AI expert and author Kai-Fu Lee shares his views on the intersection of human cognition and artificial intelligence with BHI’s imagination expert Martin Reeves.

AI will play an increasingly important role in business and society. At the same time, human capabilities like imagination and empathy will also become more important—to uncover new
paths to growth and to connect and build trust with others. AI expert Kai-Fu Lee, coauthor of AI 2041, a book that blends imaginative storytelling and technical commentary to examine how artificial intelligence will reshape the world of business within 20 years, recently joined Martin Reeves, chairman of the BCG Henderson Institute and coauthor of The Imagination Machine, at Consilium@BCG for a conversation about the future of business and tech. The following is a lightly edited excerpt from their longer discussion.

Thank you Kai-Fu for joining me today to share your perspectives on the intersection of human cognition and artificial intelligence. Your book AI 2041 is about the wide-ranging implications of technology. How will artificial intelligence technologies shape the future of business?

Kai-Fu: AI will be a ubiquitous and omni-use technology that brings dramatic changes to industries such as transportation, manufacturing, health care, retail—almost every imaginable industry. The technology behind AI is a set of algorithms that takes data and makes decisions, predictions, and classifications in ways that previously required human intelligence. If companies don’t embrace AI, they will quite simply be left behind.

You make the case in AI 2041 that there’s an inevitability to the ubiquity of such technologies. You point out that we are dealing here not with new technologies but with ones that are already fully functional. Yet we’ve heard this before about technologies such as blockchain—whose prospects now seem to have been exaggerated. On what do you base your belief?

Kai-Fu: The most likely impact in the near term will be from extrapolations of robotic process automation (RPA) and natural language processing (NLP) technologies. Effectively, that means taking the workflow in your company and installing software to execute many elements more effectively.

For example, if you have an HR department, AI could start by using NLP to help you sort candidates, propose the right candidates, or provide better matches for review. If that works well, it could directly send emails to these candidates and arrange interviews that can be scheduled without human intervention. Going further, it could potentially conduct
salary negotiations, make offers, or triage among interviewers and their comments and try to find the right kind of offer for each candidate.

And when that starts to show promise, you are likely to replace some of the people—maybe even most of the people—in your recruiting department. You might then start thinking about how to use AI for new employee orientations or for tracking employee performance. You might consider how it can help employee training or self-enrichment, and very soon you would see the value of AI within HR—you’re getting more value at lower cost.

Then you might say “perhaps I should use this in the finance department.” And you will immediately see how tasks like expense reports and audit alerts—many of the things that entry-level accountants are often asked to do—can be automated. Then, you’re going to move to the legal department, the marketing department, and customer service—you’ll see that AI can answer most of the phone calls or reply to most of the emails. It will lead not only to equivalent or greater customer satisfaction and a comparable resolution rate but also to intelligent attempts to upsell your products at the end of each customer service case.

This will go on and on. I think companies that start to use AI will reap the rewards and experience this type of snowball effect that builds their company’s overall knowledge, connects their data together, better serves their customers, and saves them money. Of course, this will ultimately lead to the displacement of a certain percentage of routine workers’ jobs.

Questions arise from your example of the HR department and the snowball effect. How much of what we call management today consists of routine work that will inevitably be substituted with AI?

Kai-Fu: I think some of it is management, but a lot of it is workers who are basically doing routine tasks. I don’t think every job will be fully automated, but I think that a percentage of each job will be automated. So when you look at a corporation in aggregate, this adds up to substantial numbers.
There are also cases where it goes beyond just replacing the routine and helps you gain a competitive edge. If we go back to the recruiting example, there are companies that will do recruiting with an AI avatar that interviews their candidates—not to make the final decision but to do the initial screen. I think that is incredibly valuable, because the initial screen often determines the overall quality of the entry-level or campus hires that you are reviewing. With humans, you can only afford to screen so many candidates, but with AI there’s almost no marginal cost to additional screening. You can screen ten times more candidates and be assured of a larger pool that will be interviewed further by humans, so the process doesn’t change—you just get a better pipeline coming in.

Another example is in the financial sector. If you give out loans, you can improve your margins by having AI determine who is likely to default and who is likely to pay you back. If you’re in insurance, AI can help you determine how to construct a better product.

And the list goes on and on. It’s not just about job displacement; it also helps you improve your competitiveness in many key aspects of your business.

A lot of the algorithms for AI are open-source, so one could take the view that, if this is something that all of us can use, AI will merely raise the minimum standard for efficiency in business, not necessarily build advantage. Is there is a sustainable, competitive advantage in these applications? And if so, where does the advantage come from?

Kai-Fu: That’s a great question. I’ll give my answer in two parts.

First, I think there is arguably not that much competitive advantage in the technologies themselves. However, most traditional businesses are not really thinking deeply about what AI can do for the business, partly because it sounds like science fiction to them and partly because people don’t know where to start. And this will continue for a while. Think about the time when people were about to embrace the internet; they didn’t know whether to embrace it or how it fit into their company. But now, almost every company relies on the internet; if you didn’t you wouldn’t be around today.
The point is that, although AI is open-source, adoption in traditional businesses is still in the single digits. So if you try to find the right place to start incorporating AI, I think you will have a competitive advantage, not because the technology is so hard to build but because your competitors are probably not thinking about it yet.

Second, to do this right it’s important to either hire someone really good or appoint someone to serve as the acting chief AI officer. Perhaps you want to have someone like BCG as your partner to build this, or perhaps you want to find a private company to partner with you. But it’s incredibly important that you find the right first applications for AI, because we’ve seen about as many failures as successes in its implementation. The failures usually result from the CEO having a view of AI that is naive or too optimistic: perhaps they didn’t realize the cost and the resource requirements to get the data together, or they picked the wrong area to apply AI. So if you haven’t already, I think it’s really important that you find the right partner or hire someone good to get started. If you don’t, there’s a good chance you’ll be disappointed—not because AI doesn’t work. Perhaps you applied it to the wrong area, or maybe you need to reset your expectations.

Let’s talk about another dimension of competitive advantage or disadvantage, which is digitally native versus non-digitally native companies. Is it really a level playing field between the two?

Kai-Fu: Let’s say, for the moment, that we drop the perfect management team into a traditional business to disrupt it with AI. Hypothetically, in 99 cases out of 100, the traditional company will win because it has already established the workflow, the process, the supply chain, the customer relationships, and—most importantly—the data.

For AI to work, data is critical. Having the data gives you a huge advantage. You’ve already got the customers using your products; it’s a matter of capturing their data and securing your advantage by using AI the right way. That means traditional, established companies should be the de facto winners.

However, in reality, traditional companies are often run by people who may not understand AI, may not get the right help, and may be too optimistic or too pessimistic. That actually opens up opportunities for digitally native startups to compete.
If they take what I say seriously, traditional companies will realize that it’s their game to lose. They must become digitally capable, get the data, and use it to build business intelligence and artificial intelligence. The key to entry for AI startups is just hiring a bunch of smart, AI PhDs—but traditional companies can do that too.

That’s a really good answer. We’ve talked about the substitution factor—what AI can do better than humans. But there’s the flip side to that question: what can humans do better than AI? In my view, the differential value of human cognition increases in areas like imagination, ethics, or purpose. From your perspective, how can we migrate human cognition to more uniquely human tasks in the corporation of 2041?

**Kai-Fu:** If we think 20 years out, most of the routine tasks currently executed by humans will have been replaced by AI, so people will need to migrate to things AI cannot do or to new opportunities that AI will create.

I think what AI cannot do falls in the areas that you talked about—creativity, thinking across dimensions, thinking outside of the box. That’s one category that we can call creativity or imagination.

The other category is human-to-human touch. That’s something AI can emulate but cannot do well. People really don’t want to trust AI to be their psychiatrists, for example, or their health care professionals. I think there will be a huge number of job opportunities where human-to-human interaction is required or where the job is to build human-to-human trust. For at least 20 years, if not longer, that will still be a role for humans to hold.

Of course, many professional jobs will benefit from AI tools, so there will be an upgrading and redefinition of the job of a lawyer, accountant, doctor, or scientist. Humans will find their new roles by working symbiotically—doing what AI cannot do, while leveraging AI as a tool.

I also think AI will create many jobs. Although I can’t enumerate all of them, there will certainly be robot repair people, autonomous vehicle repair people, robotics scientists, AI researchers, and data scientists or individuals who collect data. AI is all about data, so
that’s one category of roles I can predict, but many more will certainly emerge that are hard to predict today.

So humans will need to figure out how to work with AI—to build what we’ve called the “bionic organization.” We must think about questions like what will humans do, what will the machines do, what will the machines help the humans do, what will the humans help the machines do, how will the interfaces between the two work, and so on. What’s your vision of what your children will mean by the word “organization” in 2041?

Kai-Fu: Wow, that’s a very tough one to predict. In my book, I don’t go into corporate leadership and management, but what I know for sure is that more corporations will be managing the businesses with data, and with predictions and “what ifs.”

Today, a lot of that work is being done by people. I imagine that at the top of the corporation there will still be the same people who will have proven themselves to be true leaders. The CEOs who have demonstrated their leadership, compassion, strategy abilities, communication skills, and so on will still be leaders of organizations in 2041.

What will be different is that some of the jobs that you now delegate to your direct reports will be done by AI. For example, if you want to know what your strategy should be and what stocks you should buy if the trade war between the US and China escalates, AI will do that for you. Do you have exposures and vulnerabilities in your portfolio if the Panama Canal is clogged for another week? Should you rethink your logistics or talent strategy if elections are won by such-and-such people next year? These are questions that you ask your staff today, but by 2041 many of them will be addressable with AI. AI won’t be just pretty pictures or three-dimensional graphs that your staff prepares for you; it will go one step further and do the analysis, assess the pros and cons, and show you the most cogent answer—which in general will be more comprehensive and valuable in helping you make the right decisions.

You can hear Kai-Fu Lee and Martin Reeves discussing AI 2041 in greater depth in the BHI Thinkers and Ideas podcast.
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