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Why every leader should care about digitization and disruptive innovation

Digitization, automation, and other advances are transforming industries, labor markets, and the global economy. In this interview, MIT's Andrew McAfee and McKinsey's James Manyika discuss how executives and policy makers can respond.

The disruptive impact of technology is the topic of a McKinsey-hosted discussion among business leaders, policy makers, and researchers at this year's meeting of the World Economic Forum in Davos, Switzerland. In this video, two session participants preview the critical issues that will be discussed, including the impact of digitization and automation on labor markets and how companies can adapt in a world of rapid technological change. What follows is an edited transcript of their remarks.

Disruption everywhere

James Manyika: The reason disruptive technologies are very important to all leaders—whether they're CEOs or policy makers—is because, for the first time, we now have technology affecting every single sector of the economy. Every sector, whether it's retail, financial services, shipping, manufacturing, and even agriculture, now takes inputs and uses technology to drive much of what it does.

Andrew McAfee: By now we're all familiar with digitized text, digitized audio, and digital video. One of the profoundly interesting and important things going on these days is that lots of other information is being digitized. Our social interactions are being digitized, largely thanks to all the different social networks and social media that we have. The attributes of the physical world are being digitized, thanks to all of these sensors that we have for pressure, temperature, force, stress, strain, you name it. Our whereabouts are being digitized, thanks to GPS systems and smartphones.

James Manyika: We also have other forms of digitization. Physical products and goods continue to be quite physical but are coming wrapped in data. Think about your container on a ship that's tagged, and it turns out that even the actuarial models for how the tracking of that is valued and insurance contracts are constructed is different whether the thing is tagged and tracked versus not.

Andrew McAfee: If this encroachment really is taking place faster and more broadly than it ever has before, there are a couple of implications. There's good news and challenging news here. The good news is that the variety and volume and quality of things that we'll be able to consume will go up, and the prices will go down. The challenge comes from the fact that if this encroachment really is happening quicker, more broadly, and deeper than before, the phenomenon is that technology is going to race ahead, but it could leave a lot of people behind in the capacity of folks who want to offer their labor to the economy. And how we deal with that challenge and what we do about the fact that technology is racing ahead but leaving some people, potentially a lot of them, behind is one of the great challenges for our generation.

The employment challenge

James Manyika: Between the period of 2000 and 2008—2008 because that's when the recession started, so we have a clean look—the US lost something like 5.8 million jobs in manufacturing. If you look at those jobs that we lost, only at most 20 percent of them were due to what you might call globalization, so offshoring and outsourcing. Whereas the rest of them, which is the majority, 80 percent of them, can be explained by looking at the effects of technology and the other key culprit, which is what happens to demand.

And we know that one of the things that happened in that period between 2000 and 2008 is that the demand growth for the outputs of manufacturing coming out of the US actually fell. So that was one of the big drivers for what then happened to employment. Where you had productivity growth without the demand growth, employment tends to suffer.

Andrew McAfee: There are a couple policy implications that come out pretty quickly. One is that over the longer term, we can't rely exclusively on economic growth alone to solve all of our employment problems. Now, in the short term, economic growth is absolutely the best way to get the hiring engine kicked in again. The robots, the androids, the artificial intelligence can't do everyone's job yet by a long shot. So the right way in the short term to grow employment is to grow the economy. But over the longer term, it honestly feels to me like we might be in a situation where enterprises can grow and thrive and not need nearly as much labor as they've needed historically.

James Manyika: Certainly education will help. We know that there's a big gap between what most economies need and what the educational training systems create to meet those needs.[1] But I would argue even that's not enough. So, while I think it's comfortable for policy makers—and, in

[1] See "Education to employment: Getting Europe's youth into work," January 2014, mckinsey.com.

fact, correct—to say, "Let's focus on innovation and let's focus on entrepreneurship and let's solve education," those are correct, but they may not be complete answers to how we tackle employment.

So think about what Uber and its like and its kin are doing. It's making it possible for people who have cars to suddenly turn that into a potential income-generating opportunity. Think about what models and businesses like Airbnb are doing where people can then use assets that they have, like their houses or their flats, as ways to generate income. Those are just examples of ways where, if you think about it as an income-generation question as opposed to a full-time employment problem, you expand the possibilities.

Claiming the prize

Andrew McAfee: I foresee a big change coming in the way the very best organizations are making some of their key judgments, forecasts, predictions, decisions. The tough transition is going to be getting the people and the alleged experts out of the way, and teaching them to be a lot more humble and a lot more data driven.

The other very big change that's coming is the fact that we have access—again via technology, networks, and very powerful devices—to a worldwide body of knowledge and talent and skill. And what we're learning over and over is the truth of Joy's Law, named for Bill Joy, one of the founders of Sun Microsystems. He said, "The smartest people work for somebody else."

What we're seeing is that when you can articulate the problem you're working on or the challenge or the thing you want help with, and float it up so that the world's community of innovators and problem solvers can work on it, you get very good results. You get them quickly and you get them from unexpected quarters. Thinking that all the expertise that you need is in-house or that you know where to go to go get the expertise or the help for the big challenge that you're working on— that's a really dangerous assumption.

James Manyika: We know that the Internet has created huge benefits for us as consumers. The amount of things we can now search, find, discover, consume, all of that. But the thing about that is that most of those things are things none of us pay for. And the revenue captured by companies is a fraction of the economic surplus that's come to us as consumers.

As you look at the list of the technologies that we have in our research, many of those have the same characteristic. So if you look at what's going to happen to cloud computing and what that's going to do and what the mobile Internet is going to do, much of that is going to end up in consumer surplus.

Now, I think there's going to be three interesting claims to the economic potential coming out of these technologies. One is a portion of this is going to go to consumers as things that they pay

nothing for or very little for. A portion of this is going to be surplus that will move from one sector to another. And then the third claim is going to be the revenues ultimately captured by any one company. So this creates a very interesting challenge for businesses around business models.

Andrew McAfee: The other advice that I give to people leading enterprises these days is do an experiment, set up a test. It is not terribly expensive these days to engage in open innovation, to use some of these platforms to post a challenge, post a data-science challenge, post an innovation challenge. Watch what happens as a result.

Find a part of your organization that's led by somebody who's a little bit more comfortable working with data, who's got a team of geeks that are part of her team, and do an experiment about becoming more data driven in forecasting, in market analysis, in product design, in human-capital management, in some of these areas. Do an experiment. It's not going to ruin the company. It's not going to break the bank. And then learn from it. ☐

James Manyika is a director of the McKinsey Global Institute and a director in McKinsey's San Francisco office. **Andrew McAfee** is associate director and principal research scientist of the Center for Digital Business at the Massachusetts Institute of Technology's Sloan School of Management.