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Applying lean IT to healthcare

Lean IT can help providers in their quest to create a digital enterprise.

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The healthcare sector is going through fundamental technology-enabled changes in the way care is delivered, how providers interact with their patients, and how payments are made.[1] To take advantage of digital technology and create more effective systems that help health professionals deliver better care, providers are moving rapidly toward becoming digital enterprises. For example, they are borrowing lessons from e-commerce leaders on how to acquire and retain patients through data analytics and from manufacturing entities on managing patient throughput and optimizing clinical supply chains. Providers are also leveraging apps on smartphones to engage patients remotely in new ways that improve outcomes, and they are using digital technologies to support clinical decisions and streamline hospital operations. In this way, the adoption of more sophisticated analytics has simplified processes and significantly reduced manual workloads.

The pressure of enabling the digital enterprise is landing squarely on the shoulders of the IT department, and this presents tough challenges in a sector that has traditionally lagged behind others in the adoption of information technology. For example, according to Gartner, IT spending as a portion of revenue is 6.3 percent in banking and financial services and 4.2 percent in healthcare.[2] Despite this history, IT departments are now being asked to deliver the core digital platforms that will enable far-reaching changes for healthcare providers. At the same time, in the spirit of doing more with less, these IT departments are being asked to improve service levels and increase IT efficiency.

IT departments will need to take a comprehensive view of how to meet the demands of all core IT functions rather than undertake discrete initiatives. IT leaders will have to address topics such as IT-infrastructure architecture and services, cybersecurity, advanced analytics and data management, and the rationalization of application portfolios. IT departments must carefully juggle a two-speed IT infrastructure—balancing

[1] Digitization trends in healthcare apply broadly around the world, though the level of urgency to address them may vary by country as a result of regulatory considerations and competitive dynamics.

[2] *IT Key Metrics Data 2014*, Gartner, December 2013, gartner.com.

Takeaways

As healthcare providers take advantage of digital technology to improve patient access and quality of care, their IT departments must enable a digital enterprise amid budget pressures.

To do so, providers need an efficient, effective IT workforce—which a lean-IT transformation can help provide.

In addition, IT leaders and staff have to overcome several sector-specific challenges when applying lean IT to healthcare.

the acceleration of new digital capabilities against the maintenance of legacy systems (see "A two-speed IT architecture for the digital enterprise," on mckinsey.com).

All this will require a more efficient and effective IT workforce. That's why the application of lean principles is one important element for healthcare providers across the globe pursuing digitization.

The role of lean IT

With roots in the Toyota production system, lean IT is an integrated approach, based on empowering the front line, to improving operations. Lean IT can therefore help streamline day-to-day IT operations and so free up the resources necessary for creating the digital enterprise (see sidebar "What is lean IT?").

In our experience, it's often possible to increase IT productivity by 20 to 40 percent through the application of lean and to reduce the delivery time of new applications and functionality by 10 to 30 percent through more rapid iterations. As a result, lean not only reduces IT costs directly but also enhances revenues by accelerating the deployment of digital technologies (see sidebar "How a healthcare provider benefited").

Since the inception of lean in automotive manufacturing, its principles have traveled successfully to back-office processing and more recently to IT. Although the typical IT department bears little resemblance to a manufacturing line, many IT departments across multiple industries have improved their efficiency and effectiveness substantially by adopting lean principles and adapting them to the IT environment.

In many respects, the IT department of a typical healthcare provider is similar to the lean-IT functions of companies in other sectors. Each IT team deals with the common challenges of keeping servers running, rolling out new applications, and supporting end-user devices, such as PCs, tablets, and smartphones.

In general, healthcare providers can benefit from nearly all the tried-and-true lean-IT methodologies. For example, most IT departments could stand to improve the processes for defining new IT projects, such as incorporating mobile devices in patient care, gathering requirements for application development, or streamlining the response to service disruptions or cyberincidents. Common lean IT levers applicable to healthcare include the following:

- standardizing routine processes
- segmenting work by complexity and urgency
- pooling resources to break down technology silos
- cross-training teams on multiple systems or platforms to build a more flexible workforce
- eliminating activities that don't add value

Lean's challenges for healthcare providers

The IT departments of healthcare providers face several sector-specific challenges in how lean levers are applied.

High stakes

In many industries, including healthcare, the availability and stability of IT systems are critical to business success, with downtime resulting in lost revenue or incremental expenses. For healthcare providers, IT can also be critical to patient care. For example, hospitals increasingly are relying on wireless technology to monitor the vital signs of intensive-care patients. As a result, it is perhaps only a slight overstatement to say that stable healthcare IT can literally be a matter of life and death.

The implications of this reality for lean IT can be profound. For example, IT must carefully consider the ramifications for patient care when prioritizing incidents, service requests, and projects, as well as when setting the corresponding service-level objectives. Lean-IT practitioners consequently must understand how changes will affect patient care. Moreover, it is often more difficult to cross-train system administrators or developers to handle multiple systems in healthcare than it is in other industries, because of the specialization required to administer patient-care systems.

Broad-scale 'white glove' service

Most IT departments provide "white glove," expedited service to the company's chief executives and top revenue generators, such

What is lean IT?

The overall objective of lean is to deliver exactly what the customer is willing to pay for exactly when the customer wants it, all while minimizing or eliminating activities that the customer does not value. To achieve these ends, lean practitioners aim to simultaneously reduce waste, variability, and inflexibility in IT operations through a proven lean methodology.

Waste
Several common examples illustrate waste in IT:

- Rework. IT frequently starts projects only to find that the business requirements change midway through their efforts.
- Mismatched skills. Experienced subject-matter experts often spend a significant part of their time on relatively simple tasks that could be better handled by less experienced colleagues.
- Context switching. IT professionals find themselves jumping from task to task as they respond to multiple e-mails, instant messages, and shoulder taps, thereby wasting time as they reengage with what they were originally trying to accomplish.

Variability
External variability is caused by fluctuations in demand for IT services. To reduce this variability, IT can work with the business to prioritize and sequence projects to avoid an end-of-year rush, for example.

Internal variability comes about when a desired outcome, such as debugging an application, varies in quality or time to deliver. To combat internal variability, lean systems often standardize the steps of routine activities, and then everyone is trained to perform those activities with the same level of skill.

as the trading floor of an investment bank, and these groups usually represent 5 to 10 percent of the workforce. At healthcare providers, IT departments must prioritize requests from physicians, who probably represent a much larger—yet equally demanding—percentage of the workforce. IT departments must therefore be able to identify when and how IT incidents and service requests affect physicians. Any lean changes to operating practices must provide an expedited path to resolution when physicians and other clinical stakeholders in acute settings are involved.

Indeed, lean-IT practitioners should work closely with the communications group to craft a change story that explains the rationale

Flexibility
Although standardization is often a critical component of lean, standardization does not imply that lean-IT operating models are inflexible. Instead, lean uses standardization to improve the efficiency of performing routine tasks so as to free up the capacity of the workforce to handle special requests, think more strategically, and be more proactive.

Lean methodology
Lean uses an integrated approach that addresses five components:

- Operating practices. Redesign the way in which work is performed, including work intake, processes, and handoffs.

- Management systems. Ensure that performance is measured across a balanced set of metrics (for example, productivity and quality) and that the workforce is focused on continually improving efficiency and effectiveness.

- Organization and capabilities. Establish the appropriate organizational structure, with clear roles and responsibilities to enhance performance, and make sure that individuals have the necessary capabilities to do their jobs.

- Mind-sets and behavior. Win the hearts and minds of employees to ensure a high level of motivation and maintain momentum for performance improvements.

- Business partners. Understand what business partners truly value so that IT can align with business priorities and deliver exactly what is needed, when it is needed.

and the benefits of any IT changes that affect doctors and patient care in general.

Greater variability in computer proficiency

In industries where knowledge workers spend the majority of their time at computers, lean systems can rely on leveraging self-service and regular end-user training to increase efficiency and improve service levels.

Doctors, nurses, and technicians usually spend less of their time at computers. As a result, there may be greater variability in IT proficiency at healthcare providers and a need for more extensive coaching and change management.

Highly regulated industry

Managing the implications of regulatory-compliance guidelines—such as system access, security, privacy, and audits—is often a larger part of IT in the healthcare sector than in other industries. As a result, lean practitioners have to work more closely with the legal and compliance departments to ensure that any changes in IT comply with multiple levels of regulation.

How a healthcare provider benefited

At one healthcare provider, technology spending had been increasing for several years without any appreciable improvement in overall service quality or capacity to fuel a rapidly evolving growth and acquisition agenda.

To improve labor productivity, the quality of technology services, and process discipline, the provider launched a comprehensive lean-IT transformation across its application-development and IT-infrastructure teams, as well as its call-center and help-desk staff. The goal was also to develop a sustainable approach to continual improvement that could later be deployed across the complete IT organization. Over 500 employees, more than half of the overall IT organization, participated in the transformation effort, which spanned multiple waves of change over an eight- to ten-month period.

Six months into the effort, the provider was able to start capturing efficiency savings of up to 25 percent, measured by the ability to meet a substantial increase in demand while keeping head-count increases to a minimum. Through the use of implementation levers, such as segmenting work by complexity, head count among application developers and systems engineers increased by only 10 percent over the eight- to ten-month effort, while demand for them rose by more than 15 percent. Moreover, service levels in the call center and help desk improved by around 70 percent over the baseline, though staff head count remained constant. In addition, technology staff started spending more time on value-added work and less on rework. These employees were able to devote around 20 percent more hours to strategic projects than they did before, including support of M&A efforts. As the health system continued to grow through acquisition and added 9 percent more technology users, the IT department was able to meet excess demand with no increase in IT resources.

Growth of clinical devices

Around the world, private and public healthcare providers are increasing investments in digital technologies. The IT departments of healthcare providers often must manage and maintain an increasing number of end-user devices, such as blood-pressure monitors and magnetic-resonance-imaging machines, which often store patient data locally. These clinical-technology devices are above and beyond the standard IT fare of PCs, smartphones, and tablets. With additional demand comes added burdens, including increased network traffic and decentralized storage requirements.

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Undertaking a lean-IT transformation is nearly a prerequisite for keeping pace in this complex healthcare environment. When the efficiency and effectiveness of IT are improved, freed-up capacity can be directed to develop and support new digital technologies. To that end, lean IT needs to be applied in a thoughtful way that recognizes the unique challenges faced by healthcare providers.

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