TUCK SCHOOL OF BUSINESS AT DARTMOUTH
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CENTER FOR
DIGITAL STRATEGIES

The Impact of Technology Mega-Trends on Corporate IT and Business Models

A Roundtable Overview

Roundtable
on Digital Strategies

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Thought Leadership Roundtable on Digital Strategies
The 10th Anniversary CIO Roundtable of the
Center for Digital Strategies at the Tuck School of Business

On the occasion of its 10th anniversary the Thought Leadership Roundtable on Digital Strategies convened European and American members at the Tuck School at Dartmouth College in Hanover, New Hampshire. The CIOs gathered to discuss the major information technology trends of the next decade, the impact of these trends on organizations and operations, the new business models that will be created and/or required, and what actions companies can (or must!) take in order to be prepared. Questions on the day's agenda included: Which trend is having the biggest business impact now? Are the trends beneficial, disruptive, or both? What can and should IT departments be doing about "rogue IT?" How will these trends change IT's strategic role in business? Participants in the session included CIOs from American Express, Bechtel, Chevron, Eastman Chemical, Eaton Corporation, the Hilti Group, Holcim, Nestlé, Sysco, and Time Warner Cable, as well as executives from CompuWare, the Dachis Group, Dell|KACE, and ViON. The Roundtable was hosted by the Directors of the Center for Digital Strategies at the Tuck School of Business, and moderated by Maryfran Johnson, Editor-in-Chief of CIO Magazine.

Key Insights Discussed in this Article:

Introduction

Every decade or so since the beginning of the computer age there comes a platform change, with all attendant and consequent changes to existing solutions for security, performance, capabilities and user experience. At the turn of the millennium, the web enabled entirely new kinds of applications through fundamental shifts in accessibility, collaboration and communications. The platform shift required development of extensive capabilities to manage integration of new applications into existing applications, infrastructure and organizations. It was hugely disruptive to organizations of all kinds but its benefit has been irrefutable.

Ten years later, corporate IT faces a complication: Two distinct but interdependent technologies are pushing their way to platform status. At the individual level, people have expensive and highly functional smartphones and tablets with which they run their lives. They expect their work lives to adapt to these devices as well. At the system level, "the cloud" is becoming a major alternative for deployment of corporate (and consumer) applications. It offers new options for storage, data aggregation, inexpensive compute power and other capabilities. Meanwhile, contrary to many predictions over the last 45 years, Moore's Law continues to hold, with its consequences for both absolute performance and price/performance. A typical smartphone now contains the compute power of an early-1990s minicomputer. The compute power represented by aggregating resources in the cloud is now much greater than anyone (except, perhaps, Dr. Moore) could have predicted in the mid-1960s. And as with every other platform change, existing approaches to security, application development and even organizational models have to evolve.

Before the Roundtable convened, the participants were asked to name the five most important IT trends of the next 10 years, for the purpose of focusing the discussion. The consensus picks were:
- Mobility
- Consumerization of IT
- Social media
- Big data
- Cloud computing

Maryfran Johnson, Editor-in-Chief of *CIO Magazine* and the session's moderator, launched the discussion with a lightning poll, asking the participants which of these five 'mega-trends' is having the biggest impact *today*. 'Mobility' won a majority of the votes, and so Johnson followed up by asking the group to describe how and why the traditional walls of the enterprise are being penetrated by mobile devices.

"The World's My Home When I'm Mobile"

Twila Day, CIO of Sysco, suggested that one catalyst is the generational change in the work force: "Younger people coming up are used to *always* being connected, *always* having the information available, *always* being able to answer the question. That kind of environment can't be based on having to be in the office, or having to be with a laptop. They need to be able to get the information, whether it's internal access or external access, or even push to suppliers and customers. It's being able to get all that information whenever they want to consume it, however

they want it. They don't think anymore 'This device is specific for work.' Instead, they think 'This is my phone. I need to use it for anything.'"

John Garing, Vice President of ViON and former CIO of the Defense Information Systems Agency (DISA), explained the individual motivation and the corporate limitation: "In the Defense Department it's all about mobility. A soldier brings his own device because he wants to be able to collaborate anywhere in the world, and the contention is that the enterprise just isn't agile enough to take care of that."

"The senior management didn't understand why anybody would want to enable mobile work forces," added Matthew Robinson, SVP and CTO of American Express, described the impact of the shift to the mobile platform. "Until you say, 'You're going to save this many square feet in Manhattan,' where real estate is 'kind of' expensive. So you save a lot of space, but it also changes the way you work. The 18-to-28s love it because you provide nice big open spaces and sofas where they can talk and collaborate. And by trying to get the executives to work in the same way, you've actually got them thinking: 'How do you change how you engage with customers? How are your customers going to force you to change how you work with them?'"

"Because if you don't understand how your young employees work, you're never going to understand how your young potential customers are going to operate," Robinson continued. "They don't really think in the same way that old people do. So there's an element of education is teaching the company how to relate better to its consumers."

Based on these comments, moderator Johnson asked the Roundtable members whether they were starting to see business benefits that justified the effort and expense being put into mobile enterprise applications? The answer was a clear yes. Examples of internal applications to drive productivity and processes included:

> Geir Ramleth, CIO of Bechtel, described his company's success while building an airport in Qatar: "It's a huge open space. We put in our own Wi-Fi throughout the construction site, and launched an iPad-based inspection app for the people in the field. We measured a 3- to 5-fold gain on daily productivity for people who had the app. In an industry as old as ours, finding anything that gives that kind of gain is just huge, it's fantastic."

> Randy Krotowski, CIO of Chevron Global Upstream, gave a similar example: "We program operators' routine duties into their mobile devices, including checklists for procedures. Every procedure in our complex facilities has to be done exactly right. We did see work force productivity go up by a factor of two, but for us the greater benefit is the assurance that our procedures are done right, to make sure we don't have a catastrophic failure."

> Urs Bleisch, Senior VP and CIO of Holcim, gave an example of a simple but high-return mobile application implemented in Holcim's India sales force: "Every day they go to the dealer, and they enter into their phones how many bags of cement are there, from us and from our competitors as well as the respective prices.. The data get sent central for

analysis. And our margin has gone up 10 percent, because we have the relevant market intelligence by knowing the development of volume and price."

Dion Hinchcliffe, Executive VP of Strategy and CTO of the Dachis Group, described how a major studio production company used mobility to *improve* security: "It used to be that when they filmed their TV shows, they'd issue a big stack of DVDs with the dailies, and everyone would watch them on the plane, and they'd lose control over the content. Now, they've switched over to the iPad and made the entire workstream digital. You synch your iPad before you get on the plane, and all the information is now controlled."

Martin Petry, CIO of the Hilti Group, identified the common theme of most current internal mobility applications: "Mobility is to make better use of information that we already have. We can use it to provide information that is more relevant, easier to use and more adaptable."

Krotowski returned to the theme of security: "The diffuse walls around your enterprise are going to shift dramatically as people expect to have more and more data on more and more devices. The expectations are just going to continue to grow, and the challenge for our IT organization is figuring out how to accommodate that. Our executives want all their information on iPads, which are less-secure devices than many of the other devices we have in the enterprise. People we're hiring into the organization expect that they'll have whatever they need on whatever device they happen to be carrying. So the question is 'How are we going to manage that?'"

Garing, of ViON took Krotowski's question one step further: "You can't control what's going to be developed and made available for everybody to use. People are going to use whatever they think is best for them. The question is 'How do you make sure it's secure?' Typically, we want the configuration control where everybody locks down the desktop. That's a relic of the past. How do you make sure that you can enable the use of these 'unwanted entrants', still protect your data *and* get some benefit out of it?"

Solid Core, Flexible Boundary

Keith Sturgill, VP and CIO of Eastman Chemical, outlined the company's response to the security dilemma posed by Krotowski and Garing: "Over the past 20 years we've invested in developing a very robust core of standard business processes, and our strategy is to maintain the value that we get from that standardized core. We won't relent on that, but we will allow extreme flexibility on the fringe in how to access information from that core and how to execute business processes, whether that is from an iPhone, an iPad or maybe eventually an Android device. To standardize at the boundary is just not going to happen."

Hilti's Petry agreed: "We have exactly the same vision—we call it 'solid core and flexible boundary,' and to pick up on the discussions we had before, the flexible boundary includes devices. That also means security moves away from the endpoint and becomes data-centric in the core. The key thing is to find the right balance, and that border between solid core and flexible boundary is not cast in stone. That's not there to stand for 10 years unchanged."

Ramleth described Bechtel's approach to the endpoint device data security dilemma: "Our original mobile apps had no data residing on the device. That's not a sustainable approach. So we built our own internal app store, and the apps are encrypted and managed remotely. Now we can zap the application, and encrypt the data. And people are fine with that, even on their own devices: 'I don't want you to have the ability to reset my whole device, but you have the right to manage the information in the company applications' is their view."

Frank Boncimino, Senior VP and CIO of Time Warner Cable, moved from security to another problem caused by the tension between personal devices and corporate uses: "We're trying to figure out the economics of mobility. Our cost structure has gone up, because now I'm providing a laptop, an iPad and an iPhone. So now the same employee has three devices, and with 28,000 employees in the US, we can't sustain a cost model like that."

Day had faced a similar situation at Sysco: "We say, 'Buy your own device, and as long as you meet our security requirements, we'll hook it up.' It's perfect because most of these guys buy them on their own or get them for Christmas. We don't pay, and they have no problem whatsoever. The requirement is security."

Robinson, from American Express, brought the mobility conversation back to the question of behavioral change: "My biggest concern is 'are we missing the actual big shift'? Are all our customers changing how they want to do business with us, but we're busy giving iPads to everybody, and we've missed the big thing?"

In support of Robinson's point, Time Warner's Boncimino gave an example of a new customer approach based on mobile devices:

> It seems as if mobility is everything we're doing these days: We think about the mobile strategy first, and then figure out the rest, because it applies directly to our relationship with our customers. We came out this summer with an application where families in their houses can watch TV on the iPad. Dad is watching the basketball game, the kids are watching Disney, and everyone is happy.
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> What we're going to be able to do in sharing information across these different devices is going to take off at an extremely rapid pace. We're going to really figure out architecturally how to make it happen. We're not there yet, but we're getting closer and we can see it. What we've seen so far is a turtle's pace.

Bill Blausey, Senior VP and CIO of Eaton Corporation, summarized this part of the discussion: "Mobility forces us to think of new ways to approach the market, customers and our channel. The technology really enables new ways of operating. It allows us to think in new ways about different business models and about how to approach the customer."

Social Media: Strange Bedfellows

Anyone who has stood in line in a coffee shop recently knows how tightly linked social media is to mobile devices. Moderator Johnson moved the conversation from mobility to its neighbor, and asked the group to describe their business applications of social media.

Robinson described two common uses of social media: "At AmEx we have a social media unit in Corporate Communications. They monitor what's happening externally on the social networks, how it's affecting American Express and the brand. We also have a unit within our servicing side, to monitor social networks and intervene if somebody says they have an issue with the card."

Steve Plume, VP of Marketing at Dell|KACE, described a similar implementation and its benefits:

> Dell's Social Media Command Center monitors a huge variety of listening tools out there, going against Twitter and Facebook and Four Square and everything, in some 13 languages, in effectively every country in the world. They have all these amazing real-time displays of what's going on in the blogosphere with respect to Dell in social media. There are a whole bunch of people who monitor the live chat for topics around brand-management and reputation-management. So if someone rants on Twitter, 'I hate my Dell,' the next thing they get is a tweet asking, 'How can I help you? What's wrong?' They measure the impact in terms of net promoter score, and they're all thrilled by the improvement since this has been implemented.
>
> They participate in IT groups in social media like LinkedIn, and they're charged to very transparently be Dell employees who can chime in and answer questions or offer information. They don't hard-sell, they don't even particularly advocate — but the impact on lead generation and pipeline development has been really positive.

Johnson suggested that the social media group is the new call center. "Yes," agreed Robinson, but with a twist: "It really is 24/7, and you can't even take a tea break. Within 15 minutes, something can become viral and be out there, doing damage. You've got to be on it, and you can't equivocate. You can't half-give an answer; you can't half-get involved. If you get involved and the company's name is on it, you've got to be *perfect*. You've got to make it the best experience. If you screw up, then it's even worse."

Nestlé's Group CIO, Olivier Gouin, added a lesson learned about external social networks: "There are types of stories that you have to manage. An NGO was complaining that our Nespresso AAA programs with farmers were not real. We went back to the farmers and asked *them* to go on Twitter and explain what they were doing with Nestlé. And the discussion ended in just a few days. It's very interesting: Don't respond. Get someone else to do it."

Similarly, Time Warner Cable is evaluating a number of products, said Boncimino, "To listen to what customers are actually saying about us. The trick is how do you take that information and bring it back so that I can use it to make business decisions and operationalize it? On the internal side, our engineers are on social networks all the time, and it's to solve their problems. They're

trying to code something, and they put it out to all their friends: 'Hey I'm trying to do this. Anyone know how?' It's very unstructured and insecure, but we want to be very careful about not disrupting them."

ViON's Garing gave two social media examples that surprised many of the business people in the room: "For disaster relief—Japan, Haiti—when you bring together strange bedfellows for a short period of time and need a space for them to collaborate that's private but not too private. And then, it's kind of odd, but the war in Afghanistan and the war in Iraq. They've been run almost exclusively on chat. You go into an operations site, and you'll see some young captain with 16 different screens open, talking to pilots, bringing in Predator feeds, whatever else. The dilemma, though, is taking advantage of all that's out there and not doing it in a fashion that exposes data that you don't want in somebody else's hands."

The group considered examples of productive business deployments of social media, as well as deployments that were less so. Ramleth captured both types in his description of Bechtel's evolution in its use of social media: "We started to look at social media two years ago, and what a bag of worms! It was just horrible—everything from very practical to very emotional input. We finally managed to start to get our hands around it when we combined social networking with knowledge-management and collaboration. Now it's something more than just chitchat ideas about whom to date."

Sturgill expressed the challenge of social media at Eastman: "I'm in a group of probably three or four of my peers who believe that the social idea is real in a B2B company. How do we effectively bring our scientists together to improve innovation? How do we improve the speed of collaboration with customers? How do we get our brand out more effectively to the business consumer? There is a piece of our business that is moving closer to the consumer, so we have to figure this out."

Hinchcliffe, from Dachis, agreed with the difficulty, but cited studies by multiple consultancies that reached the same conclusion regarding the ultimate benefit of social media: "Organizations that are more social, both internally and externally, have 22 percent higher revenue than organizations that are less social, less collaborative and share knowledge not quite so much. There seems to be real ROI in social."

Eric Johnson, Director of Tuck's Center for Digital Studies, captured the core dilemma of social media in the enterprise: "Certainly, sharing and collaborating is good, but do we really want social in our enterprise building a platform, or is it just going to create another set of noise that we don't really appreciate and doesn't create value?" And on the consumer side, "How do you use social media to delight a customer when in fact it may be somehow violating their privacy?"

Going Rogue

One of the disruptive trends growing out of mobile applications and social media is so-called "rogue IT". Mark Hillman, VP of Strategy and Product Line Management at CompuWare, described what's happening: "In talking with our customers, we find that frequently IT is not in

the discussion relative to app development, mobile or social applications. These are being developed in the business units, with some third party. Often they're coming out of the marketing department working with media firms who have gone into the IT space. What's concerning is, 'Are these groups taking responsibility for the operations, and ensuring that this is all going to work and be secure?' And the answer is, usually not."

This topic generated an energetic debate. AmEx's Robinson gave one perspective: "I think some amount of rogue IT is good and should be encouraged. Not everything should go through IT, because not all the wisdom is in IT. When it's literally a marketing app with content, that's fine. When they want *data*, then they're going to have to come to somebody in IT. Hopefully there's no way a marketing person can get hold of customer data without going through IT."

Eaton's Blausey agreed: "Mobile app development is identical to what happened in the dot-com era: Every marketing agency in the world suddenly became experts in app development—and that's OK. It's a great way to try things, test things, think of new business models, whether they're coming from our employees or third-parties. Rogue IT is a good way to have things develop. But there has to be some kind of structure over it, some kind of governance."

On the other side of the debate, Martin Petry, CIO of the Hilti Group, was "kind of shocked by my American colleagues' embrace of shadow IT. I absolutely don't agree. The role of IT, our claim, is that we understand the business need and we understand technology. We bring that together into solutions; if somebody in the company can do that better than my team, then to be honest…"

Maryfran Johnson used her *CIO Magazine* experience to suggest a bridge between the two positions: "If you look at it as competition, then you will constantly be fighting battles. The more you can view it as an extension of your staff, then the more they will be likely to bring you in earlier to participate, so that you are able to commercialize the solutions they're coming up with. You're fighting an unwinnable battle if you look at them as competing, or doing something they shouldn't be doing."

Gouin described how Nestlé is actively trying to incorporate rogue IT into its culture: "We are embracing them in such a way that they voluntarily come out, and they don't see us as the enemy. At the same time, we're trying to push IT people into the business units, because when you are stuck in the back office, you can't know everything about what the company is doing. You'll be missing the innovation engine, which is the most important part, and which we believe will come from the business, not from IT."

With its highly dispersed work force and wide variety of projects, Bechtel had to face the rogue IT issue possibly earlier than other companies. Like Gouin, Ramleth ultimately elected to take the approach of "if you can't beat 'em, join 'em":

> Sometimes we were our own worst enemy because all we started with was 'No' with respect to security every time anybody talked to us. They got tired of it, and they started finding other ways to go about it. 'Consumerization' is the broad-based umbrella of taking advantage of all these things that we see from the outside and figuring out how

they influence what we do internally. That includes mobility and social media, because the 'consumers' are also the users of what we have. So, we set up our own mobile application development organization to compete with the third parties that the business units go to. We're saying, 'Let us be one of those. Let us compete for the same business, but on their terms, not as an IT group. If you need it in three weeks, we will have it to you in three weeks.' So far, it has been extremely successful. We have created quality applications in, literally, weeks. We scrapped our old development methodologies because they're just too big and too cumbersome and take too long.

Hinchcliffe, from the Dachis Group, brought the two key objectives of IT to the fore—consumer-enablement and IT governance:

> The theme to this whole conversation is really that all these changes, mobile and cloud and so on, are pushing us to what JP Rangaswami, the former deputy CIO of British Telecom, calls 'the place where we have to design for loss of control.' Now the challenge is we're going to have 10x or maybe 100x additional apps, because our customers can push a button to get a new app and try it out and see if it solves the problem. So designing for loss of control seems to be what we have to get good at. App policies are going to be the next big thing, because users want IT that they can shape to solve problems locally better than we can with a one-size-fits-all solution. So we're going to this era of unprecedented choice that we have to design our organizations to take advantage of. We want to enable it, but we can't lose that essential control, and we can't have IT foot soldiers in every corner of our organization.

Big Data: The Easy Oil is Gone

One area where the business units can't play and "IT foot soldiers" have to hold sway is Big Data. Security, performance, provisioning, policy—all these and more are beyond the capabilities of almost any business unit. Moreover, the numbers of devices that generate data are multiplying exponentially—mobile devices sending location-based data; sensors and monitors in environments such as oil fields, plant floors and power lines; chips linked to wireless networks in everything from cars to heart-rate monitors. Ironically, however, Big Data was the group's consensus answer to Moderator Johnson's question, "Which of the five mega-trends is the *least* mature now, but most likely to have the greatest *future* impact?"

Krotowski, from Chevron, characterized the challenge and the opportunity of Big Data: "Our data volumes grow 80 percent per year. That's a factor of 10 every five years. It's a river of data flowing by, and we're not sure we even have the ability to keep what we think will be important, since you don't know the questions you're going to ask in advance. It's still a very ill-defined problem, but we know solving it is going to be hugely important to our business."

Other members of the group described similar situations. Robinson characterized the goal of Big Data as it relates to consumers at American Express: "We need to make it much easier to get at data and to analyze it in order to come up with wild new ways of using the data to excite our customers." Blausey, from Eaton, gave the perspective of a B2B company: "We are now able to

process so much more data and quickly show changes in our environment. We can analyze operations at 220 plants across the organization to the second, and make it much more visual—so it becomes something we can act upon and improve performance." Ramleth tied the previous topics of the day—all the data available from social media and mobile devices—into a third use case: "The opportunity of Big Data is to get to my unstructured data, to the old stuff that I don't have in rows and columns. If I can get to that, the value is humongous."
Others gave specific examples of the value available from Big Data:

> Hinchcliffe described how fast crunching of vast social media data improves stock trading: "What matters is the ability to process the big pile of data inside of a time window. There's a strong correlation between certain stocks and social-media sentiment. So if you can process it fast enough, you can actually create significant trading gain."

> Garing commented on the potential future impact on national security: "In the defense service, we're after predictability of what's going to happen, where the bad guys are going to go, when they're going to go, based on what you've been able to figure out. The problem now is, neither the technology nor the human investment is there to take advantage of the data. You've got a lot of data doing nothing. The technology is not there to go through it fast enough and to correlate it properly, and the humans are not capable."

"The next frontier is in bringing disparate sources together," said Krotowski, summarizing all of the viewpoints. He made an observation about Chevron that served as an appropriate metaphor for everyone at the table: "The easy oil is gone. The decisions are getting harder and more complex and more expensive, and that's the challenge. The ability to aggregate disparate sources gives you a way to make decisions and drive new business value."

Robinson explained how this cycle of Big Data analytics will help to make those more difficult decisions: "A huge amount of data goes into predictive models, and they are as good as the data that someone knows how to find. You can have a thousand fraud analysts thinking of new models, but humans are always looking for something specific. Humans are not going to see the unlikely correlations, because they're not looking for them. Computers don't look for things, they just crunch numbers. So the difference will be in using nontraditional sources of data and huge computing power to make new inferences."

A World of Cloud?

Marc Andreessen[1] asserts that the typical cost of running enterprise applications has dropped by two orders of magnitude—99%—in the last 10 years in large part due to the impact of cloud computing (Wall St. Journal, "*Why Software is Eating the World*," October 20, 2011). The ubiquitous availability of massive, low-cost compute power is among the enabling forces for Big Data and social media. Boncimino suggested that the arrival of the cloud has made the CIO's job analogous to a portfolio manager's: "We have 4 basic categories of computing power: External cloud, internal cloud, traditional hosting and internal spot solutions. You can segment all your systems into these categories. The cloud is just another commoditized platform of computing.

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[1] Founder of NetScape; co-founder and general partner of Andreessen-Horowitz.

It's very hard to resist, sometimes, but the economics of certain applications don't bode well in the cloud."

Blausey, from Eaton, agreed: "Our customers don't care where this stuff sits. It's an economic decision as to whether the cloud is the most effective way to run each environment." One of the contributing factors to the economics of cloud deployments is clearly the software-as-a-service consumption-based pricing model popularized by Salesforce.com, among others, which Ramleth from Bechtel endorsed: "Consumption-based pricing is a mechanism for risk-management in an environment where my costs have to be as predictable as possible given my high degree of fluctuation in the employee base. If I have more users, it means we have more business."

Twila Day, from Sysco, presented the counter-argument: "Just because I add a person in the mix should not mean I have to pay more to use software—it's not like we're getting a huge amount of new business benefit, but we do get a cost that continues to rise. Whatever we're procuring, it's worth a certain dollar amount to us. So to buy something and continue to pay and pay and pay is very hard to swallow." However, Day continued, "The best pricing model *is* situational. If it's not a foundational tool that you're going to use for a long period of time, it may be better to pay by consumption. I'd be looking at a ceiling to that cost, though, to say 'I'm going to build up to it, but not beyond a certain point.'"

Ramleth suggested that different company business models drove the difference between the two perspectives: "Bechtel has a high degree of fluctuation of our employee base. As that number goes up and down, I need to have a high degree of predictability in terms of what I'm going to pay per user. Sysco has a much more stable business than Bechtel, so for them it's totally opposite—they need and can absorb a much higher degree of fixed costs. So when you look at how you're going to manage your IT portfolio, you really have to look at what you're doing from an overall business standpoint."

Hillman, from CompuWare, pointed out the linkages among consumerization, rogue IT and the cloud. "The cloud lets suppliers sell to their objective, and their objective is the VP in the business unit. They're going directly to the business, and because of the high accessibility and the profound shift in this economic model where you can buy consumption-based, that shift is changing the game."

With vendors selling directly to business units, IT is facing another challenge in how to manage a situation that is out of its control. Hillman presented three recommendations to the group for how IT can maintain governance over applications developed and delivered by technology vendors:

1. For any mission-critical or customer-facing application, the vendor needs to agree to a defined set of Service Level Agreements (SLAs) and Key Performance Indicators (KPIs).
2. There needs to be third party measurement of these SLAs and KPIs, so that "you don't have a 'fox guarding the henhouse' kind of problem. IT is still accountable for performance even though a high percentage of what's running is no longer under its control. So you really need a set of facts to measure performance."

3. These agreements need to be enforceable and "have teeth. There needs to be an appropriate level of risk and reward relative to the performance of the supplier."

Moderator Johnson asked if these changes in vendor business model were making a difference to the IT/vendor relationship. John Garing cited a statement from Mark Andreessen: "he told us 99% of disk production was going to the consumer market and only 1% to the enterprise. His point to the DOD was, 'You guys are no longer driving the train. You are now a passenger, and you have to adopt and adapt.'"

Gouin, from Nestle, agreed: "All of the suppliers are doing that. They have no choice. We want to minimize that trend, and they want to go the other way. So they are trying to access everyone on in the enterprise in order to get more product." Chevron's Krotowski merged the two threads of the discussion: "We do tend to push towards consumption-based pricing, especially with our most strategic vendors, with the result that we almost never talk about commercial terms. They want to grow the user base, so instead the conversation is always about, 'We're using your software; How can you help us use it better and more effectively?'"

Shifting gears, Johnson made the observation that "with large companies, cloud is a cost-efficiency approach, whereas with small- to medium-sized businesses, it's a whole different game." Petry, from Hilti, agreed: "For us, cloud computing is first and foremost software-as-a-service. With this we can cover utility type applications which have little or no differentiation potential towards customers. An example for this is SuccessFactors for talent management. In addition software-as-a-service provides huge opportunities to realize "flexible boundary" applications fast. In the future I can see software-as-as-a-service being used more and more in the solid core, too. Another interesting solution is storage-as-a-service—put your data in the cloud, in particular for very large data sets, like video data."

Hillman also agreed with Johnson's assertion, but from the other perspective—that of a medium-sized (~$1 billion) company: "At CompuWare we produce one-and-a-quarter billion records a day. It's a massive amount of data to analyze, and we use the cloud to do it in a way that is shockingly cheap in a very, very short amount of time. You can transform your business if you think about the cloud resource in a fundamentally different way that you do when you think about owning things."

The $64,000 Question

In concluding the Roundtable session, Maryfran Johnson asked the group: "How will companies use IT to differentiate themselves and compete, especially if more and more of IT becomes a utility? As we get more consumption-based, as we get more cloud-based, what is the competitive value that IT will bring to companies?"

Boncimino, from Time Warner Cable, suggested that "the companies who figure out, from an IT perspective, how to accelerate the pace of innovation are going to be able to grab market share and lead."

Petry, from Hilti, was skeptical that technology itself could help individual companies to compete: "Can I differentiate myself from the competition because of what I do in the data center? If we are really good, there's a little bit of cost benefit, but differentiation in the market, visible to customers? Certainly not. The visible difference to customers will be more services and service-related information that they can tie into their value chains. Then *they* have a completely different game, and *that* is a differentiator for us. Our job is to orchestrate this in an intelligent way."

Bleisch from Holcim agreed, referring to his example of collecting cement-bag information by mobile phone: "It's a small advantage that others can copy easily. But the change came through people's behavior. The trend is really coming from consumer IT—people do something at home, then they bring it to work, and they bring expectations of what it should be. They come to us, and we know how to make it work. We are not the experts anymore, but we are the enablers."

Krotowski from Chevron extended Bleisch's point: "Consumerization means that you lose control over the technologies you get to choose, because the market is going to choose them. IT cannot be involved in everything that anybody does with technology, it's just not going to happen. I couldn't make my organization big enough. But we need to be involved in setting the rules of engagement, the standards by which people move forward, helping people do good technology even when we're not involved. We differentiate by getting valuable information to the right people in the right place at the right time."

Maryfran Johnson suggested that to accomplish this goal, top executives including CIOs need to have significant experience and empathy with the business units: "In 20 years I don't think we'll have any chief executive who didn't do a tour through IT. The reverse holds true for IT—that business experience is so valuable."

Krotowski continued the theme:

> We just finished an exercise to stratify roles that we are going to need in the future, in terms of their difficulty to develop and how important they would be to the parts of our business that differentiate performance. The results are surprising, and they confirmed a suspicion I had: We hire folks that fit very well into an ERP organization. ERP is important, but it's *not* what differentiates performance for us.
>
> So after looking at that, we're hiring dual-degree people who can apply technology to the business problems we're facing. We're looking at math majors and statisticians. We'd like to mirror some of the quant acquisition that the financial firms do, because if we look forward, we don't have much of that. We have a large IT organization that's perfectly suited for the problems we've had over the last decade. But when you look at the problems we're going to have in the next decade, we don't have the skills that we need.

"We have to be more flexible and less strict with where the work is happening," Ramleth said, with respect to the next generation of workers. We have to bring the work to the people—and that's locations, like developing centers in Santiago instead of San Francisco, and it's also

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mobility, to allow people to work where they would like to work. This is how to get information to the right people at the right time."

Ramleth continued with a longer-term perspective of IT's role: "We have to not only look at data as a snapshot in time, but also about how data can be something where we can get more of a life cycle that can be broadened. We are all just doing a piece of data analysis in a much longer cycle, and we have to start getting better at sharing that information with each other. We have to learn how we can be good custodians of other people's data, because somebody behind us might need it in ways that we can't anticipate today."

Considering all the trends and ideas and questions that had been discussed during the day, Keith Sturgill from Eastman suggested how IT's future might contrast with its past: "The prior generation of corporate IT was really about removing human involvement—automating processes and other things of that nature. If we look out five years from now, IT should be the experts in analysis—we take data and change it to information to knowledge. And that's going to be about *amplifying* human involvement to improve decision-making. Mobility, social, consumerization—they all matter, but in the end, it's about how do we make humans more effective at doing what they do."

Participant List
"The Impact of Technology Mega-Trends on Corporate IT and Business Models"
October 18, 2011

Bill Blausey	Senior VP and CIO Eaton Corporation
Urs Bleisch	Senior VP and CIO Holcim
Frank Boncimino	Senior VP and CIO Time Warner Cable
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John Garing	Vice President ViON Corporation (former CIO, DISA)
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                            American Express

Keith Sturgill   VP and CIO
                            Eastman Chemical