INFERENTIAL FOCUS BRIEFING

Special Briefing
October 14, 2011

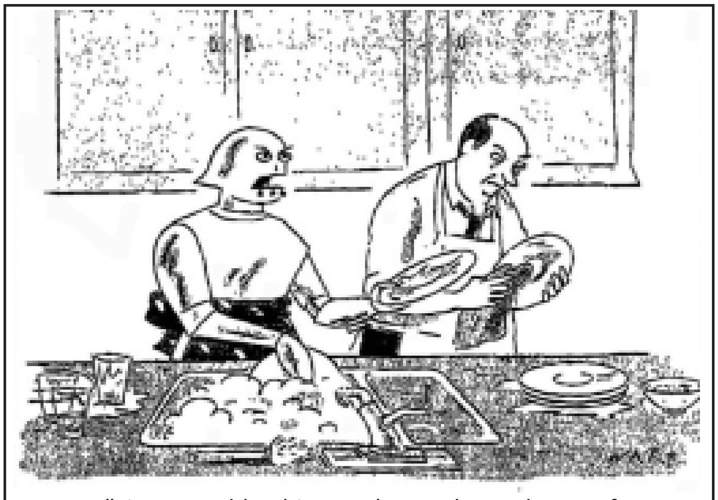
FUTURE (IN)TENSE, PART I: THE WORLD WE'RE CREATING IS TRAINING US HOW TO ACT AND THINK

Prediction is very difficult, especially if it's about the future.

– Nils Bohr, Nobel Laureate in Physics

A Future That "Works"?

Lincoln Steffens, the social thinker of the early twentieth century, joined interested parties from the U.S. State Department in 1919 to venture into the new Soviet Union to have a look at what the revolution had wrought. Upon his return, when asked about his experience, he often repeated the same line: "I have seen the future, and it works." Of course, the future did not pan out the way he envisioned, and years later he would recant his statement and revise his earlier optimism. More recently, an entire book, which took its title from a Yogi Berra quote, *The Future Isn't What It Used to Be* (2006), examines the many futures that writers, journalists, politicians, businessmen and scientists have offered, all of which failed to materialize.



"Listen, Buddy, this wasn't exactly my dream of the future either."

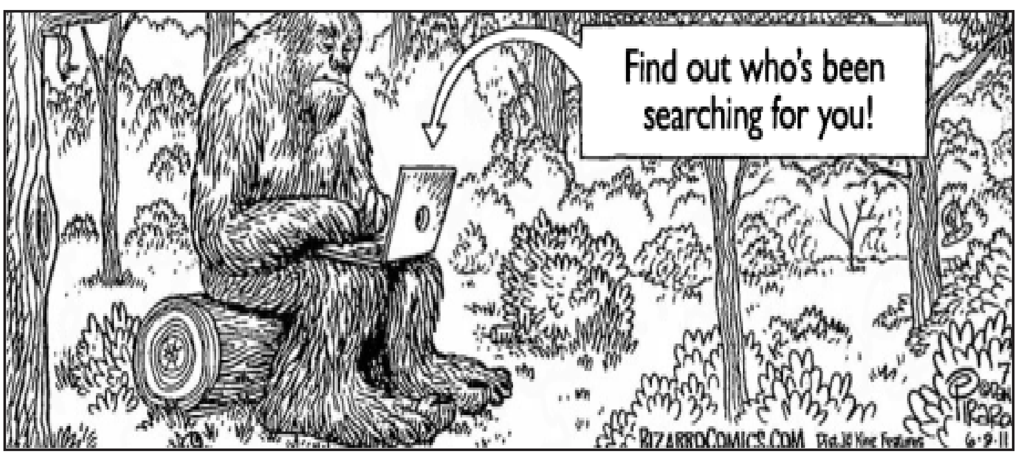
Historians, of course, have it a little easier. They know how their story ends, and so when they look over their evidence, they can peek ahead to see how a situation resolved itself. Esteemed historian T. S. Ashton, in his seminal work, *The Industrial Revolution, 1760-1830* (1947), offered a perspective that sheds light on today and probably the very future that no one seems ever to get right. “The industrial revolution is to be thought of as a movement, not as a period of time.”

The Industrial Revolution created a dynamic – either hostile or helpful, depending on one’s role – between humans and machines, a dynamic (or movement, to use Ashton’s word) that is still playing out. Machines today might be robots rather than printing presses, and the thing guiding today’s machines might be digitally coded software rather than gears. Or the device might be an “evolution machine” that produces generations of genetic modifications in a few days rather than grist mills. No matter what the device or engine, the human-machine dynamic continues to force changes in economies, societies and, increasingly, human beings themselves. Indeed, recent iterations of the human-machine dynamic have destabilized economies, disrupted traditional institutions, restructured nature and could well be accelerating evolution. If anyone has seen the future in these examples, they might do well to consider whether that future “works,” or not.

We have: pilots whose dependence on computers has resulted in them forgetting how to manually fly planes in case of trouble; genetically modified weeds that have become immune to pesticides; weapons that enable a loner to take down entire national electrical grid systems; digital interfaces that can apparently go a long way toward “rewiring” the brain; mechanical systems that operate with such speed that only other machines can control them or interpret their output; systems in markets that bid against each other, triggering “flash crashes” in value or its reverse, outrageous valuations, all without human input; weapons that can locate a target and fire on that target without human instructions; machines growing human organs and so on. This is a long way from the original Industrial Revolution that produced what were called Luddites, loyal followers of Ned Ludd who fought against the machine’s deployment because it destroyed jobs.

Machines, devices and software seem to be generating little negative reaction so far in the twenty-first century, perhaps because an entire industry from chip makers to apps writers has a vested interest in furthering the machine-software advance. For instance, Intel published a Web document saying that every school should supply every student with a computer. Yet the company elsewhere acknowledged that “there are no longitudinal, randomized trials linking e-learning to positive learning outcomes.” (*New York Times*, 10/9/11)

What is the context for this evolving, even revolutionary, dynamic between humans and machines and more generally between humans and technology? Does it, as Lincoln Steffens would have it, produce a future that “works”? Or will there come a moment of recanting the amazing future that so many industry representatives through marketing and advertising insist we are producing? Certainly, all risks come with opportunities, but the reverse is equally true. Perhaps we should take a more critical look at what is happening today, because today’s actions will determine the future.



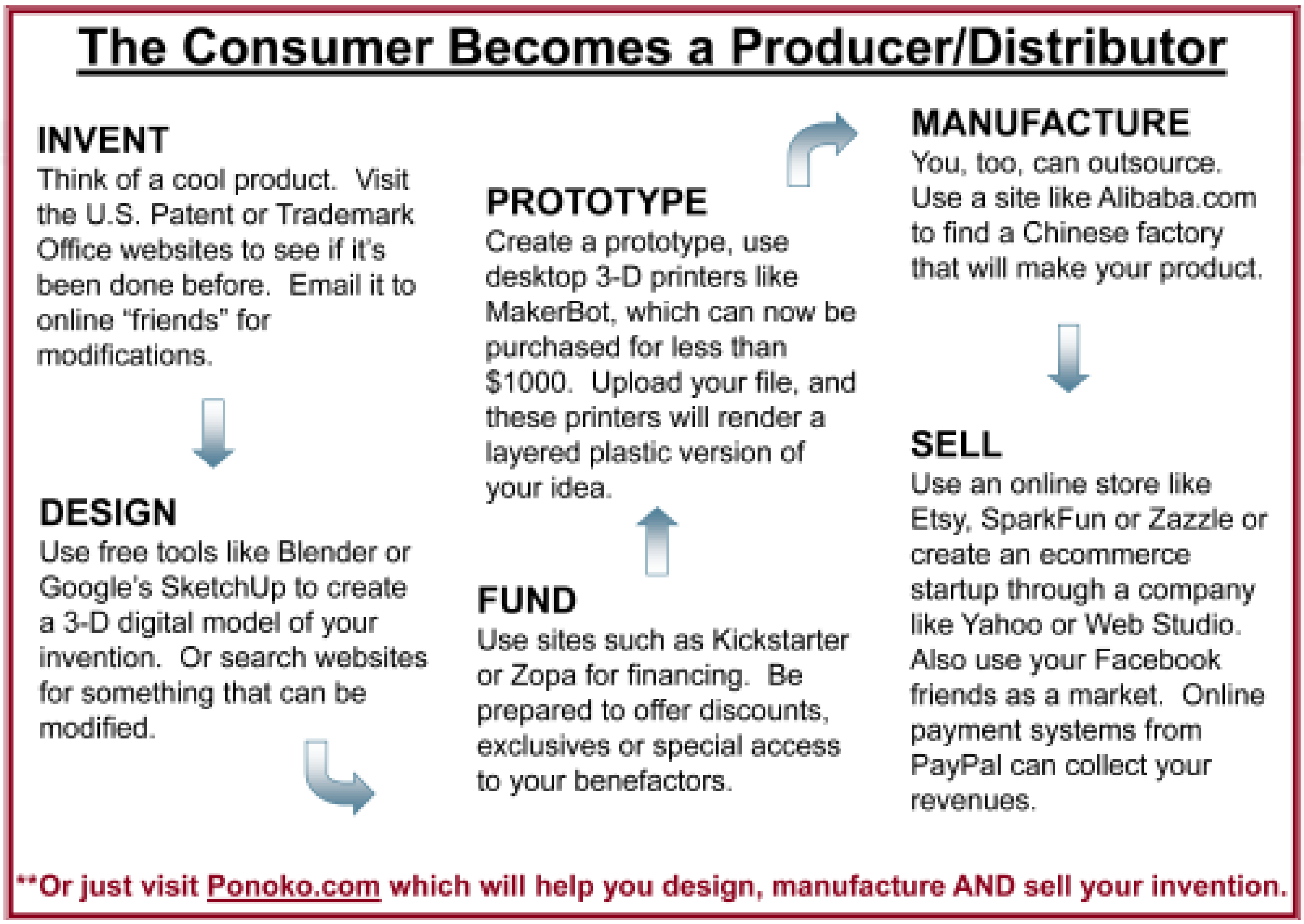
Decentralized and Dispersed

The Industrial Revolution shifted market leverage from individual craftsmen to those who owned the means of mechanical production. These owners of mechanization could produce goods in greater quantity and at lesser prices than the individual weaver or boot maker, for instance, and that granted them market power. That is where the “movement,” in Ashton’s term, started.

What we at Inferential Focus have called the **New** Industrial Revolution occurred after technology became so transferable – meaning that it could be set up anywhere at lower and lower costs – that proliferation of production capabilities undermined production's own market value by creating too much capacity, thereby eventually shifting market power to the distributor, the one with the end-user relationship. With so many producers in so many places, distributors or marketers could play one producer against another for the lowest price, and then sell to the consumer for a handsome margin. Essentially, the leverage in the industrial movement moved past the manufacturer.

Market leverage shifted again with the advent of the Internet, which enabled a considerable increase in the number of distributors. Customers now had a way around traditional distributors. As a result, consumers could increasingly play one distributor or marketer against another for pricing advantage, just as marketers before them had taken advantage of the increasing number of producers. The New Industrial Revolution played out when the ability to produce the goods reached the individual, and the individual, who was once just a consumer, acquired the capability to become a virtual manufacturer, making and distributing his or her own movies, songs, crafts and digital games.

Beyond the digitized products, such as music and movies, manufacturing of hard goods became an individualized or "virtual" possibility as well. Follow the process below:



The Maker-Bot, which costs $1,300 in kit form and $2,300 as an assembled machine, can take an individual's design, say for earrings, and produce those actual earrings. Operating on a principle similar to the inkjet printer, the Maker-Bot – a so-called 3-D printer – can manufacture products ranging from jewelry to furniture. The creator can then sell his or her products at local arts and crafts fairs or distribute them through a Web site, such as Etsy. (*New York Times*, 9/15/11)

The entire industrial revolutionary "movement," especially as it played out in recent years, has put downward pressure on pricing, a structural deflationary environment. As a result, things have gotten much cheaper over time. For instance, two security consultants recently put together a homemade drone, an unmanned aerial vehicle (UAV), similar in effect to the ones used by the U.S. military in Afghanistan and Iraq, and they used only parts purchased in the public arena, paying a total of $3,800 for everything. Although they could have, the two did not arm their drone, as the U.S. military has, but they did mount a small camera on it, thereby enabling them to monitor people at a distance. With off-the-shelf technology, their drone could intercept conversations on phones or laptops and monitor other smartphone and computer usage. (*New Scientist*, 8/13/11; *Aviation Week & Space Technology*, 9/29/11)

A hacker who calls himself Comodohacker, acting as a lone snooper, broke through the Internet security system that verifies the authenticity of Web sites, assuring, for instance, that the Google Web site that users draw up on their computer is, in fact, Google. By gaining access to sites that deliver such digital certificates, an individual could track anyone's moves on the Internet and trick those users into visiting a bogus site that they think is a legitimate site. Essentially, Comodohacker's actions can undermine the Internet's basis of operation. As he has proudly pronounced, "I'm totally independent." (*New York Times*, 9/12/11)

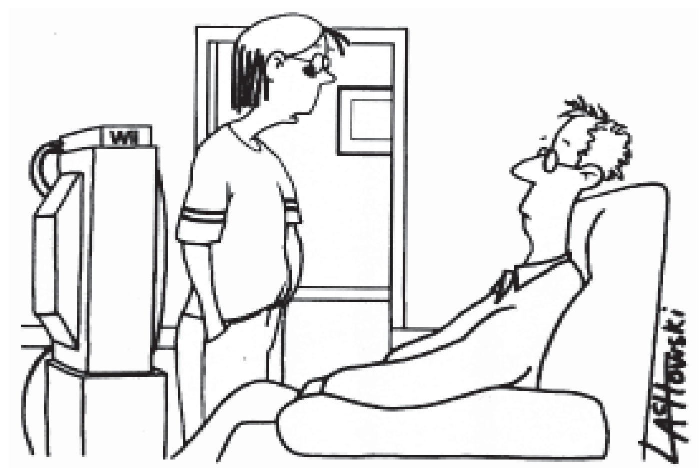
Just these three examples – individualized manufacturing, military capability and digital subversion – highlight the range of impacts that decentralized and dispersed technology can yield. The playing out of the industrial revolutionary "movement" has brought production all the way back to where it started: with the individual "craftsperson." But instead of selling to neighbors, the post-industrial craftsperson can sell to the world. He or she can also use technology to disrupt the world's critical systems, an army of one, literally, for any cause or no cause.

Such realities lead to a first implication of the new world being created:

The new enhanced power of one – Across much of modern history, public rhetoric has often praised the power of the individual, whether that be political rhetoric in support of democracy ("one vote can make a difference," or "anyone can grow up to be President"), Romantic theory in support of artists' visions ("the artist is a seer, a visionary, a special person"), social-science prose in support of some "great man" theory or literary license in support of captains of industry. Hyperbole aside, however, the New Industrial Revolution, as it has played out thus far, has granted incredible powers to the individual, whether for good or ill. An individual with very little help can create an entirely new way for millions to congregate and exchange messages, and another individual without help can create a robotic network that can shut down a banking system or an entire electric grid.

Individuals can now: access information that was once out of their reach; routinely communicate with people around the world at very, very little cost; and make a wide range of transactions around the world. And this does not include the enhanced capabilities of scientific inquiry.

These new capabilities offer amazing opportunities, but the risks to institutions and governments are significant. Terrorist organizations, through "asymmetrical warfare," forced traditional military organizations to rethink their operations and to restructure, and the enabled lone dissident now challenges even that new defense model. A lone individual with enhanced digital capabilities can do many, many things…not all of them part of the rhetoric in support of the high-tech future that works.



"I was Wii boxing all day, and knocked myself out."

Techno Takeover

The more advanced digital capabilities become and the more things they do that were once done by humans, the more dependent humans and society become on the technology behind those capabilities. For instance, automobiles are now traveling the highway without a driver; airplanes can take off, fly and land without human input; and medicine can be selected and administered to patients without human participation. Explaining the new car capabilities, one professor on the research team noted, "[The car] knew the speed limits, traffic patterns, lane changes and roads using video cameras and radar sensors to detect other cars. It was all controlled by a command center in the trunk." (*China Daily*, 8/3/11)

"Stole a Smart Car. It picked me out of a lineup."

Robotic-assisted surgery is becoming more and more routine, and as hospitals acquire the expensive machinery (more than $1.39 million for the robotic machine, plus a $140,000 annual service contract), the breakthrough technology becomes the subject of hospital advertising. Yet the case for robots in prostate surgery, for instance, is unproven. In 2009, 86 percent of the 85,000 prostate surgeries were robot-assisted. So far, no one has shown that such surgery is any better than human-only surgery. "I say robotic surgery has to be better," admitted Dr. Herbert Lepor of New York University, "to justify its learning curve [200-300 surgeries to become proficient], to justify its unknown cancer control, **to justify its increased cost**." (*New York Times*, 2/14/10)

In fact, such techno-deployment sometimes comes with a price. To take one example, consider the effects on the airline industry. In the last five years, the industry has experienced 51 "loss of control" accidents, meaning a plane stalled while on autopilot and the actual pilot could not recover manually from the stall. Loss-of-control accidents are now the most common type of airline accident. "We're seeing a new breed of accident with these state-of-the-art planes," explained Rory Kay, an airline captain and co-chair of the U.S. Federal Aviation Administration's advisory committee. "We're forgetting how to fly." (*Atlanta Journal-Constitution*, 8/31/11)

Forgetting how to fly or lat least not wanting to take the risks of flying seems to add impetus to developing more planes that do not even have human pilots, the so-called drones, which, as mentioned above, can now be assembled by a techno-savvy individual. But the U.S. military is ahead of that curve, having created UAVs that can fly, navigate, target and attack sites without human input. It can even defend itself and evade enemy aircraft. More critically, the already autonomous drone can "learn" from data forwarded to it from other autonomous drones, creating networks that operate on their own and then change planes and tactics on their own. (*Jane's Defence Weekly*, 9/1/11)

While there are risks inherent in autonomous systems that can deliver weapons and decide on their own when to use weapons, those kinds of risks do not fully account for what can happen. For instance, recently someone hacked through the communications systems that connect remote pilots to the non-autonomous UAVs, delivering a virus with the potential to send the UAV astray. Although this first hacking of UAVs in military operations did not – according to the U.S. Defense Department – result in any real disruptions, the reality has become clear: the system is vulnerable. (*Atlanta Journal-Constitution*, 10/9/11)

New technology has become so cheap that it can sometimes be deployed in astounding numbers. Hewlett Packard is stashing one trillion – yes, 1,000,000,000,000 – environmental monitors the size of pushpins around the world, each one generating data on weather conditions, moisture, winds, earth vibrations and the like. Meanwhile, the U.S. is placing 15,000 sophisticated sensors across the country to get a better handle on various ecological systems. (*Nature*, 8/11/11)

Needless to say, humans cannot keep pace with data generated in these amounts. Overall, humans are increasing the amount of data they create at a pace of 40 percent per year. Given that humans have moved into the era of teraflops of data, 40 percent is a sizable leap. The result, as with the self-driving car or the autonomous drones, is that more technology is being deployed to monitor, filter and interpret the data being generated by already deployed technology. More technology is all that can keep pace with the output of currently installed technology.

This has given birth to a new field called data science, which helped create an IBM computer named Watson that won a contest against two former champions (*i.e.,* humans) on the television game show *Jeopardy*. The massive system can do more than merely retrieve data from a storage bin. It can actually make some logical connections across categories. The health-care insurer WellPoint just hired Watson to compare patients' records to a library of medical text and journals as well as to WellPoint's own history of treatments. (*Consumerist*, 9/12/11)

Such increasingly complex technology relies on increasingly complex software, and the "weapon of choice," as the BBC News called such software, is the algorithm. In 2009, when we first discussed the critical value of algorithms, we noted that Google had just indexed its one trillionth Web page, that Americans were consuming 1.3 trillion hours of information per year and that in the first six months of that year, Americans sent 750 billion text messages. Those numbers have done nothing but increase since then. At that time, algorithms were being used to organize things, increase systems' efficiencies, expand military capabilities, augment entertainment and monitor all things digital. "Algorithms address data overload," we observed in 2009, "and **give the impression** of better understanding…." (see "Algorithms: A Necessary Next Step?" **IF 3028**, 12/28/09).

Advancing technology can yield greater efficiency, perhaps higher profits, more distant reach and the "appearance" of control. But such enhanced capabilities come at a cost of greater risks of unknown, unanticipated consequences. The risks and costs inherent in such a spiraling interdependency on technology aside, consider the following effects of techno-dependency:

Outsourced decision-making – Yielding to an algorithm's conclusions is transferring decision making from humans to software, which cannot intuit, infer, imagine or sense, all critical attributes of wise decision makers. The consequences can be costly, if not occasionally humorous. For instance, Amazon deployed a price-setting algorithm in its system, but as clever as the software was, it could not recognize itself in the marketplace. And so, the algorithm soon started competing with itself to get the maximum price for the retailer for a tome on molecular biology. Before the self-inflating algorithm was brought under control, the online price of the book had reached $23.6 million. (*BBC News*, 8/22/11)

The future of makeup

***La même chose* –** The French phrase for the "same thing" applies here because whatever technology is controlling another technology must itself be controlled. Whatever software is monitoring information must itself be monitored and so on. At some point in its current iteration, however, monitoring stops, and that is the point where unknown risks become known. While the risks increase with each level of sophistication and with each expansion of data accumulated, the capabilities of the monitoring software are limited by the perceptions of the original creator. That has limits of effectiveness. High-speed technology has enabled stock traders to insinuate software between buy orders and final purchases, making tiny margins millions of times per day. Avoiding the issue of front running that such technology raises, "high-speed trading" does not actually know what it is affecting, and as a result, it can trigger other computer programs to sell stocks widely, causing what has become known as "flash crashes" in the equities market. (*Bloomberg*, 10/4/11)

Interconnected Systems

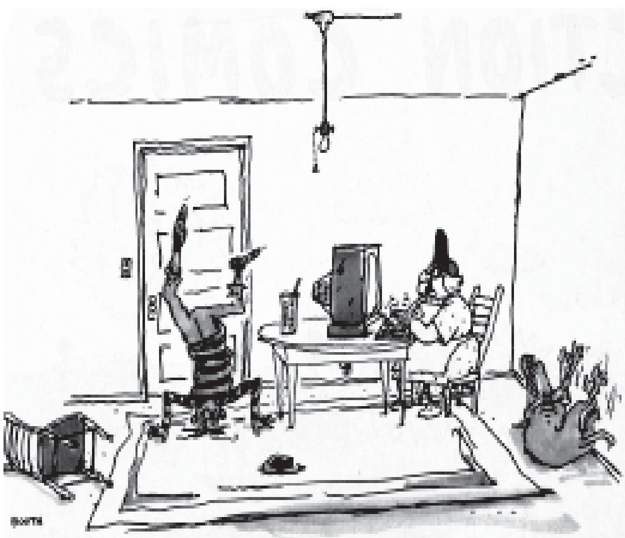
In early September, trouble in an Arizona power plant that supplies energy to the San Diego area triggered a blackout that spread to a nuclear power plant that immediately shut down, causing additional blackouts and so on, until people from San Diego to the Mexican border (and across the border into Mexico) were without energy. The official cause was characterized publicly as "human error," although what that means might not ever be revealed publicly. This kind of explanation wants to leave the impression that humans are the weak link in a chain of high-tech systems. (*New York Times*, 9/10/11)

Systems linking to systems that link to more systems are creating layers of complexity that can confound managers and risk assessors. As we mentioned in an earlier *Briefing*, local disasters quickly become national and even international in scope when they disrupt networked systems, as witnessed by the BP oil spill in the Gulf of Mexico and the tsunami-triggered nuclear disaster in Japan. Did hotel managers on the Gulf Coast consider the effects of oil-rig safety when planning their insurance coverage? Did farmers in Japan consider the conditions of the quake zone in the Pacific Ocean? "Perhaps leaders," we wrote then, "should…become aware of how higher levels of technology, involving more and more complicated systems interacting in ways that are not completely understood, can enhance the likelihood of Unaddressed Consequences," by which we meant unaddressed effects of decisions made with short-term priorities only (see "Unaddressed Consequences: Decisions, Mindsets and Risks in a Complex Network of Systems," **IF 3214**, 7/11/11).

Computer hackers can now "break into" cars that have embedded in their operational systems technologies that connect to an outside system, like a satellite navigation system, satellite radio, anti-theft networks, or Internet communications. Hackers can exploit those kinds of openings and change instructions to the engine, brakes, steering and the like. Diabetics using automatic insulin pumps could receive improper dosage messages should a hacker break into the system via the Internet. As more and more medical devices, such as pacemakers, operating room monitors and surgical instruments, become capable of transmitting information, they become vulnerable to manipulation via the communications systems they use. Also, Global Positioning Satellite (GPS) systems have made navigating easier for airliners, which can actually land using the system. Yet GPS, which beams critical guidance instructions to the plane's computers, goes dead when someone in the area uses a jammer, available on the Internet for $30. Newark Liberty International Airport discovered this vulnerability when a lone driver on nearby Interstate 95 was using a jammer to shut down the highway toll system so he could drive through for free twice each day; at the same time, the jammer was taking down the airport's system to guide landings and take-offs of planes, each carrying hundreds of passengers. (*Asheville Citizen-Times*, 8/20/11; *Associated Press*, 8/5/11; *New Scientist*, 3/12/11)

Institutions and many individuals are turning to the so-called cloud (essentially a server farm accessible for a fee) to store data and to serve as a repository for needed software. It saves users money. Yet such server farms also facilitate botnet attacks. Botnets, or robot networks, are agglomerations of infected computers, tablets and even smartphones, which can be called upon to participate – without their owners' knowledge – in a distributed denial of service (DDoS) attack. To organize such a criminal network, a bot herder must assemble the "herd" of infected computers by spreading a virus over the Internet. While bot herders have over the years pieced together networks with as many as 10 to 15 million computers worldwide, creating the capability to stymie a country's infrastructure, their nefarious efforts are made much easier via the most recent product to save companies money, the so-called cloud – a remote storage area that can be leased as needed. For instance, by purchasing just 20 "virtual computers" on a cloud, for a rather nominal fee of $150, one team of hackers discovered that they could mount a botnet attack on any Web site linked to that cloud. They mounted a DDoS on a targeted site with their short-cut bot herd and shut down the site in 10 seconds. (*New Scientist*, 6/18/11)

A world of interconnected systems is different from the one we are leaving behind with its mostly discrete systems. Here, consequences flow farther and have greater potential for blowback, or as we called them, Unaddressed Consequences. These interconnected systems increase efficiency, but they also increase risks. As a result:



"Just for kicks, Leon, let's shut down the F.B.I. again."

Linear cause and effect can be insufficient – This trail of possible consequences becomes much more difficult to follow without understanding all the systems that somehow link to one's own system. Nuclear-energy managers, not to mention Public Policy Administrators, in Japan needed to understand how the natural system of tectonic plates functions and what kinds of eruptions they could experience. Size of eruption, then the size of any tsunami, which the facility underestimated by several factors, then flood control, then reserve systems, then shutdown risks, then contamination possibilities, then backup food supplies, other employment options for the region, reserve housing functions – these are the effects of linked systems that linear thinking, with its insistence on the efficacy of local safety precautions at the nuclear site would not address.

Control is limited but understanding cannot be – Managers might be able to control their own systems, but they will have little or no control over systems not under their authority. Yet understanding what can go wrong in those distant systems remains necessary to see where risks in the overall network can develop. Which means, of course, much more collaboration and cross-institutional coordination is necessary. Essentially, someone onshore or off should have made the tourist and insurance industrries aware of the risks that safety devices on offshore oil rigs pose to their business. That is not an area over which they have control, but it is an area that needs to be assimilated into risk profiles.

"First, they do an on-line search."

Effects of a Dispersed, Techno-Dependent, Interconnected World

These characteristics of the world that is emerging – dispersed capabilities, technology dependence and interconnected systems – tend to teach its users how to behave and even how to think. While the new realm of decentralized, sophisticated and interlinked technology can make operations easier, it can also increase risks. Here are some of the priorities that the new world is teaching its users:

Knowing is more valued than thinking – "Just Google it" seems to be the answer to nearly everything, from conversational questions to research. Pondering issues, weighing various interpretations, considering alternatives and the like, all seem to take too much time.

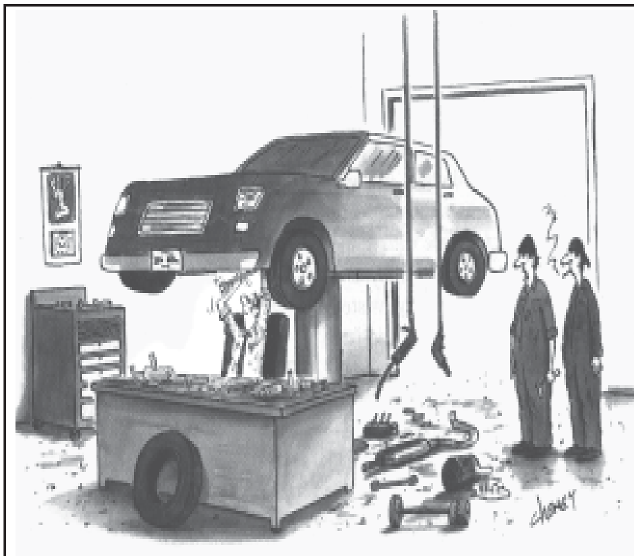
Apprehension is more valued than comprehension – Why retain information mentally when it is so easily accessed via the Internet? People with GPS systems admit that they forget how to navigate on their own, losing their sense of direction and coming to depend on the next command from the machine.

Easy answers are preferred to provocative questions – With answers to "everything" accessible on demand, the value of good questions that cannot always be easily answered decreases. Questions that provoke thoughts, which, in turn, force the mind to work lack appeal. Shazam, an app available for smartphones, can tell a user what piece of music is playing in their environment (at a restaurant, bar, lobby, etc.). Shazam obviates the need to think through where one might have heard the song before, whom one was with at the time, what memories it triggers and the like in order to **discover** the title on one's own. The answer is so right there, right now, and without thinking.

Outsourced decisions are valued more than open inquiry – More and more music-streaming services present listeners with this offer: "If you liked that song, you'll like this song." Facebook's "news-feed" algorithm, EdgeRank, provides members with only the news that the algorithm has determined the customers will want to read. YouTube's Leanback tells viewers what they will want to watch next. Who has time to think about preferences, learn about entirely different worlds, or consider what is not known? The software can do that.

The what edges out the why – Technology tends to yield answers to questions that could start with "what" or "where" but rarely those that might start with "why." Neuromarketers have developed sophisticated technology to monitor the brain activity of potential consumers. It can show what the subconscious wants, even if the conscious brain says something else. Yet, it cannot say *why* the subconscious wants something, and those more fundamental causes might be more critical to understanding the way people operate in the world. Neuromarketing is silent on this issue, yet it is the wave of the future!

Conclusions are superior to ideas – Data base mining and data science generate conclusions. Ask a simple question, and machines with hypersoftware can crank through millions upon millions of examples, finding a "trend," matching a symptom or aggregating similars. Interpretation and contextualization are not strengths of data mining. Moreover, while they might identify new threads or themes or connections in the data, they do not generate new ideas.



"I hate retraining C.E.O.s."

Some traits of the dispersed, techno-dependent and interconnected world have many benefits. Various technological advances provide quick answers, often from massive amounts of data. They facilitate interactions, transactions and communications and are highly efficient. However, they tend to favor inerrancy, preferring "accurate answers" to speculation. Despite leadership training that favors the idea of learning from failure, the digital world looks down on failure as…well, failure to have the right answer, which is inexcusable. As a result, having answers, conclusions and solutions are **the** critical outcomes, and that has opened the door to a wide range of fundamentalists, whether they are religious, political or financial, or whatever their orientation. After all, in a complicated and confusing world, they have answers.

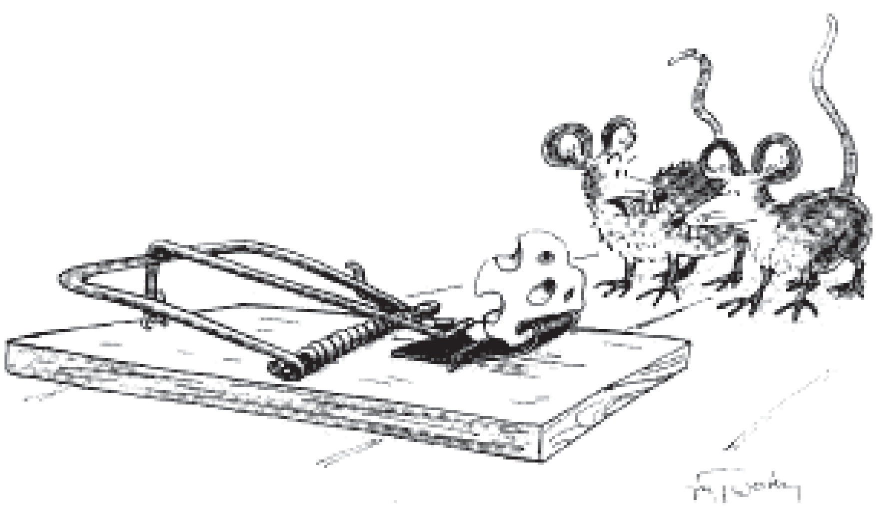
The traits getting pushed to the side in this dispersed, techno-dependent and interconnected world – not necessarily by intention but by default – would be calling forward different benefits. These traits help develop contexts, encourage exploration and open inquiry, and favor creativity. They require intuition, imagination, memory and disciplined thinking. These other traits can be highly effective, even as they can be very inefficient, mostly because they take time. Riskiest of all to the new world's emerging perspective, these traits give rise to doubts, which to those who have **the** answers, practitioners of these traits seem like so many Hamlets, unable to resolve a direct question quickly and easily.

A large irony exists within this situation: The world the first set of traits is creating would be best managed by using the second set of traits, Moreover, the first set of traits can increasingly be assigned to software, while human traits typical of the second set of traits, such as flexibility, inventiveness, design ingenuity, openness and the like are necessary to understand what the new world presents. To say it in a more stark way: More and more skills learned for a Master of Business Administration can now be given over to sophisticated software on powerful machines, while skills learned getting a Master of Fine Arts or even a Bachelor of Arts – creativity, comfort with novelty, ambiguity, analogy and metaphor, the ability to interpret and reframe situations, advanced observational techniques, a willingness to revise and improve, the capability of drawing from a variety of source materials – are what leaders need to deal effectively with the realities of a complicated, complex and quick-changing environment. (*Chronicle Review*, 9/9/11)

Upon his return from the Soviet Union, Lincoln Steffens might have envisioned a positive future, only to revise his estimate as real evidence started to surface as to how Moscow was going to operate and act. Likewise, those who envision the latest "movement" in the ongoing industrial and technological revolutions toward a dispersed, techno-dependent and interconnected world as a future that "works" might need to modify their vision and might want to reset some parameters around where this is all headed.

The future that many technology advocates like to portray is tempting, but the future that is taking shape today has many more vulnerabilities and risks (and unanticipated changes) than such positive scenarios include. That is, the future will not look like the future we once envisioned. To further elaborate on that point,

Part II of this *Briefing* looks at how this nascent world is changing the economy, business, nature and human beings. That is where the consequences of current developments are most stark.



"Careful – it might be a trap!"

The Dispersed, Techno – Driven, Interconnected System

Favors	Over	Example
Knowing	Thinking	Google
Apprehension	Comprehension	GPS Navigation Systems
Easy Answers	Proactive Questions	Shazam
Outsourced Decisions	Open Inquiry	EdgeRank, Leanback
The What	The Why	Neuromarketing
Conclusions	Ideas	Data Mining

Effects

- Quick Answers
- Easier Interactions, Transactions & Communications
- Highly Efficient (short term)
- Less Effective (long term)
- Linear

- Develops Contexts
- Encourages Exploration
- Favors Creativity
- Requires Intuition, Imagination, Flexibility
- Raises Doubts/Skeptical
- Highly Effective (long term)
- Less Efficient (short term)
- Complex

Which list manages?
Which list operates?
Which list leads?