

Extreme Competition Peter Fingar

The Cognitive Economy--and YOU

This month's Column is adapted from the just-released book, Cognitive Computing
<http://www.mkpress.com/cc>

As business analysts and BPM professionals, we are pretty much heads down in discussions about "capabilities" vs "process" and the latest BPMN and VLMD modeling standards and methods. And the terms "Digital Enterprise," "Digital Economy," and "Business Transformation" are all the rage these days, challenging us to act or lose competitive advantage. Today, I'd like to ask us all to raise our heads and look up at the horizon beyond the walls of our industries and organizations. Let's contemplate the Cognitive Economy and the Cognitive Society as the very foundations of modern civilizations are shifting right under our feet.

The Post-Work Society

Tom Standage, digital editor for *The Economist*, makes the point that the next wave of technology is likely to have a more profound impact than those that came before it: "Robots and AI threaten to make even some kinds of skilled work obsolete (e.g., legal clerks). This will displace people in service roles, and the income gap between skilled workers whose jobs cannot be automated and everyone else will widen. This is a recipe for instability."

In September 2013 economist, Carl Benedikt Frey and information engineer Michael A. Osborne, both at the University of Oxford, published a study titled "The Future of Employment" ⁱ estimating the probability that 702 occupations would soon be computerized out of existence. Their findings were startling. They argued, "Advances in data mining, machine vision, artificial intelligence and other technologies could put **47 percent of American jobs at high risk of being automated in the years ahead.** Loan officers, tax preparers, cashiers, locomotive engineers, paralegals, roofers, taxi drivers and even animal breeders are all in danger of going the way of the switchboard operator." In their report they write, "While computerization has been historically confined to routine tasks involving explicit rule-based activities, algorithms for big data are now rapidly entering domains reliant upon pattern recognition and can readily substitute for labor in a wide range of non-routine cognitive tasks. In addition, advanced robots are gaining enhanced senses and dexterity, allowing them to perform a broader scope of manual tasks. This is likely to change the nature of work across industries and occupations." In response to their claim that 47% of current jobs will be replaced, Derek Thompson commented in *The Atlantic*, "It would be anxious enough if we knew exactly which jobs are next in line for automation. The truth is scarier. We don't really have a clue."ⁱⁱ

As reported in the Scientific American, ⁱⁱⁱ “Our understanding of the relation between technological advances and employment is limited by outdated metrics. If productivity is no longer a good proxy for a vigorous economy, then we need a new way to measure economic health. In a 2009 report economists Joseph Stiglitz of Columbia University, Amartya Sen of Harvard University and Jean-Paul Fitoussi of the Paris Institute of Political Studies wrote that “the time is ripe for our measurement system to shift emphasis from measuring economic production to measuring people’s well-being.” (full report: <http://bit.ly/1jPXSDx>).

A 2014 report by Cornell’s Industrial Relations School (IRL) called for statistical agencies to capture more and better data on job market churn—data that could help us learn which job losses stem from automation. “Without such data, we will never properly understand how technology is changing the nature of work in the 21st century—and what, if anything, should be done about it. As one participant in this year’s roundtable put it, ‘Even if this is just another industrial revolution, people underestimate how wrenching that is. If it is, what are the changes to the rules of labor markets and businesses that should be made this time? We made a lot last time. What is the elimination of child labor this time? What is the eight-hour workday this time?’”

In the Foreign Affairs article, “New World Order: Labor, Capital, and Ideas in the Power Law Economy” by Erik Brynjolfsson, Andrew McAfee, and Michael Spence, they write, “Should the digital revolution continue to be as powerful in the future as it has been in recent years, the structure of the modern economy and the role of work itself may need to be rethought. As a group, our descendants may work fewer hours and live better—but both the work and the rewards could be spread even more unequally, with a variety of unpleasant consequences. Creating sustainable, equitable, and inclusive growth will require more than business as usual. The place to start is with a proper understanding of just how fast and far things are evolving.”

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Many analysts have come upon the idea that new technology can lead to higher unemployment and rising inequality. The British economist John Maynard Keynes coined the term “technological unemployment” back in the 1930s when he predicted the displacement of workers by machines. In the early 19th century, power looms introduced during the Industrial Revolution threatened to replace the artisans with less-skilled, low-wage laborers, leaving them without work. Enter the Luddites, the movement set out to smash the power looms.

Will we have 21st century Luddites using all their political power to smash the transformation of work, especially knowledge work that makes up the huge portion of the Services Economy? How will we distribute wealth in a Post-Work economy where technology tends to agriculture, industry and, now, services?

You know, the term ‘management’ didn’t exist until the Industrial Revolution demanded it and Fredrick Taylor, Alfred Sloan and Peter Drucker invented this thing we call management. From the early 20th century until today, it’s been *command-and-control* management. In our current digital age, it must transform to *connect-and-collaborate*, where transparency becomes the invisible hand of management control. We cannot smash the smart machines that are taking over so much work in the services sectors with the Luddites’ hammers. We can only chip away at the forms

of governance that no longer work for the people by becoming fully informed citizens, fully informed workers.

According to the late James Martin, “The individual is immersed in such an expanding ocean of capability to process knowledge. That makes the twenty-first century both more exciting and more perilous than any other century so far. We are heading toward an inflection point, but our leaders are not preparing to make the passage smoother for us. That will be the job of the Transition Generation.” According to Martin, today’s young people will be the generation that brings about this great transition by understanding the 21st century roadmap and the critical role they will play in the massive change that is inevitable in this century.

The big problems facing the world today are not at all things beyond our control. Our biggest threat is not an asteroid about to crash into us, something we can do nothing about. Instead, all the major threats facing us today are problems entirely of our own making. And since we made the problems, we can also solve the problems. That then means that it’s entirely in our power to deal with these problems. In particular, what can all of us do? For those of you who are interested in these choices, there are lots of things you can do. There’s a lot that we don’t understand, and that we need to understand. And there’s a lot that we already do understand, but aren’t doing, and that we need to be doing. —Jared Diamond, Collapse: How Societies Choose to Fail or Succeed? ^v

Here’s Tom Davenport, reporting in the Wall Street Journal, “In short, I would conclude that in the field of high-end knowledge work, it’s still unclear whether the ultimate fate of workers is to be replaced rather than to be augmented by technology. If there is any overall lesson, it is to make sure you are capable of augmenting an automated or semi-automated system. If the decisions and actions you make at work are remarkably similar to those made by a computer, that computer will probably be taking your paycheck before long. To prevent that, you must understand how these systems perform their jobs. You need to understand how they work, know their strengths and weaknesses, examine them regularly to make sure their decisions are good, and be able to document and improve them. It’s probably not a bad idea to improve your human relationship skills, but you may also want to address your ability to have meaningful relationships with computers.”
<http://on.wsj.com/1iIMmn1>

Geoff Livingston, author and president of Tenacity5 Media, wrote, “I see the movement towards AI and robotics as evolutionary, in large part because it is such a sociological leap. The technology may be ready, but we are not—at least, not yet.”

Glenn Edens, a director of research in networking, security, and distributed systems within the Computer Science Laboratory at PARC, a Xerox Company, wrote, “There are significant technical and policy issues yet to resolve, however there is a relentless march on the part of commercial interests (businesses) to increase productivity so if the technical advances are reliable and have a positive ROI then there is a risk that workers will be displaced. Ultimately we need a broad and large base of employed population, otherwise there will be no one to pay for all of this new world.”

Will networked, automated AI displace more jobs than it creates? That was precisely the question covered in “The 2014 Survey: Impacts of AI and robotics by 2025.” It’s a 67 page report that you’ll want to review in order to frame your own thinking about the post-work society. Internet experts and highly engaged netizens participated in

answering an eight-question survey fielded by Elon University and the Pew Internet Project. One of the survey questions asked respondents to share their answer to the following query:

“Self-driving cars, intelligent digital agents that can act for you, and robots are advancing rapidly. Will networked, automated, artificial intelligence (AI) applications and robotic devices have displaced more jobs than they have created by 2025? Describe your expectation about the degree to which robots, digital agents, and AI tools will have disrupted white collar and blue collar jobs by 2025 and the social consequences emerging from that.”

Among the key themes emerging from 1,896 respondents’ answers were:

- Advances in technology may displace certain types of work, but historically they have been a net creator of jobs.
- We will adapt to these changes by inventing entirely new types of work, and by taking advantage of uniquely human capabilities.
- Technology will free us from day-to-day drudgery, and allow us to define our relationship with “work” in a more positive and socially beneficial way.
- Ultimately, we as a society control our own destiny through the choices we make.
- Automation has thus far impacted mostly blue-collar employment; the coming wave of innovation threatens to upend white-collar work as well.
- Certain highly-skilled workers will succeed wildly in this new environment—but far more may be displaced into lower-paying service industry jobs at best, or permanent unemployment at worst.
- Our educational system is not adequately preparing us for work of the future, and our political and economic institutions are not prepared to handle this future.

So, the question is, “What are people for in a world that does not need their labor, and where only a minority are needed to guide the ‘bot-based economy?” How will we organize our world if machines can provide goods and services at lower and lower costs while fewer and fewer have income enough to buy anything? As Stow Boyd puts it, “The end state is uncertain, but **we are headed toward a disruption of our society on the same order of magnitude as the rise of agriculture and industrialism, but in a much more compressed time frame**: decades, not generations or centuries. And that question—what are people for?—will taunt us because it’s unclear if there is an answer or whether it is just an irresolvable dilemma.”^{vi} Get informed:

AI, Robotics, and the Future of Jobs

Experts envision automation and intelligent digital agents permeating vast areas of our work and personal lives by 2025, but they are divided on whether advances will displace more jobs than they create. Some say the education system and political and economic institutions are not well prepared for this revolution.

<http://bit.ly/1pW22uU>

Stanford economist Russ Roberts, for one, knew Adam Smith’s *The Wealth of Nations* inside and out, but *Moral Sentiments* sat on his shelf for nearly 30 years until he finally picked it up and gave it a read. Now, Roberts calls the book a “marvel” and a “road map to happiness, goodness, and self-knowledge” that completely changed his life. “Even though he’s the father of capitalism and wrote the most famous and

maybe the best book ever on why some nations are rich and others are poor," Roberts, host of the popular podcast EconTalk, writes in his new book, *How Adam Smith Can Change Your Life*, "Adam Smith in *The Theory of Moral Sentiments* wrote as eloquently as anyone ever has on the futility of pursuing money with the hope of finding happiness."

At first glance, there may seem to be inconsistency between Smith's two works—one that advocates economic self-interest, and the other that suggests empathy and altruism are as natural to us as eating and sleeping. But for Smith, these two points are not as discordant as they might seem. Smith suggests in *The Theory of Moral Sentiments* that both the individual and society benefit if we pursue our own interest through virtuous actions.

YOU

47% of Western jobs are at stake, and the wealth gap is reaching historical proportions not seen since the Gilded Age, as reported in a Princeton, Northwestern U. study, "U.S. is an Oligarchy, Not a Democracy." So, it's not just business transformation, it's societal transformation that we must now tend.



Change won't come from the top, from the vested interests who want to cling to their economic and political power. It won't come from the bottom of organizations where folks are not fully informed and desperately cling to jobs with uncertain futures. It will be the middle of organizations, the places where innovation takes place, where new digital products and services are developed, where organizational restructuring occurs to adapt to the needed outside-in transformation demanded by

today's fully informed customers. As a business, how you change is going to be dramatic and transformational, or else you won't be a business in the near future.

As business analysts and architects, **our future is in your hands** as you take on corporate social responsibility (CSR) and compliance, risk and governance issues (CRG).

Get informed. TechCast Global is a research-based corporation that grew out of George Washington University. The experts examine the technology revolution, globalization, and other transformative changes that are driving the creative destruction of markets, introducing disruptive products and services, and altering the way organizations work—yet today's managers lack useful knowledge on how to plan for these critical challenges. Techcast's authoritative, comprehensive forecasts help managers and planners adapt to this rapidly changing world.

Here is what some of the experts suggest for change:

- Ensure [somehow] "friendly" Super Intelligent machines
- Switch from growth econometrics to Sustainability to reverse/fix the rapid degradation of the ecosystem
- Population right sized to what, at a given tech level, the ecosystem can support to address life extension and the finite sized ecosystem
- Renewable Energy including halophytes, salt plants grown on wastelands
- Comfortable guaranteed middle class income for everyone, machines owned by the global commons/ produce the wealth to provide the requisite income to address the machines taking the jobs
- Reduced requirement for physical infrastructures enabled by Tele-everything, tele-travel, tele-shopping, distributed energy generation, global brain, global sensor grid, and the cloud



To keep an eye on the future of business, stop by www.techcastglobal.com and MIT Sloan's Center for Digital Business (IDE): mitsloan.mit.edu/ide Download the presentations at: <http://bit.ly/ZVHr4O>

Join the Cognitive Systems Institute's LinkedIn group: <http://tinyurl.com/Ifk3aqr>

Check out the latest at the Singularity University: <http://singularityu.org/>

And if your specific interest is information technology (IT) check out the Global Institute for IT Management: www.globaliim.com

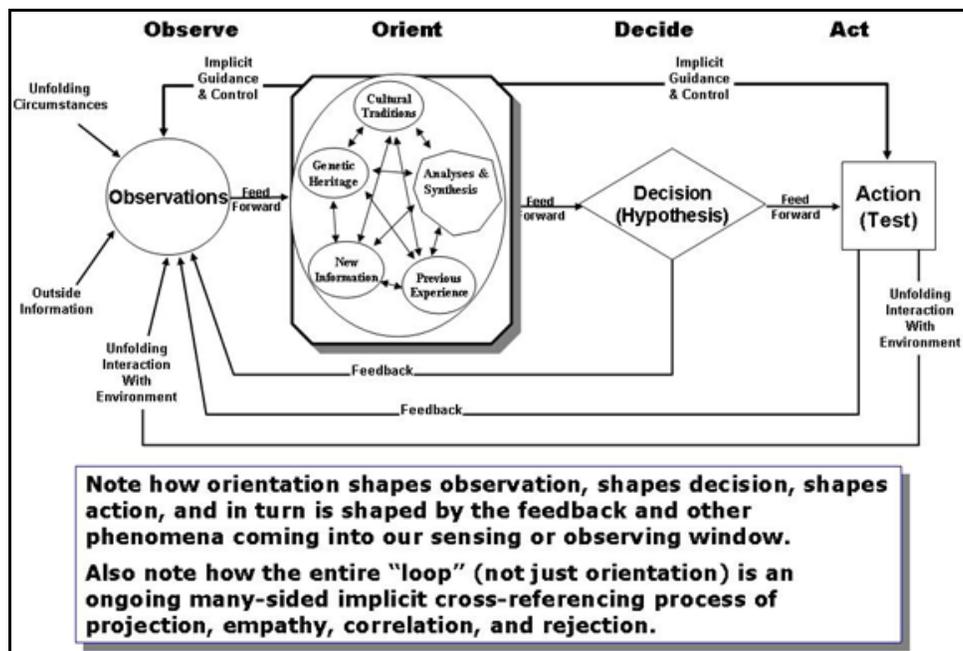


MAYDAY.US

Koch-backed network aims to spend nearly \$1 billion on 2016 ...

And if you want to take back our democracy, connect with Harvard’s Lawrence Lessig and <https://mayday.us>

As this unpredictable, unknowable tsunami rushes ashore, long range planning won’t cut it anymore. Continuous OODA loops replace 5-year plans. Although leading companies and innovation consultants have many innovation process roadmaps, OODA Loops and Energy-Maneuverability theory provide the baseline, a unifying theory of agility, for any business innovation process worth its salt. Today, in all walks of life it’s necessary to adapt ... and re-adapt.



I hope that this month’s Column, though not about capabilities or BPMN methods, helps us all sit back and glimpse at the huge transformation civilization is going through. In the Cognitive Economy, powered by Cognitive Computing, where

“Humans Need Not Apply,” we live in the most interesting and challenging times. No government, country, business or individual will be untouched.



<http://bit.ly/1milWiQ>

WHITHER MANKIND: SYMBIOSIS OR GENOCIDE
 THE POST-WORK SOCIETY
 THE APOCALYPSE
 POLICY MAKERS - GOOD LUCK WITH THEM
 IDEAS FOR CHANGE

future of life INSTITUTE

Alan Alda, Nick Bostrom, Erik Brynjolfsson, George Church, Megan Frazee, Alan Guth, Stephen Hawking, Christof Koch, Elon Musk, Paul Paterlini, Martin Rees, Francesco Rocca, Stuart Russell, Frank Wilczek

Google's New A.I. Ethics Board Might Save Humanity From Extinction

SCHWARZBUCHEN

THE SECOND MACHINE AGE

“We are summoning the demon.” --Elon Musk

“The development of full artificial intelligence could spell the end of the human race.”

-- Stephen Hawking

THE CHALLENGE GOES BEYOND YOUR COMPANY AND ON TO SOCIETY AS A WHOLE !

OUR FUTURE IS IN **YOUR** HANDS!

FROM AN AGRICULTURAL ECONOMY TO THE INDUSTRIAL ECONOMY AND ON TO THE APOCALYPSE ECONOMY

I'll repeat one more time, as business analysts and architects, **our future is in YOUR hands.**

So, please Observe, Orient, Decide and Act ... again and again.

Peter Fingar



Peter Fingar, independent analyst, internationally acclaimed author, management advisor, former college professor and CIO, has been providing leadership at the intersection of business and technology for over 40 years. Peter is widely known for helping to launch business process management (BPM) with his book, *Business Process Management: The Third Wave*. He has taught graduate and undergraduate computing studies in the U.S. and abroad, and held management, technical, consulting and advisory positions with GTE Data Services, American Software and Computer Services, Saudi Aramco, EC Cubed (for clients including GE TPN, American Express, Master Card and GE Capital), Noor Advanced Technologies, the University of Tampa, the Technical Resource Connection division of Perot Systems and IBM Global Services. He is a sought-after keynote speaker and his latest of 15 books include *Business Process Management: The Next Wave*, which is about the use of distributed intelligence in business and *Smart Process Apps: The Next Breakout Business Advantage*. <http://www.peterfingar.com> peter@peterfingar.com

ⁱ <http://bit.ly/1mj2qSl>

ⁱⁱ <http://theatlntc/1dRHDqd>

ⁱⁱⁱ <http://tinyurl.com/jwrwftw>

^{iv} <http://tinyurl.com/lbdlq2k>

^v <http://tinyurl.com/orlwqqu>

^{vi} <http://tinyurl.com/jwrwftw>