Amazon Gives AI to Harvard Hospital in Tech's Latest Health Push

By John Tozzi

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- *Project boosts medical center's operating room capacity by 30%*

- *Health industry's inefficiencies create opportunity for tech*

Alexa won't be replacing doctors anytime soon, but Amazon says artificial intelligence can help hospitals become more efficient.

The internet giant said March 4 that it's working with a Harvard-affiliated teaching hospital in Boston to test how AI can simplify medical care. It's the latest sign of powerhouse tech companies like Amazon and Google deepening their reach into America's $3.5 trillion health-care market.

While the tech industry has high hopes that powerful computing tools can improve diagnoses and treatment, Beth Israel Deaconess Medical Center's first projects with Amazon.com Inc. are less about sophisticated therapies and more about making day-to-day tasks like patient scheduling more cost-effective.

Beth Israel Deaconess Medical Center
Photographer: Keith Bedford/The Boston Globe via Getty Images

"They're identifying the right problems where machine learning truly can help," said Taha Kass-Hout, senior leader for health care and AI at Amazon.

The Seattle-based tech behemoth gave the Harvard Medical School teaching hospital a grant valued at as much as $2 million to experiment with machine learning and AI. It's a new indication of the desire Amazon and its competitors have to grow in a U.S. health industry bloated with inefficiencies, where high costs strain the budgets of families, employers and governments.

"We are going to see more and more of the tech companies trying to explore different ways to partner with health care because there are so many untapped and underutilized markets in which they can grow," said Alisa Chestler, an attorney at Baker Donelson who focuses on health care and technology. She's not involved in the project.

It's hard to gauge how much big companies are investing in their own health-focused artificial intelligence projects, but interest from private investors is surging. Equity funding for health-care AI ventures reached $2.4 billion in 2018, a 78 percent jump from the previous year, according to the research firm CB Insights.

Beth Israel Deaconess, a 673-bed medical center with a network of other hospitals and clinics in metro Boston, began purchasing Amazon's cloud services in 2016. The goal was to ensure that

the hospital's data would be accessible if a disaster were to knock out its off-site backup servers, said John Halamka, executive director of the Health Technology Exploration Center at Beth Israel Lahey Health.

Once its data was hosted in Amazon's cloud, Halamka said, hospital officials started asking whether the technology could automate cumbersome manual work.

Amazon's tools are now helping Beth Israel Deaconess book operating room time more precisely and predict when patients are likely to miss appointments with its most in-demand specialists. The software can also help find needed paperwork like patient-consent forms in a stack of scanned documents before surgery and alert staff if it's missing or incomplete.

AI for MDs

Equity funding for health care-focused AI businesses exceeded $2 billion in 2018
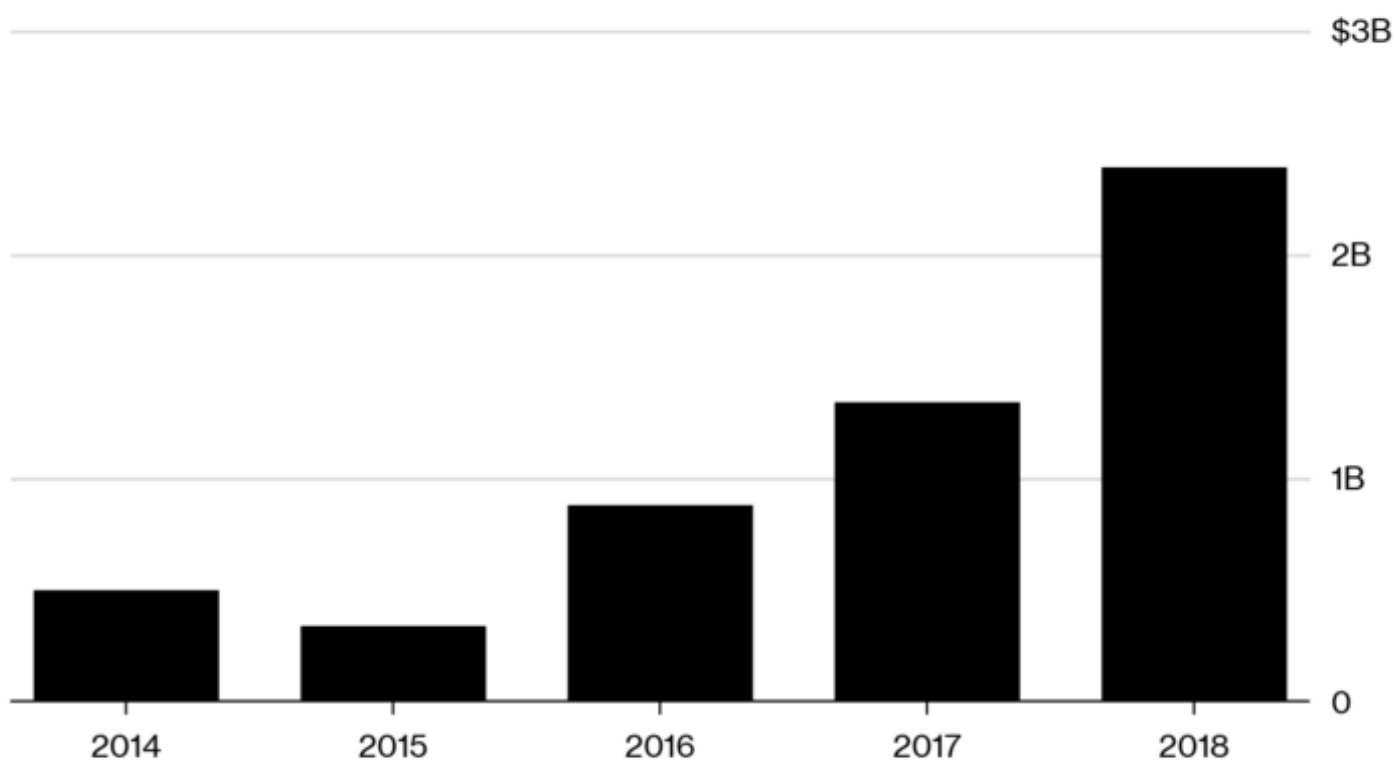
Source: CB Insights

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The approach has already helped Beth Israel Deaconess expand the capacity of its 41 operating rooms, Halamka said.

For example, patients who need appendectomies are typically scheduled for an hour in surgery. But young, otherwise healthy people often need less time.

"If I look at a million patients like you, and discover we only need 25 minutes, wouldn't that be better for society? Because now the OR is the most expensive place in a hospital," Halamka said.

Surgery App

Beth Israel Deaconess and Amazon engineers analyzed anonymous data from surgeries at the hospital going back to the 1980s. They developed and tested the new scheduling system over the past two years. It increased operating room capacity by 30 percent, Halamka said. Then the hospital built a system that lets doctors reserve operating time as easily as booking restaurants on OpenTable.

"We have an app that a physician can now use to say, 'I'd like to schedule for tomorrow morning at 7:30, appendectomy, table for two,'" Halamka said.

Amazon's Kass-Hout said such innovations will ultimately give patients a more tailored experience, similar to what the company provides in its online retail sales. "If you shop on Amazon, you pretty much have experienced machine learning and personalization," he said.

Amazon's project with Beth Israel Deaconess is separate from its highly publicized venture with Berkshire Hathaway Inc. and JPMorgan Chase & Co., which seeks to use technology to improve care and reduce costs in employer health plans. That enterprise, also based in Boston, is led by Atul Gawande, a writer and surgeon at another Harvard-affiliated institution, Brigham and Women's Hospital.

The AI project is just the latest example of Silicon Valley's appetite for health-care investment. Alphabet Inc.'s Google unit has hundreds of artificial intelligence engineers devoted to health care, according to a spokeswoman.

Apple Inc. is marketing the latest version of its smartwatch to insurance plans as a device with the potential to improve members' health. Other tech giants including Microsoft Corp., International Business Machines Corp. and Salesforce.com are targeting the medical industry as well.

Technology companies may be able help medical providers better shape their services to meet patients' unique needs, said Gurpreet Singh, U.S. health services leader at consultant PwC. That's increasingly important in a health-care market where patients have more choices, such as going to an urgent care clinic rather than a hospital emergency room.

"Providers are entering into the space where they need to be much more understanding of a consumer's needs," Singh said. "Those are all capabilities that a tech company provides."