

MULTIPLYING PERSONAL PRODUCTIVITY WITH MULTIPLE SELVES: RADICALLY RETHINKING THE CAPABILITIES OF THE DIGITAL SELF IS THE DISRUPTIVE OPPORTUNITY FOR DRAMATICALLY EMPOWERING THE HUMAN SELF.

BY MICHAEL SCHRAGE

Technology now touches and transforms every aspect of personal productivity in the workplace. Mobile devices are ubiquitous; managers worldwide use KPI dashboards to monitor and measure their people's performance. In industry after global industry, effectively collaborating with technology is as important as effectively collaborating with people.

Making employees—especially knowledge workers—exponentially more valuable in this second machine age is a difficult design challenge. It is cheaper and easier to train smart algorithms than to retrain smart people. That's why autonomous systems advocates and machine learning mavens typically innovate to minimize or marginalize human involvement in business processes. For them, people are part of the problem, not the solution. For organizations that take personal productivity seriously, however, smarter machines are the keys to unlocking greater human capital returns.

Our research suggests a novel and perhaps counter-intuitive approach to the personal productivity future. Influenced more by behavioral economics insight than algorithmic innovation, this approach challenges popular, data-driven digital paradigms. In this model, AI is less about Artificial Intelligence than Augmenting Introspection.

Technology here drives greater self-awareness and self-assessment about how individuals actually create and contribute to value. The power of this perspective comes from prioritizing principals over agents. Digital assistance, not digital assistants, is the primary design focus.

The rise of apps, bots, software agents and digital assistants - Amazon's Alexa, Apple's Siri, and Microsoft's Cortana,—has been remarkable. Their abilities to perform complex tasks on command can't help but impress. Acoustic agents and textual chat-bots are becoming integral to human effectiveness both at home and at work. Nevertheless, their increasing intelligence and ingenuity should not be allowed to define, distort, or dominate personal productivity debates. What tomorrow's most productive individuals really need to economically succeed are more – and better – digital versions of themselves; not just more and better assistants.

Radically rethinking the capabilities of the digital self is the disruptive opportunity for dramatically empowering the human self. While agents like Alexa and Hubot perform tasks to deliver desired outcomes, digital selves will actually *define* those tasks and outcomes. Consequently, the profound technical challenge lies less with building better agents than enabling people to build more productive and more valuable versions of themselves.

Data-driven *multiple-selves*, not just software swarms of agents and bots, accelerate enterprise productivity growth. And as technology advances, it increasingly will help people identify, manage, and measurably improve their best selves. In the future, individuals will digitally define and deploy creative, innovative, insightful, or collaborative versions of themselves to bring new value and efficiencies to business outcomes.

WHAT TOMORROW'S MOST PRODUCTIVE INDIVIDUALS REALLY NEED TO ECONOMICALLY SUCCEED ARE MORE – AND BETTER – DIGITAL VERSIONS OF THEMSELVES; NOT JUST MORE AND BETTER ASSISTANTS.

IN THIS RESEARCH BRIEF

- Research strongly suggests that cultivating and managing multiple selves empowers personal productivity. Management should commit to cultivating multiple selves as part of their human capital, professional development, and productivity agendas.
- Use workplace analytics to help employees identify specific cognitive and behavioral attributes for digital augmentation and amplification.
- Organizations should create and support searchable, multiple selves directories that promote cross-functional interoperability across the enterprise. Provide metadata, APIs/SDKs and documentation that enable teams of multiple selves to productively collaborate.
- Require networked KPI dashboards for multiple-selves management and oversight. These metrics should inform ongoing feedback as well as training.
- Well-managed multiple selves will reliably outperform and out-produce average selves assisted by agents and bots.



MIT
INITIATIVE ON THE
DIGITAL ECONOMY

MULTIPLYING PERSONAL PRODUCTIVITY WITH MULTIPLE SELVES

BY MICHAEL SCHRAGE

They'll receive data-driven and algorithmically-informed hints, nudges, and recommendations designed to align better selves with better results. Instead of recommendation engines for books to read or movies to watch, "multiple-selves" obtain actionable insights and advice on what to say, when to speak up, with whom to work, and how best to behave both in the moment and beyond. Tomorrow's most effective managers will employ the most effective selves. They are leaders committed to "selves" improvement.

A BOLDER, FRIENDLIER, MORE CREATIVE YOU?

A multiple self is best defined as a digital version of the self with one or more personal dimensions deliberately designed to significantly outperform one's ordinary or average self. The idea is to digitally amplify or enhance specific personal attributes that generate disproportionate economic impact and organizational influence. Those attributes can be affective qualities like boldness or friendliness, or technical skills such as facilitation and formulating hypotheses. Multiple-selves management will balance the economic benefits and trade-offs between effective and affective selves. Multiple selves become innovative platforms for metacognition—thinking about how we think. As workforces confront more agile and adaptive global competition, traditional competencies and typical or ordinary personal performance growth, may no longer suffice.¹

The prevailing agent/bot paradigm offers up smarter and better digital actors to do one's bidding. But that bidding is literally done for the same old self. In other words, what's the better human capital investment: Surrounding the same old self with smarter agents and better bots, or empowering individuals with data and technology to craft high-performance versions of themselves?

Research indicates that digitally deconstructing the self – truly grasping which attributes to amplify and what weaknesses to mitigate-unlocks a wealth of high-impact productivity opportunities. For example:

- An executive recognizes his written communications lack clarity, energy, and forcefulness. In a multiple-selves world, the executive shares his missives and messages with software like IBM's Watson tone analyzer. The software proposes revisions, bringing force and focus to the prose.

- A global project manager seeks to encourage greater cooperation, collaboration, and esprit within her team. Her customized self-aware (self-analysis software) performs a social-network analyses, prioritizes project milestones, and reviews post-meeting communications to propose a daily facilitative checklist.

- A technically competent but uninspired user-interface designer wants to become more boldly creative. Specially designed visual recommendation engines offer prototype imagery and wireframes based on those dimensions of creative and/or bold UX design.

In each use case, no right answer or normative solution exists; but individuals get clear, compelling and customized choices they wouldn't otherwise have. As with Amazon, Google Maps, and Netflix, people receive actionable, data-driven recommendations informed by algorithms explicitly designed to create a desired self. They could eventually be offered in the cloud as on-demand services.

AS WORKFORCES CONFRONT MORE AGILE AND ADAPTIVE GLOBAL COMPETITION, TRADITIONAL COMPETENCIES AND TYPICAL OR ORDINARY PERSONAL PERFORMANCE GROWTH, MAY NO LONGER SUFFICE.

Whether Amazon/Netflix-style recommendations, Atul Gawande-like checklists, or brave new genres of behavioral nudges best facilitate selves improvement is an affective/cognitive question driving human-capital research and development. Tomorrow's selves-motivated employees digitally choose to invest in who they need to become, not just what they're supposed to do next. The raw technical ingredients for this transformation already exist.

PSYCHOLOGY, COGNITIVE FOUNDATIONS

The social-science research and concepts exist, too. The multi-selves future draws from a rich – and growing - reservoir of psychology, behavioral economics, and cognitive research into how people actually make productive choices. Essentially, the literature declares that the human mind is not a coherent whole, but a clash of competing cognitive perspectives and affective desires. The self – or human agency – is both product and byproduct of that perennial conflict.

1. What is Metacognition? Sage Journals, May, 2006, Michael E. Martinez
<http://journals.sagepub.com/doi/abs/10.1177/003172170608700916?journalCode=pdka>

MULTIPLYING PERSONAL PRODUCTIVITY WITH MULTIPLE SELVES

BY MICHAEL SCHRAGE

To understand the most important ideas in psychology,” observes [New York University research psychologist, Jonathan Haidt](#), “you need to understand how the mind is divided into parts that sometimes conflict. We assume there is one person in each body, but in some ways we are each more like a committee whose members have been thrown together working at cross-purposes.” Let technology turn the apparent flaw of a divided self into the productive feature of digital selves. Treat the vast research literature on the self as a resource for recasting that division into mindful outcomes.

[Daniel Kahneman's](#) Nobel Prize winning research defining cognitive biases, heuristics, and prospect theory proffers clear frameworks for designing digital selves, while behavioral economics – with its empirically proven insights into anchoring, framing, and hyperbolic discounting – paves the way for self-ware that promotes enhanced awareness. Similarly, the research of Nobel laureates [Tom Schelling](#) and [Herbert Simon](#) serve as conceptual inspiration for technical instantiation.

LET TECHNOLOGY TURN THE APPARENT FLAW OF A DIVIDED SELF INTO THE PRODUCTIVE FEATURE OF DIGITAL SELVES. TREAT THE VAST RESEARCH LITERATURE ON THE SELF AS A RESOURCE FOR RECASTING THAT DIVISION INTO MINDFUL OUTCOMES.

The idea of multiple-selves exploitation enjoys multi-disciplinary support. The late [Marvin Minsky's Society of Mind](#) offers a veritable roadmap for researchers and entrepreneurs seeking insights into what modules of the mind are best positioned for digital augmentation and enhancement.

All of these works strongly suggest that cultivating and managing multiple selves empower personal productivity. That doesn't make software agents less valuable or important, but it persuasively argues that the productive value of human agency is underappreciated.

Ongoing global trends make this new human capital investment option appealing, as well. Widespread adoption of quantified-self tools and technologies—think wearable devices and sensors—promise ever-richer datasets for multiple-selves design. Technologies that track steps and heart rates already draw actionable inferences about individual energy levels and mood. Jawbones, Fitbits, and mobile-device apps can easily play significant workplace roles in assessing mental acuity and attention just as they now do for physical fitness.

The workday is near when self-ware instrumentation and personal KPI dashboards will physiologically sense when users are not in the mood to take advice or text the boss.

The results? More granular self-data and analytics will prove essential ingredients for boosting personal productivity and performance. Innovative, curious, facilitative, communicative, and other value-added/value-adding selves will get the right cues, nudges, and recommendations at the right moments prompted by sophisticated “selves-ware.” The business case is simple and straightforward: Well-managed multiple selves will reliably outperform and out-produce average selves assisted by agents and bots.

The global move to workplace analytics that both complement and reinforce the quantified-selves capability highlights this disruptive design. High-performance companies and cultures like Google also portend the personal productivity future. [Laszlo Bock's excellent book, Work Rules!](#) captures how thoughtfully his former company invested in data collection and metrics for assessing team, as well as individual value. To test managerial assumptions, the company conducts almost as many experiments inside the organization, as out. And Google's dedication to relentless improvement, Bock writes, makes it “open to crazy ideas.”

THE BUSINESS CASE IS SIMPLE AND STRAIGHT-FORWARD: WELL-MANAGED MULTIPLE SELVES WILL RELIABLY OUTPERFORM AND OUT-PRODUCE AVERAGE SELVES ASSISTED BY AGENTS AND BOTS.

BUILDING PRODUCTIVITY ECOSYSTEMS

In fact, it's not crazy to argue that Google's most successful people analytics' initiatives seek to align individual, managerial, team, and enterprise productivity. Leadership demonstrably cares as much about analytic introspection for its people as it cares about artificial intelligence in its platforms. Google wants its talent analytically invested in self-improvement, and as its own digital tools and machine learning platforms evolve, the company will insist its talent invest in the sort of selves improvement described in this brief.

Born-digital companies and cultures like Google, Facebook, Amazon, and Netflix – with their digital sophistication and algorithmic chops – are supremely well-positioned to gain further competitive advantage by enabling workforces of high-performance multiple-selves.

MULTIPLYING PERSONAL PRODUCTIVITY WITH MULTIPLE SELVES

BY MICHAEL SCHRAGE

All the ingredients are there. In the words of cyberpunk science-fiction writer, [William Gibson](#): “The future is already here – it’s just unevenly distributed.”

It’s not science fiction to see that emergent digital enterprise tools, techniques, and analytics can collectively create healthy and self-sustaining digital ecosystems for multiple-selves design.

Multiple-selves will use software agents to procure and secure competitive advantage; and as software agents improve, more selves will embrace them. Selves, as well as agents, will grow smarter – and more productive – through the selective pressures of machine learning and artificial intelligence algorithms.

As enterprise networks grow, so do the options. A facilitative multiple self, for instance, may search Google, Bing, or LinkedIn to gather data on a potential collaborator. A creative multiple self might say, “Alexa, find me an image with this aesthetic sensibility,” or “Alexa, find a creative self in the company that best complements me.”

In effect, productive humans won’t just manage portfolios of software agents, but teams of multiple-selves. In turn, managers oversee not just teams of individuals, but networks of multiple-selves and agents, as well.

IN EFFECT, PRODUCTIVE HUMANS WON’T JUST MANAGE PORTFOLIOS OF SOFTWARE AGENTS, BUT TEAMS OF MULTIPLE-SELVES.

PARETO AND UNEQUAL MULTIPLE SELVES

The future distribution of productive multiple-selves in the workplace is unknowable. Perhaps the typical – or average – knowledge worker will employ only two or three selves. Could super-producers, on the other hand, oversee an army of thousands of selves?

It’s anyone’s guess what the median number of multiple-selves might be in any given enterprise. Will professional service firm partners manage at least one bespoke self per client? Or will there be teams of selves and portfolios blending technical skills with affective hand-holding? Will plant managers have selves managing processes, equipment, workers, suppliers, and – of course – bosses? Perhaps tomorrow’s organizations will require employees to use standardized selves just as they insist on standardized enterprise software today.

“Know thyself” is one of the oldest and wisest of classic aphorisms and advice. Its intrinsic wisdom has stood the test of time. The rise of ever-smarter, ever-more disruptive technologies, however, demands a 21st-Century digital update: Know thy selves. Our research aspires to help productive employees and enterprises alike to know themselves, and their potential, better than ever.

References, Further Reading

- Machine Learning in Microsoft Word’s new Editor Gave me the Frights, VentureBeat, Feb. 28, 2017, John Brandon
<http://venturebeat.com/2017/02/28/machine-learning-in-microsoft-words-new-editor-gave-me-the-frights/?source=business-insider>
- Augmenting Art: Could IBM’s Machine Learning Bring Back Gaudi And DaVinci? Forbes, Feb. 2017, Bernard Marr
<https://www.forbes.com/sites/bernardmarr/2017/02/27/augmenting-art-could-ibms-machine-learning-bring-back-gaudi-and-davinci/#3bbd782344ec>
- The Rise of Digital Twins, GE Digital, Nov. 2016, Dimitri Volkman
<https://www.ge.com/digital/blog/rise-digital-twins>
- AI agents like Alexa, Siri, and M will create the First Trillion-dollar Company, Venture Beat, Oct. 2016, John Koetsier
<http://venturebeat.com/2016/10/23/ai-agents-like-alexa-siri-and-m-will-create-the-first-trillion-dollar-company/>
- The Artificial Intelligence Arms Race: Alexa, Cortana, Google Assistant, Siri, Viv... and What’s Next, Blue Hill Research, October, 2016, Charlotte O’Donnelly
<http://bluehillresearch.com/the-artificial-intelligence-arms-race-alexa-cortana-google-assistant-siri-viv-and-whats-next/>
- Siri, Alexa, Cortana and the Unstoppable Rise of the Digital Assistant, Financial Review, Sept. 2016, Richard Waters
<http://www.afr.com/technology/apps/business/siri-alexa-cortana-and-the-unstoppable-rise-of-the-digital-assistant-20160925-grmxy/>
- You are Not Who You Think You Are; New Philosopher, Oct. 2014, Tim Dean
<http://www.newphilosopher.com/articles/you-are-not-who-you-think-you-are/>
- Thinking, Fast and Slow, Farrar, Straus and Giroux, April, 2013, Daniel Kahneman
<https://www.amazon.com/Thinking-Fast-Slow-Daniel-Kahneman/>
- Nudge: Improving Decisions About Health, Wealth, and Happiness Penguin Books, Feb. 2009, Richard H. Thaler and Cass R. Sunstein,
<https://www.amazon.com/Nudge-Improving-Decisions-Health-Happiness/dp/014311526X>
- Six Thinking Hats, Back Bay Books, August, 1999, Edward de Bono
<https://www.amazon.com/Six-Thinking-Hats-Edward-Bono/>
- Games People Play: The Basic Handbook of Transactional Analysis, Ballantine Books, August, 1996, Eric Berne
<https://www.amazon.com/Games-People-Play-Transactional-Analysis>

MULTIPLYING PERSONAL PRODUCTIVITY WITH MULTIPLE SELVES

BY MICHAEL SCHRAGE

MIT INITIATIVE ON THE DIGITAL ECONOMY

The MIT IDE is solely focused on the digital economy. We conduct groundbreaking research, convene the brightest minds, promote dialogue, expand knowledge and awareness, and implement solutions that provide critical, actionable insight for people, businesses, and government. We are solving the most pressing issues of The Second Machine Age, such as defining the future of work in this time of unprecedented disruptive digital transformation.

SUPPORT THE MIT IDE

The generous support of individuals, foundations, and corporations are critical to the success of the IDE. Their contributions fuel cutting-edge research by MIT faculty and graduate students, and enables new faculty hiring, curriculum development, events, and fellowships. Contact Christie Ko (cko@mit.edu) to learn how you or your organization can support the IDE.

TO LEARN MORE ABOUT THE IDE, INCLUDING UPCOMING EVENTS, [VISIT IDE.MIT.EDU](https://ide.mit.edu)

Michael Schrage is a Research Fellow at the [MIT Initiative on the Digital Economy \(IDE\)](https://ide.mit.edu) and a Visiting Fellow at the Imperial College Department of Innovation and Entrepreneurship. His research, writing and advisory work focuses on the behavioral economics of innovation. He is the author most recently of the award-winning 'Innovator's Hypothesis' from MIT Press and kindle best-selling 'Who Do You Want Your Customers To Become' from the Harvard Business Review Press. He is a featured blogger for the Harvard Business Review site and occasional contributor to the Financial Times, Wall Street Journal and other publication. Michael was a senior advisor to MIT's Security Studies Program and is on the MIT Executive Education faculty.