Inside Pharma: Moving commercial operations to the next level
Introduction

Life sciences companies rely on data. The amount of data large organizations need to process as part of their operations — from government program data to commercial contract data — has been growing exponentially, the result of acquisitions, product launches, and extended third-party agreements. These companies are discovering that current enterprise systems simply cannot keep up with growing data demands. As a result, leaders often spend too much time chasing down information and not enough leveraging it for better decision-making. What’s more, when the necessary data is not available or easily tapped, decision-making can come perilously close to guess-making.

To remain competitive, many life sciences companies are updating their legacy systems, moving to new, more powerful platforms, migrating their data to the cloud, and even outsourcing to third-party managed service providers. The decision to build, buy, or outsource also calls for careful consideration. As decision makers plan for improvements to their current commercial infrastructure, there are a number of important factors that will affect the transition.
Hybrid cloud approach
As companies step up their spending on technology, there is an expectation that certain technologies will yield significant payback in terms of increased productivity. According to Deloitte’s fourth annual survey of mid-market technology, nearly 40 percent of executives expect the greatest productivity gains will come from investments in cloud infrastructure (see Figure).

There are a variety of benefits to moving platforms to a cloud model. Some of these benefits are inherent to the underlying infrastructure of the cloud itself, while others accrue when applications are built to take advantage of certain features of a hybrid, multi-cloud, or “cloud of cloud” arrangement that consists of both public and private clouds.

Let’s start with the cloud itself. We are seeing an unprecedented move to the cloud: it is probably one of the biggest revolutions in the digital age in the last 10 years. According to IDC’s Worldwide Semiannual Public Cloud Services Spending Guide, global spending on public cloud services will hit a 19.4% compound annual growth rate (CAGR). In 2015, companies spent $70B on the cloud; by 2019, that number could reach $141B.

One of the main reasons companies are racing to the cloud is the exponential growth of transactional data. Companies are generating data at an unprecedented rate, and they want—or are often required—to retain that data. But doing so calls for massive storage facilities, even with today’s radical breakthroughs in storage technology. Do life sciences companies really want to be good at building huge data centers to host their legacy applications and the storage involved?

When companies move from either a data center or a private cloud to a public cloud, the move is mainly about cost reduction. Such a move can reduce their total cost of ownership significantly. But at the end of the day, companies are just changing where their system is being hosted.

A further set of advantages come into play with a next-generation enterprise system that is built to take advantage of a hybrid or multi-cloud approach, which leverages both private and public clouds. Consider a typical transactional system. Often the data processing involved with such systems is choppy because it ebbs and flows. For example, data processing may peak at the end of the week or month. Companies that use private clouds need to build them for peak capacity. A hybrid cloud approach, on the other hand, is elastic. It can expand and contract depending on processing requirements. This creates tremendous efficiencies for applications that need to adjust for changes in usage, whether they are anticipated or not.

Highlights of survey findings

Percentage of respondents who say their technology spend is “significantly higher” than prior year:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>10.3%</td>
</tr>
<tr>
<td>2015</td>
<td>14.6%</td>
</tr>
<tr>
<td>2016</td>
<td>19.4%</td>
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49% of respondents say IT leaders drive the adoption of new technology.

39.8% Cloud infrastructure
36.8% Big Data
38.2% Analytics

Mobile access
Sales of mobile devices are exploding, while PC sales have been flattening of late. By 2020, it is predicted that nearly 21 billion Internet of Things devices will be connected—including mobile devices, smart phones, tablets, wearables, and sensors. Thus the importance of mobile is clear, as is the need for a strong mobile framework and strategy. Today, business leaders need to be able to access data from anywhere, anytime, on many devices.

The advent of 4G has changed everything when it comes to data processing. As we move into 5G, speeds will become even faster—and we may soon see wireless speeds of 1Gb per second. Companies need their information on multiple systems so they can make decisions promptly and reduce the “kill cycle”—the amount of time that elapses between when a problem is identified and when it is resolved. Any updated system should allow decision makers access to data from any device, anywhere, anytime.

Data analytics
Life sciences companies are swimming in data. Business leaders need data analytics capabilities that help them move from mere transactions to the kinds of insights that can transform their business and give them a competitive edge. With a technology platform backed by a powerful analytics engine, they can turn their data functions from cost centers into value drivers. This can also vastly improve operational efficiencies.

For example, consider a situation in which a company needs to perform a complex government pricing calculation for one of its drugs—a task that can take the better part of a day on a legacy system because of the way the data is structured. With newer technologies, analysts can perform multiple calculations simultaneously by leveraging the elasticity of the public cloud, which can reduce processing time substantially.

Providing commercial transformation through a subscription model
Deloitte Risk and Financial Advisory’s Regulatory and Operational Risk for Life Sciences offers a blend of services to help organizations more efficiently stay up to date on technology; access necessary skills; and address a range of issues related to cost, quality, and risk.

ExaLink subscription and managed services offer access to a multi-services, hybrid cloud technology platform for government pricing, commercial contracts, and integrated business insights.

Deloitte has developed a vendor-agnostic technology platform that leverages our pricing and contracts services and integrates them into an environment for a streamlined end-user experience. Subscription features and applications include:

• A multi-services, hybrid cloud approach, which leverages both private and public clouds to enable scalable and distributed services
• Containerized microservices that can be invoked, published, and discovered and are abstracted away from the implementation using a common interface
• Highly configurable technology platform, including a software developer kit to enable third parties to build applications on the platform
• A rapid application development and iterative solution delivery using Agile, DevOps, and Continuous Integration
• Policies, practices, and frameworks that enable applications to provide secure information and services to users, such as a proactive process to maintain vigilance, including a security team to conduct penetration tests on a regular basis, and extensive role- and needs-based security elements
• Integrated analytics capabilities along with portals for both the desktop and mobile applications
Furthermore, the underlying data for these calculations is constantly changing, requiring frequent corrections or recalculation. Analysts using newer technologies can rerun calculations multiple times in the time it takes for a legacy system to do it once. This allows analysts to make corrections within a much shorter timeframe, thus reducing the kill cycle.

**Portals and dashboards**

Having an integrated analytics interface that sits on top of a platform’s database allows people in the contract management, government pricing, sales and marketing, and finance functions to extract the data to identify price triggers or to model various scenarios such as what happens when the price or discount percentage of a given product is changed. Such a tool can provide answers to questions such as, “What is my return on rebate by customer and product?”

For many life sciences organizations, information is still confined to rows and columns. This makes reporting fast and easy—but not necessarily more insightful. Today, it is possible to add the context of timing and location to traditional data and create maps that show changes over time— as well as where those changes are taking place. These maps make it easier for the eye to recognize patterns that were previously buried in spreadsheets.

Embedding geolocation-based data into software platforms is one of the biggest trends in the past five years. Nearly half of the applications for mobile devices have a geolocation component. In order to leverage large-scale visualization techniques and understand what data is telling us, we need to know where that data is coming from.

Today we can analyze data faster, interpret it, convert it into information, and then plot it against geospatial coordinates that allow us to get new types of business insights. For example, consider a gross-to-net situation: new technologies can actually calculate the profitability of a drug at a certain place in the world. In the past, this was hugely time consuming. Now we can pull in massive amounts of data across the manufacturing process, and we can query the system to get an answer almost instantaneously.

**Data security, controls, and safeguards**

Cybersecurity is a huge area of concern for companies that are migrating to the public cloud. There is a misconception that if they are not managing the situation in-house, they will experience a loss of control that makes them less secure. Yet at many life sciences companies, cybersecurity teams are relatively small. What’s more, their systems are often architected with security as a bolted-on afterthought.

It is essential that cybersecurity be built into a system’s architecture from day one; otherwise, a breach is inevitable. Many people assume that setting up a firewall is sufficient protection and that they don’t need to do anything further. So they store the data unencrypted. But if the firewall is breached—which can happen, for example,
due to something as simple as poor password protocols—then the data is vulnerable. Ultimately, a system should be designed with the assumption that there will be a breach.

Adding security elements like encryption at the end of the design process is also a recipe for delays. Consider the recent situation of a software company with a legacy system that did not run encryption communication between its subsystems and the enterprise platform. When one of its clients determined this was unacceptable, it took the company eight months to reengineer the software and put in the encryption.

New technologies are built with encryption from day one. For systems that are interconnected, the communication link is encrypted as well. This allows companies to move away from giant virtual private networks (VPNs), helping to reduce security overhead and maintain high performance while protecting data.

Acceptable cybersecurity programs involve three important components:

**Security component.** The day-to-day management of data access. New technologies include extensive role-based security elements. Users have to be authorized to access specific client data, but that isn't good enough. The technology also keeps track of the actions of users—i.e., who, what, when, and why things happen in the system.

**Vigilance component:** This component involves the company's monitoring capabilities. It's one thing to design for security, but what are you actively doing to monitor system security? What have you done to test it? Are you continually running penetration testing up and down the stack of your implementation? Many enterprise vendors don't do testing on their stacks; they expect clients to do so. And often clients are using these systems without realizing that if someone is able to bypass the firewall, they can get into the system. You also want to know who the bad actors are that are coming after your data. Companies need to be monitoring where the threats are coming from.

**Resilience component:** This involves what a company does if and when a breach occurs. For example, what are you doing on an ongoing basis to address information that is being detected through log monitoring and other vigilance activities? You need to have a crisis management plan and contingency plans in the event that something happens. You also need to practice those plans.

**Data integration**
Third-party integration and interconnectivity can be challenging when a company is moving to a cloud-based platform. Companies are usually dealing with mixed legacy systems that involve multiple technologies. For example, some systems may use older technologies such as electronic data interchange (EDI), meaning there may be a need for a gateway such as
a Value Added Network (VAN) for injecting EDI data onto the new platform. Other systems may use a more recent approach by using direct connection via the internet, calling for yet another gateway. Some departments within the organization may even maintain their data in spreadsheets or text files, further increasing the complexity of data migration.

The challenge of moving from one system to another is twofold: 1) managing the file transfer and 2) executing the ETL (extract, transform, and load). It is good to have a relatively standardized approach to injecting the data, but that is not typically possible. Companies need to have a methodology and set of technologies that allow them to promptly adapt ETLs to inject a variety of data.

Conclusion
Life sciences companies’ ability to pivot when circumstances change is critical. They can’t afford to be held back by legacy enterprise systems. Not only have these systems become slow and unwieldy as the volume of data increases, but the cost and resources required to maintain them are no longer viable. Today life sciences companies are seeking better commercial options that can seamlessly handle their pricing, claims, contract, rebate, and chargeback data—and provide the kinds of insights they need to stay competitive. These cloud-based, device-agnostic systems can marshal data in real time to help them anticipate and manage risk, as well as identify transformative business opportunities.

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