

The Hype and Hope of Cognitive Computing

By: Tim Young

Artificial Intelligence is in that charming gray area between science fiction and reality.

There are the very real technologies under the AI umbrella that are gaining traction, of course. Still in the middle of its hype cycle, with some fatigue setting in, it won't be long before the long-term potential benefits can be observed and quantified. Watson, for example, is in the midst of a barrage of criticism for being overhyped and outgunned, despite being the most mature AI offering on the market. But in the big data arena alone, the potential that cognitive computing models represent is enormous and poised to grow at staggering rates. Where's the hype end and the potential begin?



A [recent survey conducted by InfoSys](#) of 1,070 respondents, including a subset of CSPs, demonstrates significant faith in the promise of AI. Ninety-six percent of respondents believe pervasive automation is the key to digital transformation, and 98% of those who used AI-supported activities said those efforts increased organizational revenue. Among CSPs who want to adopt AI in the next 12 months, 71 percent say AI will provide human-like customer support, 56 percent want AI to process complex data (both structured and unstructured) and automate decisions, and 49 percent want AI to create a decision-making system that learns from humans and improves itself.

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Accenture Research and Frontier Economics [published a report a few months ago](#) that AI will increase economic growth by an average of 1.7 percent across 16 industries — 4.8 percent for the information and communications industry — by 2035. It has the potential to boost profitability an average of 38 percent by that same year, and could potentially lead to an economic stimulus of more than \$14 trillion across 16 industries in 12 economies.

Companies large and small are buying in. Telenor, for example, [recently announced a new lab](#) dedicated to AI research, working in partnership with the Norwegian University of Science and Technology (NTNU) and research organization SINTEF. The research center has the lofty goal of “strengthen[ing] national competitiveness and add[ing] valuable, future-proof competencies to the Norwegian society.”

Those involved with the lab freely admit that every aspect of the technology and its associated business models are not well-mapped, but they consider this wide-open set of possibilities to be a

feature rather than a bug. “Artificial intelligence is an area where Norway can take a position internationally while simultaneously developing services to the benefit of Norwegian society,” said Gunnar Bovim, rector at NTNU, in a statement. “The most important aspect of the Telenor-NTNU AI-Lab is that we’re now creating the foundation of knowledge for something we don’t yet know what is.”

But the possibilities offered by AI are enough to make firms — or even entire nations — roll the dice. “Artificial intelligence represents a fundamental technological shift that opens up for new opportunities, increased competitiveness for Norwegian industry, and greater efficiency in the public sector,” said Alexandra Bech Gjørn, CEO of SINTEF. “SINTEF is betting heavily on AI and believe it is vital that leading expertise in this area is developed in Norway.”

“I believe that we will help create a society where technology makes our personal and professional lives simpler, smarter and better,” added Bovim.

Of course, most involved with AI would focus on its practical applications rather than its abstract possibilities. During a recent Mobile Monday at the Google Launchpad, experts in the field grounded the heady world of AI in some very practical terms. According to Ericsson’s Networked Society blog, Barak Turovsky, head of products for Google Translate and Machine Intelligence, told attendees he saw two primary uses for AI, “in cases where you have too much unstructured data and in areas where you’ve reached a plateau with current approaches and need a jump (such as translation).” AI, in his current view, is more of an “assistive” technology, with current neural networks lacking the power to make primary decisions. He used an example of a radiologist who could identify cancer activity 95 percent of the time. “AI can, say, ‘Look at these two or three exceptions. Take a closer look,’” he said.

Not everyone is so rosy about the growing power of AI. According to the 2017 Big Data Executive survey from New Vantage Partners [\[PDF\]](#), 46.6 percent of senior executives fear that their companies are at significant risk of being disrupted or displaced by AI technology in the years to come. But these respondents are concerned about the success of AI that works *too well*, not doubtful that AI will fail to deliver on its significant promises.

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So there is no doubting the potential for AI to be a powerful, disruptive force in the years ahead. It is still early in its [hype cycle, per Gartner](#) — a few years out from widespread and concrete growth. Machine learning is at the “peak of inflated expectation,” but two to five years from widespread adoption. Cognitive computing (new to the Gartner hype cycle) is closer to a decade away from widespread adoption, and true artificial intelligence is even farther out.

And it’s that middle technology — cognitive computing— that has raised some eyebrows lately.

Born and nurtured by IBM, the technology has moved out of the strict jurisdiction of Big Blue and has become discussed in many corners of the tech space. But its potential and its accuracy is doubted by many.

Much of the trouble here is caused by marketing writing checks that the technology can’t yet cash. For those who haven’t read [Jennings Brown’s recent deep dive](#) on the backlash around Watson in

Gizmodo, it's worth 20 minutes of time.

He notes that Watson's hype has soared over the last decade, with *Jeopardy* appearances and bold marketing around medical applications, often stretching the limitations of what the technology could actually support at the time.

Perhaps the disconnect is just another example of the gap between potential and practical application, not unlike the enthusiasm demonstrated by those involved in the Telenor lab. But the terminology has soured many to the technology's potential.

"'Cognitive' is marketing malarkey," Tom Austin, a vice president and fellow at Gartner, [told ComputerWorld a few years back](#). "It implies machines think. Nonsense. Bad assumptions lead to bad conclusions."

It didn't start out that way. "Cognitive computing" began as a retreat to a position of relative safety. Brown quotes Michael Karasick, vice president of cognitive computing at IBM research, a 27-year veteran at IBM, as saying, "when we did Watson back in the day, AI was a four-letter word. Well, we got to call it something. If we call it AI no one will take us seriously."

And a lack of clarity around definitions may be leading to a lack of understanding—and therefore a lack of enthusiasm—among potential buyers. [In a survey](#) of professionals (most in the technology, media, and communications sectors) conducted by Deloitte in a recent webcast, 43% of respondents said they do not have a cognitive computing strategy in place, and another 40% do not know if they have a strategy in place. Only 8% said they currently do have a strategy in place, and other 5% said they have cognitive computing initiatives in place, but no strategy.

But there are many reasons to be enthusiastic about cognitive computing fulfilling its promise, over time, especially in the communications space, or any other industry that produces massive amounts of data.

As [Bernard Marr points out in Forbes](#), big data is fuel for nascent AI technologies. The ability to chew through enormous amounts of data helps machines learn to better emulate neural process and learn more effectively.

This sentiment is echoed by [Randy Bean at MIT Sloan Management Review](#). "The availability of greater volumes and sources of data is, for the first time, enabling capabilities in AI and machine learning that remained dormant for decades due to lack of data availability, limited sample sizes, and an inability to analyze massive amounts of data in milliseconds." Sloan writes. "Digital capabilities have moved data from batch to real-time, online, always-available access."

Bean bases his conclusion, in part, on the assessment of Pete Johnson, a Yale-trained data scientist who heads up big data and AI initiatives at massive insurer MetLife.

"We have now reached critical mass," Johnson told Bean. "When you put these things — big data, AI, machine learning — together, we are starting to see better solutions for a number of classic problems. It will take longer for products with much longer tails involving health/wellness and life. But it's coming."

And it may well be. In addition to the countless hours and dollars spent by IBM in its thankless history of AI pioneering and all of the aforementioned AI work being done, there are working groups on cognitive computing at ETSI and hundreds of other rapidly maturing efforts to design systems that emulate human thought.

So where's the balance between hope and hype? I, for one, am prepared to wait and see.