

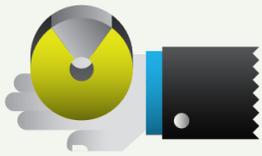
WATSON GOES TO WORK.

On February 16, 2011, the IBM computer Watson rang in with the correct response (*Who is Bram Stoker?*) to the final clue, winning a challenge against two human champions of the TV quiz show *Jeopardy!*

It was a rare pop culture moment for a project begun deep within IBM Research. *Jeopardy!*—with its complex, contextual, punning wordplay—was a proxy for the problems that natural language data poses in the real world.

It was also a very public trial of an advanced form of computing, a *cognitive* system: a system that is not simply programmed but is trained to learn, based on interactions and outcomes.

True to expectation, Watson's performance on *Jeopardy!* improved as the games progressed, and as it built on the information acquired from each new clue and from each correct response. Watson grew *smarter*.



Today it's estimated 80% of the world's data is "unstructured." Increasingly, cognitive systems like Watson will help us make sense of it all.

BIG AND BIGGER DATA.

In the 16 months since Watson's brief TV career ended, the world's data has increased sharply. Close to 2.5 quintillion bytes of new data are created daily. An estimated 80% of this data is "unstructured": meaning it's made up of things like raw text, e-mails, tweets, posts, IMs, videos. And it's composed in *natural language*—the slangy, allusive language of daily life—not in the neat, organized rows and columns databases can understand.



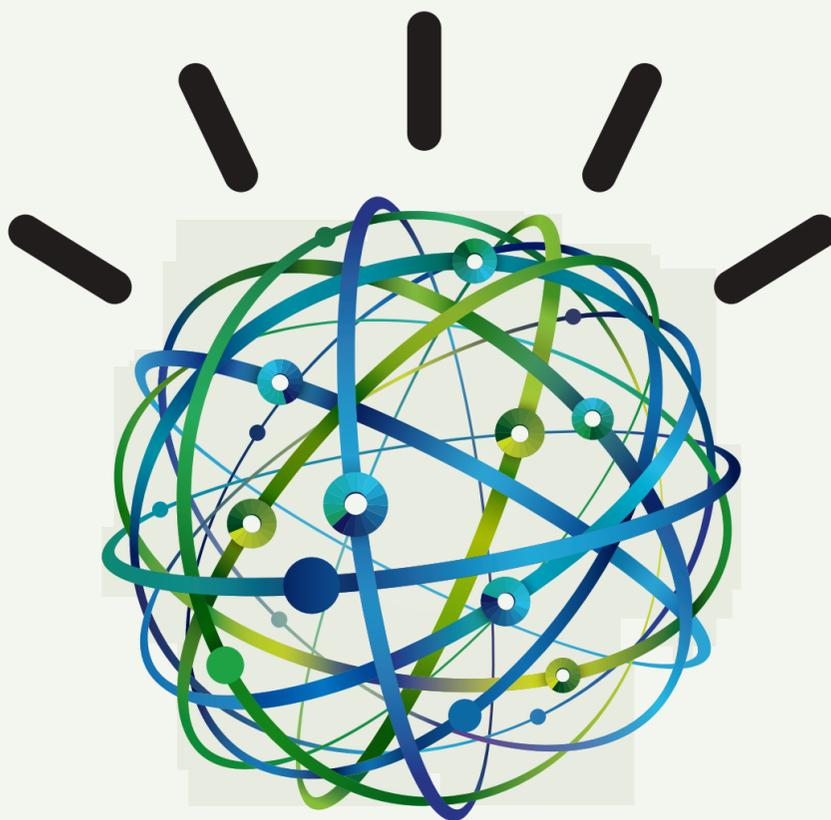
Organizations that rely on analytics for competitive advantage are 2.2x more likely to substantially outperform their industry peers.

Organizations know this data is rich in information and potential insight, but it's as if they receive a fresh-minted library daily with answers to all their questions, except the books are written in languages they cannot read.

While programmable systems can apply volumes of data to the

It's currently estimated that the amount of medical information doubles every 5 years—while, in a survey, 81% of physicians say they can spare, on average, less than 5 hours a month keeping up.

It's reported that financial firms in the U.S. now cope with up to 50% growth in data annually.



problem, these systems struggle when the data is unstructured, its accuracy is uncertain, or its velocity continually accelerates. The consequence, in the end, is that decision making suffers.

COULD THIS BE A JOB FOR WATSON?

Watson's cognitive capabilities were designed to take on the real-world challenges of Big Data in society and across a range of industries; from the outset, the aim was to put Watson to work first in healthcare and finance. Both industries confront "deluges" of unstructured data every day, and both industries have a compelling need to act on information quickly.

They manage nearly 2,000 terabytes of data per employee. They also deal with the reality that 5 million shares are traded on the NYSE each minute; and this is just one of several exchanges they must keep up with.

When information outruns understanding, the costs can be profound. Through a series of key collaborations, Watson aims to support and empower decision makers in both industries.

In 2011, Watson went to work in healthcare. To help improve the quality of care delivered, IBM announced a pilot program with WellPoint, whose affiliated health plans cover one in nine Americans. And in March 2012, IBM launched a partnership with Memorial Sloan-Kettering Cancer Center, where work is under way to teach Watson about oncology diagnosis and treatment options.



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Combining its abilities to navigate the complexities of human language and to analyze massive amounts of data exceptionally quickly (over 200 million pages in 3 seconds on *Jeopardy!*), Watson has the potential to take advantage of new research studies, published reports and articles, as well as patient outcomes and interactions, to help doctors make evidence-based decisions.

For banks, Watson can pore over financial, regulatory, economic and social data across exchanges, currencies and funds at terrific speeds. Citi, for example, will examine the use of Watson's deep content analysis and evidence-based learning capabilities to advance customer interactions and to improve and simplify the experience of customers.



5 million: The number of shares traded per minute on the NYSE.

THE FUTURE HAS BEEN TELEVISED.

In Watson, we see the promise of an advanced cognitive system that will make sense of the complexities and ambiguities of natural language; one that will expand its capabilities through interactions and outcomes; and, ultimately, one that will behave more like the world's most sophisticated computer—the human brain.

Watson will help us make our work, our lives and our societies smarter. ibmwatson.com

LET'S BUILD A SMARTER PLANET.

