



MEDICAL DEVICE INDUSTRY, UTILIZE EMERGING TECHNOLOGIES TO PUT YOUR DATA TO USE

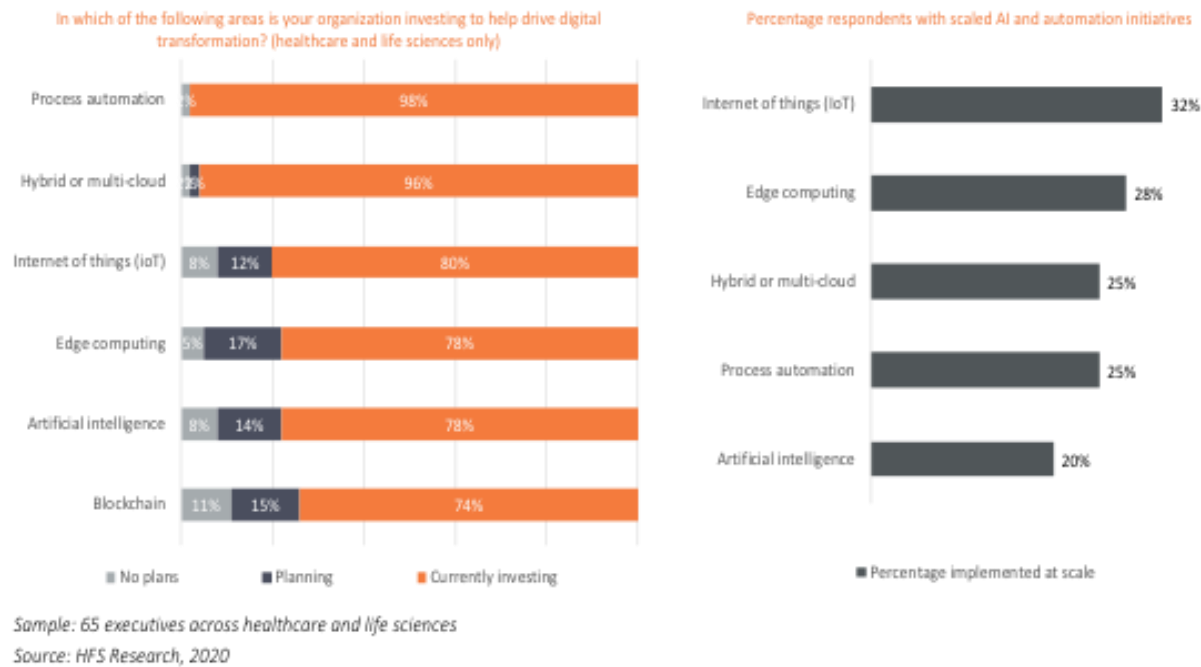
Jun 26, 2020 [Saurabh Gupta](#)

How Medtronic is using AI-powered cloud solutions to transform diabetes management

Emerging technologies are all the rage in the life sciences and healthcare sector; over 80% of executives are investing (or plan to invest) in technologies across cloud, artificial intelligence (AI), the internet of things (IoT), robotic process automation (RPA), and blockchain (see Exhibit 1). However, less than 20% of implementations have scaled up and industrialized.

The Achilles' heel has been data. We talk about data lakes, but we live in data swamps! Few healthcare and life sciences companies, including medical devices, have the data quality they need to effectively leverage sophisticated AI algorithms, and fewer still utilize the data they already own to think out-of-the-box about new business models.

Exhibit 1. Most healthcare and life sciences organizations invest in emerging technologies, but few have been to scale up their initiatives



One exception is Medtronic, a leading medical devices company headquartered in the US with market-leading products for diabetes, cardio-vascular diseases, restorative therapies, and minimally invasive therapies. It owns 100-million-plus hours of patient data that its medical devices transmit. It leveraged Infosys' technical expertise to build a solution that leverages its data to help diabetes patients and their caregivers manage chronic illnesses better.

The disruptive opportunity of consumerized healthcare

What makes consumer-driven healthcare new and exciting is the ability to look past traditional competition within the life sciences ecosystem. The emphasis in the medical devices industry is shifting from B2B style marketing to a B2C model as more medical devices are marketed directly to their consumers. As technologies advance, smaller, less-invasive devices allow for more comfortable routine health data acquisition. Patients no longer have to weigh the pros and cons of invasive procedures, bulky devices, or regular self-administered testing. This freedom gives patients with chronic illnesses more autonomy in their healthcare practices, and it allows healthcare professionals to analyze data and create personalized health plans that increase the overall quality of life for patients. By updating and creating medical devices with the patient's immediate needs as the driving force, companies can disrupt the traditional medical device marketplace.

Medtronic is personalizing diabetes management using real-time patient data

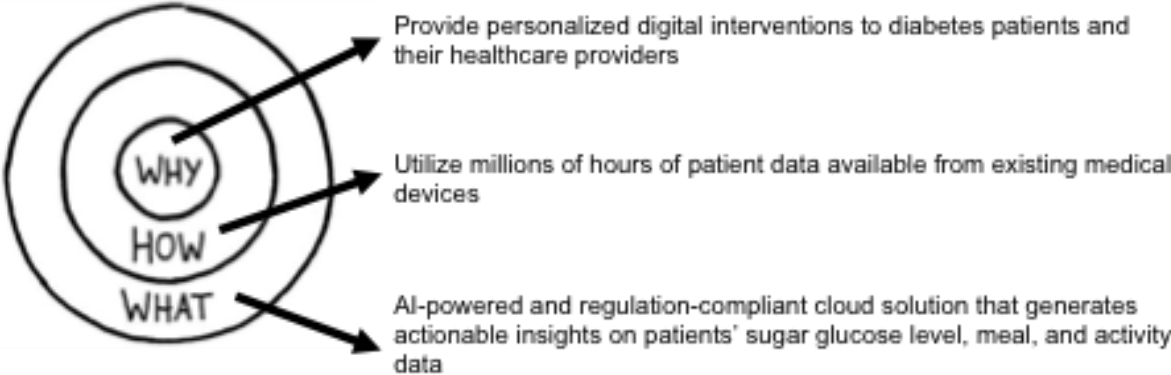
Type 1 diabetes is a juvenile disease that requires lifelong consistent regulation. Physicians only make around 5% of a diabetes patient's treatment decisions; the patient makes the rest in response to data from self-monitoring. It is very difficult to monitor the needs of any given

individual due to the differences between bodies' responses in different situations. For instance, some people with diabetes find that drinking dark beer dramatically affects their blood sugar, while others do not seem to have a problem with it. Some individuals find that certain exercises or stressors can cause spikes in their sugar levels.

Medtronic is trying to use real-time data from individuals with glucose pumps and injections to create personalized lifestyle plans and relieve some of the patient's medical burden. As individuals with diabetes must regularly monitor and respond to their glucose levels, Medtronic is developing a glucose pump that will collect and assess a patient's data in real-time to provide the correct glucose dosage without disrupting the patient, alleviating some of this chronic illness's stress on their lifestyle. Only about 62% of Medtronic's client base uses pumps; the rest use injections. The company's goal is to make it easier for a client to get personalized information about their body and illness to determine the best steps for maintaining a healthier lifestyle. By developing personalized technology and increasing efforts to provide a patient-centric approach to chronic illness, Medtronic has become a disruptor in medical technology.

In a recent interview, Pratik Agrawal, Director, Data Science & Informatics Innovation at Medtronic, described the uniquely disruptive nature of the solution as "empowering patients to drive control and take care of themselves," while still engaging with healthcare providers to create a unified strategy in treating chronic illness.

Exhibit 2. Medtronic's personalized diabetes management vision



Source: HFS Research, 2020

Medtronic's AI-powered and compliant cloud solution utilizes millions of hours of patient data to create personalized digital interventions

Medtronic leverages Infosys as its technology partner to make its personalized diabetes management vision real. It uses Infosys' Digital Health Platform (IDHP), a microservices-based platform that features

- Providing high-speed data ingestion and vector extractions;
- AI and machine language algorithms to generate actionable insights on patients' sugar glucose levels;
- Hosting and validating the platform on a scalable infrastructure on AWS cloud;
- Providing a digital backbone framework for Medtronic and its partners to quickly build additional digital patient services around other therapeutic areas;
- Ensuring SaMD, GDPR, and HIPAA compliance.

Through this relationship, Medtronic can utilize a scalable technological backbone equipped with medical information security features and the ability to rapidly deploy data science innovations. Using IDHP enables the personalized clinical data to produce actionable insights through complex functionality with minimal costs.

The Bottom Line: Combining emerging technologies with a consumer-centric approach is required to innovate our legacy healthcare systems.

A chronic illness like diabetes is often treated primarily by the patients themselves; companies must create devices with consumer in mind. The AI-powered and compliant cloud solution allows Medtronic to monetize the available data, improve its brand value, assist PCPs in offering value-based healthcare services, and, most importantly, offer diabetes patients an opportunity for a higher quality of life. Data is an asset; when enterprises leverage it creatively and keep the end customer at the center, it can create new and powerful healthcare solutions.