

# Enterprise Mobility in Life Sciences: Responding to Change and Transforming Healthcare Delivery

Technology Evaluation Centers

INDUSTRY SPOTLIGHT

*Life sciences enterprises are undergoing tremendous change on a number of fronts. Healthcare-related organizations involved in the life sciences industry are challenged more than ever with providing and ensuring continuous and effective supply and delivery of services, drugs, and equipment, and improving the quality of patient care. Leading life sciences companies understand the key role technology can play in addressing today's trends and tomorrow's challenges.*

## Life Sciences Companies Face Mounting Challenges in Providing Healthcare

Pharmaceutical companies, biotechnology manufacturers, medical device manufacturers, and medical facilities and service providers—all of these organizations face mounting challenges in accomplishing their key mission. Regulatory approval pressures, declining healthcare spending, and time-sensitive and complex supply chains all contribute to these pressures. Meanwhile, social tools and technologies are transforming the way patients and professionals behave, and patients are playing an increasingly active role in managing their own healthcare.

Life sciences companies can take advantage of today's technological advancements to promote communications and interactions throughout the value chain and thus respond to and mitigate the many challenges they face. In particular, mobile technologies can promote real-time interactivity and timely and accurate decision making to compress the value chain and improve the quality of care. Enterprise mobility is a necessary agent for helping life sciences enterprises adapt quickly and seamlessly to the changes reshaping the industry.

# Running Business Better, Improving Patient Lives

## Life Sciences Companies — Pioneering Transformative Technology

Life sciences companies were among the pioneers to adopt point solutions to address specific challenges in the management of pharmaceutical accounts and samples. But they are now increasingly considering mobile technology as an agent of fundamental change with the potential to transform the entire business model. These technologies are being used to provide real-time visibility into patients, drugs, medical equipment, and delivery systems across the entire value chain.

Mobile technologies, when used appropriately, have the potential to transform business. They can be used for clinical trials to enhance study performance, with the ultimate goal of bringing life-saving products to market faster. Mobile solutions can help ensure uninterrupted production of medical drugs, supplies, and devices in manufacturing facilities, while maintaining product quality and safety and reducing costs. Mobile computing also has a role to play in facilitating the efficient and streamlined servicing of medical equipment in clinical care facilities and in patient homes. And using mobile technologies can enhance the collection, transportation, and processing of laboratory samples, thereby ensuring the rapid availability of data and a timely response.

## Connecting the Many Stakeholders in the Value Chain

There are many stakeholders throughout the value chain: the clinical trialist who recruits patients for the study, the trial participants, the patient who enters a physician's office, the pharma sales rep who promotes various drugs to physicians, and the manufacturer that provides the drug. All of these stakeholders can use mobile devices to access information, as well as share and disseminate it to break down silos in communication.

Thus, modern mobile applications enable remote and virtual automation of processes throughout the entire healthcare value chain and ecosystem. As such, mobile technologies can actually enhance process automation, shortening process cycles, enhancing agility for new process development, and assisting in making intelligent decisions.

## Six Examples of How Mobile Computing Can Support Quality of Care

Let's take a look at six examples that underline how mobile computing can improve the business of life sciences organizations and help deliver better quality of care.

- Many medical device manufacturers have deployed mobility in their field service organizations to significantly improve productivity. Consider a team of medical equipment technicians who install and maintain devices in clinics. Mobile applications can intelligently guide them through diagnosis, calibration, repair, and

“16.9 million mobile users in the U.S. accessed health information on their device during the three-month average period ending November 2011, growing 125 percent from the previous year.”

—comScore Data Mine<sup>1</sup>

so forth, helping them respond faster and work better, measurably improving service. Mobile technology provides managers with real-time information regarding work status and status of all assets, allowing them to analyze and plan for timely service and repairs, improve workforce productivity, and reduce delays, overtime, and service costs overall.

- A biopharma company needs to ensure high manufacturing and supply standards in order to maintain its market lead. Empowering its drivers and maintenance teams with mobile apps to inspect, maintain, and repair the company's plants and fleets is essential to ensuring high levels of availability and performance. Mobile apps not only step the worker seamlessly through his or her job, but also automatically track progress, status, and location in real time. This allows managers to have a complete view of the general status of the fleet, improving plant and fleet maintenance and increasing vehicle performance.
- Quality control and quality assurance (QA) department users can use mobile apps for recording results and making lot-disposition decisions. QA inspectors on the shop floor can log testing scores and ratings, establish and monitor corrective action dates and due dates, or check and update status of incidents. Safety inspectors can easily check the status of incidents and document site safety comments on the go or assign infractions to the responsible parties on site.
- A physician can access real-time information on a patient's test results on his or her tablet, and submit a change to the patient's prescription electronically to the pharmacy. The pharmacy then notifies the patient of the prescription change and issues and delivers the revised prescription to the patient's door. An intelligent app would be one that compresses the value chain even further by considering the patient's results and formulating a diagnosis and treatment plan for the physician's approval.
- A pharma rep can rely on his or her mobile app to retrieve the necessary account info at a client clinic to verify the physician's availability and account status, as well as his or her nurse's name, develop a sales strategy, and execute a successful visit and sale. The pharma rep can also process new orders and provide the physician with the necessary information about new drugs and offerings, submit new orders, and even follow up on the supply process. Mobile technology therefore allows for improving the productivity and efficiency of pharma reps while shortening the supply-and-demand cycle.
- A patient with diabetes attempting to set up the medical equipment to perform overnight dialysis treatment notices a nonstandard error message with the equipment. The patient remotely enters the equipment number and error code to the medical equipment service center, which then contacts the nearest on-call service nurse or technician through his or her mobile device. The technician calls the patient and attempts to resolve the error remotely and, if unsuccessful, goes to the patient's home to repair the equipment malfunction so that the patient can proceed with dialysis.

“Over 770,000 people are injured or die each year in hospitals from adverse drug events (ADEs), which may cost up to \$5.6 million each year per hospital depending on hospital size.”

—Agency for Healthcare Research and Quality<sup>2</sup>

It's clear that mobile technologies avail life sciences organizations of much more than data transmission; they play an active role throughout the healthcare value chain. Mobile computing can play an important role in drug procurement, servicing medical equipment, processing patient samples and drug prescriptions, and accessing of electronic patient files that include the company's drug and prescription history and requirements.

## Shortening the Value Chain, Transforming the Ecosystem

Mobile technologies have the potential to unleash patients, physicians, pharmacists, sales reps, technicians, and all other stakeholders from their desktops, automating field processes and on-site execution, and enabling them to perform their day-to-day tasks remotely. At the same time, bringing the simplified and intuitive paradigms of mobile computing back to the desktop enables mobile devices to become the new way of working—even for those who never leave their desks. Mobile computing becomes the new paradigm for working with systems and thus becomes the new way of doing business. It's no longer just about automating a form or a transaction; it's about improving the entire daily work cycle.

### Enhancing Day-to-Day and Strategic Decision Making with Mobile Apps

By providing both historical and real-time insights, mobile apps can enhance day-to-day and strategic decision making in life sciences organizations. Mobile computing enables analysis of market and patient trends to quickly seize upon new opportunities, as well as analysis of plant and workforce performance to improve productivity. For example, an executive of a pharma company who sees that a new drug is not selling in channels or locations can use mobile apps to conduct an analysis and make real-time sales and marketing decisions to improve sales performance. In another example, a manager in a medical device manufacturing company who ascertains that some patients are having trouble with a new feature in a medical device can use a mobile app to make a real-time decision for a design change.

Or consider a drug manufacturer that identifies better productivity in one plant versus another; mobile technology enables executives to understand why and implement changes to bring the lower-performing plant up to optimal levels. Mobile computing means not having to wait for historical data to see these trends and then forensically study them, but instead understanding the trends as they happen and making decisions faster. Mobile computing goes hand in hand with Big Data and the analytics required to process this data, generating relevant meaning and prescriptive analysis on the go.

“Revenues from remote patient monitoring using mobile networks will rise to almost \$1.9 billion globally by 2014.”

—Juniper Research<sup>3</sup>

Real-time medical data collection also affords research teams access to clinical information on the efficacy and safety of drugs and treatment regimens. This dissemination of information throughout the entire ecosystem empowers life sciences organizations to break data and communication silos and automate critical activities relevant to clinical trial data management and clinical drug supplies.

### Patients' Use of Mobile Apps for a Multicenter Clinical Trial

Consider the example of a multicenter clinical trial to assess safety and efficacy of an investigational drug for patients with, say, cancer, who are refractory to all other available treatment regimens. Patients use mobile apps to enter the side effects as they happen, and this data is then fed into a centralized system for immediate analysis. Having this real-time information allows clinicians to see which patients are at risk for serious adverse events and to reduce or terminate treatment immediately. Real-time documentation of critical drug information enables direct communication between the clinical community, its partners, and the pharma industry, boosting real-time alerting and data collection that can expedite research and further drug development.

Mobile technologies can also be used to record objective measures of clinical response, by the patient or a medical health professional, for faster analysis and action. New drugs that present with high efficacy and safety can be immediately offered to all the patients in the study—that is, to patients previously in the placebo group—so that all patients can benefit from treatment. This is particularly important for patients with aggressive tumors, who may succumb to their cancer before the next scheduled visit to the medical care facility.

The end result of mobile solutions in the clinical trial setting is the collapse of the lengthy clinical trial process. One can envision that effective new products will be brought to market faster, shortening the value chain—from drug clinic to drug site availability—to all the patients who need them.

### Taking a Comprehensive Approach to Enterprise Mobility

In short, enterprise mobility enables real-time processes and data delivery, compressing the value chain and facilitating faster and better delivery of products and services. To improve operational efficiency, life sciences organizations need to take a comprehensive approach to managing their mobile technologies. This will enable them not only to take advantage of existing IT infrastructures, but also use new mobile technologies and reshape existing paradigms for effective and critical flow of information and analysis.

# Planning for a Healthy and Effective Mobile Strategy

To reap these benefits, life sciences organizations need to develop and deploy a successful mobile platform and comprehensive solution road map. They need to see the technical and business mobile foundations of an organization as a multidimensional ecosystem. And they need to holistically consider all stakeholder functions, all processes involved, and all the operational, tactical, and strategic aspects of the organization.

To establish an effective mobile strategy, these organizations need to realize that the impact of mobile technologies might vary from one area to another. They also need to set priorities and address the challenges and expectations across the organization. For example, a pharmaceutical representative can use mobile technologies and receive crucial information from the FDA about new drugs on the market, as well as FDA recalls, safety alerts, and warning letters. This way, the rep has real-time information on hand when talking with clinicians. The use of highly interactive mobile analytics applications can provide key decision makers with the information they need to make critical and timely decisions. To this end, mobile solutions should be integrated throughout the organization and reflect all of its objectives and strategies.

Organizations with an effective mobile strategy can see the benefits from top to bottom, providing stakeholders with the means to accomplish the following:

- **Improve** sales and marketing effectiveness, revenue generation, process efficiency, decision-making processes, customer or patient loyalty, regulatory compliance, and ability to react to emergencies and prevent failures in care delivery
- **Reduce** manufacturing costs, service and product supply disruptions, and time-to-consumer cycles
- **Accelerate** product launches, time-to-value and time-to-market decision cycles, and product and equipment research cycles

And to render an enterprise mobility strategy into an actual vehicle for business transformation, acceleration, and health, organizations need to collect and analyze the data for decision making, and perform critical monitoring of the value chain. This way, they can facilitate an uninterrupted supply of high-quality, high-margin products, services, and medical equipment and devices, with a high degree of availability to people who need them.

# Transforming Organizations with Mobile Technology: Two Use Cases

In the real world, some life sciences organizations have already taken important steps toward transforming health services and business with the use of mobile technologies. The following use cases illustrate.

## Case 1: Enterprise Mobility for Maintenance Improvement

**Business need:** A medical devices manufacturing company wanted to improve reliability and performance in its lab and clinical installations; optimize fleet maintenance; provide vital information regarding calibration for instruments and equipment; enable viewing of asset schematics, history, and dependencies; and improve reports on workers' status, progress, and location.

**Solution:** Deployment of a mobile maintenance solution for plant and fleet technicians and a mobile field service solution for customer-facing technicians

**Business value:** Improved workforce productivity and safety, increased equipment and vehicle performance, reduced unplanned downtime, and increased operation visibility

## Case 2: Enterprise Mobility for Pharma Sales and Customer Care

**Business need:** A pharma provider needed to achieve faster and effective sales-activity planning for increased adoption of new drugs, greater presence of its products in clinics, and higher visibility at payers, as well as improve distribution and generation of reporting for decision making.

**Solution:** Deployment of a mobile strategy for customer relationship management (CRM) and sales planning to be used by all pharmaceutical reps across the globe, giving 360-degree information

**Business value:** Mobile access by sales staff to a complete set of business-critical information and applications enabled the collection of massive amounts of data, closing of sales cycles, and close monitoring of travel expenses

# Conclusion

The deployment of a mobile technology strategy in life sciences organizations can take the industry to new levels of collaboration. The efficient management of information and the availability of all pertinent data assets can encourage a cycle of communication and remove space and time barriers. Engaging patients to play an active role in their health will not only increase the likelihood that they will receive appropriate and timely health management, but also instill their confidence in a unified healthcare system.

Facilitating the flow of information about patients, drugs, management options, and medical equipment and devices throughout the supply chain empowers the various stakeholders to make appropriate and timely decisions. Enterprise mobility can directly impact the value chain, improving manufacturing processes and accelerating service delivery, enhancing plant efficiency, and ensuring effective management of courier and service fleets. Mobile technologies can also be used to improve business for life sciences organizations by providing health information to patients, expediting information and services to their healthcare providers, and serving as the vehicle for timely and valuable information delivery to labs and drug and equipment providers.

Finally, incorporating mobile technologies within the clinical trials process has the potential to shorten the clinical value chain, bring new drugs to market faster, and ultimately help save patient lives. The new commercial value chain will therefore become more agile and provide new capabilities for improving treatment options and enhancing healthcare for society.

## References

<sup>1</sup>comScore Data Mine. Mobile Health Information Audience Jumps 125 Percent in the Past Year. Available at: <http://www.comscoredatamine.com/2012/01/mobile-health-information-audience-jumps-125-percent-in-the-past-year/>. Accessed July 15, 2013.

<sup>2</sup>Agency for Healthcare Research and Quality. Reducing and Preventing Adverse Drug Events To Decrease Hospital Costs. Available at: <http://www.ahrq.gov/research/findings/factsheets/errors-safety/adera/index.html>. Accessed July 15, 2013.

<sup>3</sup>Juniper Research. Press Release: Revenues from Mobile Health Monitoring to Reach \$1.9 billion Globally by 2014 Says Juniper Research. Available at: <http://www.juniperresearch.com/viewpressrelease.php?pr=201>. Accessed July 15, 2013.

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