

Q&A with the co-founder of *Wired*

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Best-selling author of *The Inevitable* explains why he’s optimistic about the future of jobs and why small data trumps big data.

[Kevin Kelly](#) has spent decades analyzing technology trends, resulting in a book on the birth of *Wired*, and a screen credit for his work on the Tom Cruise-fronted sci-fi movie *Minority Report*. Recently, Kelly authored the *New York Times* best-selling book *The Inevitable*, which outlines the most prominent technologies likely to impact society over the next 20 years—all powered by artificial intelligence.

In your book *The Inevitable*, you point out how in the early days of the web, it would eventually become—essentially today’s platform of sharing and communication.

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That's a good question. People expect AI to be human-like. I've been stressing that there are different types of thinking and the chief benefit of AI is that it *does not* think like humans. Birds flap their wings to fly, but to make humans fly, we had to invent a different way that does not occur in nature. And so, similarly, through AI, we're going to invent many new ways that do not exist biologically and that are not like human thinking. Therefore, this intelligence is not replacing human thinking, but augments it.

You point out that AI will accelerate the many digital disruptions we’re seeing. In particular, you think AI will accelerate the most?

The conversational interface is not only one of the first places that people are now becoming heavily dependent on AI to make it work.

“Every company these days is basically in the data business and is going to need AI to civilize and digest big data and make sense out of it—big data without AI is a big headache.”

Which AI-powered area do you think will be the most disruptive for business?

Throughout the business world, every company these days is basically in the data business and is going to need AI to civilize and digest big data and make sense out of it—big data without AI is a big headache.

What do you think will catalyze another wave of advancement in AI akin to what we saw in the early days of the web, from the confluence of deep learning, more compute power and big data?

The breakthrough that has not yet happened that will completely rearrange the deck chairs on the Titanic is [using an extremely small dataset to train AI systems](#). Right now, AI requires very large datasets to learn. And we have proof in the human toddler that we can actually have learning from a very small dataset. Somebody in the future will figure out how to do that well. That will be a really huge breakthrough, liberating in many ways.

I think another one in the future is unsupervised learning, where the machine learns to find patterns on its own. We're only just beginning to deal with that.

Besides those, there's a real need for symbolic reasoning and alternative routes are going to be necessary to make more robust AI tools. We've been exploring h

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mechanism that makes a clock work.

Thinking about the future of work, you've said you're confident that while AI jobs to go away, others will be created. Why do you think this is so?

[My optimism on jobs rests in history.](#) Things incrementally improve by 1% a year except as it accumulates and is looked at retrospectively.

In the past we have undergone huge disruptions and revolutions in livelihood, the agricultural age where farmers lost their jobs. The jobs that replaced them were farmers 150 years ago—their descendants became web designers, mortgage br

“[My optimism on jobs rests in history. Things incrementally improve by 1% a year, which is almost invisible except as it accumulates and is looked at retrospectively.](#)”

What is the best way to prepare people for the types of jobs that may emerge pervasive in our lives?

There's no silver bullet. But it's also important to remember that this is not a technology that retrain people en masse. We do it with the U.S. military all the time. This is a political question: is the government willing to invest the time and money in this? The market cannot do it alone. It ne

And we should start teaching it in our schools—the essential techno-literary skill is learning how to relearn, and becoming a lifelong learner.

You've said that at some point we'll all have personal robots. How far away c

Well, if the definition of a robot is an autonomous humanoid-shaped mobile robot, we're more than 30 years from that. And it's not so much about the AI, which I think will be [it's an engineering challenge](#). A human brain runs on 100 watts and the human brain is incredibly efficient. And in terms of energy efficiency, we're not even within orders of magnitude near the AI we're running are incredibly inefficient compared to the brain's energy.

What do you think personal robots will look like? In the end will we demand

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decades away from mobile robots that behave like us.

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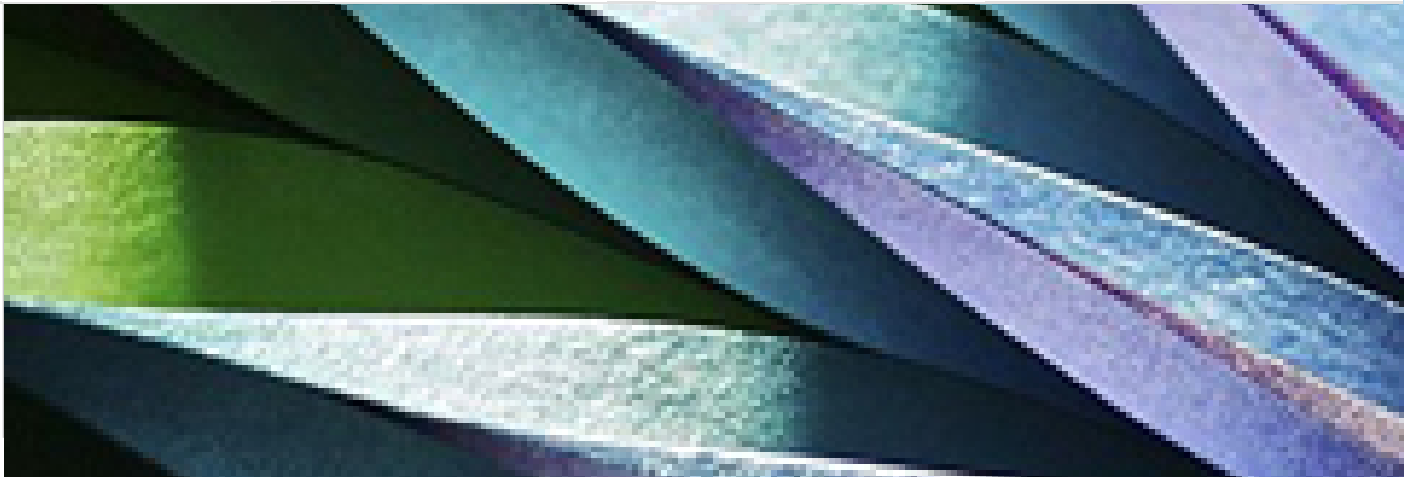
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