

# Data Delivery DATA MANAGEMENT

► Data sets are more than big today; they are redefining how companies across the spectrum are operating, making the management and analysis of that data more important than ever.

Some experts say cloud-based applications are the key to using leveraged data with sensors, and are the key to unleashing the power of the Internet of Things (IoT). IoT doesn't function without cloud-based applications to interpret and transmit the data coming from all these sensors. The cloud is what enables the apps to go to work for you anytime, anywhere.

IoT, which is widely defined as any "connected hardware" other than desktops, laptops, and smartphones, some say, has the potential to be even broader and deeper than first predicted and will cut across consumer, enterprise, and industrial spaces. Fundamentally, experts say IoT is about transforming any physical product into a digital product, and once a sensor is attached the sky is the limit. The sensor can be a tiny pill-like object, and once it starts functioning the data emitted can be gathered, tracked, analyzed, personalized, etc. in real time and remotely. Some say when coupled with all the progress in big data and artificial intelligence, IoT can become intelligent, predictive, collaborative, and in some cases autonomous.

According to the report World Internet of Things (IoT) Healthcare Market - Opportuni-

ties and Forecasts, 2014-2021, published by Allied Market Research, the world Internet of Things healthcare market is expected to reach \$136.8 billion by 2021, registering a CAGR of 12.5% between 2015 and 2021.

The patient monitoring application segment is expected to maintain its lead position with \$72.7 billion by 2021 and is projected to dominate the market throughout the forecast period. The patient-monitoring segment covers in-patient hospitalized patients, remote patient monitoring, and tele-health services. High adoption of IoT services in remote patient monitoring and growing awareness among individuals would further foster the growth of patient-monitoring segment.

The study also notes that devices are projected to be the fastest-growing segment in the IoT healthcare market at a CAGR of 16.6% during 2015 and 2021. And the patient monitoring application segment is expected to continue to dominate the IoT healthcare market throughout the forecast period. The fitness and wellness measurement application segment is expected to grow at a CAGR of 15.7% during the analysis period. The North American Internet of Things healthcare market is projected to offer beneficial growth opportunities during

the forecast period due to a well-established healthcare infrastructure, high patient awareness, increasing government supports, and high investment from major IoT players.

## IoT in Practice

From sunscreen to wearable electronic devices that wirelessly transmit health data — such as heart rate, blood oxygen level, skin temperature, ultraviolet exposure, and skin color changes — are changing how health data are managed and delivered. These and other sensors powered by near-field communication (NFC) transmissions from smartphones, tablet computers, and other consumer electronics are on the leading edge of what's to come.

For example, in this month's mHealth department (check out the bonus digital content online at [www.pharmaVOICE.com](http://www.pharmaVOICE.com)) we report on how Dr. John Rogers, founder of MC10 and a materials scientist at the University of Illinois at Urbana-Champaign, is bringing forward technology to study brain circuits. The under-the-scalp device with LED lights are being used by neuroscientists to observe the brain's reaction to stimuli to better understand certain diseases and psychiatric disorders. <sup>PV</sup>

## EXECUTIVE VIEWPOINTS



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### PROACTIVE

#### DATA MEASUREMENT

There is an opportunity for manufacturers to rethink analytics and measurement from being an end point/end goal and becoming more of a decision to support day-to-day or week-to-week analysis. As opposed to measuring things after they occur, perhaps it's time for companies to look at some real-time data on a weekly basis that may inform how marketing programs are doing. This means also rethinking the data that are being

collected and how they are being used. The advent of big data, which includes items such as the traditional metrics of clicks and views, should include shared, liked, and mashed up data as well as data on behavior that are generated by the machines we use. The social media folks have figured out how to use all these data to quickly pivot on campaigns, and pharma can learn from this. This does mean there is a requirement for new types of talent, new data collection methodologies, and new formats. It also means rethinking how to engage MLR (medical, legal, and regulatory) in the process so we can act upon the data faster.

#### THE INTERNET OF THINGS

The continued growth of Internet of Things (IoT) will potentially have a huge impact on

care delivery. We are seeing this already in areas such as diabetes care where connected insulin devices, glucose meter readers, etc. are changing the landscape in terms of adherence and patient monitoring. IoT data in CPAP machines is changing the way payers pay based on adherence (i.e., you have to have used the CPAP for 'x' number of hours for reimbursement) and connected device strategies are being used in all manner of delivery mechanisms to track adherence. While IoT will benefit care delivery by providing real-time data on all types of interactions, the true benefit will be in behavior change and those little nudges such as the CPAP example that enables adherence, or behavior modification beyond the pill.