

AP4CTE AP Seminar: Building a Dynamic Workforce

Research Strategies for Innovating and Problem-solving Across Career Paths

Module 2

Become a More Productive, Empathetic, Creative Person With the Help of AI-Based Tools

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Despite dramatic advances in technology, most of the world's economies have been stuck in a long period of slow growth and slow productivity. This is one of the most serious challenges in our 21st century economy. Opinions abound, but there's little consensus on its causes, and, nobody seems to know what to do about it, or how long it will likely last

In a recent article in the MIT Sloan Management Review, MIT Research Fellow Michael Schrage proposed a provocative and counterintuitive approach for enhancing innovation and productivity through man-machine collaborations. Mr. Schrage's approach has been more influenced by behavioral economics than by technology or algorithmic advances. Instead of just asking how can people create more valuable innovation, why not also ask how can innovation create more valuable people.

"Designing and training smarter algorithms may be cheaper and easier than retraining smart people," he writes. "Advocates of autonomous systems and machine learning typically innovate to minimize or marginalize human involvement in business processes. For them, people are part of the problem, not the solution. Organizations that take productivity seriously, however, understand that false dichotomies make poor investments: Smarter machines can - and should - be keys to unlocking greater returns from human capital."

Earlier this year, the McKinsey Global Institute published *A Future that Works: Automation, Employment and Productivity*, the results of a two-year study of automation technologies and their potential impact on jobs over the next several decades. Most jobs involve a number of different tasks or activities. Some of these activities are more amenable to automation than others. But just because some activities have been automated away, does not imply that the whole job will disappear. To the contrary, automating parts of a job will often increase the productivity and quality of workers by complementing their skills with machines and computers, as well as by enabling them to focus on those aspect of the job that most need their attention.

The McKinsey report estimated that less than 5% of all occupations can be entirely automated using existing technologies, but that some of the component tasks of almost all occupations will be automated. The big transformation of the workplace will not be the wholesale replacement of humans by machines, but rather, the large portion of jobs that will be restructured by technology. As the report notes, "humans will still be needed in the workforce: the total productivity gains we estimate will only come about if people work alongside machines. That in turn will fundamentally alter the workplace, requiring a new degree of cooperation between workers and technology."

We've long been leveraging technology to help increase productivity. Think of engineers using CAD tools to develop complex products, or the new generation of robots working alongside humans in manufacturing. Most of us make extensive use of personal productivity tools in our work and daily lives, as I'm now doing while researching and writing this blog.

But Mr. Schrage takes man-machine collaboration to a new level. He proposes using data-driven recommendation engines to help us identify the attributes we need to boost and the

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weaknesses we need to mitigate or, in his words, to "use technology to craft a better self rather than build a better agent."

Recommendation engines have been widely used over the past few decades. They provide all kinds of personalized advice, from books and music we will likely enjoy to potentially compatible romantic partners. Why not extend the concept to build "digital versions of ourselves that amplify our best human aspects and attributes? These multiple selves... will yield more productive employees, more empathetic companions, and more creative thinkers - not merely automated attendants."

"Wouldn't you be much more effective with a coach or adviser who reliably presents us with data-driven workplace choices and recommendations to bring out our bolder, more creative, more persuasive, more commanding, more empathic selves?," he asked in a related article. Given recent advances in AI and machine learning, such smart digital advisers might well be the natural evolution of today's digital agents. "The technologies to do this effectively exist."

"As we draw - and build - upon abilities both innate and external, we are developing multiple selves, digital versions of the self with one or more personal dimensions deliberately designed to significantly outperform and generate greater economic impact and organizational influence than the ordinary or average self. Ongoing innovation assures that people will be better able to identify, manage, and measurably improve their best selves. Instead of recommendation engines for books to read or movies to watch, multiple selfers will access actionable insights and advice on what to say, when to speak up, with whom to work, and how best to behave via personal dashboards."

For example, an executive might want to improve the clarity, energy and forcefulness of his written communications. To do this, he might turn to a tool like IBM Corp.'s Watson Tone Analyzer which uses linguistic analysis to detect communications tone in documents, emails and other written text. "The software proposes revisions, bringing force and focus to the prose."

Or, a global project manager might want to encourage greater cooperation, collaboration, and esprit within her team. To assist her, she might turn to a customized self-analysis software tool which "performs a social-network analyses, prioritizes project milestones, and reviews post-meeting communications to propose a daily facilitative checklist."

"In the long term, more granular self data and analytics will prove essential ingredients for boosting personal productivity and performance inside the enterprise and out. The business case is simple and straightforward: Well-managed multiple selves will reliably outperform and out-produce average selves assisted by agents and bots... It's not science fiction to empirically argue that emergent digital enterprise tools, techniques, and analytics will collectively create healthy and self-sustaining digital ecosystems for multiple-selves design."

Irving Wladawsky-Berger worked at IBM for 37 years and has been a strategic advisor to [Citigroup](#) and to HBO. He is affiliated with MIT, NYU and Imperial College, and is a regular contributor to CIO Journal.