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Healthcare
Big & Fast Data: The Rise of Insight-Driven Business

INSIGHTS&DATA

The wealth of data, and the availability of techniques for obtaining insights from it, will create a seismic change in working practices throughout the industry

Capgemini view

As global population and life expectancy increase and available treatments proliferate, healthcare faces major challenges and opportunities. Big data brings a prospect of new approaches to help with both.

Data challenges are broad. They include the need to deal with highly heterogeneous data sets that span entire healthcare providers and government agencies, critical concerns over privacy, lack of standardization, and in developing regions, a lack of data.

The growth of data streams from patients is exponential. Sources include scanning technologies and the growing number of personal, wearable sensors. The wealth of data, and the availability of techniques for obtaining insights from it, will create a seismic change in working practices throughout the industry, much of it enabled by analysis of current and historical data contained in electronic patient records.

Opportunities for pharma companies include the ability to harness the power of big data for early and faster detection of adverse events, correlation of symptoms in patients, and examination of the impact of myriad external factors that could not previously be considered because of the lack of information. In parallel, it can inform as to which drugs should be developed based on projected need, the ability to start clinical trials earlier in the development lifecycle and to recruit participants more effectively, more accurate diagnosis, more effective

preventative healthcare interventions, and "personalized medicine", with critical care decisions for individual patients able to take account of personal health history. Big data techniques also facilitate *in silico* drug discovery and testing. Big data will enable better study of patient behavior and thus help fine-tune sales and marketing efforts.

Substantial public debate on privacy concerns is inevitable, and to be encouraged. The tradeoff between individual privacy and the societal benefits of data-driven research needs to be more widely understood, and appropriate safeguards implemented.

Perception of big data as a disruptor

In our survey, respondents who worked in healthcare had a lower than average experience and expectation of disruption. Over 52% said they had not experienced significant disruption in the past three years compared with an average of 42% overall, and the number expecting disruption over the next three years was also below average.

Respondents were particularly unlikely to report disruption from new competitors coming in from other industries (14% of healthcare organizations had experienced this versus 24% overall), though interestingly 24% of healthcare respondents expected such disruption in the next three years – close to the average. They also had a lower than average experience of disruption from existing competitors developing new products and services: 20% of healthcare organizations had experienced this compared with the average of 33%, and expectations for the next three years were also relatively low.

Awareness of big data opportunities

The respondents in our healthcare sample had an average or somewhat lower than average perception of the opportunities associated with big data – for example, only 24% strongly agreed that big data was providing new business opportunities, compared with an average of 32%. This modest level of awareness is surprising given that healthcare seems to offer some of the greatest opportunities for using big data, but as with the public sector it may be that the propositions that we offered did not correspond with the specific types of opportunities envisaged by healthcare.

Of our various propositions about big data opportunities, healthcare respondents were most likely to agree strongly with the statement that decision-makers increasingly require data in real time (39%). This pattern was common to most industries.

Implementation approach

Healthcare was somewhat behind the curve with implementation. Around 64% of healthcare organizations were in some phase of implementing big data technology; the overall average was 71%. As in other industries, the biggest group of respondents (29%) was in the process of implementing the technology.

Just 49% of healthcare organizations (compared with the average for all industries of 56%) expected to increase their investment in big data over the next three years. This may reflect the fact that certain types of organization, such as healthcare providers, are expecting the investment in big data to come from elsewhere, such as pharmaceutical companies or companies specializing in data management and provision.

Security and privacy were the areas where organizations were most likely to have put big data related measures in place – appropriately, given the sensitivity of patient data.

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