



Tech Trends 2018 | A life sciences and health care perspective

## The new core in life sciences and health care

Ready for the spotlight: unleashing the digital potential in "heart of the business" operations

It is not surprising that the first digital wave of the digital revolution has focused on the flash of consumer engagement and marketing. But attention is now turning to the heart of the business—the core, enabling systems and traditionally back-office processes that offer opportunities to reinvent how daily work gets done—and how to harness emerging technologies to build an enterprise ecosystem.

Technology that lives out front—where patients, members, and customers can see it—can help a life sciences or health care organization shine. But the technology at the core—that most people never see—makes an organization *work*. Back-office systems, and the quality of their connections with front-end enterprise functions, are the critical infrastructure that make pricing, product availability, logistics, quality, financials, and other “heart of the business” information available where it is needed.

Though savvy organizations are approaching the digital mandate from a number of angles, one issue remains consistently important: the interconnectedness of front- and back-office systems. Digitizing the core is a process by which life sciences and health care organizations improve operations from the inside out and connect data elements across the spectrum of care.

CIOs recognize that any effort to transform the front office won't get far unless new digital systems have deep hooks into the core. Unlike traditional business networks that operate linearly and sequentially, a digital core enables real-time, cross-functional communication, connecting business operations to a broader set of ecosystem partners. The digitized core is the foundation upon which higher-order initiatives are built.

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In the midst of the digital revolution, the core's full potential in life sciences and health care remains largely untapped. But expect to see movement here over the course of the next 12–18 months as CIOs, CFOs, COOs, and supply chain leaders begin developing new digital capabilities in their core systems. We are not talking about deploying point solutions or shiny digital add-ons. Rather, this is about constructing a new core in which automation, analytics, real-time analysis and reporting, and interconnections are baked into systems and processes, fundamentally changing how work gets done.

Some organizations are already taking steps toward using these tools to transform core functions like supply chain, claims administration, and finance. Artificial intelligence in the form of machine learning and robotic process automation (RPA), plus cloud-based software-as-a-service (SaaS) offerings and predictive tools, are all in play. While RPA is occurring today and is poised to grow significantly in the future, the next evolution of this type of capability will be *cognitive automation*. Cognitive automation is the replication of judgment-based tasks through self-learning systems that use data mining, pattern recognition, and natural language processing to mimic the way the human brain works. These capabilities help free up talent to focus on more strategic activities and create a platform for operating model transformation.

As consolidation and collaborative care models create scale, organizations will need new ways to deliver on the efficiencies that scale can foster. As virtual care becomes a must-have for health systems—driven by changing reimbursement models, consumer demand, and advances in digital technologies—systems that give organizations new ways to interact with patients will deliver an advantage. A stronger, more digitally driven, unified core can help provide a foundation for those efforts and others. And a cross-functional approach that creates better connection between the core and the more visible parts of the business can help make sure the progress makes a difference where it counts.

## Prospects by sector

### Health Care Providers

Financial, clinical, and operational challenges like optimizing costs, reducing unnecessary variation, addressing evolving value-creation priorities, and enhancing patient care, delivery, and engagement are driving health care providers' need for a digital core. Revenue cycle and supply chain will be two primary focal points for new core improvements among provider organizations. One important tool for improving quality and capturing cost savings will be RPA, which has a long track record in other industries but is only now moving into health care. RPA software can mimic human handling of routine revenue cycle tasks. In data analytics and monitoring, the speed and accuracy of RPA can apply rule-based logic to improve performance in areas such as financial clearance, denials management, and credit balances. Basic denials such as coordination of benefits and eligibility on date of service are prime candidates for automation. Robotic programming can be prepared to follow rules associated with the denial type and insurance combination to replicate the human resolution process.

At the same time, predictive capabilities will have a more prominent role to play as well. In a survey of hospital executives, 80 percent of responding provider leaders said they believe predictive capabilities will be important for the future of health care—but only 31 percent of hospitals have had the required capabilities in place for more than a year.<sup>1</sup>

In supply chain, many providers suffer from a lack of data exchange between linear and siloed nodes of the supply chain. This exposes challenges with optimal management of inventories, reliability and visibility of products moving across the supply chain, or operations efficiencies and product yields. Digitizing the core can help health care providers address supply chain issues by collapsing the traditional, linear supply chain and creating a connected, smarter, faster, and more responsive digital supply network. This provides an agile, "always-on" flow of information and analytics that can help hospitals and health systems achieve new levels of performance, improve operational efficiency and effectiveness, strengthen patient engagement, and create new revenue opportunities. This can also open the door to strategic partnerships, demand forecasting, portfolio optimization, and a "distribution/fulfillment center of the future" that connects to patient schedules and timely delivery to caregivers. Examples include:

- Real-time collaboration between physicians and manufacturers to create bespoke solutions for patients.
- Medical devices with embedded sensors to automatically notify of maintenance or resupply needs, perform initial diagnostics, and track and notify delivery of service parts.
- Analytics that predict supply needs based on scheduled patient appointments and procedures, optimizing inventory when needed, where needed, and for whom it is needed.

### Life Sciences

Traditional life sciences supply chains are linear, with a discrete progression of *develop, plan, source, make, deliver, and support*. In their place, digital supply networks (DSNs)—physical and information ecosystems powered by cloud computing and big data—have the potential to address the sector's management of inventories, supply chain visibility, and operational efficiency. To date, most of the progress in DSNs has been in consumer products and retail where early adopters have invested in digital networks to help offset margin pressure and address consumer preferences for more tailored and personalized experiences. Life sciences companies now face many of these same challenges.

Pressure to take cost out of the back office may spur investment, along with the growth in personalized medicine and changing patient, provider, and regulatory expectations. DSNs can help companies accommodate the growth of personalized medicine by empowering 3D printing and analytics, and add speed and transparency to the process. The ability to trace design of manufacturing modifications and resolve root causes of a problem with a data trail will also help drug and device makers satisfy regulators.

One example of how DSNs can reduce waste is with surgical kits, which hospitals often send back for reprovisioning after having used only some of the components. Fielding these requests makes manufacturers carry large inventories. “Smart tagging” can alert the manufacturer via a supply network to begin replenishment the moment a kit leaves the cabinet.

In their finance operations, life sciences companies have been early adopters in the application of RPA and other digital tools. Many life sciences companies have some level of transformation under way. RPA investments hold the promise of trimming ROI time from three years or more to fewer than two in some cases. Expect to see continued RPA investments in transaction processing and financial controls and for companies to begin to deploy digital assistants to handle routine queries.

The next frontier for digital finance and supply chain in life sciences may be blockchain, which is especially suitable for the sector because most of a company's transactions involve a finite number of trading partners. Blockchain has the potential to enhance collaboration, trust, interoperability, traceability, and auditability across a range of functions such as clinical trials, supply chain management, financial transactions, credentialing, and claims processing.

Applications for blockchain abound in the sector. A patient's medical record can be secured through blockchain's private-public key mechanism. The technology can help improve quality and efficiency by providing visibility and end-to-end traceability to the global supply chain. Adjudication of a smart claim contract published to a blockchain can take place in real time and automatically trigger payments. As innovators explore these and other blockchain opportunities, they will have to make choices about where to apply their early bets, how to staff them, and whether internal chains represent a more measured initial approach than ones that extend out to customers or distributors.

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## Making inroads: examples of the new core in action

- A medical technology company developed a knee replacement system using additive image-to-implant technology that allowed surgeons to print joint replacement implants that conform to each patient's body. This enabled a more efficient surgical process for doctors and faster and healthier recovery for patients.<sup>2</sup>
- A prominent 1,100-bed hospital used location sensors on patient wristbands, medical equipment, and beds to help track the daily flow of patients, physical assets, and treatment as it unfolded. The resulting data fed into the modeling software and enabled more accurate predictions about likely patient admission and discharge numbers. Initial estimates suggest the hospital could potentially treat 10,000 more patients each year and generate \$120 million in savings and revenues over several years.<sup>3</sup>
- A community-based, for-profit, integrated health care organization turned to RPA to help with financial clearance in the revenue cycle by enhancing verification of patient eligibility, benefits, and authorization. The result? Significant labor savings and financial return.

### Health Plans

Legacy core systems weren't built to support today's contract models. Plans are adopting new payment models for providers, competing with other plans on innovation, and increasing focus on consumers. To effectively implement enterprise strategies such as non-traditional care models, overlapping accountable care structures, and innovative home-monitoring tools, many plans are reimagining their dated, homegrown legacy core administration systems to increase agility and their ability to efficiently scale while reducing operational costs.

Core modernization can help health plans address these challenges and work to create greater alignment of enterprise strategy with technology that can deliver it. Agile core platforms can be turned into a basis for market differentiation. The more agile and stable the core, the more ambitious the consumer-facing offerings can be.

Plans can take advantage of less risky core modernization approaches, such as remediating existing mainframe and legacy platforms or using digital extensions, to redesign the transactional layer for a more user-centric experience. The results of these initiatives can include significantly increased operational efficiency through lower-cost delivery and service channels, reduced technical debt and maintenance spending on legacy systems, and IT agility gains via an improved system architecture that produces a flexible, configurable infrastructure; enterprise integration; and accelerated technology delivery.

## Challenges to overcome

Because there are so many variables involved, and data and analysis are not always available, it may be hard to document and demonstrate ROI from improvements to core systems. Champions of change may also have to overcome the idea that current inefficiencies are an inevitable part of life in the industry.

As life sciences and health care companies explore more uses of RPA, they should ask key questions before committing—questions about FTE impact, the nature of processes to be automated, the centralization (or lack thereof) of the system in question, and the projected growth of the transaction type.

As in any transformation, current and proposed technology have to work together to align with strategy, business goals, and value to operational performance. There will be a premium on talent that understands how to get the most from new technologies and the business. These professionals are already in short supply.

## Risk considerations

There are risks to both action and inaction. On the action side, not only are the capital investments large, but any new way to handle information also raises cybersecurity concerns. In addition, the skill sets that have supported traditional ERP, CRM, and EHR platforms may not be the same ones that can develop and nurture a new generation of digital core technology.

However, there is a greater risk in inaction—the longer it takes to start overcoming present-day inefficiencies, the longer they will persist, even as competitors make strides.

## Conclusion

No organization, in life sciences and health care or elsewhere, sets out to fall behind in the modernization of core systems. It can seem especially daunting to change the established, routine function of the technology closest to the heart of the business. Inefficiencies become familiar and may even masquerade as necessary concessions to the unique needs of the industry.

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But an inefficient core that doesn't take full advantage of today's digital capabilities can hold back more than its own functions. It can hold back the other more visible areas where the organization is already counting on technology investments to pay off. It can hold back the business in its ability to align operation with mission and workforce with need. And, most significantly, it can hold back an organization from opportunities to improve the patient experience and outcomes.

With a comprehensive strategy and a willingness to take measured steps ahead, life sciences and health care organizations can join organizations in other industries that have charted a way forward. Indeed, because they have not often been first-movers, life sciences and health care organizations can learn from those that have already embarked on the transformation. These investments may not be the most glamorous ones a company makes. But they may be some of the most important ones.

For more on the new core, visit:

[www.deloitte.com/insights/new-core](http://www.deloitte.com/insights/new-core)

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## Endnotes

<sup>1</sup> Health Catalyst, "Survey: 8 in 10 hospital leaders say predictive analytics is important to future yet only one-third use it" [press release], September 7, 2016, <https://www.healthcatalyst.com/news/survey-8-10-hospital-leaders-say-predictive-analytics-important-future-yet-one-third-use/>.

<sup>2</sup> Bryna Zumer, "Harford surgeon uses 3D technology for knee replacement," *Baltimore Sun*, September 25, 2015, <http://www.baltimoresun.com/news/maryland/harford/belair/ph-ag-3d-knee-0923-20150925-story.html>.

<sup>3</sup> Steve Lohr, "Looking to industry for the next digital disruption," *New York Times*, November 23, 2012, [https://www.nytimes.com/2012/11/24/technology/internet/ge-looks-to-industry-for-the-next-digital-disruption.html?\\_r=0](https://www.nytimes.com/2012/11/24/technology/internet/ge-looks-to-industry-for-the-next-digital-disruption.html?_r=0).

## Authors

### Health Care Providers

**Tim Smith**

Principal  
Deloitte Consulting LLP  
timsmith@deloitte.com

**Josh Nelson**

Principal  
Deloitte Consulting LLP  
jnelson@deloitte.com

**Chris Harris**

Specialist Leader  
Deloitte Consulting LLP  
chriharris@deloitte.com

### Health Plans

**Jason Wainstein**

Principal  
Deloitte Consulting LLP  
jwainstein@deloitte.com

**Michael Montalto**

Managing Director  
Deloitte Consulting LLP  
mmontalto@deloitte.com

**Cheri Riddle**

Managing Director  
Deloitte Consulting LLP  
criddle@deloitte.com

### Life Sciences

**Todd Konersmann**

Principal  
Deloitte Consulting LLP  
tkonersmann@deloitte.com

**Stephen Laaper**

Principal  
Deloitte Consulting LLP  
slaaper@deloitte.com

**Tadd Morganti**

Managing Director  
Deloitte Consulting LLP  
tmorganti@deloitte.com

**Brad Smith**

Principal  
Deloitte Consulting LLP  
brasmith@deloitte.com

**Ryan Mullin**

Senior Manager  
Deloitte Consulting LLP  
rmullin@deloitte.com



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