

: Will thinking machines make better decisions than people?

by Dan Power

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Fifty years of computing technology improvement has led to faster computation, faster transmission of data and larger storage capacity. The information age is still young, but automation, technology use and decision support applications have increased dramatically since the 1970s. Will smart machines run the world? Will people be relegated to menial tasks? Will decision automation change the world? Today in some situations, computer software makes better decisions than people. Our future reality is unlikely to be the *Matrix* (1999) where sentient machines run the world, but the intelligent computer Hal of *2001: A Space Odyssey* (1968) is increasingly likely.

Results from a poll at thinkartificial.org suggest some serious concerns. The respondents were primarily Digg (<http://digg.com/>) readers.

Do you, for some reason, fear the current and/or future increase of artificial intelligence?

16.7% Yes, I find the idea of intelligent machines frightening (1002 votes)

27.1% No, I don't find intelligent machines frightening (1632 votes)

56.3% I'm not afraid of intelligent machines, I'm afraid of how humans will use the technology (3366 votes)

Larry Dignan, Editor in Chief of ZDNet and SmartPlanet, recently reported on this topic. Dignan summarized speculative work of Gartner analyst Nigel Rayner. Rayner speculates that "In the next 40 years analytics systems will replace much of what the knowledge worker does today. In other words, systems like IBM's Watson will be your boss and humans—especially the species known as middle management—will go extinct." Rayner argued that many of the things middle managers do today will be automated.

According to Rayner, "We are at a tipping point in the evolution of the 'Information Age,' but business culture is holding back the use of IT. In the future, decision making will be automated and managed by machine-based models far better than any human could manage. Effectively, most of what the CFO, CEO and managers do today will be done better by machines. This will have

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profound impacts on business, society and the economy. In the short term, the bonus-maximizing behavior of CEOs and management teams will be replaced by an 'enlightened capitalism' in which shareholders tell machines how they want their business to operate.

Dignan writes "The other jarring conclusion — at least for all the humans in the room—was that we stink at rational decisions. In addition, compensation packages, peer pressure and other nonsense simply distort good decision-making. Machines simply do a better job. Humans can't process information overflow, short product cycles and the pressure to deliver results." Extensive research in behavioral decision making supports Dignan and Rayner's concerns. Many people are poor decision makers much or most of the time. People make bad choices.

Rayner noted, "Most routine management tasks will be eliminated. Instead, the focus will be on innovation in products, services and business models — activities that are much better suited to the human mind (especially the subconscious one). In the world of IT, skills in economic and social modeling will be highly valued."

Watson, a natural language processing system from IBM, demonstrated in 2011 on the game show Jeopardy! that machine processing of English phrases has advanced significantly. Watson analyzed a Jeopardy! clue, searched through millions of documents written in human language, and returned a correct answer in a few seconds.

So where are we headed? Magnus Robot Fighter 4000 A.D. is a Gold Key Comics series started in February 1963. The hero, Magnus, fights bad "smart" robots. North Am, where he lives, is a densely populated megalopolis that covers the entire North American continent. Japan is one city of 50 billion people. Certainly much will change in the next 2000 years and the Magnus future of 4000 A.D. seems far away. Past decades show that technology progress has its own often unpredictable timeline and the speed of innovation seems to be increasing exponentially. Trends and speculation suggest we humans have many reasons to be hopeful and fearful about the prospects of developing thinking machines.

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Last update: 2012-07-30 09:36