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PRODUCING DIGITAL GAINS AT DAVOS

EACH YEAR AT DAVOS, The Boston Consulting Group (BCG) holds a breakfast that brings together a set of leaders on the digital frontier to discuss how digital technologies are reshaping the landscape for business and society and opening new opportunities. This year we had an outstanding group:

- Satya Nadella, CEO of Microsoft
- Ulrich Spiesshofer, CEO of ABB Group
- Andrew McAfee, codirector of the MIT Initiative on the Digital Economy

Rich Lesser, the CEO of BCG and moderator of the discussion, titled "Artificial Intelligence, Cloud Computing, and the Next Wave of Productivity Growth," started by asking when the benefits of the digital revolution would show up in productivity gains. It was an apt question given the remarkable advances that the panelists described. Microsoft's upcoming HoloLens, for example, is a pair of smart glasses that layer a virtual reality onto the field of vision. ABB, a leader in power and automation technologies, is building self-learning robots that can interact with humans and take on sophisticated and subtle tasks like brushing teeth.

The conversations quickly turned to broad issues such as the changing nature of work as automation and technology eliminate many routine manufacturing and service jobs, the rise of "computational thinking," and the need for education reform. The panelists concluded by emphasizing the need for leaders to prepare their people to coexist and collaborate with machines in the decade ahead.

Excerpts follow.

Lesser: Productivity growth drives a huge amount of improvement in society. There are questions about whether we measure productivity growth the right way, but the data and the way we do measure it say we've seen a real lag in productivity growth. Even last year with all the technological improvements, productivity growth was measured at 2.1 percent.

Satya, I wanted to get your take on how you see the transformative potential of these technologies to drive productivity but also to unlock human creativity and find sources of innovation and growth.

Nadella: The theme of this meeting is the fourth industrial revolution, and I have been asking myself: "What is the electricity of this revolution?" The conclusion I come to is that it is all about data and creating intelligence out of it. That is the currency, and it should impact our productivity, whether or not it is properly measured.

ABB, for example, has a very innovative agenda around electric cars and charging stations. ABB is not just building a charging station but also intelligence into the charging station using cloud-computing infrastructure. That marriage of digital technology and physical products is fundamentally changing business models.

Lesser: You inherited a wide range of businesses when you became CEO of Microsoft and very quickly were able to home in on your priorities and investments. Could you share some thoughts about the things that matter most in the digital world?

Nadella: I have been at Microsoft for 24 years, so I am the consummate insider. When I became CEO, the question I had to ask myself was "Why do we exist?" or even better, "What if we just disappeared?"

The first thing I concluded was that we are trying to empower people to get stuff done. The second thing that I realized is that we build digital platforms to enable others. Ultimately, we are a tool maker or a platform builder. That's our economic thesis. That point of view helped us to build Windows and our cloud infrastructure differently.

Lesser: Ulrich, you're already putting advanced robots on the factory floor. Can you just share real-life examples of how you see work being transformed?

Spiesshofer: Our robot, Yumi, can collaborate and coexist with workers on the factory floor. It does not need to be in a cage. Yumi has sensors and a 3-D camera and can learn movements very quickly. In the old days, it would take years of programming to teach a robot to brush your teeth, for example. That is all starting to change. Now we can give a robot a purpose and, through smart learning and intelligence, it can do it on its own.

Lesser: Andy, let's bring this back to productivity. How do you see these developments playing out long term around productivity?

McAfee: The more hardcore you are about the productivity numbers, the more skeptical you are about the kinds of things you guys have been talking about. Economists have this excessive focus on productivity growth. The reason is that productivity growth is basically shorthand for increases in our well-being. The only way we actually improve our standards of living is by doing more with what we have.

The problem is, we define productivity very narrowly: dollars of output divided by hours of labor input. Think about what that misses. All the improvements that we've seen in health care are poorly captured. Wikipedia does not show up anywhere in the productivity statistics.

The other thing to keep in mind is that the employment growth—and therefore the increases in the hours of labor—has been in the service sector, which historically is a low-productivity sector. We're not adding people to the high-productivity manufacturing industries, because they're efficient already.

Still, I am optimistic because the kinds of innovation we've been talking about are only now starting to permeate the service sector. I'm extremely confident that we're going to see high productivity growth, even with the measurement problems, in the years to come.

We also need to remember that the fundamental innovations in machine learning are five years old or even younger. It's going to take time for all these innovations to permeate the economy.

Lesser: The way the data is captured is partly feeding an exceptionally negative narrative now. In my conversations with CEOs, none of them feel like we are in a bull market. But they are much more positive than what I read in the headlines.

Are we going to find a way to think about the world in line with what is really going on?

McAfee: I have faith in the common sense of people that we are going to get this conversation right. The danger that I perceive is that tech progress might become one of the reasons for gloominess in the minds of a lot of people. That would be the most fundamental mistake we would make.

Tech progress is honestly the only way we're going to improve the human condition and tread more lightly on the planet. If we demonize technology, we're making the biggest mistake we could possibly make.

Spiesshofer: One hundred years ago, people were throwing stones at automobiles because they said the horse carriage drivers were losing their jobs. A lot of the behavior that we're seeing today feels like that. But look at some of the facts. The countries with the highest robotics densities in the world are South Korea, Japan, and Germany. They also have some of the lowest unemployment rates in the world. Auto unions have complained that robots are taking jobs away. In fact, the auto industry employs more people than ever before.

The purpose of technology is to make a better world. If we use it smartly, we will create work. The problem that we have is that people don't differentiate between jobs and work. There has never been an industrial revolution where the jobs haven't changed. Work will always be there; the jobs are changing. The people who are too pessimistic today see only the part that is disappearing. We don't need these types of jobs anymore, but we will create new ones.

Nadella: We need to skill not just students coming out of college or school but also those workers who are being displaced. It could be a radiologist or it could be a factory worker, because quite frankly both of them will have an issue.

The state that I grew up in in India is using machine learning and cloud computing to predict high school dropouts. In India, you don't drop out because you don't want to go to school. You drop out because you're going to work on the farm to supplement the family income. Maybe if you can increase family income, you can get students to go back to school.

Lesser: How do you see the work force requirements changing as these technologies come to life?

Nadella: We will all need to do our jobs differently. We need to work closely with HR and education to make sure our people are skilled. It's a pretty big task. How do we educate people so that when they arrive at the office they say, "I want to use some of this stuff. This is cool."

Lesser: It's a world where you go from learning something to learning how to learn.

McAfee: Routine human work is going away very quickly and never coming back. I mean both routine knowledge work—payroll clerk kinds of things—and routine physical work. The definition of routine is expanding really quickly. I would never have called what a pathologist or radiologist does routine work, but I'm firmly convinced that if the world's best radiologist today is not a piece of technology, it will be very quickly. That work is going digital. It's an unstoppable force.

There are two problems with my statement, though. Number one is that the large, stable, prosperous middle classes in most rich countries were formed on the back of routine work. When you look at where the job loss and the real wage pressure have occurred, it is not at the bottom and certainly not the top. It's right in the middle. That helps me understand a lot of the political demagoguery we are seeing in different countries among the disenfranchised middle class.

The second issue is that educational systems are doing a marvelous job of turning out routine workers. The mismatch is profound. Education is one of the slowest institutions to change in this society. That mismatch in clock speed between technology and education is something we need to work very hard on.

Nadella: In order to have a real job or have the ability to create economic surplus yourself, you've got to be smarter than the machine or cheaper than the machine. The problem is, the machines are getting smarter and cheaper. The solution is not for everybody to become a software engineer. We need to develop what is called computational thinking, an understanding of what things mean. We all need this skill.

Lesser: We've never been in a better time to improve the lives of the 3 billion people at the bottom of the economic ladder because you can enable them in ways you couldn't enable them before. The challenge, as you say, is in the middle class.

Spiesshofer: One of the last jobs that will get automated will be hairdresser. It is a creative service that is very difficult to automate. We need to fundamentally think about what the "hairdresser" is in many jobs.

We also need new ways of working. We have a cybersecurity team in Bangalore. When I visit them, they have pizza boxes in one hand and soda bottles in the other hand. There are all kinds of electronic devices flying around. The guys are doing their work in a way that makes the traditional ABB engineer feel a little uncomfortable. We can no longer say, "I want you to work the traditional way." We need to create a new way of working.

Lesser: It's easy to talk about the inspiration of technology. What are the challenges or pitfalls that people should focus on?

Nadella: How are we going to navigate this fast-changing world? I think where we've ended up is where I spend most of my time, which is culture. How do we cultivate the mind-set of the people inside of our organizations so that we can tackle this fast-changing world? I have even described a job of a CEO as a curator of culture.

Spiesshofer: Make sure you have the ability to innovate, not just eliminate. Transform your processes. Finally, take the people with you. If you use technology right, it elevates the nature of work.

McAfee: The skills that are most in demand in the world that we're creating are the abilities to negotiate, motivate, persuade, and co-ordinate. These good old-fashioned human skills are not becoming less valuable. The premium on those is going way up.