The Future of Work
A New Approach to Productivity and Competitive Advantage

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A Foreword by Geoffrey Moore

The future of work is being reshaped by two trends that, when combined, create an entirely new approach to productivity and competitive advantage. The first of these is the virtualization of work, by which we mean the disaggregation of end-to-end value chains performed by a single company, into a networked collaboration, in which each company contributes its core specialization, all orchestrated and governed by global ERP systems of record. Virtualization of work has led to the globalization of the world economy, bringing developing economies to the table, initially to contribute low-cost labor, then to provide high-growth emerging markets to sell into and, most recently, to host sustainably differentiated centers of talent.

The second trend is the consumerization of IT as enabled by cloud computing, something we all have experienced in our personal and social lives in the numerous online facilities that have reshaped how we communicate, collaborate, learn, buy, engage and consume. This trend has become so pervasive that its absence from the enterprise IT domain has become a global embarrassment, albeit an understandable one, given the complex demands on security. The forcing function for its deployment in business applications, however, will be its ability to accelerate the collaboration and trouble-shooting necessary to operate global, ecosystem- and knowledge-based, as well as physical supply chains at scale.

When the virtualization of work meets the consumerization of IT in the enterprise – and when systems of record meet systems of engagement – the dynamics of work itself change. The core rationale for vertically integrated corporations with co-located employees in company buildings, all marching to a command-and-control culture – all that is removed once you have anytime, anywhere systems that create virtual presence. This enables the offloading of non-core work to the ecosystem, processes so mission-critical it was heretofore unimaginable that we could let another company perform them on our behalf.

To maximize the benefit of offloading non-core work, enterprises must also re-examine what is truly core to them, as
global services providers develop more and more sophisticated capabilities that enterprises can leverage. It also enables a new generation of collaborative innovation — work conducted under what some are calling the millennial mindset — which is all about tapping into social networks at every stage of the problem-solving process. This, in turn, is also helping to engage the millennial generation with enterprise issues and concerns, whether as employees, customers or partners.

To prepare for the impact and capitalize on the opportunities introduced by the future of work, enterprises must revisit their internal organizational models and cultures, their external relationship models and commitments, and the IT systems needed to connect all parties together in a productive, responsive ecosystem. These next-generation systems of engagement will complement the current generation of systems of record, to create the enabling fabric of future work.

In this context, the discipline of business process analysis must refocus on the overall architecture of work rather than the optimization of component processes, the strategic issue being to determine what stays inside the corporation and what gets delegated to trusted partners. In parallel, enterprise IT professionals need to get out in front of the adoption of systems of engagement by working with their colleagues to determine what moments of engagement are most deserving of receiving this additional firepower in the first wave, which employee roles represent the company in these moments, and what next-generation IT-enabled communication and collaboration capabilities could most impact the outcome at these key junctures.

This will set a whole new IT agenda, forcing a wave of innovation around making systems of engagement enterprise-ready, driving a whole new category of IT spend, and revamping the power hierarchy in the IT industry around a next generation of leaders.

To explore this dramatic change further, my colleagues at TCG Advisors and I partnered with Malcolm Frank, a Senior Vice President at Cognizant, as well as his executive team, to prepare the following primer, entitled “The Future of Work.” We believe this is the beginning of a global conversation, and Malcolm and I look forward to broad participation from every industry and every corner of the world. We welcome your feedback.
Preface

It’s happening to more and more of us. On Sunday evening, we open up our dazzling personal computing devices and enter an entirely different place, an online world that is virtual yet rich in understanding, global yet intimate and, while running on silicon and fiber, refreshingly human. It’s a place of friendship, ideas and commerce, the best and most obvious place for many genuine moments of engagement. We’re learning – very quickly – how to merge this highly personalized virtual world into our physical worlds, often greatly enhancing both places. We’re becoming conscious of not just the utility but, yes, the transformation that broadband, mobility and social computing have brought to our lives. Personal technology has become an enhancer, a multiplier, in our personal lives.

Then Monday morning arrives.

After once again suffering through the indignity, inefficiency and unsustainability of another commute, we settle in at our desks. As the PC hums through its bootup process, our eyes dart between the enterprise applications loading on the screen and the flashing red voicemail light on the phone. Yes, the standard-issue computer provides access to standardized systems of record yet offers precious little human engagement. The “dumb” phone won’t follow us past the length of its cord. It’s all so restrictive and confining. Work technology has become a limiter in our professional lives.
The juxtaposition between the Sunday night and Monday morning computing experience has simply become too harsh. All around the world, business professionals are fed up. They are fed up with the yawning gap between their engaging and customizable personal IT experience and their rigid and mandated work IT experience. Reminiscent of the movie Network, they are throwing open the proverbial window and shouting, “I’m mad as hell, and I’m not going to take it anymore!” The gap between the two must and will be closed, not to mollify the new generation of workers but to enable them to conduct great work and help the organization attain new levels of performance. It’s inevitable that companies will embrace these platforms of collaboration as aggressively as individuals and society have.

This Sunday night vs. Monday morning experience may seem rather simple, a manifestation of the consumer adoption of new technologies. However, it’s indicative of a shift that is much broader and deeper, one that will reshape industry and company structures altogether. It is our contention that we’re currently living at an important “shift point,” a time where key megatrends are reshaping the rules of markets, how work is conducted and value is created. It is incumbent that today’s managers understand these megatrends cold, interpret them in the context of their industries and organizations, and then recognize what to do about them.

This is the future of work, and it’s upon us.
Executive Summary

“The future is already here - it is just not evenly distributed.”

— William Gibson

We don't need to look too far to see new future of work operating models already in practice, for many of them are currently hiding in plain sight. In certain pockets of industry, the future of work is thriving, and the organizations that have embraced it are currently among the performance leaders in their industries. One can find certain applications of it in companies such as Apple, Netflix, Google, Salesforce.com, Cognizant and Best Buy, which have grown smartly through the headwinds of the Great Recession. Throughout this white paper, we will investigate how these organizations and several others are taking advantage of driving mega-forces in today’s environment, developing key strategies for the new environment and experiencing superior results.

We will outline our view of the emerging future of work in three sections:

1. The first, “Setting the Context,” looks at the economic forces driving the current version of the globalization of the world economy and how this globalization is driving the virtualization of work. This is the environment we all inherit and must ultimately come to terms with. In particular, we will review four large and growing forces that are changing entire markets and business models: globalization, virtualization, the millennial generation and cloud technology.

2. The second section, “Setting Strategy,” looks at the levers available to enterprises to engage with the new context in ways that are both productive and differentiating. Here, we take our cue from the consumer sector — what some call “the consumerization of IT,” which in the last decade has dramatically reengineered life experiences in compelling ways. We see these levers being useful not just in the consumer space, but also in enabling the reengineering of
enterprise IT. By embracing tools and techniques pioneered and perfected in the consumer world, IT will take center stage in the creation of a new organizational structure, where highly virtualized and collaborative ways of working enable more timely and effective sharing of knowledge among associates, business partners and customers. How these ideas can be applied to strategy is the subject of this section.

3. Translating these strategies into action is the subject of “Setting Forth,” a look at the execution agenda needed to transition to systems, processes and organizations that are fit for purpose in the new world of work. Here, we draw on some of our leading customers, as well as critical home-grown initiatives within our own infrastructure and culture, to provide an early view into how companies can invest in the present to capture returns both now and in the future. We will look at how work is being re-architected in leading enterprises, as well as the emergence of systems of engagement.

These are “project-ready” ideas, which we would be happy to support as-is. At the same time, these are clearly still the early days, and we hope and expect to be part of a large number of innovative initiatives in the years to come that will, in and of themselves, help further define the future of work.
Setting the Context

Globalization of the World Economy

If globalization were a baseball game, it would still be in the early innings. To put this movement in context, in 1989, when the Berlin Wall fell, there were roughly 600 million participants in the “global” economy. After all, participation in capitalism at that time was truly limited to North America, Western Europe, Japan, Australia, New Zealand and a handful of “tiger” countries in the Asia-Pacific region. One generation later, there are approximately five billion participants. Brazil, Russia, India and China (comprising the “BRIC” faction) account for 3.3 billion new participants alone, and clearly, Eastern Europe, Latin America, select regions of the Middle East and Africa have opened up with exciting dynamism. The full impact of this is far from reaching fruition.

Yet, it is clear that organizations need to rethink their approaches on both the supply and demand side of their businesses as markets move to full globalization. During the 1980s and ’90s, industrial globalization transformed manufacturing (the Toyota model) and retail (the Walmart model). The current generation of knowledge globalization will bring similar transformation to knowledge industries, where the product is based on intellectual property instead of widgets. Indeed, companies in financial services, life sciences, media, entertainment, communications and information technology now represent over two-thirds of the Fortune 100.

Much has been made of globalization, but it’s been an extraordinary and unprecedented change that, from a historical context, has happened in the blink of an eye.

Industrial Globalization Gives Way to Knowledge Globalization

Why is this shift important? First consider the (limited) pre-1989 version of globalism and its focus on manufacturing and hard goods, most of which were delivered in “batch mode.” Once Japan’s industrial model took hold, it had a severe impact on U.S.-based industries, from automobiles, to steel, to consumer electronics. Over the past two decades, this model has morphed and accelerated with the advent of the Internet and the World Wide Web as global communication utilities. Originally conceived as “information highways,” it soon became clear they were also “work transport highways,” enabling whole sectors of the global economy to transition to a contract manufacturing model, largely hosted in China and, subsequently, to a contract service model, notably hosted in India.

On these work transport highways, digits (as ones and zeros) don’t recognize political boundaries. Similar to water finding its level, knowledge work will find its proper location around the globe, doing so with great efficiency and few barriers. This will significantly impact both the supply and demand sides of your business model.

Supply Side

Today’s knowledge globalization is creating significant opportunities on the supply side of the business. Expertise can now be accessed seamlessly, anywhere and everywhere it lives, as the costs of communication and coordination have dropped to near zero. How can you harness the collective intelligence of your global workforce? ... Of your full supply chain? ... Of the globe itself?

In 2010, China will produce approximately 600,000 graduates with four-year engineering degrees. India will produce 350,000, while the U.S. will produce 70,000. The world has already been finding use for this talent; in the past decade alone, more than one million IT jobs have been created in India to support the computing needs of Western companies. Importantly, this globalization of work is not being...
conducted only in batch mode, but is also being delivered at the most atomic level of work on a real-time basis. As such, the coming disruptions from knowledge globalization will be more dramatic and much faster than those of the industrial model of 30 years ago.

Demand Side
This form of globalization will offer as many opportunities as it does threats, for developing markets are opening up significant demand. After all, last year in China, Buick sold its two millionth car in the country, and Apple's iPhone sales increased nine-fold as Apple added 800 distribution centers just to keep up with the voracious demand. The middle class in China alone currently stands at 290 million people and is expected to grow to 500 million by 2025. Clearly, globalization is creating opportunities on the demand side of the business. As consumer markets develop around the world, does your business model support this opportunity? Recently, the CXO of a Fortune 200 consumer goods manufacturer lamented, “Two-thirds of our demand is now outside the U.S., but two-thirds of our supply chain is still within the U.S.”

The Virtualization of Work
While public discussion about globalization has escalated in recent years, the virtualization movement has been greatly under-hyped. When history is written on the years of the Great Recession, one of the hallmarks of the era will be the virtualization of the organization across multiple dimensions, including its technology, people and business model. This is the age of “the great decoupling,” during which tightly coupled physical environments — such as supply chains or office environments — are collapsing under their financial weight and sluggishness, moving to a more virtualized model.

What's driving this mass virtualization? The first driver is cost, as it's the fastest way to more efficient operations. The second reason is counter-intuitive, yet more profound. Communications and coordination — and the information revolution emerging from social networks, telepresence and mobility — are enabling new levels of collaboration, changing the way we deploy technology, where and how we work and how the organization itself is structured. Prior to the introduction of these technologies, rich communication and coordination could only be conducted in point-to-point and "hard-coded" ways (either in-person or over the phone). Now, these rich interactions can occur dynamically and in a loosely coupled way. The implications are profound and are starting to alter both the manner of organization and the means of creating value.

We see three key virtualization trends:

1. **Virtualization of Technology:** From an IT perspective, technology virtualization has been the number-one priority item for corporate technology departments for the past three years running:\(^3\) In its simplest definition, technology virtualization is the separation of the software from its underlying hardware resources. By decoupling the software from the hardware, the virtualization movement has driven enormous efficiencies in IT. For example, prior to virtualization, hardware was physically coupled with dedicated software. And often, this hardware was utilized less than 20% of the time. (This was akin to an airline letting a 747 sit idle on the ground for nearly 19 to 20 hours...
a day.) Through virtualization, computing resources can be efficiently distributed and utilized. This approach is of such value that it’s been extended across all applicable portions of IT, including servers, desktops, data, networks and storage.

2. **Virtualization of the Human Work Experience:** In parallel, the human work experience is being virtualized, as more and more knowledge workers are working remotely (from home or a third place): In 1999, there were 11.6 million Americans working from home. Today that number is 23.5 million, or 16% of the total workforce. In the U.S., the majority of IBM’s and Hewlett Packard’s employees now work from home. In retail, Best Buy has moved to a “results-only work environment” to great effect, where non-store employees are allowed to work wherever and whenever they wish – provided they deliver results. And if you call the customer service lines of JetBlue, Hilton or 1-800 Flowers, the customer service agent on the other end of the line is not in a call center but working virtually from home.4

3. **Virtualization of Process and Organization:** Prior to the recent recession, in most corporate departments, one would find knowledge work “tightly coupled:” That is, all the people, information and systems required to perform a function were located in one physical place. However, running a company in this manner today is similar to using Facebook only with the members of your household. It defeats the purpose. No longer do the physical plant and the people all need to be co-located, for the work is no longer structured in this manner. In today’s environment, people, information and systems are being de-coupled, put into their best locations and then pulled together dynamically and virtually.

**Historical Precendence**

So why is this all happening now, and with such velocity? Again, history provides a useful perspective.

The hierarchical organization came into focus two millennia ago, with the Roman legions. The Romans — through the efficient communication and coordination afforded by the hierarchical structure in their army — were able to dominate their world. Today, their organizational model is easy to recognize, for it’s a pyramid structure that currently runs most of today’s large enterprises. Yet by 2020, for most industries, this currently prevalent model will be largely wrong.

A second great organizational breakthrough came a century ago: the vertically integrated company. Henry Ford and Alfred Sloan drove their companies to prominence by recognizing, yet again, that the key to success was found in superior communication and coordination. As such, by winning in the automotive market, they quickly realized they needed to own as much of the supply chain as possible: from raw materials, to suppliers, to the factory, to distribution, sales and service. Trying to conduct this through partners – with communication technologies of the time – proved to be far too difficult to manage.

Today, the very basis for the hierarchical, vertically-integrated company model is coming to an end. The communication and coordination equation has changed completely… and with it, the raison d’etre for these models.

More recently established companies provide practical insights into this virtually-coupled model in action. For example, think back to your last e-shopping experience. You were on your social network (company #1) when you heard about a new offer that intrigued you, so you searched (company #2) to get more information
about it. That sent you to a site (company #3) that had a cool video (company #4) that motivated you to buy the product. Once you clicked to pay (company #5), you received an e-mail explaining when your order would be shipped (company #6), and subsequently you were alerted on your mobile phone (company #7) that it was arriving later that day. Seven highly specialized companies seamlessly integrated their business processes to enable this everyday experience. That is what we mean by saying that the present of play is defining the future of work.

The Millennial
The generation currently between 15 and 35 years of age is the first to have grown up online, and with this perspective, members of this generation are starting to change the social and operating norms of the corporation. Soon, millennials will be the majority of your employees and customers (if they aren't already). They will force significant change on how your company is managed, how its products and services are sold and how technology is deployed.

In many circles, millennials have developed a reputation as an over-tattooed, hyper-pierced, unserious generation of slackers. This is the furthest thing from the truth. (OK, maybe not the tattoo thing, but we won’t editorialize.) Millennials represent the smartest, most unified, interconnected and globally-minded group we have seen for generations. Yet, what must be recognized by today’s baby boomer-generation managers is that millennials are different. In fact, the irony shouldn’t be lost on anybody of boomers who brag about the differences they have with their parents (of the Greatest Generation) and then complain about how they don’t understand their children. Millennials are as different from boomers as boomers were from their parents. It’s just that the differences aren’t as obvious, for they are not necessarily in what millennials do but in how they do them.

The basis of the millennial difference is that they represent the first generation of digital natives. There’s the old adage that “Technology is what was invented after you were age 12.” For millennials, the Internet was available when most of them were in their early formative years. This generation has grown up online, viewing Web access and interactions as being fully natural. This has manifested a collective mindset that celebrates collaboration and assigns equal value to virtual and physical interactions.

Let’s look at a simple college assignment: a five-page term paper. When a boomer was in college, in order to research and write this paper, he would have to walk to the library, search for relevant texts in the Dewey Decimal system and physically look for the books in the stacks (maybe only finding three of the five books listed). He would then go back downstairs, reading through the text for several hours, taking copious notes and shoveling dimes into the library’s Xerox machine, making copies of key passages. He would highlight key points, begin to formulate his argument and create an outline. Finally, he would then set forth on writing the paper (probably by hand).

By contrast, how would the millennial have addressed the same assignment? She wouldn’t leave her dorm room. Instead, she’d first get onto Facebook and ask her friends, “Who took this course last year? And who might have information on what the professor is really looking for with this assignment?” Quickly, five or six suggestions — customized and in the right context — come back. She would then go onto Wikipedia for some preliminary research, and the entry would then lead her to some of the richest sources of information available on the topic. She would follow up by going onto Twitter for some of the latest thinking on the issue and then conduct some Google searches to fill in any missing gaps. This generation has grown up online, viewing Web access and interactions as being fully natural. This has manifested a collective mindset that celebrates collaboration and assigns equal value to virtual and physical interactions.
The educational experience of the boomer was highly individualistic, physically-based, narrow in information and laborious (with much of the effort — from walking, to Xeroxing, to handwriting — being completely superfluous). By contrast, the educational experience of the millennial is highly collaborative, virtually-based, broad in information and very efficient.

Is it any wonder that these two generations frame problems differently? And — with this educational training — is there any wonder why the millennial generation (whether as customers or employees) finds much of the corporate environment limiting and suffocating? More importantly, is it any wonder many millennial employees look at existing knowledge-based processes and recognize they are as inefficient and limited as writing a term paper without access to online communities and information resources?

So, to what level are millennials now using their social technology platforms?

- The average teenager in the United States sends 3,339 text messages per month.
- Facebook has more than 500 million active users today, with 50% of those users logging on every day. In fact, Facebook users now spend more than 700 billion minutes per month on the site. Recently, a major Internet Service Provider (a client of Cognizant’s) shared that when the Facebook site went down for a few hours in October 2010, the ISP’s call center was inundated with callers asking “Why has the Internet stopped working?” The Internet of course was perfectly fine, but for these users Facebook now represents their window onto the Web.

When asked what makes their generation unique, the top answer for millennials was “technology usage.” For boomers, the answer was “work ethic,” and for the Greatest Generation, it was “surviving the Depression and WWII.”

As self-described experts, millennials live — enthusiastically — in virtual and physical worlds, and they will expect their corporations and governments to do the same. There’s no turning back.

Cloud Technology

To date, there have been four primary corporate computing architectures: Mainframe, minicomputer, client/server and the Internet. We are at the beginning of the fifth dominant architecture, which will be based upon mobility, social computing, broadband and cloud-based models. Importantly, the cloud architecture enables platforms of collaboration that — through their rich abilities of communications and coordination — are opening up new and significantly more efficient business models.

The current view on the cloud is, well, hazy. Confusion reigns regarding the promise and reality of “cloud computing.” Definitional debates surrounding what constitutes cloud computing have obscured the importance of this emergent computing model. For the purposes of this discussion, we will use a broad definition that includes social computing + mobility + broadband and telepresence + virtually hosted systems.

The adoption rates for consumers in this cloud environment are nothing short of extraordinary, particularly considering the depths of a wrenching economic downturn. As John Adams famously said, “Facts are stubborn things.” Judging by the facts surrounding current adoption of cloud computing models, this trend has a velocity previously unseen in technology, as evidenced by adoption rates, performance and cost. For example:

- **Device Adoption**
  - iPad adoption is the strongest in the history of electronic products, as less than a year after introduction, its current sales run rate is approximately 4.5 mil-
lion units per quarter (compared with DVD players, which, upon their record-setting introduction, sold 350,000 units per quarter).6

Google's Android mobile smartphones are being activated at a rate of more than 250,000 per day in the late summer of 2010. The product has reached 16% market share in less than one year and will soon eclipse the (previously remarkable) market adoption of the iPhone.7 8 In fact, at the current pace of adoption, overall smartphone sales will surpass overall PC sales in 2012.

- Performance and Cost
  - Salesforce.com services its 75,000-plus clients with 15 billion quarterly transactions, reliability of 99.999999% and transaction times of 300 milliseconds.
  - Google uses one system admin per 20,000 servers, while Amazon's storage costs run 15 cents per gigabyte per month. YouTube spends just $10 per megabit for networking.

This momentum of the cloud architecture has created a crisis within corporate IT departments that was not of their making. IT consumers are frustrated with the experience (Sunday night vs. Monday morning issues). Finance is asking tough questions about performance and cost. Any answers (from IT) that start with, “Well, it’s not that simple...” will no longer suffice.

We’ve been to this rodeo before. When corporate IT architectures shift (e.g., from mainframe to mini, mini to client/server, client/server to Internet) there are new technology acolytes who will – often noisily – argue that the entire corporate platform needs to move to the new architecture. Historically, this has proved to be fallacious, and it will again be the case. In the prior three shifts, the new technology complemented the existing IT platforms, and investments in the new platform were justified through new business value or capabilities enabled by the new technology. For example, with the commercialization of the Internet 10 years ago, e-commerce systems sat atop existing mainframe and client/server platforms. The cloud movement will be no different. The key – as outlined later in this document – is to pick the right places for the deployment of new technologies.

On their own, any of the four aforementioned forces – globalization, virtualization, millennials and cloud computing – would have a huge impact upon most organizations. Together, their impact is enormous and is already shifting the floor under entire industries. In reviewing these mega-forces, the current state of the publishing industry emerges as the proverbial canary in the coalmine. As examples, witness the impact of (and financial value shift from) Google, Craigslist and mobile devices on the newspaper industry. These shifts have had a similar impact on the magazine industry. For example, in August 2010, Newsweek was sold for one dollar. What other venerable institutions – if not reacting to these mega-forces – will be sold for a buck?

Setting Strategy

The Challenge for the Next Decade: Building Enterprise 2.0

Global business dynamics of the sort just addressed are already driving enterprises to reexamine their strategies for re-architecting work and re-deploying the workforce. In short, we believe the overarching challenge for the next decade is in building the next-generation workplace, or the so-called Enterprise 2.0. This approach, when properly applied, holds the promise of not only driving efficiencies and effectiveness by leveraging the aforementioned four forces, but also increasing organizational speed and innovation.
As a leader in your organization, how do you go about building Enterprise 2.0? How do you make sense of, and take action on, the four forces outlined above? The key is in focusing on two powerful, and interrelated, issues: 1) the virtualization of work and 2) the consumerization of IT.

Through the virtualization of work, we’re witnessing a mass de-coupling of physical work into a balance of the virtual and the physical. In much the same way that a typical millennial has found a balance – and enrichment – through a new physical/virtual equation, winning companies of the next decade will do just the same. Today’s ponderous end-to-end value chains – executed mostly locally and predominantly with internal resources – can be disaggregated into networked collaboration, with work being conducted in the right location, by the right people, at the right value point. To be clear, virtualization does not equal a loss of control. In fact, with the proper application of IT (through ERP backbones, infused with social technologies) control and coordination are actually increased. In the same manner that social and mobile technologies have established platforms of collaboration and engagement in our personal lives (e.g., in a Facebook or Twitter model), in a corporate environment, these technologies will create new platforms of collaboration and systems of engagement.

So how do we frame the issue? In looking to the work architecture for Enterprise 2.0, the key questions to answer are, what work remains physical (with co-location of employees) and what work can go virtual? Which processes should be tightly held, and which ones can we relinquish to others, and where are the critical junctures we must manage with vigilance? Moving down one level, within processes for which we retain responsibility, where are the value-adding (or risk-introducing) nodes, and how can we apply more of our total resource base at these strategic inflection points? And for processes we relinquish, how do we maintain visibility to ensure we continue to meet our mission-critical obligations?

Turning from work to the work force, the first question to ask is, where do we want physical presence, and where will we choose instead to deploy virtually? Going deeper, what kinds of people do we want to deploy across key functions, and for which skills do we need to hire and train? And as we look more closely at virtual deployments, what digital systems are needed to power virtual engagement, and who has the most need for them? And how will these systems of engagement interface with and leverage both our enterprise systems of record, as well as public networks and consumer-oriented services?

In this section, we will review three key elements for making sense of – and then charting a course to drive value from – the future of work:

1. Powering knowledge processes with new systems of engagement.
2. Managing the new core vs. context equation.
3. Understanding the new organizational model.

The Rise of the Knowledge Process
It is our contention that the creation of Enterprise 2.0 will occur at the process level, with a particular focus on “knowledge” processes. These are processes where value is created not by the creation, movement or management of physical goods (such as managing the factory floor, logistics or service operations), but by the creation and management of intellectual property. In today’s context, this focus is
increasingly important, for the Great Recession has exhibited that fortunes are being made (and lost) on the management of these core knowledge processes.

The key ingredient for a knowledge process is the moment of engagement: where the right people – with the right information, at the right time, in the right context – make critical decisions.

Each large organization has scores of these processes, and in knowledge-centric industries, these processes are the central platforms of competitive advantage. For example, in banking, loan decisioning and wealth management are key knowledge processes. In insurance, underwriting and actuarial services serve as examples. In life sciences, the processes of drug discovery and clinical trials sit at the center of value creation.

The four forces we’ve described above will catalyze these knowledge processes in significant ways. Knowledge processes, by definition, should be virtualized, tapping into the best insights and capabilities wherever they may exist. In fact, it’s now becoming clear that, to date, most knowledge processes have been architected and managed in very limiting and expensive ways. Specifically, the application of industrial principles (which made perfect sense in, say, managing the factory floor) to knowledge work have been counter-productive in many ways. As such, we’re entering a period in which the full potential of knowledge processes is about to be unleashed.

How does one start to find the most appropriate knowledge processes for the Enterprise 2.0 model? The first important step is to recognize this new landscape of “core vs. context,” to understand it in your environment, and to take action on it.

Redefining Core & Context
Core is what your firm does better than anybody else. Context is table stakes for your industry. The best organizations are clear-headed about the two, while mediocre ones confuse them far too often. Today (due to the four forces), the water line between core and context is rising faster than ever. Need a good explanation of core vs. context? If you have an Apple product handy, take a look at the back of it. The label reads, “Designed by Apple in California.” Five simple words, but a wonderful articulation of the expanding gulf between core and context. The label does not read “Made in China,” which would reflect an industrial mindset. Apple, with its knowledge mindset, creates unique value through superior design and customer experiences (both physical and virtual), and understands that – for it – most everything else is contextual. Such clarity is vital in this emerging marketplace.

Business process strategy, in aggregate, continues to be an exercise in extracting resources from non-core or context activities in order to repurpose what is core. As ecosystems evolve, the core/context boundary is ever-shifting, so the extract/reallocate exercise is dynamic, and the systems that enable it must be flexible.

What is relatively new in this process is the increasing need to transfer responsibility for processes that are non-core but still mission-critical. These are risk-bearing responsibilities, wherein failure can be hugely consequential (think of the Madoff investment scandal or the BP deepwater drilling disaster). Unfortunately, because global business dynamics continue to force higher and higher return on assets, businesses have little choice but to take on these risks – they simply cannot absorb the low returns from the investments needed to keep these processes in-house. At the same time, next-generation investments in core processes are also under pressure. They must drive sufficient competitive differentiation to warrant a price premium, or else they too do not generate sufficient return on assets.

The key ingredient for a knowledge process is the moment of engagement: where the right people – with the right information, at the right time, in the right context – make critical decisions.
The net of all this is that business process analysis around what is or is not core, and what is or is not mission-critical, must become increasingly granular and precise. At the same time, inter-process linkage and communication and remote process oversight become fundamental to new process design. Again, the same four forces that underlie the new opportunity for productivity and competitive advantage apply here, as well:

- **Virtualization of processes.** When it comes to business processes, virtualization equates to “de-localization.” This means extracting the work process from a specific locale, where historically it has been co-located with related processes in the value chain, thus enabling its execution elsewhere and by others. This entails envisioning each process as a service that can be invoked by a message and that returns its output at a designated time and place. This is what is meant by the disaggregation of the value chain.

- **Globalization of processes.** Once business processes have been virtualized, their execution can be leveraged by internal and partner resources, globally. Historically this has been driven by labor wage arbitrage, but in the future of work, it is more likely to be driven by centers of excellence that attract talent and investment far in excess of competing locales. In much the same way, we recognize global centers of expertise in the traditional industrial economy (e.g., fashion from Paris or Milan, carpets from the Middle East, consumer electronics from Japan), knowledge-based centers of expertise are beginning to take form.

- **Millennial mindset for processes.** Peer-to-peer governance is critical to success with a disaggregated value chain. Everything from putting in place the IT systems that detect anomalies in the process, and the communication and collaboration facilities needed to address them in a timely way, to building empowered personal relationships of trust needed to coordinate joint responses – all of these activities unfold in ways that aren’t possible in a traditional command-and-control approach. Embracing the millennial mindset is a journey of cultural self-awareness that enterprises must undertake to inform new ways of working. Understanding and then embracing this mindset is not optional – for this new mindset is becoming the new cultural and operating norm.

- **Cloud infrastructure for processes.** Public and private networks are the transport mechanism for business process exchange. For all processes, they transmit the metadata needed to ensure the system is operating within designated norms. And for digital goods and services, they are the delivery system, as well. Just as the Internet and the Web were the fundamental enablers of the first generation of outsourcing, so the cloud will be to the next generation.

The New Organization Model for Enterprise 2.0

The future of work will have a dramatic impact on traditional organizational structures. Most companies are organized based on assumptions or constraints that existed in the 1920s, ’50s, ’70s or ’90s. However, in today’s environment, many of these models are antiquated and counterproductive. As we discussed, the classic pyramid of hierarchy will give way to a more networked model requiring new management approaches and systems. Also, the asset-heavy, vertically-integrated structure is giving way to a model of true partnership and virtualization.

Specifically, this means focusing the enterprise on critical moments of engagement – encounters that make or break business success, and doing everything possible to maximize the organization’s impact precisely at these moments.

In engineering-oriented product leadership strategies, these are often moments of adoption, where customers, fatefuly, either do or do not buy into the new paradigm.
In sales- and marketing-oriented customer intimacy strategies, they are more likely to be moments of trust, when customers or partners either pull you in or shut you out from their next set of actions. And in supply chain-oriented operational excellence strategies, they are more often moments of risk, where success equates to higher margins, and failure means expensive scrap and rework. But in all strategies, critical processes come to a head in moments of one kind or another, and companies can and should organize to make sure the best of their capabilities are in play at these times.

Again, the four forces come into play:

- **Virtualization of the organization.** To overprovision during strategic moments of engagement, one must be able to extract resources from other uses. This is not a new idea (Bill Davidow’s The Virtual Corporation, for example, was published in 1992!). What is new is taking virtualization to a whole new level by leveraging systems of engagement. This next generation of communication and collaboration technologies permits enterprises to operate in a far more interdependent way than before, thereby reducing context work and freeing up resources in each of the companies involved. Each company must still retain and maintain a process management layer, to be sure, but the assets to execute can be redeployed for competitive advantage.

- **Globalization of organization.** In a virtualized economy, it is more important to organize around markets than supply chains. The great domestic markets of the 21st century will be in the developing economies, and corporations will need to get their marketing and R&D as close as possible to these new sources of wealth. This will entail systems of engagement for internal use to keep all the members of the global enterprise flying in formation.

- **Millennial mindset on the organization.** While governments may still maintain a we/they, here/there, import/export mindset focused on maintaining borders and balances of trade, global corporations and their customers will be operating in a world unified by global communications, where connectedness is omnipresent, transparency unavoidable and market responses swift. The idea of running such an operation out of corporate headquarters is simply a non-starter. Networked structure, or peer-oriented organization, will become synonymous with global operation.

- **Cloud infrastructure in the organization.** The best way to think of the cloud in this context is that the Earth is sprouting a new nervous system that will enable emergent behaviors we have never before witnessed. This, to be sure, is both an opportunity and a threat, but first and foremost, it is an inevitability. 21st century corporations must invest in systems of engagement needed to plug into this emergent order or risk the marginalization that must follow from being displaced.

**From Setting to Implementing the Strategy**

The road to Enterprise 2.0 will run through your key knowledge processes. To get started, take inventory of these key knowledge processes and determine the most appropriate ones for key systems of engagement. In asking the simple question, “If we were to establish this process today, how would we do it?” many revealing answers are often provided. Quite often, this simple exercise leads to the answer of, “We shouldn’t be running this process – or at least portions of it – any longer.” Thus, the focus on knowledge processes will lead to the second key strategic cornerstone: focusing on the new core vs. context.
Once you begin to implement Enterprise 2.0 in the context of a key knowledge process, the foundations of the new organizational model will begin to unfold. Once the better-faster-cheaper attributes of the new model are operationalized at an atomic level (in the context of well-understood processes), the power of the network model – infused into the traditional hierarchical organizational model – begins to be well understood.

**Setting Forth**

Because Enterprise 2.0 is so deeply entwined with the future of IT, and in particular with the deployment of systems of engagement, it is here that the journey forward must begin.

**The Renaissance of Corporate IT**

Between 1960 and 2000, corporate IT was at the vanguard of technical innovation. Very simply, it was where the real action was in the application of computing. Yet, the past decade has represented a “dark ages” in terms of innovation in corporate IT. After the Internet bubble burst, corporate IT has been characterized by austerity programs, where the overriding mantra has been “keep it cheap, secure and stable.” This has also been reflected in the IT vendor community as well, given the acceleration of industry consolidation compared with the snail’s pace of innovation.

In the next five years, it is our position that corporate IT will awaken from these dark ages and enter a renaissance. By enabling the new enterprise models, fueled by knowledge processes and held together by social technologies, IT will return to center stage. For too long, CXOs have often thought of “strategic computing” as an expensive oxymoron. In the future of work, that will all change, as IT will not only be more efficient, but also truly strategic and innovative in nature.

The new IT strategy is all about diverting investment from systems of record in order to fund and deploy next-generation systems of engagement.

**The Rise of Systems of Engagement**

For the past 20 years, companies have focused on building out their systems of record. By systems of record, we mean all the compute-oriented OLTP database systems that have been at the heart of enterprise IT for the past four decades. They are the interstate highway system of global commerce, the *sine qua non* for being a global enterprise, but they are now largely deployed, and the focus must shift to maintaining them. This is, indeed, a mission-critical responsibility, but it does not warrant anything like the IT budget required in the past – hence the most recent decade’s intense pressure on IT to reduce costs.

These systems include many different varietals of application – ERP, CRM, HR, etc. – on many different platforms, from mainframes, to client/server, to global single instances, to SaaS. But these all served the same purpose – to order, structure, control and accelerate the movement of data through the extended enterprise (including business partners and customers). The work of systems of record is now largely done.

Systems of engagement are the communication-oriented collaboration systems that enable distributed teams to work effectively in tandem. This is the nervous system of the global value chain, and it needs an upgrade. First-generation systems were fundamentally document-centric, but as the consumer IT revolution has shown us so dramatically, next-generation systems are *session-centric*. They organize around end users in the present moment to fundamentally empower them to connect, engage and transact without friction. As such, these are core to the strate-
gies of companies seeking to collaborate more effectively in B2B relationships and engage more compellingly online in B2C interactions.

There are four fundamental pillars that enable IT organizations to migrate funds and staff from systems of record, to systems of engagement, as follows:

- **Virtualization of IT.** Well under way in most enterprises, virtualization of software and infrastructure (PCs, servers and networks) extract resources from current (and more importantly, future) IT spend to free up staff and budget for next-generation investments. If you have not virtualized your IT environment, you are spending too much money on IT infrastructure. It is just that simple.

- **Globalization of IT.** Also well under way in most enterprises, globalization helps further extract resources from the IT budget by transferring non-core work to lower-cost developing economies. This further frees up staff and budget for next-generation investments.

- **Millennial mindset in IT.** The guiding principle of systems of engagement, the millennial mindset stands for the transition from a hierarchical, command-and-control system of relationships, to a collaborative, peer-to-peer orientation. Problem solving is inherently team-oriented, and instant communication is core to the exercise. The consumer IT experience is the touchstone for this paradigm.

- **Cloud infrastructure for IT.** Whereas systems of record were architected for independent enterprise data centers, and for the most part will be content to remain there for years to come, systems of engagement are architected for cloud deployment, be it public, private or a hybrid of the two. Because collaborative business models are inherently inter-enterprise, participants need a common ground on which to connect. Thus it is in the cloud that the future of work will unfold.

To attain the future of work, IT strategy is all about diverting investment from systems of record to fund and deploy next-generation systems of engagement.

**Moments of Engagement**

The history of IT makes clear that in every technology adoption lifecycle, four motives evolve in sequence to drive and reward investment in disruptive technologies. They are:

1. **Competitive advantage**, from being first to deploy a game-changing capability (think Amazon in bookselling).

2. **Fixing a broken process** by being first to apply next-generation technology to address a hitherto unsolvable problem (think GPS RFID tags for tracking livestock).

3. **Broad productivity gains** from participating in a wholesale market transition to next-generation infrastructure (think laptops, cell phones and Web sites).

4. **Cost reductions** from established technologies as they benefit from Moore’s Law and learning curves (think storage, servers and LANs).

In this context, the adoption of systems of engagement are for the most part still in stage 1 of the lifecycle. As such, they will return the greatest rewards to enterprises that...
focus their deployment on gaining competitive advantage. So how is that best done? It begins with getting clarity about wherein lies your specific enterprise’s core differentiation. The question to be answered is, what activity that has customer value do we intend to do so well and with such commitment that our direct competitors either cannot or will not match us? What, in short, is our claim to fame?

We call answering this question *declaring your core*. Once declared, the core serves as a pole star to set a return on investment standard for any initiative’s impact on strategic competitive advantage. As such, the core is invaluable in negotiating inevitable trade-offs in the budgeting and staffing process. The key IT question here is, How would any proposed system enable or amplify our core?

To answer this question, business and IT analysts must work together to determine the precise moments of engagement where core differentiation can have its greatest impact. To appreciate what these moments might look like, here are a few examples:

- **Amazon** has a customer intimacy strategy based on using IT analytics to create personalized offers and services. Three key moments of engagement in its strategy are:
  1. **E-mail promotions** that present offers that its analytics have determined are most likely to appeal to you.
  2. **Real-time up-selling** that presents additional offers to you every time you put a product in your shopping cart or on your wish list.
  3. **Shipment tracking alerts** that keep you apprised of your order’s delivery status until it is safely in your hands.

- **Contrast the above with Apple**, another consumer icon, but one whose strategy is focused on product leadership more than customer intimacy, or what its CEO Steve Jobs likes to call “insanely great products.” Its key moments of engagement include:
  1. **Your first impression of the product**, be that through an ad or an in-store encounter, which is why Apple’s ads are so gorgeous and why its stores look more like exploratoriums than retail sites.
  2. **Your first product question**, which is answered by a knowledgeable sales associate who is deeply familiar with the Apple product line.
  3. **Your first software purchase**, which is “insanely easy,” by virtue of integrating iTunes and the App Store directly into the product.

- **Now let’s contrast both of the above**, which are focused on B2C markets, with a strategy that is focused on B2B relationships. Here we will use Cognizant as an example. Three of our core moments of engagement are:
  1. **Project commits**, where we make sure with our Two-in-a-Box management structure that we understand the request clearly in the customer’s terms, and we have the capacity and capability to fulfill that request on spec, on time and on budget.
  2. **Solution finding**, where we are able to leverage our Cognizant 2.0 system of engagement to tap into both the wisdom of experts and the wisdom of crowds.
3. **Problem escalation**, where we leverage technologies like telepresence to meet face-to-face (virtually) to address mission-critical issues in real time.

Since core is unique to every company — at least relative to its direct competitors — each enterprise’s moments of engagement represent a kind of signature for its strategy. Excelling in these moments is the most effective and efficient way for a company to communicate its strategic positioning and capitalize on its competitive advantage. So, with that in mind, how exactly do systems of engagement help?

Systems of engagement empower people present in the moment of engagement. They do so by extending their reach across the entire enterprise and its ecosystem of partners to bring the best resources and most up-to-date information to bear on the issue at hand. Examples include:

- An enterprise Facebook that allows colleagues across the enterprise (including partners and customers) to publish their expertise and allows the community to validate it.

- An enterprise Google that lets people search secured databases in conjunction with accessing public ones.

- An enterprise Wikipedia that lets corporations make their core IP readily available to their own teams without exposing it to competitors.

- An enterprise YouTube that lets technical managers explain complex topics via a medium that is compelling and effective.

- An enterprise Twitter that lets people in crisis situations keep the enterprise abreast of late-breaking news.

A key point to reiterate with these five suggestions is they must be tied to your core processes. Implementing social tools in the absence of process (what we call “giving Facebook to the kids”) is mildly productive, today’s equivalent of giving Windows users their Solitaire game so they could learn how to use a mouse. The adoption of these approaches, and the new levels of business value, come from doing meaningful work — via your core processes — with new approaches and new tools.

All systems of engagement have the goal of increasing the reach and the bandwidth of communication and collaboration. The problem they pose for IT leaders is that they do so in ways that challenge enterprise commitments to confidentiality, security, brand protection, liability avoidance, regulatory compliance and the like. This is why the business world is still in stage 1 of the technology adoption lifecycle.

To make the first steps forward, IT initiatives must be highly focused and enthusiastically sponsored. The focus will ensure they provide exceptional capabilities in the core moments of engagement, thereby ensuring a high return for the increased level of risk they entail. And committed executive sponsorship will ensure they don’t get bogged down negotiating for the innumerable exceptions needed to see the light of day. Stage 1 is no time to “major in minors.” This is a time to either go all in or fold and wait for another hand to play.

For at the end of the day, IT initiatives in stage 1 of the adoption lifecycle are a bet. Your job is to make sure a) the bet is worth making and b) you are doing all you can to risk-reduce the effort.
Embracing Systems that Think

Corporate IT is about to experience a renaissance. Our rationale: Not only will IT erect the foundational infrastructure for Enterprise 2.0, but it will also act as the company’s central nervous system, once it’s up and running. The keys to this transition will come from focusing finite IT resources on virtualization of the organization and bringing consumer IT technologies and principles to the enterprise. In short, corporate IT needs to make the Monday morning computing experience not only equal but superior to the personal Sunday evening computing experience. For the past 20 years, corporate IT has succeeded (on average) in implementing a highly functional backbone of operational systems. These, in short, are systems that “do” (for as systems of record, they have simple inputs and outputs). For the next decade, corporate IT needs to shift its focus to putting in platforms of collaboration that, in the context of knowledge processes, will become systems that “think.”

The key is in putting these systems of engagement in place in a “crawl, walk, run” manner. First, introduce social technologies in a fairly vanilla manner, one that employees will recognize from their personal lives but are architected and implemented in an organizational context. Second, begin to marry these social platforms with key knowledge processes. Third, once the system of engagement becomes the default location for process execution, the overall organizational model can be revamped to support this new operating reality. Through such steps, Enterprise 2.0 starts to take form.

Building the Future of Work, Today

The Great Recession will be remembered as an important “shift point” as the four forces of globalization, virtualization, cloud computing and the millennial generation begin to greatly change the fortunes of individuals, corporations and even whole societies. As a senior manager, it’s incumbent upon you to understand these shifts in the context of your industry and your organization in order to build a next-generation workplace. As the old expression goes, “When it comes to the future, there are three kinds of people: 1) Those who made it happen, 2) those who let it happen and 3) those who wonder what happened.” Hopefully, with some of the perspectives in this white paper, you will safely be out of the third category. The opportunity – and the hard work – is now in making it happen.
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Footnotes
2 http://www.pri.org/business/middle-class-booms-in-india-china2400.html
3 Gartner Group, IT Priority studies, 2008, 2009, 2010
4 http://online.wsj.com/article/SB122680388282631287.html?mod=googlenews_wsj