingly collaborative mindset on the next step in operational excellence.



In this paper, we will focus on the role of transformational, technological, and process innovation in industry change, built on an expectation that more effective data, information, and knowledge exploitation are just three key business innovations needed to help life sciences companies succeed in moving ahead.

A legacy of safe change

With the increased urgency triggered by the arrival of the patent cliff, the industry has actively embraced both incremental and transformational change, where directly supported by measurable ROI. Once a taboo, industry leaders are also increasingly considering best practices from outside the industry as they seek to leapfrog the chasm, and quickly transition to operational excellence. While the limitations of a highly regulated, operational ecosystem have made change significantly more difficult compared to other industries, life sciences companies

are finding that change and the hurdles encountered are not unsurmountable.

Concurrently, the industry is also continuing to expand, both geographically and into adjacent industry spaces (i.e., healthcare provider and consumer), as it pursues new business models to support long-term growth. By shifting beyond their traditional boundaries, companies are running into new business and regulatory hurdles that will need to be identified and overcome, although it remains to be seen which expansions will prove to add sufficient value to justify the added cost and complexity of these new strategies.



Life science companies are finding that change and the hurdles encountered are not unsurmountable.

Defining digital

As we at IDC define the industry transition to digital, we are not thinking about the transition of data from analog to digital, or the transition from computer mainframes to PCs, tablets, and smartphones. Striving for a holistic perspective, IDC is redefining discussions around digital to the more dynamic and all-encompassing need to access, process, and exploit data, information, and knowledge; virtually instantaneously by an agile workforce, on any platform, regardless of geography, and more transparently, so that it can be directly linked to improved business outcomes. This mindset is strongly supported by IT innovation, enabled by the third platform – the increasingly ubiquitous adoption of the cloud, big data and analytics, mobile technologies, and social communications (also described as SMAC). While life sciences continue to lag behind other industries in the adoption of digital, particularly in mobile and social communications, industry progress in areas demonstrating low-risk and high-reward, have been heartily embraced. For instance, improving accessibility and agility of unregulated research data by placing it in the cloud, analyzing increasingly complex datasets using big data technologies, shifting away from traditional PCs to laptops, iPads, and/or smartphones, and mining the social ecosystem for customer sentiment and potential candidates for clinical trials.

The life sciences industry has concurrently taken the notion of digital transformation further by actively reconsidering its entire information management infrastructure, including process-specific applications (e.g. predictive modeling, ELN, EDC, drug safety, other clinical trial applications, and collaboration platforms), business applications (e.g. BI, CRM, ERP, and project management), and general business processes (e.g. HR and accounting) with a view towards optimizing business outcomes. Large life sciences companies

have rationalized their application portfolios, reducing the number of solutions from more than 10,000 to just a few thousands in a few years. In the clinical trials space, companies are no longer focused on the EDC platforms specifically, but are looking for ways to better share data across applications (including EDC, CTMS, drug safety, quality, and regulatory compliance), to directly improve process efficiency and increase patient safety. eClinical is the new EDC and the focus on processes is shifting towards a view focused on outcomes.

The case for disruptive digital innovation

As IDC looks beyond the 3rd platform to digital transformation, we have extended the discussion from IT and infrastructure to the data, information, and knowledge-centric processes that will yield actionable insights and improve business outcomes. Scientists, project managers, and senior executives are

expected to benefit from some or all of the following:

- ▶ Geographic IT independence
- ▶ IT infrastructure independence
- ▶ Technology platform independence
- ▶ IT and application process automation with data inputs and process outcomes as the primary touchpoints
- ▶ Real-time access to relevant data, information, and knowledge based on intent,

instead of simple keyword searches

▶ Effective, secure, intelligent, enterprise-wide global collaboration platforms; designed to more transparently and automatically capture IP, manage access control, and protect against threats to the organization (both inside and out)

▶ Automatic and transparent collection, aggregation, analysis, and sharing of data, regardless of location to support project and business decisions in real-time

▶ Access to reusable libraries of active workflows that allow for automation of industry best practices, including real-time monitoring of key data (e.g. identification of potential drug safety issues or recognition of project milestones) and automated generation of alerts, where appropriate

eClinical is the new EDC and the focus on processes is shifting towards a view focused on outcomes.



► Comprehensive, transparent compliance with continually evolving global regulatory requirements

Many of these anticipated benefits will be enabled and empowered by technological and process innovations in the industry. Virtualized IT infrastructure via the cloud, complex analytics of increasingly oversized data resources, cognitive computing, anywhere anytime access on mobile devices, and other technological innovations are all powering these new capabilities, with support from solution and service providers, aligned towards the common goals of ubiquitous, real-time global operational excellence. With data volumes, variety, and velocity, all greatly exceeding the industry's ability to consume them, life sciences companies urgently need new ways to stay on top in an increasingly global competitive industry. Digital transformation promises to be a paradigm changer and will likely forever change the conversation, both now and for the foreseeable future.

The path forward

While organizational inertia ensures that change will never be easy, it is clearly time for the life sciences industry to begin to embrace digital transformation in the path towards long-term sustainability. For

the life sciences industry, new scientific discoveries, continuing technological innovation, increasingly ubiquitous global interconnectivity, increased digital access, and the growing availability of new data resources (including EMR data, patient insights via social media, and HEOR data), are advancing independently as the industry focuses on its more immediate concerns.

In looking beyond incremental innovation, the industry needs to embrace change at a more fundamental level. Building on the current technologically - enabled data, information, and knowledge - centric approach to new drug development, the industry needs to further transition towards a more comprehensive 21st century operational experience, including changing the way that:

- Leaders interact with their organizations
- People interact with both their peers and the organization at large, in an increasingly virtualized, 24/7 global ecosystem
- Data, information, and knowledge are captured, managed, analyzed, and used
- Companies operate, taking into account new virtualized value chains, increasingly global collaborative ecosystems, and expanded ecosystems
- Workers are resourced in an increasingly externalized, service-oriented industry

For the life sciences industry, the strong inertial resistance to change has been overwhelmed by the much anticipated arrival of the patent cliff, and its associated blockbuster revenue losses. The recognition that the traditional blockbuster drug model is dead has further driven the industry to look beyond traditional sources of new revenues, including niche small market blockbusters (especially cancer), and value-added products (e.g. drug associated diagnostics and direct patient monitoring). Because these more near-term strategies will likely not yield sufficient revenues to replace blockbuster losses, most companies will need to think bigger, taking into account a global transformation in business, industry, and society, enabled by technological innovation. With the

traditional barriers between academia and life sciences companies and consumers / patients continuing to evolve and dissolve, leading innovators will need to expand their mindset towards a future where companies will participate in and contribute to a much more global and interconnected ecosystem. While the few remaining major medical unmet needs (e.g. Alzheimer's disease and other CNS diseases, regenerative medicine) will likely provide opportunities for a few companies to quickly regain their footing, the rest of the industry will need to quickly innovate, or slowly fade into the sunset. Status quo is not an option. Change is coming and those willing to embrace transformation will more likely succeed in the future.

About the Author



Alan S. Louie

Research Director, IDC Health Insights

Research director, Alan S. Louie, Ph.D., is charged with spearheading IDC Health Insights' Clinical Development, Strategy, and Technology Research service with coverage of innovation and best practices in pharmaceutical R&D, and a further emphasis on technology and innovation in clinical development, business analytics, translational research, and personalized medicine. Dr. Louie has authored more than 160 reports on innovation in life sciences and blogs regularly on the topic in the IDC community. Dr. Louie graduated with a Ph.D. in biochemistry from the University of California at Riverside and holds a B.A. in biochemistry from the University of California at Berkeley.

If you wish to share your thoughts on this article or seek more information, write to us at Insights@infosys.com