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Automation, Augmentation and the Fifteen Hour Work Week

By Thomas H. Davenport



A customer picks up her lunch from an automated cubby at eatsa, a fully automated fast food restaurant in San Francisco.

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As Labor Day approaches, we tend to think about how much we are laboring. Most of those who read this newspaper probably feel that they labor a bit too much. It wasn't supposed to be this way. In a 1930 book called *Economic Prospects for Our Grandchildren*, the normally astute economist John Maynard Keynes argued that with productivity and technology improving rapidly, our biggest problem would be figuring out what to do with our vast leisure time. He said:

For the first time since his creation man will be faced with his real, his permanent problem—how to use his freedom from pressing economic cares, how to occupy the leisure, which science and compound interest will have won.

Mr. Keynes expected that by now we'd be working an average of 15 hours per week. Obviously that prediction didn't come to pass. Science, compound interest, and a declining stock market are letting us down. But the rise of smart machines suggests anew that substantially increased leisure might be on the horizon. If these machines can automate many of the tasks we perform at work today, might we be able to spend substantially more time at leisure?

My answer is "probably not," and there are a variety of reasons for this. Some economists argue that we have taken the benefits of our increased productivity in increased consumption—we keep working more in order to buy more. Sociologists argue that busyness has gained status as an end in itself. Psychologists argue that work is more inherently satisfying than we think.

One other reason that intelligent machines haven't—and probably won't—reduce labor dramatically is that we are using them—at least sometimes—with the correct mindset. There is automation, which replaces existing tasks with machines that do the same thing, perhaps faster or cheaper. Then there is augmentation, which combines smart humans and smart machines to achieve an overall better result. We—both individual workers and their organizations—should be thinking of these new cognitive tools as opportunities for augmentation, not automation. They are aids not to job replacement, but rather job expansion.

This is how we have generally dealt with knowledge worker technologies in the past. Think about, for example, the familiar spreadsheet. It makes financial budgeting, planning, and report generation much faster and more productive. If organizations had taken an automation perspective on the tasks for which people use spreadsheets, they would have done the same number of budgets, plans, and reports after spreadsheets were invented, and done them with many fewer people.

Instead, we apparently think of spreadsheets as a tool for doing ever more analyses. Few if any financial analysts were replaced by spreadsheets, but substantially more analysis was done as a result of them. Rather than spreadsheets or other productivity technologies dividing up a fixed pie of work, they expanded the pie. This is a key element of the augmentation mindset.

Now that a variety of new intelligent systems are coming along, we could imagine that they might eliminate or substantially reduce human performance of tasks. They might finally lead

to that 15 hour work week. But my belief and hope is that they will follow the path blazed by spreadsheets. Instead of replacing knowledge workers, they should free them up to accomplish larger and more important tasks. Some decisions and actions may be taken over by automated systems, but that should make it possible for knowledge workers to take on other tasks and responsibilities. This outcome is certainly not inevitable, but in the early outcomes of cognitive technology implementation it seems to be what is happening. I have heard of few if any knowledge workers whose jobs have been eliminated by a smart machine.

Of course, there is a downside to working as much as we knowledge workers (particularly in the U.S.) do today. But there is perhaps an even greater downside to not working enough or at all. Many of us like our work and would not view enforced leisure as a positive outcome. However, the price we have to pay for thinking expansively about work is never having enough time to do it all.

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