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2011
Issue 3

06
The collaboration
paradox

26
Enterprise success with
emerging social technology

48
The CIO's role in social
enterprise strategy

Transforming collaboration with social tools

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Contents

2011
Issue 3

Features



The collaboration paradox

More social information helps the workforce find what it's looking for.



Enterprise success with emerging social technology

Innovators are learning to build graphs to help users locate the information they need—and each other.



The CIO's role in social enterprise strategy

Transforming collaboration demands an evolutionary approach.

Interviews

18

Building a new learning environment around social tools

Tony O'Driscoll of Duke University aligns social technology's strengths with the way people learn today.

22

How online identity and context become productivity drivers

Sameer Patel of Sovos Group places social technology in the context of software that enterprises already use.

38

Adding social networking to business workflow

Tim Young of Socialcast considers how blending activity streams with existing applications can open the door to behavioral change inside enterprises.

42

Harnessing the power of the graph

Keith Griffin of Cisco Systems describes how emerging social and graph data technology can remove barriers to more effective collaboration.

60

Why collaboration hasn't changed much—yet

Sheldon Laube of PwC focuses on the essentials that still need to emerge to create real improvements in enterprise collaboration.

Departments

02

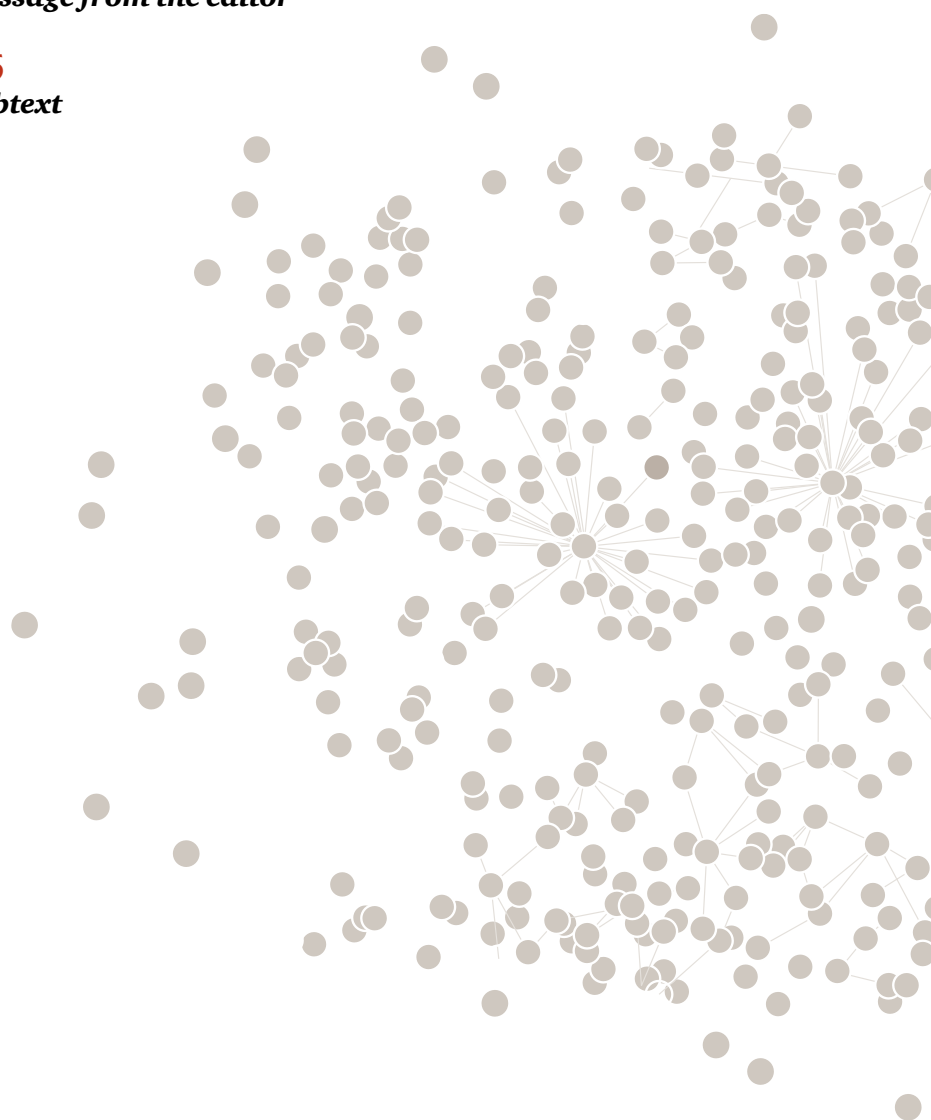
Acknowledgments

04

Message from the editor

66

Subtext



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Tackling the challenge of information overload—with social tools



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Message from the editor

Carmel-by-the-Sea, near Monterey, California, is a quaint little place in a beautiful coastal setting. “A village in a forest overlooking a white sand beach” is how the town describes itself in its general plan. One of Carmel’s quaint features is that its houses don’t have numbers. As a result, the US Postal Service doesn’t deliver mail in Carmel house by house; instead, residents must go to the post office and pick it up themselves. Even express mail delivery services have had to adapt—they use the street name, the cross street name, and the number of houses in from the cross street to direct packages to the right house. This is clearly a system that doesn’t scale.

Back when most people lived agrarian lifestyles in small villages—and rarely left—mail was less essential. But general mobility and the movement of populations to cities created the need to communicate with people you weren’t likely to see very often. Before these migrations, Carmel’s lack of house numbers was fine. Addresses could be loosey-goosey—simply giving the family name or describing something distinctive about the house where the addressee lived would be sufficient.

But today, postal systems must deal with many billions of pieces of mail efficiently and effectively, intended for billions of potential destinations. Providing addresses in the quaint Carmel style would introduce massive overhead. Each envelope would need to be intensively scanned and interpreted, and the people sorting mail would need to have amazing memories for families and the buildings described in addresses. That is why much of the world—where residential delivery of mail to individual houses is possible—uses logical addressing schemes of one form or another. And for the most part, these schemes organize the process very effectively, making it possible for letters to make their way across national boundaries and continents.

Today’s electronic communications don’t suffer from addressing ambiguity or overload. But they are increasingly becoming a problem, as e-mail, chat, voice mail, texting, and, yes, tweets and social network postings gobble up more and more of our time. Between Simple Mail Transfer Protocol (SMTP) and unique e-mail and system IDs, the electronic messages meant for us reliably

arrive and use very little compute resources in the process. The problem is farther downstream. All of us are spending more and more time filtering all of these communications, trying to separate the important messages from those that are simply distractions.

The reality today is that we receive far more invitations to interact in the electronic domain than we ever did in the world of physical mail. Most of us already ignore many of them, leaving unread—and even unseen—vast numbers of electronic communications directed at us. But our approaches are inefficient and inaccurate—we often miss important messages while deleting low-value ones. We're like the poor express mail delivery people trying to figure out which house a package should go to in Carmel.

At first glance you might think that social networks just add to the problem. Most companies today are adopting social networking internally without a good plan for taking advantage of its latent potential. They aren't understanding that each employee's enterprise social network is the best way to filter and manage electronic communications, so that employees attend to them in their order of importance and potential value. In fact, the social analytics available from the leading enterprise social tools are the first addition to the toolset for electronic communications that can actually reduce the overhead of dealing with enterprise communications.

But this latent potential emerges only if your staff engages fully, links to other staff, and follows topics in ways that reflect the priorities of their work plans—and if they comment and interact in activity streams in ways that mirror the focus of their work challenges and opportunities. It's a form of organizational learning and cultural change that has defeated some early adopters of social technologies, often because they were unaware of its true potential.

This issue of the *Technology Forecast* examines social technologies as the solution to electronic communications overload.

“The collaboration paradox” on page 06 considers how an additional layer of information—generated with the help of social tools—can actually help reduce information overload by providing structure and context that connects users and helps them navigate to the content they need.

“Enterprise success with emerging social technology” on page 26 reviews the evolution of enterprise social technology, underscoring the importance of blending social information with workflow from existing applications.

“The CIO's role in social enterprise strategy” on page 48 identifies a middle ground between allowing all use of social networking and disallowing any, advocating an evolutionary approach to balance the need to motivate staff with the business goals that must be achieved.

This issue also includes interviews with five executives at companies and institutions that are fully engaged in long-term efforts to improve collaboration with the help of social tools:

- Tony O'Driscoll of Duke University discusses the role of social technology in Duke's Cross Continent MBA program, an innovative peer learning approach that relies heavily on multimedia for many-to-many information sharing.

- Sameer Patel of Sovos Group provides an overview of the four main categories of enterprise social software, the challenges enterprises face in incorporating this technology into workflow, and the opportunity in emerging technology.
- Tim Young of Socialcast explains what can happen to a workforce's management style when a conversation stream gets blended with workflow from other applications.
- Keith Griffin of Cisco Systems discusses how modifying data architecture can remove obstacles to effective collaboration.
- Sheldon Laube of PwC places today's social technology trends in the context of a 30-year evolution of online enterprise collaboration tools.

Please visit pwc.com/techforecast to find these articles and other issues of the *Technology Forecast* online. If you would like to receive future issues of this quarterly publication as a PDF attachment, you can sign up at pwc.com/techforecast/subscribe. As always, we welcome your feedback and your ideas for future research and analysis topics to cover.







The collaboration paradox

More social information helps the workforce find what it's looking for.

By Alan Morrison and Bo Parker

For competitive advantage in its mission to supply top executives to multinational corporations, Egon Zehnder International (EZI) relies on its ability to share information quickly across regions. Until recently, information sharing at the executive search firm was supported primarily by two formal processes: huddles, in which consultants and staff converse about a candidate or search; and Orchestra, a repository of data about candidates and searches. The two processes—one unstructured and one highly structured—were augmented by phone calls and e-mail.

These processes worked well until the world got flatter and the business pace got faster. Orchestra and the huddles were still useful, but they were no longer quite enough. And phone calls and e-mail—especially e-mail—had become classic examples of the collaboration paradox: they created so much information they actually hindered the speedy exchanges needed to do business.

Bill Hopkins, EZI's director of operations, discerned a gap between the two main processes that needed to be filled with something less structured

than a database, more structured than a huddle, and not as overwhelming as e-mail. And something over which users would take ownership.

"I wanted to eliminate IT as the middleman so the content would be the responsibility of the user community," Hopkins says.

Hopkins decided to give business units a microblogging capability on the corporate intranet, which lets users "round out the conversations" they have. It's still early, but adoption has been brisk, and microblogging has become a small but integral new process.

For years, the business and trade press have been abuzz about the *external* opportunities for social media and for companies to reach customers by using these tools. Much less has been written about the *internal* use of social networking—inside the enterprise. The EZI example illustrates how it is possible to create real value through collaboration using a social media tool internally in a direct, low-overhead way with content owned and defined by the users.

Figure 1: The scope of our research

Our primary focus is on internal communications.



“I wanted to eliminate IT as the middleman so the content would be the responsibility of the user community.”

—Bill Hopkins of Egon Zehnder International

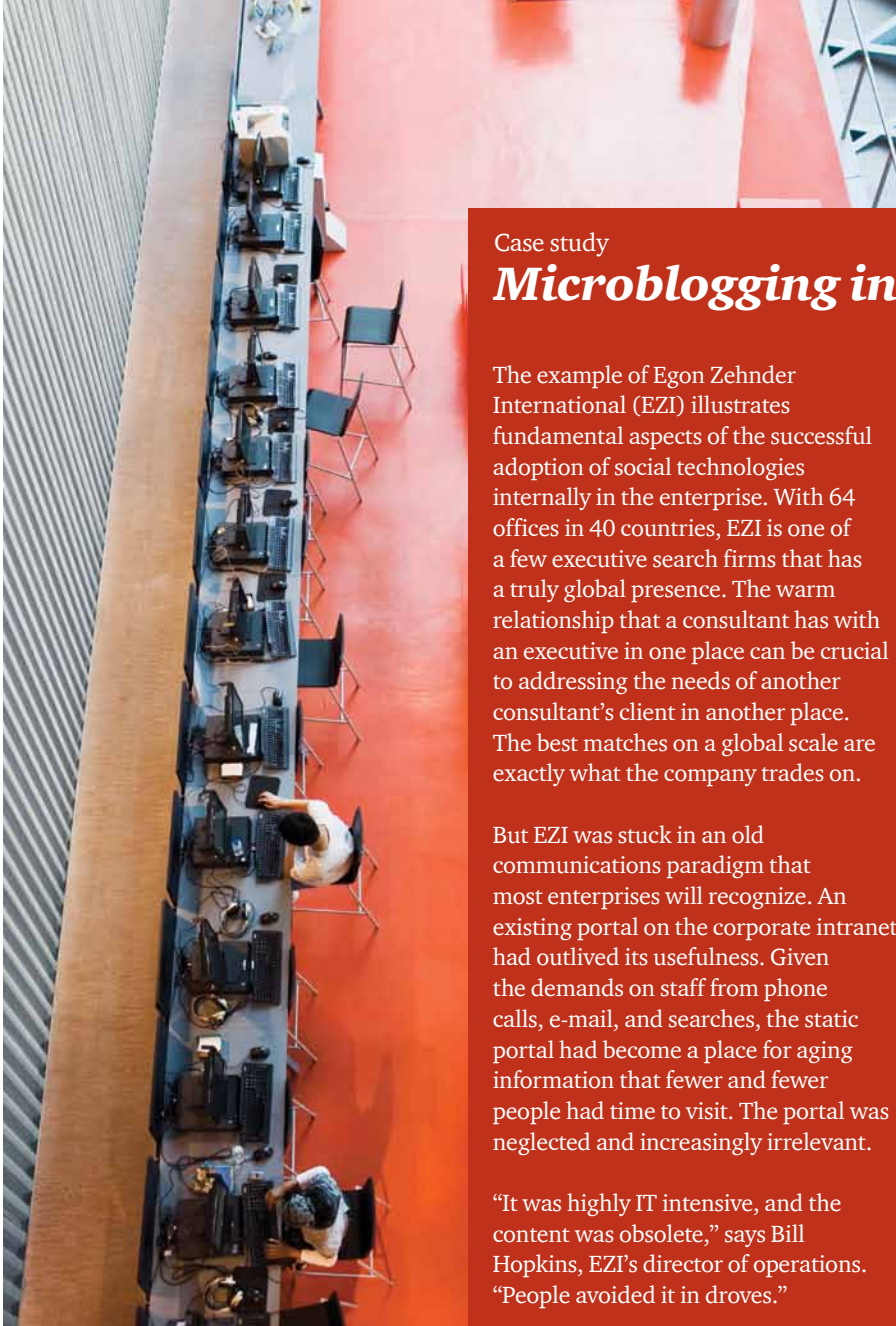
This issue of the *Technology Forecast* explores how social technologies can improve collaboration within the enterprise, especially in day-to-day operations. (See Figure 1 for an illustration of the scope of our research within the context of the broader landscape.) One important factor, as this first article describes, is the need to focus on business unit goals and to use social analytics, including interest graphs, to overcome information overload.

The second article, “Enterprise success with emerging social technology,” on page 26 examines enterprise-class social applications, social analytics, and how functions that are more deeply embedded in the IT stack provide new value. The third article, “The CIO’s role in social enterprise strategy,” on page 48 examines an evolutionary approach CIOs can take with these emerging social networking platforms.

The many-to-many communications paradigm

On one level, enterprise collaboration technology hasn’t changed much. E-mail, groupware, and document sharing have been around for more than two decades. Typically, they started in universities or research labs, and then migrated to business use. For example, after universities demonstrated the utility of e-mail and a standard emerged for e-mail over the Internet, the power of e-mail became obvious. In the early 1990s, businesses began to use it in earnest.¹

¹ The history of the Eudora e-mail client, developed at the University of Illinois in the 1980s, provides an example of this evolution. See “Historical Backgrounder” at <http://www.eudora.com/presskit/backgrounder.html#name>, accessed May 1, 2011.



Case study

Microblogging in a new paradigm

The example of Egon Zehnder International (EZI) illustrates fundamental aspects of the successful adoption of social technologies internally in the enterprise. With 64 offices in 40 countries, EZI is one of a few executive search firms that has a truly global presence. The warm relationship that a consultant has with an executive in one place can be crucial to addressing the needs of another consultant's client in another place. The best matches on a global scale are exactly what the company trades on.

But EZI was stuck in an old communications paradigm that most enterprises will recognize. An existing portal on the corporate intranet had outlived its usefulness. Given the demands on staff from phone calls, e-mail, and searches, the static portal had become a place for aging information that fewer and fewer people had time to visit. The portal was neglected and increasingly irrelevant.

"It was highly IT intensive, and the content was obsolete," says Bill Hopkins, EZI's director of operations. "People avoided it in droves."

The old portal was not going to fill the gap Hopkins saw between the unstructured huddles and the highly structured Orchestra, a combined project accounting and customer relationship management (CRM) system. His vision was to create an interactive replacement for the portal, to be called Symphony. Hopkins knew the keys to success were to encourage participation by the business units and instill a sense of ownership.

As a starting point, Hopkins chose social technology from Socialtext, which includes a microblog application. Launched about two years ago, the strategy was to give the business units a place for short postings that would round out the huddle discussions and augment the structured information in Orchestra. The adaptive, many-to-many user environment of Socialtext gave business units—encouraged by Hopkins—the opportunity to "own" the technology in a way they hadn't before and make it more relevant.

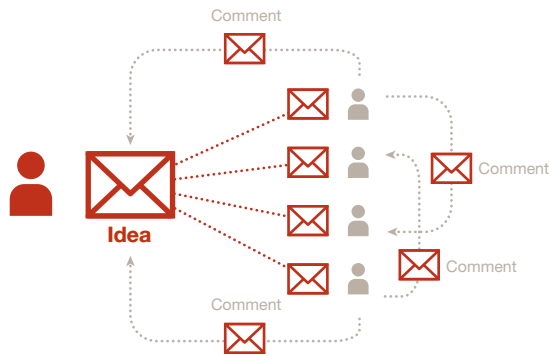
When well designed and implemented so that it delivers relevance and promotes use, enterprise social networking can be engaging, and the technology allows users to adapt it to various needs. Hopkins made Symphony a self-sustaining content system by complementing the existing candidate-search processes. All EZI users—consultants, researchers, and other staff—could use the same tool together.

The early results are encouraging. One of the first benefits to users is an improved ability to locate expertise. "Say I'm working on a search for the shipbuilding industry in Southeast Asia where a key skill is the ability to procure materials," Hopkins says. "The question is, does anyone have experience, not necessarily in shipbuilding, but in materials procurement?" Microblog posts on Symphony can help identify a consultant who knows executives with that experience in that region.

Hopkins acknowledges that Symphony is the beginning of a lengthy path to improve EZI's collaboration capabilities. "I think I saw this quotation somewhere: 'If only we knew what we know.'"

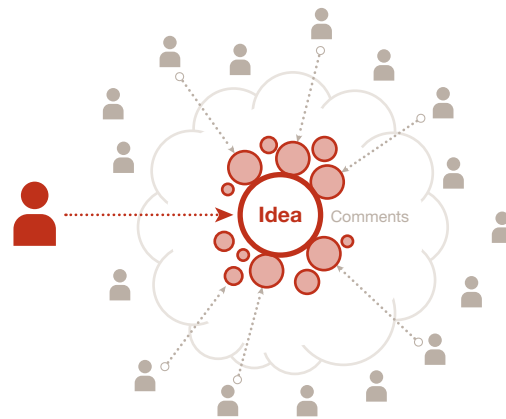
Figure 2: One-to-many vs. many-to-many communications

E-mail, document sharing, and portals are examples of a one-to-many or “broadcast” communications paradigm, depicted on the left. Social technologies, by contrast, use a many-to-many paradigm, as depicted on the right.



One-to-many

- Content is isolated
- Limited to people who received the message
- Disappears over time
- E-mail groups must be constantly managed



Many-to-many

- Content is persistent
- Available from anywhere, to everyone, at any time
- Groups are created organically by following

Social technologies, which introduced a many-to-many communications paradigm, have also been around in some form for decades. Figure 2 contrasts one-to-many with many-to-many communications. The latter paradigm started with online bulletin boards such as the Whole Earth 'Lectronic Link (WELL), a dial-up bulletin board that Stewart Brand, creator of the Whole Earth Catalog, established in 1985. Mitch Kapor, the founder of Lotus Development, which funded and then bought the Notes collaboration environment, was an early WELL user.²

Many-to-many information sharing leverages inexpensive communications. As the cost of posting messages to any number of people and making the messages persistent approached zero per message, the advantages of the media became clear. Billions of people now have the ability to post and have their messages read anywhere at any time after the posting.

The many-to-many paradigm has clearly evolved. Blogs, microblogs, wikis, and the like appeared, and now suites combine these tools. As the article, “Enterprise success with emerging social technology,” on page 26 describes, enterprise tools are available that move beyond secured versions of Facebook, Twitter, or other social applications that have not been optimized for business.

In spite of today’s capabilities, most enterprises still *are not* posting much many-to-many information internally. Instead, they send lots of e-mail, creating blizzards of low-relevance information through indiscriminant distribution lists, and often failing to reach those who might have the best answer to a question. Social technology, plus analytics, can change that scenario by helping companies find the sweet spot between too much and not enough. Figure 3 illustrates how consumer social media trends have influenced enterprise collaboration.

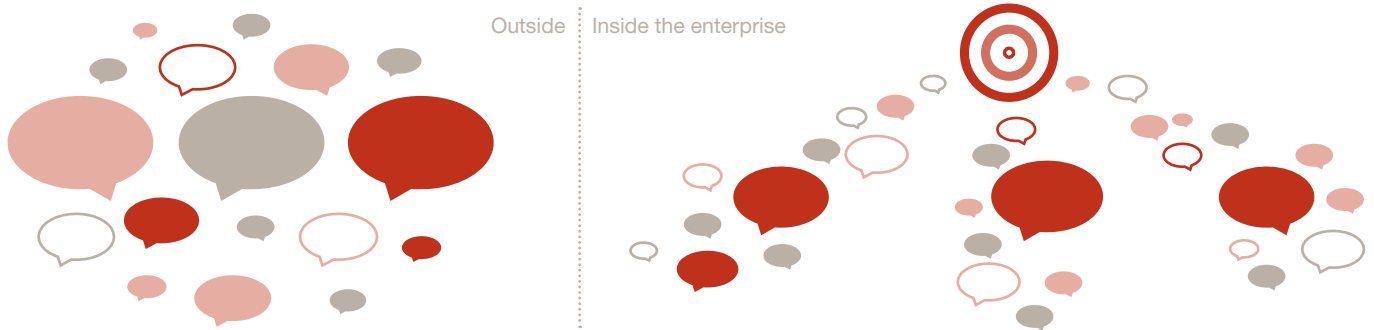
² See Steve Jones, ed., *Encyclopedia of New Media: An Essential Reference to Communication and Technology*, (Thousand Oaks, CA: Sage Publications), 172ff, and “The History of Notes and Domino,” IBM developerWorks, <http://www.ibm.com/developerworks/lotus/library/ls-NDHistory/>, accessed May 1, 2011.

Figure 3: Social media's influence on enterprise collaboration

Many-to-many social technology used by consumers influences how enterprise collaboration occurs, but the impact is not as direct as some might expect.



Historically, many tools have been used both outside and inside the enterprise. Social media, however, undergoes dramatic transformation when used for inside-enterprise collaboration. The activity stream is where the similarity ends. The means of adoption are different and must be aligned with business goals.



Inside an enterprise, the ability to filter the internal information and extract what's essential is more significant than ever. If you're an EZI consultant, the right posting from another consultant you don't know might mean the difference between no fee and a substantial commission.

Collaboration tools have matured, but the main question continues to be, as PwC Chief Innovation Officer Sheldon Laube puts it: "How do you make teams more effective through the use of technology?" Implied in that question is another question: how do you expand the reach of the teams?

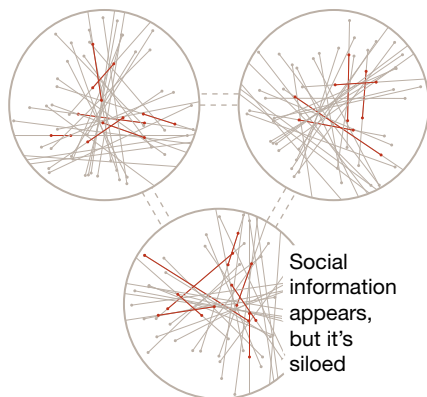
Laube sees this as the perennial issue, one that predates the web. Laube, who evaluated Lotus Notes in the mid-1980s and bought the first 10,000 seat licenses that Notes issued when he was CIO at Price Waterhouse, says, "That's why Notes was brought in, and that's what Tim Berners-Lee [inventor of the World Wide Web] had in mind. The web was a collaboration environment. The world of collaboration was set back by a mere 15 or 20 years because the web turned into a one-way publishing environment, instead of a collaboration medium."

Another big issue with the many-to-many platforms, whether they're team collaboration tools such as Notes or newer social software suites, is that they function separately from the rest of the IT fabric. (See Figure 3.)

Enterprises that diagnose what's wrong with internal collaboration and prescribe a many-to-many cure are trying to weave social networking into the IT fabric in a complementary way. They are also working on the organizational aspects of creating incentives, reengineering processes, and using analytics to make the information flows relevant to specific groups and individuals. This approach promises two advantages: (1) a single place to work, and (2) a means of creating context, a significant component of knowledge sharing that's historically been lacking.

Figure 4: The social graph's impact

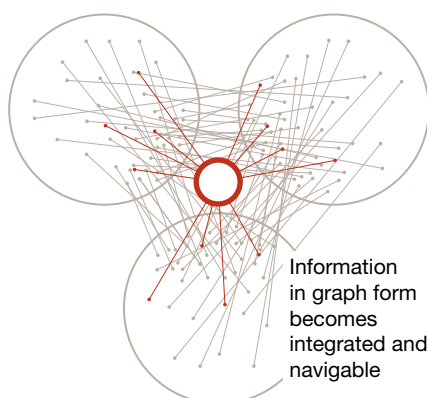
Divergent phase



Convergent phase



Navigational phase



How context creation with the interest graph can help overcome information overload

What's new about enterprise collaboration is the capability to create and share more context. This starts with the many-to-many paradigm that tools such as Facebook and Twitter have popularized, but it doesn't end there. Sameer Patel, a partner at Sovos Group, a social technology consulting firm, describes the shortfalls of earlier approaches that did not include this capability:

"The fundamental problem with those old collaborative systems was that they were devoid of context. You would see stuff thrown at you and it was not really tied into your daily flow of work. You were expected to go into these knowledge bases that are separate from where you might live," Patel says.

"You might be a call center rep who is living in a call center application, or you might be someone in the finance department living in ERP [enterprise resource planning] financials. These are very disconnected worlds, and the process apps focused on taking you through your processes. The knowledge management was just sitting in a vacuum."

Context creates relevance. And after decades of data proliferation, relevance is finally a hot topic, even on the consumer side. In March 2011, *TechCrunch* proclaimed "The Age of Relevance," noting that several of the newest social media platforms focus on creating an "interest graph," a map for navigating to subjects and people of interest. The author, Mahendra Pasule, asserts that "Social media may lose its obsession with follower numbers and traffic, evolving to context-driven reputation systems and algorithms."³ Vendors of enterprise-class systems are engaged in similar efforts.

The interest graph is a superset of the social graph, a people map. The interest graph includes people, things, and their linkages, and it helps users navigate the information thicket.

Since the 1980s, enterprises have endured unprecedented information overload. This was the first phase of social technology—the divergent phase, in which people learned to expose information in willy-nilly fashion in silos. Within the silo, there was a limited amount of context; between silos, there was even less; and then the silos proliferated.

Enterprises have recently entered the convergent phase and are learning to purpose the social information by design. Vendors enable the embedding of social technology in systems as well as the localization of the information. The potential for relevance increases, but the information is still not as relevant and accessible as it could be.

Within a couple of years, PwC expects the navigational phase to begin in earnest. (See Figure 4.) Relationships between people, and between business issues and people, will become more explicit in the form of self-managed interest graphs. The interest graph will become the means for finding what's relevant. It's important to remember that the addition of the social information layer and the ability to structure that information along with other information in graph form are what provide the additional context. With this additional context, companies can confront and reduce information overload. Business success in using the interest graph will depend on how well it is understood and built for the purpose.

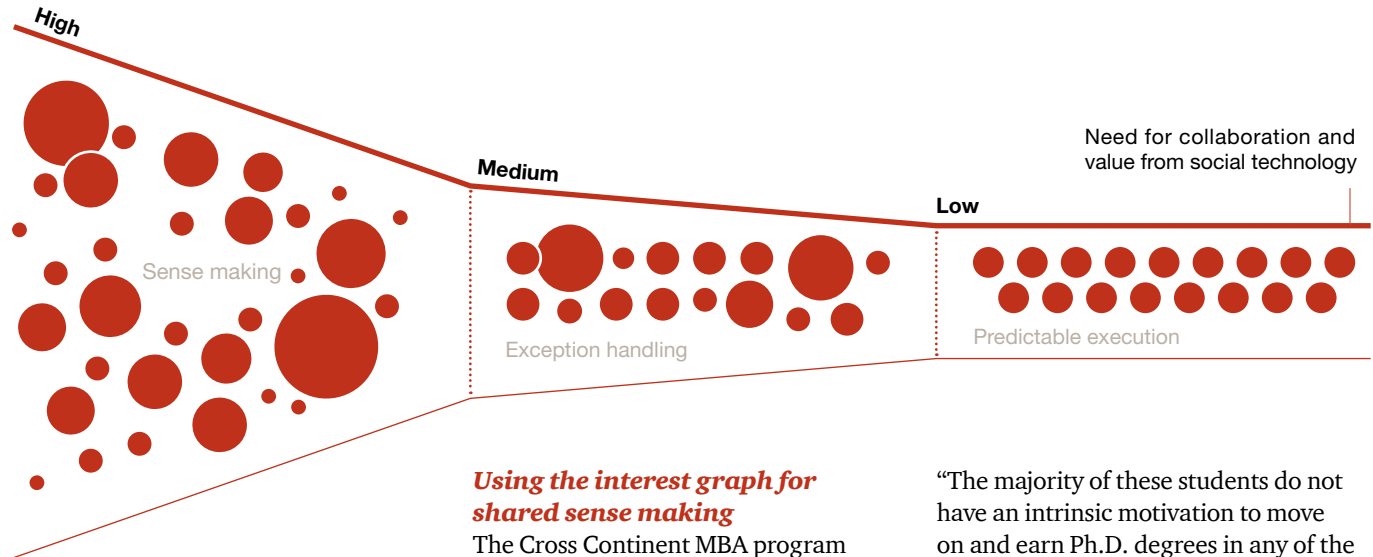
³ Mahendra Pasule, "The Age of Relevance," *TechCrunch*, March 3, 2011, <http://techcrunch.com/2011/03/03/the-age-of-relevance/>, accessed May 2, 2011.

The 160 students enrolled in the Duke University Cross Continent MBA program come from more than 25 countries and have at least three years of work experience. The experience lends itself to a peer learning environment that socially networked multimedia facilitates.



Figure 5: Sense making vs. exception handling and predictable execution

Collaboration tools that benefit from social technology dwell more at the sense-making and exception-handling end of the continuum, where processes are more ad hoc, and have fewer repeatable components. Adding social technology into the same workflow window with predictable execution tools (such as ERP) allows users to do ad hoc work with less disruption.



Using the interest graph for shared sense making

The Cross Continent MBA program at Duke University, in which Tony O’Driscoll teaches, is a prime example of the way that many-to-many communications can be used in education and business. The 160 students enrolled in his 16-month program have at least three years of work experience. The program is an innovative spin on distance learning. It begins in person as the students and faculty gather for 10 days in a city such as New Delhi, and it continues online after that.

Once they arrive, O’Driscoll engages the students with a blitz of media collection, sharing, and critiquing. He kicks off the peer learning program on a rich-media blog to trigger commentary and engage the students in peer dialogue before they meet in class.

“The majority of these students do not have an intrinsic motivation to move on and earn Ph.D. degrees in any of the business disciplines, but rather to make a difference in the global work context,” O’Driscoll says. “The key to tapping into their motivation is to discuss the societal, political, and economic issues that they will encounter in the region.”

Getting students to share their own experiences is a major objective of the program. “It’s really important to tap into that well of experience from people who have lived and worked all over the world. We want to leverage the experiential wisdom of the group so they can become leaders of consequence by really understanding how history and culture influence how institutions work and how markets function in each region,” O’Driscoll says.

The program integrates a number of social networking platforms that allow many-to-many multimedia sharing—for the collaboration and peer learning. O’Driscoll insists that every deliverable gets posted and that students review each other’s work. “Anybody who writes anything, whether individual or team, is now exposed in the commons. And everybody is required to review three deliverables other than their own and rank them,” he says. (See the interview with O’Driscoll on page 18.)

O’Driscoll describes this process as shared sense making, and he contrasts it with e-mail. When he was a researcher at IBM 15 years ago, he was involved in a project to reinvent e-mail. “E-mail was killing the humans, and it was killing the networks. E-mail was killing the humans, reducing them to information workers playing Whac-A-Mole with digital data. Workers are just essentially prolonging the inevitable by drinking more coffee and whacking more e-mail moles. We’re going to lose that battle.”

O’Driscoll’s other insight is that organizing and responding to e-mail messages doesn’t equal accomplishment. In contrast, shared sense making is an accomplishment in and of itself, one that does not demand that you respond to every message. For each assignment, students are required to critique the work of three other students. That’s it. The program is not about digesting large amounts of material. Instead, the goal is to instill the “capability for discernment” in students. Discernment plays a large role in enterprises, where sense making is on the more ad hoc side of business process—a side that could use substantial improvement. Figure 5 considers sense making within the context of other parts of typical enterprise workflow.

Taking advantage of new tools at enterprise scale

In recent years, a few enterprises have targeted information overload by changing the communications paradigm entirely. Their methods are comparable to what O’Driscoll does in his program. To accomplish this paradigm change at an enterprise scale, these enterprises have adapted both the tools and their organizations.

Cisco Systems uses its own system internally. Since the software was installed, it has become an alternative to e-mail. Lead architect Keith Griffin points out that users can tune and reconfigure the way information is displayed via the system’s interface, so only the sources need appear. “We don’t, by default, connect everybody to everybody. They discover each other in the organization,” Griffin says. “I have my blog aggregator, where the blogs I’ve chosen appear. Then I have my watch list.” Participants can add each other to conversations, and after that point, they end up in the watch list, too. (See the interview with Griffin on page 42.)

Griffin says the “follow” model allows a flexible asymmetry that’s suitable for corporate hierarchy. “If any given employee in an organization sends a contact request to the CEO, the CEO is not going to answer everybody. The follow model is more appropriate in that case. Everybody is interested in what the CEO has to say and will follow that person, but the CEO does not necessarily need to connect in that contact type of mode. It’s important that we get the underlying data model right, so that we can look at those different relationships.”

“We don’t, by default, connect everybody to everybody. They discover each other in the organization.”

—Keith Griffin of Cisco

“What’s intriguing about these tools is that you can have a touch point to an existing process where people can work in an unstructured manner using Web 2.0 tools to achieve the goal in a certain task. Then they can return to the process and keep moving on.”

—Dick Hirsch of Siemens IT Services and Solutions

The self-organizing graphs generated by employees enable navigation to a relevant interest. Because of the interconnected interest graph enabled by the system’s data architecture, search retrieves “a three-dimensional view of people, communities, and information,” Griffin says.

Other tools like SAP’s StreamWork also enable the interest graph. They connect to the Lightweight Directory Access Protocol (LDAP), which serves as the kernel of a user’s online identity and moves out from there. “LDAP becomes your system of record from the standpoint of who you are,” says Holly Simmons, senior director of marketing for StreamWork. “StreamWork is the front end for the back-end collaboration we already do.”

From the user’s perspective, once that social graph is connected and the functionality is accessible to those who need it, ad hoc collaboration directly in StreamWork becomes possible. It’s a new capability, even to those inside SAP.

“Before, I would have built a presentation slide deck with the team through e-mail. We would have searched for version control and who had the latest comments and did we incorporate everybody’s comments. There probably would have been at least 100 e-mails, plus 15 different versions of the deck,” says Jack Miller, global vice president for collaboration and cloud analytics at SAP. “This time we built that entire presentation inside the tool, so everybody’s comments are captured in one place—the latest version. We were able to build this entire CEO-level deck without going through e-mail.”

What this example implies is a way to take processes apart, add a more ad hoc piece of the flow to them, and put them back together—not unlike business process reengineering. But it’s a different part of the work process that’s being addressed. Dick Hirsch, senior consultant for Siemens IT Services and Solutions, puts it this way: “What’s intriguing about these tools is that you can have a touch point to an existing process where people can work in an unstructured manner using Web 2.0 tools to achieve the goal in a certain task. Then they can return to the process and keep moving on.”

From the experiences of Cisco and SAP in using their own tools, two reengineering elements seem crucial: (1) the data architecture that gives structure to the interest graph, and (2) the ability to add a more unstructured flow to an existing work process. Without both, companies won’t be able to alleviate information overload.

Seize the actual potential and ignore the fluff

Enterprises are in dire need of help with information overload, but soon they’ll be able to use the collaboration paradox to their advantage. With the enterprise-class social tools that are becoming available, organizations can start to eliminate the bad communications habits they’ve developed with e-mail, document-centric websites, a broadcast-only information model, and siloed application stacks. In their place, enterprises will be able to start building a social information layer, and in the process they can surface identities and relationships that can bind corporate information together. Given the right architecture and the use of identities and relationships, the workforce will be able to navigate to more relevance.

Some vendors are leading by example. Cisco has moved beyond e-mail to a new communications paradigm, a renewed data infrastructure, and a work style with less overload. With StreamWork, SAP is adding a sense-making component to its workflow, one that's blended with the applications.

Internally, both vendors are moving beyond what most enterprises have done. Enterprises need to follow their lead by tapping into the real power of these tools, rather than adding yet another channel to a collaboration environment that's already overly complicated. They need to understand the vision first, and then do the hard work.

Early adopters of best-of-breed systems also provide an example to follow. By using Socialtext, EZI complemented processes that already worked. Socialcast, another vendor, has manufacturing clients that make the activity stream part of their workflow by sharing the designs they are working on. PwC, with initiatives such as iPlace, creates highly focused internal interactive environments. The relevance, incentives, and the process for participation are built into each online initiative.

Today, the most powerful capabilities are localized. Duke University's Cross Continent MBA program has a lot of inherent flexibility as a relatively small and autonomous effort. In time, enterprises will get better at extracting value from social technology at scale, and the security model will evolve so the extended enterprise—partners included—will benefit. The first step will be to take the component parts—a different communications paradigm, a new way to blend IT resources, and an evolved data architecture—and work at a small scale to discover how they function best given specific enterprise challenges.

Enterprises are in dire need of help with information overload, but soon they'll be able to use the collaboration paradox to their advantage.

Building a new learning environment around social tools

Tony O'Driscoll aligns social technology's strengths with the way people learn today.

Interview conducted by Alan Morrison, Bo Parker, and Bud Mathaisel



Tony O'Driscoll

Tony O'Driscoll is executive director, Center for Technology, Entertainment and Media, Fuqua School of Business at Duke University. His business background includes previous leadership positions in the strategy and change consulting practice at IBM Global Services and at Nortel Networks.

His most recent book, *Learning in 3D: Adding a New Dimension to Enterprise Learning and Collaboration*, which he co-authored with Karl M. Kapp, was published in 2010.

PwC: Are you teaching currently?

TO: Yes. I'm teaching in the Cross Continent MBA program, which is one of the places we're using social technology. It's a 16-month MBA program where we travel en masse to six different areas of the world and spend 10 days on the ground embedding ourselves in the region. Afterward we try to make sense of what just happened, before we do it again in another area. It's an intense kind of immersion and reflection, where our students are embedded in the region first, and then through distance-based introspection they try and make sense of the experience they just went through.

More than 25 countries are represented in the 160 students enrolled in the program. They bring with them that international experience as well as at least three years of business experience.

PwC: How do you use social technology in that program?

TO: We use a peer learning approach that relies on socially enabled technologies. For example, after we arrive in a place, I send the students on what I call a Culture Dash. Each team has a video camera, and they are given that afternoon to go around to predefined landmarks that have historical significance. They interview people about the societal, political, and economic transitions in those places.

Minimizing e-mail

The number of e-mails Tony O'Driscoll did not reply to because he's started to give up on the medium.

7,000

They take that four hours of video and jointly edit it down to a five-minute movie. The final product gets posted, and the teams review each others' videos. This way, we try to extract the experiential wisdom of all these people and share it with others, so they too can be leaders. We encourage the students to tune in quicker, to understand whatever city they go into by really understanding the culture, and to see how institutions work there and how markets function there.

The future of learning is shifting from pouring knowledge into individuals' heads to enabling them to tune their networks to solve unanticipated problems as they confront them. My job is to get the network of students to use social tools to tap into each others' experiences around the key objectives. That's what the younger generation is doing; they are tuning their network to the problem at hand. The classroom paradigm is increasingly being pushed into a corner, and the place where learning has to happen is increasingly emerging at the moment of need in the workflow context of an increasingly complex and uncertain business world.

PwC: So you don't rely much on traditional classroom methods?

TO: Around the edges I do, but not at the core. I decided to get rid of the pre-reads, the "box of doom" as the students called it, that we sent the students two weeks before they had to show up. That translates into hundreds and hundreds of pages of dead trees.

I decided to do away with all that, and instead I use the technological affordance called a blog. The students read the blog beforehand.

You need to motivate students up front. I use public domain sources such as YouTube, Big Think, TED, or FORA.tv, and I find material to seed serious conversation about the issues that the world faces today. I post a link to two and a half minutes of Fadi Ghandour [CEO of Aramex] talking about the Arab Spring, for example, and that prompts a whole bunch of questions. As the blog administrator, I can track activity and monitor the comments. And I do a lot of polling. I can see who is having what kinds of conversations, know where people are getting stuck or not, and get ideas for class discussions.

So when I go into class on Monday morning in India or wherever we are, I'm not going in cold. With the social platform and presence and identity baked in, I can track all of the activity, I know what's going on, and I am clearly much better prepared to add value to their learning experience.

PwC: What lessons can enterprises take from this sort of example?

TO: They can introduce alternatives that are better suited to specific tasks in a very similar way. When I was an IBM researcher at Lotus 15 years ago, we did this big project called reinventing e-mail. E-mail was killing the humans, and it was killing the networks. It was killing the humans, reducing them to information workers playing

Whac-A-Mole with digital data. Workers are just essentially prolonging the inevitable by drinking more coffee and whacking more e-mail moles.

We're going to lose that battle. No doubt about it. If you look at how information is expanding and proliferating, and you put that into your inbox, you can see that's not going to work. To deal with the volume, you organize all your e-mails into folders. Moving bits around on a screen this way might help you feel better, but I don't know how much that sort of activity contributes to anything.

I'm both frustrated and proud of the fact that last year there were 7,000 e-mails that I just did not respond to. I have literally started to give it up as a medium. Everything outlives its usefulness. Even back when we introduced Sametime, there was a 20 to 25 percent drop in e-mail. Instead, people were using Sametime to ask each other, "When can you meet?" You could respond with, "I can meet at this time." That was it.

PwC: How are different people responding to the same set of tools? The students in the Cross Continent program may have totally different frames of reference.

TO: I haven't seen any variability in different regions in terms of their interest in using the tools. There's an overriding motivation, one that says that I have made a decision to do this and I'm really excited to connect with people.

Benefits of social technology

Tony O'Driscoll no longer has to parse through 40 channels of TV or push through 700 e-mails.

40

700

I take advantage of the fact that the students are enthusiastic and they haven't become jaded yet. I wouldn't suggest trying to change your technology platform to be socially based toward the back end of somebody's MBA degree, because they are focused on getting their degree and getting the hell out. But you can take this unbridled enthusiasm and bring it into a social context that establishes the norm for how things are going to work.

Where it gets interesting is that everybody submits their deliverable to the commons and everybody else can see it. That's different, because in the traditional world, everybody submits the work they're assigned to the professor, and the professor makes a value judgment as to its utility and correctness. The students submit the work in a very secure environment, and they can choose to share it or not share it.

In this new context, by comparison, anybody who writes anything, whether it's an individual or a team, is now exposed in the commons. Everybody is required to review three deliverables other than their own and rank and review them. That's a little foreign, and there's a fair amount of pushback on that. People say, "What do you mean, other people can see my stuff?" And I say, "Well, that's how peer learning works."

PwC: In the broad generic world of Facebook and Twitter, there seems to be two kinds of people. Some people adapt very quickly to broadcasting their thoughts, ideas, and feelings. Others sign up but rarely post, if ever. Do you run across that with your students? What's your strategy?

TO: I have a contribution grade that amounts to 10 percent of the total grade. Essentially, the grade is designed to encourage them to contribute. Learning and adaptation are two sides of the same coin. The minute you stop learning, you stop adapting; when you stop adapting, you die.

That's one of the really interesting things about human beings—if I ask you right now to stop learning, you can't. You are a sense-making machine. That's why we are here and dinosaurs aren't. And we have the capacity to adapt faster than before. The clock speed of technology is jerk speed, and it's jerking humanity around because it's working at a different clock speed from what we are used to. Our clock speed is relatively constant over time.

What social technologies do is change the paradigm for attention management. In the old paradigm, I would parse through the 40 channels of TV or try to push through 700 e-mails a day. Now I can crowdsource attention by essentially having human beings I trust and value give some seal of approval to some piece of content that I think I might want to engage in.

Most important is the activity-based computing paradigm that allows an artifact within the ecosystem to be its own beacon. In this case, the project plan is the artifact—it's broadcasting an activity stream to me. It tells me something just happened to it, such as when someone I know touches it. From that stream, I can pretty much figure out where and when I might want to pay attention.

That broadcasting increases the efficiency with which you manage your attention, but it doesn't account for the fact that the inputs to those attention management systems are moving at jerk speed and our ability to process is not. So it's buying us some time, but it's insufficient to address the larger issue.

PwC: So are we just exchanging one nonscalable environment for another?

TO: It's a digital divide of a different kind. Our ability to process information is constant, but the amount of information that requires processing is increasing exponentially. Collective sense making is one way to bridge this divide. By tapping into social networks and using more precise information parsing methods, we can certainly be more effective than we have in the past.

PwC: To get to that point will require more than just moving Twitter or Facebook inside the enterprise.

TO: It will. We have seen very productive activity on Twitter or Facebook, but the incentives are different. People raised money to send to Haiti, or to help with the tsunami in Japan, or the oil spill in the Gulf of Mexico. We saw all of these spontaneous aggregations of cognitive ability being put toward a common humanitarian purpose.

The motive in this kind of social context is altruism. It's to help others. By contrast, the motive in a business context is all about profit.

Enterprise behavior is different. You can't take the same social technologies and plop them into a profit-making context and expect that people will immediately engage. The question is, once the underlying motivation shifts from purpose to profit, will the motivation to engage persist?

“Where it gets interesting is that everybody submits their deliverable to the commons and everybody else can see it. That’s different, because in the traditional world, everybody submits the work they’re assigned to the professor, and the professor makes a value judgment as to its utility and correctness.”

How online identity and context become productivity drivers

Sameer Patel of Sovos Group places social technology in the context of software that enterprises already use.

Interview conducted by Alan Morrison and Bo Parker



Sameer Patel

Sameer Patel, a partner at Sovos Group, has consulted on enterprise collaboration strategy and technology planning for more than 13 years, starting at USWeb (marchFIRST).

PwC: What are the more recent challenges companies have been facing on the collaboration front?

SP: The fundamental problem with those old collaborative systems was that they were devoid of context. You would see stuff thrown at you and it was not really tied into your daily flow of work. You were expected to go into these knowledge bases that are separate from where you might live.

You might be a call center rep who is living in a call center application, or you might be someone in the finance department living in ERP [enterprise resource planning] financials. These are very disconnected worlds, and the process apps focused on taking you through your processes. The knowledge management was just sitting in a vacuum waiting for you to associate context.

The true value of enterprise social computing will come from bringing data, content, and people together in the context of business activities. Context is not just a general-purpose content management effort or a knowledge management effort. Online collaboration needs to be embedded in the flow of work to get you to the end goal more effectively, as opposed to yet another place for workers to remember to go to.

PwC: What's your take on the current generation of tools and how they're moving toward that goal?

SP: You've got four camps, really. In the first camp, you have the general-purpose tools that typically come from the startup community—that have garnered inspiration from consumer social tools, but are fitted for the enterprise context. In the second camp, you have the HR vendors that have been selling learning and performance management, as well as the whole HR suite. Their message is that because effective use of social technology is ultimately about people and the workforce, they're the ones best positioned to push this to you.

The third camp is ERP vendors that help organizations complete a critical process in context—the SAPs and Oracles that build process-oriented systems. Salesforce.com, obviously, is one of these. Even though the company doesn't have the entire ERP suite, it has Force.com—you can get every single conceivable ERP component from Force.com. IBM and TIBCO with tibbr can ultimately go in this camp, too.

Then the last camp is the unified communications companies. Cisco, for example, bought WebEx; has figured out video, face-to-face, online conferencing, and Voice over IP; and is now broadening the solution to include text-based engagement and collaboration.

That's essentially the lay of the land starting out.

PwC: That being the landscape, is there an inherent advantage in any one of the camps over the others?

SP: I work for a consulting firm and so do you guys, so I'm going to say, "It depends." There are tradeoffs. If you come from the process side (as a product company, for example), you have a focus that will always force you to be very disciplined about having context built in to how fluid collaboration and people connectivity can fill gaps in a traditional workflow-laden design.

A professional services company, a very people-centered business, tends to go with the central suites, whether they buy IBM Connections or Jive. It's not about sitting in ERP screens all day long; these companies don't have the same sort of workflow that a typical product company has. Less structured knowledge is the asset. So there's a big focus on using collaboration suites to reuse knowledge and improve project margins.

The HR system marketing folks may make it sound like the HR management system is neatly tied to the social technology. It's just not there yet, but I suspect they'll get there in the next 6 to 10 months. Chief HR officers will say that the stream needs to be embedded into the HR management system, because ultimately they're the ones who manage all the performance reviews, allocate resources, and manage talent and learning. And there's certainly merit to that.

At best, one or two of the standalone platforms will continue to remain alone. The enterprise software vendors will offer a social information layer as part of their content management stack. Oracle has an entire content business; so do SAP and IBM. These tools will become part of one stack (either from one vendor or via tight partnerships) that will give you content management, document management, knowledge management, and social connectivity.

PwC: What about inhibitors?

SP: One issue the media doesn't talk much about is the participation problem with some of these tools. Companies go through the hype phase and the excitement of buying Facebook-like tools for the enterprise, and then they don't know what to share. People slow down their usage, and then they stop posting their status updates because they're not seeing the value of it. This is one of the problems when participatory intent is not clear to the user and when the social platform is largely decoupled from contextual work.

The information sharing problem

End users aren't necessarily interested in information sharing; they are interested in making 50 customer calls a day.

The participation issue is a symptom of a deep problem with a lack of business alignment and participation incentives. These issues should be addressed before the software is rolled out. A lot of enterprises wait until the switch has been flipped to then figure out how they will get people to use it. They've really not done the proper planning or gotten the right groups to understand how it facilitates the core process they're responsible for.

People are not measured on which tool they use; they're measured on getting their work done. You have to have that alignment, which is one of the biggest issues. People will hide behind culture and other challenges such as the Millennial argument, which has some truth to it but not nearly as much as they say. The problem is that the "What's in it for me?" factor has not been identified for these users.

Another big issue is just good old politics 101. A lot of the activity and effort that's been evident so far has been emergent. For example, pockets of the company will go off and get their own accounts, and usage will start to gain some steam in engineering or in a product development group. Even if this thing starts to show promise, executives often will not get behind something that they can't take full credit for. So, if they can't say that they invented it and they're the ones who brought it to the company, then they don't get all the points for it.

The third problem is from a marketing standpoint. Often, vendors will sell stuff to an IT director or a CIO, and they present general-purpose benefits that make a lot of sense to a forward-thinking IT executive. After the purchase, those same marketing materials from the vendor are used as selling materials to the end user. When end users look at some of these nebulous outcomes, such as "Share more; it's better," they say, "All this information sharing doesn't matter to me; my target is to do 50 customer calls in the day and go home." Those outcomes need to be translated into why it makes sense for them, so there's a lot of that confusion.

The fourth problem, and this is probably one of the biggest, is I've never met a CEO or another CxO who is going to say, "We don't want to innovate and we don't want to share knowledge." The problem is that they'll often tell someone in their executive team, "OK, we're going to do this. Who's going to take ownership of this thing?" Everyone's going to look around, nod their heads, and say, "This is a fabulous idea, Bob. Why don't you take it?"

At the CEO level, of course they want more innovation and sharing, but every person sitting in that room is in charge of quota, pushing product out the door, growing a geographic footprint, and the like. That's where broad, nebulous goals such as improve innovation and sharing start to get difficult to execute. This goes back to articulating the value of social and collaborative approaches and technology in the context of known performance headaches and opportunities that executives face today.

PwC: These are systemic inefficiencies of some sort?

SP: Yes. We've been living in this myth that stuff that happens at companies is very repeatable. We put all these CRM [customer relationship management], ERP, and MRP [materials requirements planning] systems in place thinking that they're repeatable processes and we can get repeatable value out of the systems. The truth is that every single process in the enterprise is not as repeatable as we would like it to be. People have questions along the way.

ERP systems have boiled down every single business application to a submit and a cancel button, when really what users want is a giant discuss button sometimes. Users don't know the right answer sometimes, they need to get help, and they need to find the right people to help them. That need is more acute in some processes than others, for example, in areas of the company where there are inefficiencies, where products haven't gotten out the door, or where the quality is lower.

Until it's clear that social and collaborative approaches and tools can address big problems and can have operating and financial benefit, it will be challenging to make them C-suite imperatives.

“I’ve never met a CxO who is going to say, ‘We don’t want to innovate and we don’t want to share knowledge.’ The problem is that they’ll often tell someone in their executive team, ‘OK, we’re going to do this. Who’s going to take ownership of this thing?’ Everyone’s going to look around, nod their heads, and say, ‘This is a fabulous idea, Bob. Why don’t you take it?’”

PwC: Speaking of finding people who can help, that issue seems tied to a lack of online individual identities in a company. If the identities of each individual in the workforce were visible, how would that help?

SP: This battle will ultimately be won on identity management. Beyond usability as a differentiator, many elements in the enterprise social software suite are becoming commodities. The magic will happen when we tie in implicit and explicit profile data elements of our individual public and historical profiles with our enterprise social profiles and, of course, HR. That’s when your colleagues and others get a true sense of who you are, what you think you’re good at, and, just as important, what the community thinks you’re good at.

Social software can essentially help companies meet their performance objectives in much more efficient ways by facilitating connection and discussion. Once that becomes obvious, it will be surprising how many people are willing to engage.





Enterprise success with emerging social technology

Innovators are learning to build graphs to help users locate the information they need—and each other.

By David Kelly, Heather Ashton, and Alan Morrison

Mention social technology or social networking, and most people think of consumer-driven applications such as Twitter or Facebook. But some organizations realize that Facebook, Twitter, and their secured equivalents inside the enterprise are just a catalyst for deeper changes that must be made to collaboration tools and methods.

Improving *how* work gets done is a bigger challenge than adding a social networking activity stream to the IT mix. Some aspects of that challenge are technological, as this article describes. Others, as the article, “The collaboration paradox,” on page 06 explains, involve a change in strategy or are mostly organizational in nature. Still others, as the article, “The CIO’s role in social enterprise strategy,” on page 48 considers, require IT leadership that must be evolutionary in approach.

Over the next decade, businesses that seek competitive advantage from more effective online collaboration will need to acquire a keen awareness of what these changes involve and how they’re materializing. Most businesses already use some type of externally facing social technologies, typically for lead

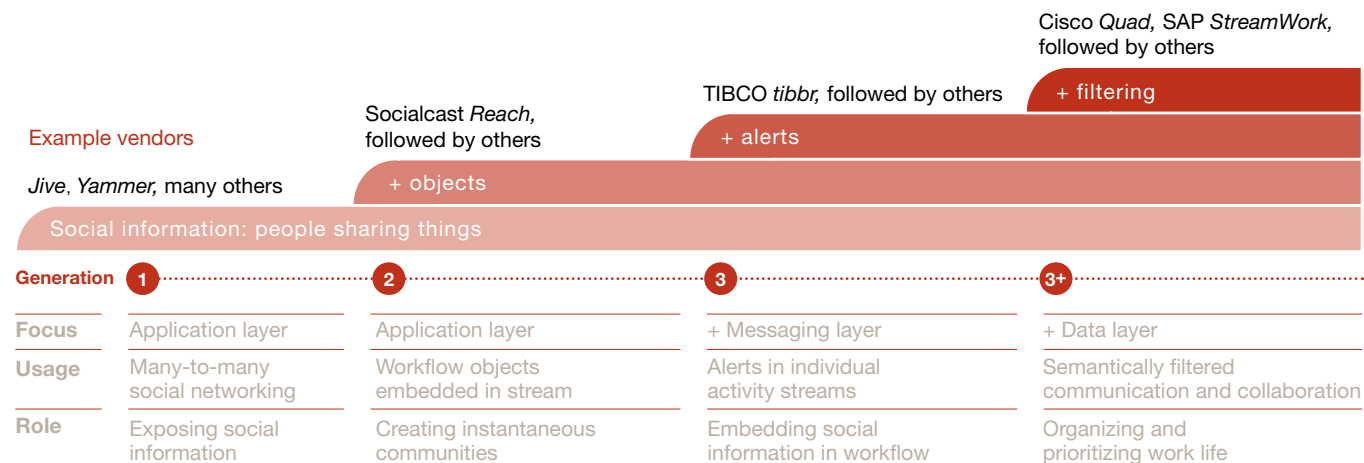
generation, brand identity, customer service, or marketing purposes. The possibilities for internal applications of social technology are much broader, but they are less obvious, slower to emerge, and have significant architectural and organizational implications that many businesses may not have sufficiently explored.

New generations of social technologies—when coupled with clear vision, good planning, and effective execution—have the potential to change the way business is done. If they aren’t already, IT departments will soon face the challenge of determining the best approach to incorporating social technology into the way their enterprises do business.

In conversations with some of the most fully engaged adopters of social technology, CIOs, and social technology leaders, PwC sees a change occurring in the enterprise social technology landscape and the opportunity for organizations to take advantage of it. Enterprise social technology has moved from a divergent phase into a more convergent phase.

Figure 1: The evolution of enterprise social technology

Ease of use is of course one key criterion for companies considering social technologies, but equally important is how well the information these tools generate allows the social graph to become visible and interconnected in graph form with other enterprise information. The result should be better information filtering and less workflow disruption.



Understanding this evolution and where the advantage lies will be crucial to mapping a strategy to improve online collaboration. This article describes how social technology has evolved and evaluates how it will impact the enterprise in the next five years. This article is not intended to be a comprehensive vendor review; rather, this article assesses how the technology itself has evolved, and it uses examples from several vendors.

Standalone social solutions: Generation one

Enterprise social technologies have evolved through two generations, and a third one is now emerging. (See Figure 1.) The first generation (late 1990s to early 2000s) primarily comprised standalone solutions that had narrowly focused functionality. The second generation (mid-2000s to 2010) comprised broader tools that included some better integration, curation, and analysis capabilities. Emerging enterprise social technology is now in a third generation (beginning 2011), which will evolve to provide much richer semantic understanding of data—more

sophisticated social graphing that adds to the infrastructure-oriented architecture that allows organizations to embed the tools in existing application suites.

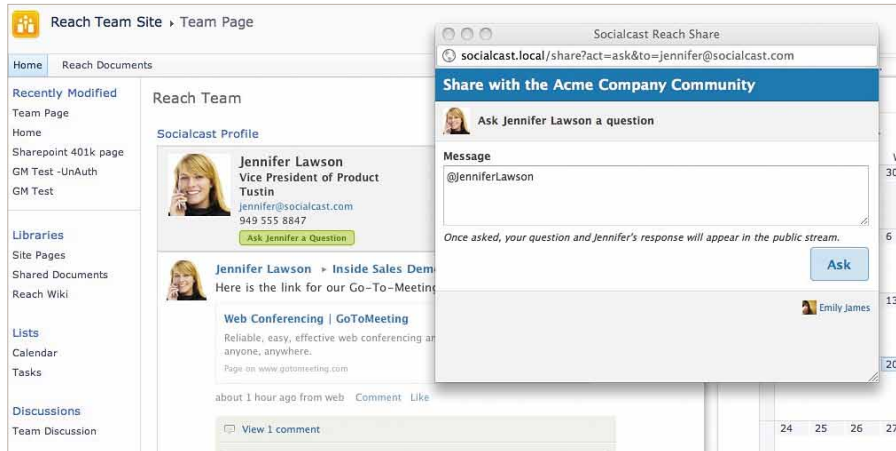
From an IT standpoint, the first generation served a single purpose: make more social information visible and available to share online, period. The newly visible social information helped users connect and made them aware of each other’s skills and interests in a way they hadn’t been. Those who used first-generation tools were able to find people they weren’t previously aware of in other parts of the organization and learn what they were doing.

Jive Software is a prime example. Its enterprise collaboration tools included threaded discussion forums and instant messaging beginning in the early 2000s. By February 2007, Jive had introduced a first-generation many-to-many social software suite. Jive continues to evolve, introducing an OpenSocial-compliant app store in July 2011.¹

¹ See Dion Hinchcliffe, “Jive seeks to up IT’s game with social apps,” *ZDNet Enterprise Web 2.0* blog post, August 3, 2011, <http://www.zdnet.com/blog/hinchcliffe/jive-seeks-to-up-its-game-with-social-apps/1611>, accessed August 11, 2011.

Figure 2: Socialcast Reach workflow integration

Reach allows integration with existing enterprise applications.



After Tim O'Reilly of O'Reilly Media coined the term "Web 2.0" in 2003 and Andrew McAfee followed with "Enterprise 2.0" in 2006, the vendor landscape gained shape and momentum. Many enterprise social software platforms appeared in the mid-2000s, including a large number of single-function web applications that have evolved quite a bit since. Enterprise wikis Confluence from Atlassian and Socialtext Open from Socialtext appeared in 2005 and 2006, respectively. Wikis provided workers the ability to take intellectual property trapped in a presentation slide deck or a spreadsheet and stored on shared drives or in an e-mail inbox and link it to a central repository for collaboration purposes, similar to what Microsoft SharePoint did, but with more focus on the activity stream and online identity.

Microblogs are expanding to include this capability as well. Yammer, a microblog with a Twitter-like capability, debuted in September 2008.

"Transparency" resulted from the online activity and visible social identity generated by these tools, according to Tim Young, CEO of Socialcast. "As we continue to move forward in this knowledge economy, companies view human capital as the most challenging but the most important resource they have," Young says. "So they're looking at new ways in which they can leverage and grow that asset, and one of them is to begin to bring transparency of what they're doing across the organization."

Transparency, however, came with a price. First-generation tools were separate from the main workflow and not designed to be woven into the existing IT fabric. As a result, they created yet another place users had to go online.



One approach is to bring the social functionality to users in their familiar application environments.

Success in the early stages of social technology adoption inside the enterprise has been due to a combination of human interest and IT support. Without management support for adoption, incentives for use, and metrics for measurement, many standalone social technologies don't get used. Unlike Facebook, relationship building inside the enterprise via social tools may not provide enough incentive to encourage continued usage after the initial interest.

The standalone nature of many of the first-generation tools posed a challenge to businesses. Natalie Hanson, senior director of strategic programs and user experience consulting at SAP, which has used Jive and also uses its own StreamWork, notes one obstacle her group faces in educating workers about social tools. "The challenge for us is to make sure the people come to us to understand the value propositions of those different [social] platforms and that they choose one that meets their needs," she says.

While early social technologies provided organizations with a way to do light collaboration and acted as a substitute for e-mail, the tools were simply a first step, an experimental phase. They primarily served to surface a new social information layer and trigger thinking about (1) how to use that layer, and (2) how collaboration could be different if social technology were thoughtfully applied.

Integrated social technology: Generation two

In recent years, a second generation has evolved that seeks to broaden the functionality and reach of first-generation solutions. A real push was on to integrate social technologies more broadly with existing business processes, applications, and data, and to encourage greater adoption by more business users. "What history tells us and why many of those [early social] initiatives failed is that they all tried to create a new kind of siloed area," Young says. And the last thing the enterprise needs is more siloed information that is difficult to access and share.

Many vendors of the standalone tools announced integrations in an attempt to move away from the silo effect. For example, besides its integration of the Crocodoc HTML5 document viewer, Yammer began adding plug-ins for enterprise applications such as Microsoft Outlook to encourage the use of social networking in all aspects of business. Jive, Socialcast, and Yammer announced integration with SharePoint and other Microsoft products. The major enterprise software vendors began to develop sets of social functions that took advantage of their existing suites.

Figure 3: SAP StreamWork workflow integration

Team members can pull data and information from existing workflows and back-end systems into SAP StreamWork for discussion and decision making.



The technologies are starting to address some of the complaints about early versions of social technology—complaints regarding security and curation. Among the features that PwC gathered (through interviews and research) to be most important for the enterprise are the following:

- Integration with business-critical applications
- Curation and content organization
- IT management functionality to support governance and compliance
- Social analysis

The current social technology solutions on the market provide varying degrees of support for these requirements.

Integrating social functionality into everyday work

Adoption is a major challenge to the introduction of any technology. Given that social and collaborative tools are intended to support the day-to-day activities of enterprise workers, the tools need to be usable in ways that cause minimal disruption to the existing environment. The vendors of social technology solutions are taking two different approaches to integrate the functionality into the enterprise work stream.

One approach is to bring the social functionality to users in their familiar application environments. Users can build conversations around “objects” of interest from existing applications, such as an image of a prototype, to support project collaboration.

As Young explains, “Instead of having this one big stream that you must feed off of all the time and contribute to, we decided to take those streams and make them context specific in these other applications—embed them in your ERP [enterprise resource planning], in your CRM [customer relationship management], in your project system, in your SharePoint. That way, a tool like Socialcast can address that 75 percent of users who don’t want to learn a new tool. The social functionality they need is now within their workflow.”

An alternative approach reverses that strategy by creating social hubs. These solutions pull activity and event information from enterprise applications (such as ERP or CRM) into the social technology platform to create a central hub for collaborative, task-based, and social activities. An example is Jive’s Engage platform, which can bring activities from legacy applications into its environment so that users can “live” there rather than moving back and forth between applications.

Another example of this approach is SAP StreamWork, which can pull data and information from multiple back-end systems into a social environment. (See Figure 3.) Consider a situation in which a company needs to make a supplier decision. Using a technology such as StreamWork, the company can combine social tools with application

One of the biggest challenges of social technology is how to manage or curate the volume and variety of artifacts that workers create using social tools.

data to more efficiently move a process along. Project members can create an activity stream that pulls relevant information about the potential suppliers from the legacy system, adds business intelligence, and connects with other people in the company who have information about or experience with the suppliers. The results are a more efficient decision process and a more informed decision about the best supplier for the project.

Integration isn't the only interesting aspect of second-generation social technologies. There's also been a push to increase content management and curation capabilities.

Managing the new enterprise social content

One of the biggest challenges of social technology is how to manage or curate the volume and variety of artifacts that workers create using social tools. Both IT managers and enterprise users struggle with how to establish and manage repositories of digital artifacts and content in a way that enables effective search, filtering, and future reference.

Many enterprises have designed intranets and portals to access back-end information and data. However, portals have fallen short of providing all the tools necessary for effective curation, especially for new social assets. Now, social technology solutions such as Oracle WebCenter and Socialtext are extending previous portal approaches and providing the access and curation necessary for information in today's social enterprise. Generating, organizing, and finding the right data and connections easily and quickly is a key requirement for enterprise social technologies, one that second-generation tools provide today.

Bill Hopkins, director of operations for Egon Zehnder International (EZI), wanted to remove IT from content management and curation. (See the article, "The collaboration paradox," on page 06.) He knew he needed a tool that would be well received by the users. "If we didn't give them a hook that would generate immediate interest for them, we would not see the adoption that we wanted," Hopkins says. He chose Socialtext intranet as part of an enterprise-wide toolset to support curation. "Now, the consultants microblog, and that becomes an aspect of that kind of conversation. It more effectively spreads the knowledge and keeps it in a place where people can look at it as opposed to just in somebody's head."

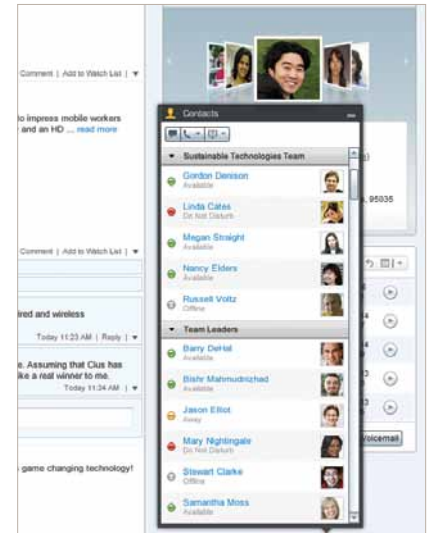
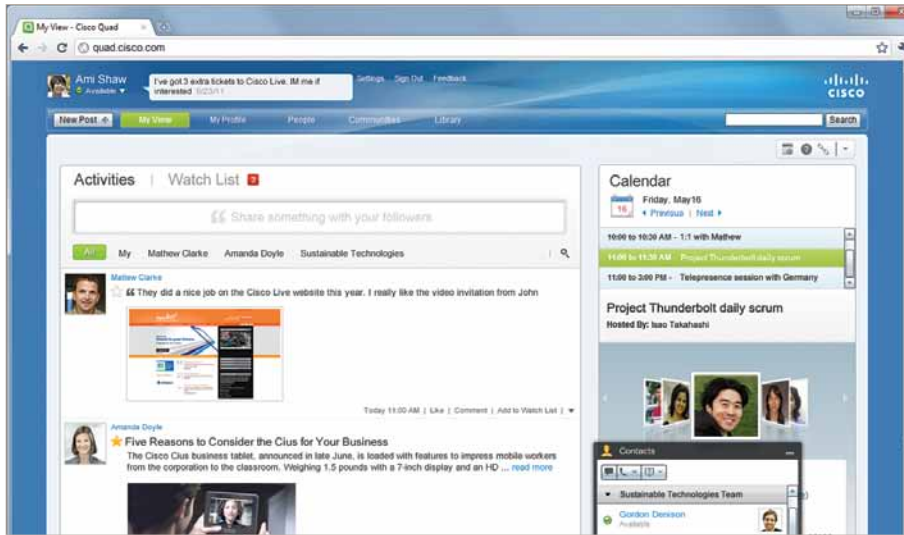
One of the big challenges that social technology still must solve is the idea of filtering. For example, how does an organization use social technology tools to find the expertise within the company? Tools such as microblogs and wikis help identify subject matter experts or workers who may have pertinent information to a particular decision. But determining what is relevant is still user driven. Although the environment can create automatic data collections, the human touch is needed to provide some of the necessary context. Table 1 summarizes the current state of available enterprise social technology platforms. This list underscores the fact that most platforms offer only limited filtering capabilities.

The future states of social technology: Generation three

In the future, the most successful tools will anticipate their roles as the means to access and reach the people and resources needed to get work done. When deployed correctly, rich user profiles tied to multifaceted content and active communities can create the collaborative environments to support distributed teams. The key will be finding ways to encourage participation by the entire workforce.

Figure 4: An activity and watch list

Some tools include both an activity stream and a watch list. The watch list consists of work in progress and suggestions from listed users about items to look at.



Future social technology will need to include several important features. One of them is enhanced integration capabilities to support connections and interactions between individuals and communities, between individuals and information assets, and to facilitate enterprise activities in all of their possible combinations.

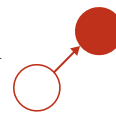
Technology such as TIBCO's tibbr is moving in this direction, providing the ability to follow events as well as people. Events triggered by business processes can surface inside tibbr for action, supporting user productivity.

As Dick Hirsch, senior consultant for Siemens IT Services and Solutions, explains, "It's the ubiquitous nature of the activity stream in a variety of applications that increases its value." Finding ways to make that technology ubiquitous and effectively managing it is the key.

The rise of the enterprise interest graph
Enhanced integration capabilities will support what could be the most significant feature of future social technology—the interest graph. At a high level, an interest graph is

a web of interconnections. These interconnections allow users to navigate from one part of the graph to another. Equally important, they allow machines to automate some sense making to help users find information and/or people they're seeking. Sense making typically happens during the more ad hoc parts of a business process.

Another key to this kind of navigation is the triple store, which is essentially a database of graphs. At a basic level, each **triple** is itself a simple graph, as depicted in this illustration consisting of two nodes (a subject and an object) and a stated relationship between them (the verb), like "Jane is 45" or "Bob knows Mary." Triples consist of subjects, objects, and verbs. Both subjects and objects are nodes. Verbs, the stated relationships between subjects and objects, link the nodes together in Tinker Toy fashion. The result of many triples linked together is a scalable, navigable graph.



Extremely large graphs of billions or even trillions of triples can be built. If they're structured well, the relationships among people, places, and things will be evident and navigable.

This database structure moves beyond traditional relational data stores by supporting the retrieval of the triples. The triple store makes possible the mining of all of this rich, complex data created in enterprise social environments.

Better data integration makes better mining possible, which leads to greater visibility and better filtering of the activity stream and the alerts. (See Figure 4.)

Table 1: Enterprise social networking vendors reviewed

June 2011

Vendor and product	People following	Subject following/ filtering/ privacy	Application- relevant activity streams	User- accessible repository	Associated application ecosystems	Widgetized display	Advanced analytics	Semantic content integration/ search	Process flow relevance	Real-time collaboration
Cisco Systems Quad	●	●	●	●	CU, OS, LT	●	●	●	●	◐
IBM Connections	●	●	●	●	IBM, MS, SAP, OS	●	●			◐
Jive Software Engage	●		●		MS, OS	●	●			
Microsoft SharePoint Workspace	●			●	MS, OS	●				
Moxie Spaces	●			●					●	
Novell Vibe	●	●								●
Oracle WebCenter	●	●				●				
salesforce.com Salesforce Chatter	●		●		FC					
SAP StreamWork	●		●	◐	SAP, OS	●	●	◐	●	
Socialcast Socialcast	●	●	●		MS, OS, IBM, FC	●	●			◐
Socialtext Socialtext	●		●							
TIBCO tibbr	●	●	●	●	OS	●			●	
Yammer Yammer	●	◐	●	◐	NS, MS	●				◐

Column definitions:

People following: Subscribing to a person's activity stream. Those familiar with Twitter or Facebook understand that when you follow or "friend" someone, you're signing up to see what they post, or, in other words, what's in their activity stream. The "follow" model is similar in the enterprise tools listed in this table.

Subject following: Subscribing to activity on a subject. Tools such as tibbr allow users to follow subject categories as well as people. Quora is an example of a consumer tool that enables subject following with the help of subject tags and taxonomies. A more explicit and useful interest graph is emerging with the help of tools based on a triple store or comparable technology.

Application-relevant activity streams: The ability to embed activity streams in existing applications, which is a feature that tools such as Socialcast Reach and SAP StreamWork offer. (See pages 31 and 40.)

User-accessible repository: Making documents shared via the stream accessible in repository form.

Associated application ecosystems: Enterprise application families managed either by a vendor or an open-source community. Some products will lend themselves to better integration with one application source than another. For example, IBM Connections presumably integrates better with IBM applications, and Salesforce Chatter is designed to use applications from Force.com.

Widgetized display: A user-configurable display that consists of installable, movable, and removable elements, each of which can operate alone or independently of the others.

Advanced analytics: The ability to go beyond basic user statistics. Nearly all enterprise-class products in the same category as IBM Connections offer user statistics, so this feature category identifies the ability to more easily mine the information generated. Ideally, more of that information is accessible to users directly.

Semantic content integration/search: Information stored using a semantically enhanced data model such as RDF. With the use of such a model, the explicit node-relationship-node form of each triple—metadata of content that's now lightly and scalably structured—makes the whole more integrable with any other triplified information. The result is a higher degree of accessibility to content and searchability of that content. Additionally, the integration of the social information in graph form allows navigability from node to node, from users to the content or data they touch.

Process flow relevance: Tools such as SAP StreamWork make it possible to augment or cobble together a process or workflow with the help of the social tool itself.

Real-time collaboration: Updates that are relatively instantaneous. A tool such as Novell Vibe, for example, allows one user to see another typing in real time, and that capability could lead to simultaneous editing.

Sources: Vendor sites and input, 2011

Heritage	Strengths	Vendor and product
Announced in November 2009; launched in July 2010	Triple-store data architecture with refined filtering and search; unified messaging enabled; integrated content search	Cisco Systems Quad
Introduced in 2007 as a "business-grade social computing" platform	Filtering and recommendations capabilities; unified messaging and support for four mobile OSes	IBM Connections
Launched "Social Business Software application suite version 3.0" in March 2009; now called Engage; previous versions marketed as Clearspace; Jive Forums go back to 2001	Popular suite with customer focus; single view or "bridging" of customer, employee, and partner spaces	Jive Software Engage
Launched in May 2010; reflects the heritage of team collaboration tool Groove (acquired in 2005)	Significant integration with Windows, Office, and SharePoint, a widely used repository	Microsoft SharePoint Workspace
Launched Employee Spaces (intranet) and Customer Spaces (extranet) in September 2010 as company was renamed (previously nGenera)	Based on IDEO's worker-centric Tube concept; includes intranets and extranets	Moxie Spaces
Launched in April 2011; previous betas launched in August and November 2010	Real-time, character-by-character co-authoring	Novell Vibe
Launched WebCenter Suite 11g in July 2009	WebCenter Spaces accessible from Oracle applications; process-centric collaboration	Oracle WebCenter
Launched in April 2010	Potential for blending with many different Force.com applications	salesforce.com Salesforce Chatter
Launched in March 2010	Open APIs lend themselves to integration with SAP, third-party, and OpenSocial applications	SAP StreamWork
Launched in 2005; designed with verticals such as manufacturing in mind	Socialcast Reach can embed conversations into a range of different applications	Socialcast Socialcast
Launched Workspace 1.0 wiki, blog, and chat platform in October 2003	Customizable social intranet approach	Socialtext Socialtext
Launched in January 2011	Device, application, and system agnostic; supports bidirectional application feeds; subject, application, or social following; filtering and recommendations	TIBCO tibbr
Launched in September 2008	Large user base known for ease of use; seamless Crocodoc HTML5 document viewer; NetSuite integration	Yammer Yammer

Application ecosystem abbreviations:

CU = Cisco unified communications
 IBM = IBM applications
 OS = open source or any open application

MS = Microsoft
 NS = NetSuite
 FC = Force.com
 SAP = SAP

For any of the products on this list, paid subscribers can usually expect the following:

Administration and policy management
 Content management
 Enterprise-level security
 Individual group and user following
 Direct or limited distribution per message
 User profiles with LDAP integration and follower counts

Tagging and/or social bookmarking
 Technical support and maintenance
 Basic social network views
 Basic usage statistics
 Basic activity stream with microblog, blog, and/or wiki interface
 Basic reward and annotation system, including Like and Comment buttons

How social graphs relate to interest graphs

A subset of the interest graph, a social graph is a mapping of people (employees, partners, customers, and so forth) and how they are related. Figure 5 illustrates an example.

If the social graph is made part of the larger interest graph, the information about how people are interconnected can benefit the information about places and things, too.

When working to make this visibility possible inside the enterprise and expanding its definition to include knowledge and expertise, the social graph becomes an invaluable resource. Doing so requires several dimensional graphs that can overlay the vast network of social “objects” in the enterprise, from user profiles to all the content generated through social tools. The knowledge or interest graph would provide a relational view of all the content that exists inside the organization and would provide context to help aid retrieval, which is a core value proposition and reason to invest in social technologies.

Hopkins explains how social graphs help at EZI: “It’s hard for us to know who may know somebody in a firm that may be unrelated to a given search but might be a broker to provide introductions for us as well. So what we’re looking for in these social graphs are ways that we can uncover relationships that may be beyond our borders but might help us break into a market or a particular segment of a company that we hadn’t done before in any one office of the firm.”

Vendors are starting to move in this direction, with early attempts to combine technologies from other enterprise areas with social technology to support a dynamic social graph.

According to Keith Griffin, lead architect in Cisco Systems’ enterprise collaboration platform business unit, these tools focus on connecting workers with the information they need to do the best job, based on context: “It would be nice if there were an instantaneous community, not that you chose, but that the context said, “These are the people who are particularly

interested in this particular thing right now, that are on the system right now,’ and you’ve got this flow, this stream of people responding.” Plugging into such a stream would mean a paradigm shift in the way workers accomplish their business tasks today.

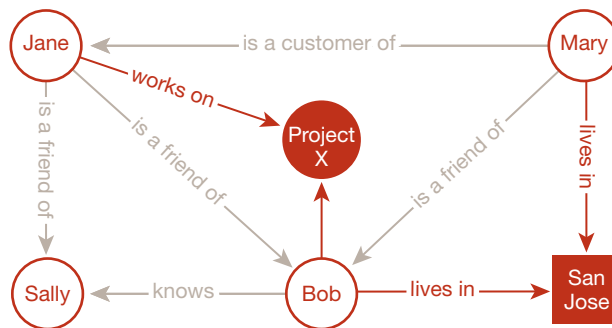
Dynamic search and triple store support the social graph

PwC expects that search will be a significant tool for fully leveraging all of the social objects in the enterprise. Search based on the identification of the semantically defined relationships that the social graph provides will allow more relevant information retrieval and contribute to a higher level of enterprise efficiency.

In this scheme, social identities become another means of obtaining context, and context is the coin of the realm in providing relevance, whether through search or other kinds of navigation. Cisco couples search with social technology. According to Griffin, “The goal is to use a search engine and couple that with some of the capabilities involved, like the [social] graph and the semantic processing.”

Figure 5: The social graph as a machine sees it

Any enterprise data in graph form, whether it relates to people, places, or things, can be interconnected in this way.



At present, search notoriously underperforms inside the enterprise compared with search engines such as Google. Google doesn't just report where search terms occur but ranks them according to how other websites reference them—in effect, social technology and context applied to search. To do this, Google takes advantage of large-scale link ranking data that just aren't available at the same scale inside the enterprise. Using some of the emerging social technologies, such as the social graph and context-based interaction, inside the enterprise will enable search to become a much more effective tool for supporting the new socially charged workforce.

Duke University's Fuqua School of Business uses social tools to support its Cross Continent MBA program, a 16-month program that involves intensive 10-day travel visits to various countries. It is a peer-learning-oriented program that relies on technology to support accidental learning. (See the article, "The collaboration paradox," on page 06.)

Tony O'Driscoll teaches in the program. "I think the future of learning is really changing," he says. (For more about O'Driscoll and his role, see the interview on page 18.) "The model is shifting from pouring knowledge into individuals' heads, so that they can achieve everything themselves, to tuning their networks to the problem at hand." This notion of "tuning a network" makes use of the social graph and emerging social technologies in the enterprise.

The program reflects this learning shift. O'Driscoll is using social technology to create a collective mind from all the students. Previously, the program would provide all pre-reading course material to students two weeks before the next

session. But the instructors realized this approach was not effective because students responded to the massive amounts of reading materials with different levels of understanding and preparedness.

With the help of the social technology, O'Driscoll has created a virtual community for viewing short videos that cover salient topics and building a discussion around them before the next on-site learning. "I can track activity and monitor the comments. And I do a lot of polling. I can see who is having what kinds of conversations, know where people are getting stuck or not, and get ideas for class discussions. When I go into the class on Monday morning, I'm not going in cold," O'Driscoll says. The learning starts at a new point on the continuum than it would have in the traditional model.

Conclusion

The rise and advance of enterprise social technologies has the potential to dramatically alter the business information landscape and the organization's ability to more effectively leverage corporate data and information, but this achievement will require a moderate investment in social technology tools and changes in corporate practices and processes.

Third-generation social technologies will provide organizations with a new approach to disseminating, identifying, using, and sharing information, but they also come with the need for traditional enterprise responsibilities, such as management, security, and compliance considerations.

"What we're looking for in these social graphs are ways that we can uncover relationships that may be beyond our borders but might help us break into a market or a particular segment of a company that we hadn't before."

—Bill Hopkins of Egon Zehnder International

Adding social networking to business workflow

Tim Young of Socialcast considers how blending activity streams with existing applications can open the door to behavioral change inside enterprises.

Interview conducted by Alan Morrison and Galen Gruman



Tim Young

Tim Young is CEO of Socialcast, an enterprise social networking company he founded in 2005. VMware acquired Socialcast in May 2011.

PwC: How did Socialcast get started?

TY: Socialcast is a company I founded a few years ago in Irvine, California. In the spring of 2009 we moved it to San Francisco, and as of May 31, 2011, we were acquired by VMware.

I grew up in Southern California watching my family build a fairly significant manufacturing business, and I was really intrigued with the concept of merging social software with data in a manufacturing context. Specifically, how do we make information flow more efficiently between shifts of manufacturing workers, between supervisors, between plant managers and executives? I wanted to help enterprises understand their informal organization, rather than just their formal org chart.

PwC: And so providing employees with the means to create and manage their own visible online identity is a part of that concept?

TY: Yes. These tools create an identity that's not just built on employees' yearly performance reviews or a subjective opinion of their manager, but on the merits of their work. This is very, very powerful. When people not only share what they're working on, but make that visible throughout the company, that's what we mean by online identity.

When you analyze that new information layer, it's allowing not only HR departments but also executives to find the people in the organization who are extremely passionate and making big contributions. All that collective knowledge becomes available directly rather than through the org chart.

By talking with middle managers and doing some analysis, we found that social technology is changing the role of middle management. Middle management is going from a command and control structure to much more like a coach or a mentor. Because more and more information is transparent, they're really helping employees understand how executive management's goals are attached to the specific items that individual contributors are working on, and they're interpreting the meaning of that and why it's important.

You can see these cultural shifts and how the shifts change roles. It is making middle managers much more critical to the success of organizations because they are micro-CEOs of their own domain. When you look at large companies that have hundreds of global offices, it's really important that they have passionate people.

PwC: What benefits are the executives seeing?

TY: From an executive level, I think many companies don't understand what is going on all the way down to the individual contributor level, and it's because there just haven't been tools that allow them to do that, especially qualitative tools. You can do surveys and polls, but you don't get the ability for consistent real-time feedback from everyone in the organization—and that feedback is necessary to harness the collective human capital of the organization.

Then there's the shared learning that goes on. When we talk to executives about advancing their organization from a human capital standpoint, shared learning is incredibly important, especially as they're trying to move faster, be more competitive, and do more with less. It's not necessarily destroying e-mail or trying to get rid of e-mail—it is taking over a part of the attention that we were giving tools such as e-mail.

PwC: How do users generally take to Socialcast initially?

TY: About 20 to 25 percent of users are early adopters. They tend to be people who are very active online both contributing content and connecting with friends, family, and colleagues through networking sites. There's really no modification you would need to make; they just love this new capability. And then as you go from that 25 percent to the remaining 75 percent of the organization, you start to see an interesting phenomenon.

Their lack of usage or their nonsupport of the tool falls into a few different categories. Some of the biggest ones are, "I don't want to learn a new tool," and "I don't want to learn a new way of working." Another one is, "It's not embedded in any of my workflows; it's this new thing."

When you look back at the history of KM [knowledge management], you see that many of those initiatives failed because they all tried to create a new kind of siloed area. Employees would say, "If I have an issue in my CRM [customer relationship management] or in my ERP [enterprise resource planning], I now have to switch context. I must go to this other external collaboration system and try to reframe the context of the problem, the comment, whatever I want to share, and then follow up in that system only to come back to my primary system and actually complete whatever action I needed to do.]"

We looked at this problem in depth last year, and I think it's indicative in one of the products we launched in 2010 called Socialcast Reach. Instead of having this one big stream that you must feed off of all the time and contribute to, we decided to take those streams and make them context specific in these other applications—embed conversations in your ERP, in your CRM, in your project system, in your SharePoint. That way, we can address the 75 percent of users who don't want to learn a new tool. The social functionality they need is now within their workflow.

“What we’ve strived to do inside organizations is allow people to connect over the business objects that they deal with every day, whether that be a customer, a work order, a palette, a product, or a document that they’re working on. That’s really the difference.”

Now, when that user goes into that ERP application and pulls up that account screen, the activity screen for that specific account is right there within that app. They never have to go outside to another application. They can see who has worked on it, relevant conversation on it, who the expert is, and they can ask a question—all within the application. When they come back to that account in that account screen, all that information is there.

PwC: What gave you the idea to make streams context specific?

TY: The consumer analog would be Facebook Connect. For a long time, Facebook had this one portal destination very akin to the suite approach that Enterprise 2.0 companies have brought out.

What Facebook figured out, very intelligently, is that your social experience online doesn’t just begin and end with Facebook.com; it really goes everywhere—on CNN, on the blogs you read, everywhere. Adding Facebook Connect allows you to take your social graph with you in all those other places online. We provide basically the same thing. Socialcast Reach allows you to take that social graph—all the people you work with—with you in all your other apps.

PwC: It sounds like two things—one is that there’s essentially a communication channel, and the other is what those communicating are doing. So I’m assuming you can see where a person is currently in their work, what they’ve actually done, what other people have done. Is that correct?

TY: In general it’s correct. We’ve created what we would call social objects out of these business processes and workflows. A social object is something that two or more people connect over in the consumer world; it’s like a photo on Flickr or Facebook. You post it, I see it, like it, you comment on it. Even just looking at it, I’m connecting with you through this object.

What we’ve strived to do inside organizations is allow people to connect over the business objects that they deal with every day, whether that be a customer, a work order, a palette, a product, or a document that they’re working on. That’s really the difference.

Let’s say you’re part of the workforce at a book publisher, and you’re entering an ISBN [International Standard Book Number] in your inventory system. You actually pull up the whole record of information on that book title and get all that social information right there in that system. So you see all the people who have worked on it, whether it is the

How do users take to tools like Socialcast?

About 20 to 25 percent love the new capability.

The remaining 75 to 80 percent won't see the value unless it's incorporated into their workflow.

20 to
25%

25 to
75%

editor, the guy who ordered the paper, everybody. You also get to see all the conversation that's happening. So we're merging that business object and that conversation, where in the past it's been separated; it's either been done in e-mail or IM [instant messaging], and it's very hard to pull all of that together.

PwC: Does making both identity and conversation more visible lead to more accurate and complete expertise location?

TY: Yes. It all goes back to identity and what the employee is trying to do. It is one thing to locate a subject matter expert, and many systems have been able to do that, but the real value of expertise locations is getting feedback and getting a question answered or getting some insight on a subject. In that sense, the subject matter expert and the person who is seeking information must interact.

Both are trying to gain something from that exchange. In many of the previous systems, the subject matter experts store their information and build silos around themselves for reasons like job security because there's really not any value in that exchange. So I give you that information, but what do I receive as the subject matter expert?

By making that information expertise exchange more transparent and open, the companies—over time—see their subject matter experts move from domain experts to mentors because that exchange is now out in the open. You're not rewarded necessarily for being a subject matter expert as much

as you are now rewarded for taking that information that you have and using it within the company to add value to the company, by sharing it appropriately.

In many cases, you'll have known experts inside the company. But we have found that knowing where that ultimate expertise lies often is not helpful for an individual trying to get a question answered. It's not helpful because typically the person who has the most expertise is not necessarily in a position or has the time to answer questions. So we can guide users to other people who might have less domain expertise, yet they are the most willing and able to actually help and get questions answered.

You really just need your question answered quickly, and in many cases you don't need to talk to the leading subject matter expert in your company to get the correct answer. We look at people who not just have the most information or share the most information, but people who actually answer other people's questions in that domain. Then we can point people who ask questions to those individuals.

PwC: So you can actually see the behavior to do this, and that changes the reward dynamic.

TY: Yes. Exposing the behavior changes a lot of things. We've seen CEOs go in, view a question-and-answer exchange, and they'll like it or they'll leave a comment. That action completely begins to change the mind-set of individuals. The SMEs' willingness to share increases over time with more activity.

PwC: What's the goal here?

TY: Obviously, one goal is that information flows extremely freely among people. But then there's the specific business goal. With most any activity stream, you may get a lot of interesting conversations, but you won't get repeatable value. People converse, but then what? What is the business goal of this? Organizations might say they're not getting any repeatable value, so how do they really know what it's doing? It's the same thing—you put workers in a factory and what are they going to do?

In the end analysis, the functions must support processes and mission that result in repeated value. That's the challenge and that's what Socialcast is working on. We're pushing the evolution of the tools and helping our customers, so they don't get stuck with four walls and a bunch of talented people and nothing for them to focus on.

PwC: How does the recent acquisition by VMware change your vision for Socialcast?

TY: Joining with VMware provides us with the opportunity to expand our vision and advance as a core technology.

Harnessing the power of the graph

Keith Griffin describes how emerging social and graph data technology can remove barriers to more effective collaboration.

Interview conducted by Alan Morrison and Bo Parker



Keith Griffin

Keith Griffin is lead architect for Cisco Systems' enterprise collaboration platform business unit. His background includes 15 years of experience as an architect and development engineer at Cisco and Nortel Networks in the areas of unified communications, IP telephony, call center software, and web-based collaboration.

PwC: How did you initially get involved in collaboration software?

KG: I was one of the founding members of the unified communications collaboration research and development site that we have in Galway, Ireland. That site focuses primarily on the unified communications products, such as soft clients for voice video, instant messaging presence, federated learning systems, and integration with other unified communications systems.

PwC: Cisco is known as an IP router and switch company. Why social software?

KG: When you look at our architecture side, quite a lot of assets are already in there, either through acquisition in the portfolio or from existing products—such as presence and location, the client services framework for communications, the ability to record, but based on top of the networking layer that Cisco is known for.

Then we also identified that things like policy, for example, could be used. If you consider some of the well-known social networking applications, they're really about connecting with friends. In the workplace, you also choose how much information you want to share or not, but the social networking applications are not really about friends, friendships, and the enterprise. They're about getting something done.

If you want to get something done, you have to have policy rules and security. Somebody might want to share an idea with a board or a council, but that idea might not be appropriate to share with the entire organization until it is a well-formed idea. You can apply policy rules to say what information, what communities, and what people can share.

So if you want to get something done, you have to have policy rules and security. Somebody might want to share an idea with a board or a council, but that idea might not be appropriate to share with the entire organization until it is a well-formed idea. You can apply policy rules to say what information, what communities, and what people can share.

Again, we had assets in this area from an acquisition, but it's an XACML-based policy engine—an XML-based standard for sharing policy. So we were able to use that again in the platform to enable policy.

Then, on top of that, we knew we would need to develop some new capabilities, such as tagging, social graphing, semantic processing, and search. We don't necessarily intend to be in the search business. That's not the goal. The goal is to use a search engine and couple that with some of the capabilities involved, like the graph and the semantic processing.

PwC: Search would seem to be a necessary component.

KG: Yes, it absolutely is. But we also want to look at where we're coming from. It's very important that we focus on the areas where we make a difference immediately. Most organizations—not everyone, but most organizations—will have some form of search capability. We decided to make search a pluggable component to the system, so that it can either be a default offering that we create ourselves, or allow search from another vendor to be plugged into the system. We thought that was important.

PwC: How do you treat e-mail in systems like this? Our experience with social activity platforms has been that they compete with e-mail. If just a few people stick with or revert to e-mail, then a conversion to something different just doesn't happen.

KG: These are not things that make e-mail go away, but you could see a marked decline in the need to use e-mail so much because you have so many other ways of interacting.

PwC: Should a wiki be built into tools like these at some level?

KG: We created a social content model where you post information in a flexible form. You don't necessarily say, "I'm going to post that to a wiki, or to a blog." You post to a library and then the library can be shared using the policy model. This method frees organizations from committing to a blog and then struggling with the fact that that information is stuck as a blog post. They need to cut and paste the thing if they want to move it to a wiki, for example.

You can start with a rough note that's just in your own journal. You can share it in a group of close associates to elaborate. You can hit the share button and then decide to publish it in one place or another, or change your mind later. It brings up all the different communities. If I go farther down the list, there are all the individuals who are part of my social network, who are part of open and restricted communities.

Web 2.0

“One of the reasons for choosing a Web 2.0 and widgetized type of deployment here is the concept of contextual awareness. The application should be aware of what I'm doing now.”

PwC: What's the governance model for this kind of sharing?

KG: When you publish something to your library, access to that information is governed both by what you decide and what the policy is for that information. The information can show up in multiple places at once even though there's only one copy of it, right? The copy itself doesn't have a location, per se. You can put it into the community of your systems engineers or your product sales specialists or whatever, without making a copy.

PwC: What about finding things serendipitously? Can a system like this deliver information you didn't ask for and weren't searching for, but the system says, "Based on some pattern, you really should be paying attention to this person, or you might want to follow this topic."

KG: We have the concept of the activity list and the watch list. A person on my watch list can suggest things I should look at, or the list will have something I'm actively working on.

PwC: What's the role of triple store technology in systems like this?

KG: Everything that's going on must be RDF-ized and put into the system so that you build a graph. [In RDF-ization, or conversion to Resource Description Framework form, data is transformed into subject-verb-object triples for more scalable linking at the data element level with the help of domain and element relationship descriptions—richer metadata, in other words. See the article, “Making Semantic Web connections,” on page 20 of *Technology Forecast*, Spring 2009, for more information.]

PwC: Data in graph form should help with relevance, shouldn't it? When something new happens in the world, you want to be able to navigate to it very quickly. The system should alert you to new relevant developments as knowledge evolves. How do you treat social and knowledge graphs? Are they treated separately?

KG: No. They're combined. We haven't created features in this area, but the design of this graph is broader than a social graph. In our original design philosophy around people, communities, and information, both information and people have some knowledge. Communities are where you may contain some of that knowledge in a persistent way. Our graph is not inherently social. It's just an arbitrary scope that we placed on it initially.

PwC: If social tools are going to be successful, useful, and not just add to the workload but actually subtract from the workload, you need passive and active expansion and trimming processes. How do you use the social platform to enhance the processes around the workflow?

KG: One of the reasons for choosing a Web 2.0 and widgetized type of deployment is the concept of contextual awareness. The application should be aware of what I'm doing now.

One of the things that's come out of Semantic Web in the last few years is Linked Data. Linked Data is really an excellent way to provide a foundation to make contextual awareness feasible. Building a system from the ground up allows technology choices. You aren't tied to, let's say, a relational model. You don't need to create a graph using tables in a traditional database. It actually is a graph. That makes a big difference. That gives you the flexibility to do the kinds of things you're suggesting.

From a user experience perspective, you can take a conservative approach. You can avoid getting into advanced visualizations and delving into contextual awareness. The first step is to offer an Enterprise 2.0 platform. Once you bring value and get people on that type of platform, then you can introduce these more intelligent features and start making life easier.

PwC: How does the graph model affect enterprise search? Relational databases, by contrast with graph data, are about individual records and summarizing a bunch of records, not navigating through a data space.

KG: We call the concept that you're describing relational navigation. If I search for the term “Semantic Web,” a system with relational navigation will give me that three-dimensional view of people, communities, and information, so there's the people, there's the communities associated with it, and there's the information in the center. You can bring the social aspect to the search as well as the unified communications.

The difference the additional social graph information brings is that the activities users are mentioning in the stream are now the activities of the community. It's not just random activities and people who happen to be associated with the community. These are people working on this topic right now. It's an active and current thing.

PwC: How does the social graph lend itself to applications development?

KG: You can connect to your LDAP [Lightweight Directory Access Protocol] directory and get started, or treat these systems as platforms on which you can build. Every single early customer that we've had has done work on a social-enabled business process or tool for the platform.

The industry can offer open interfaces through developer networks. With these interfaces, a university such as Duke can create certain kinds of libraries to describe a classroom, a study group, a teaching assistant, or a professor. [See the interview with Tony O'Driscoll of Duke University on page 18 for more information.] It's a business process that is social, but it's built around the business process.

I'd make a distinction between what an API [application programming interface] such as OpenSocial can do, and what you can do by querying the graph directly with SPARQL [SPARQL Protocol and RDF Query Language, part of the W3C Semantic Web stack; see the article, "Spinning a data web," on page 06 of *Technology Forecast*, Spring 2009, for more detail on SPARQL]. The system we use internally supports both methods. An API is constrained by what it's able to do. With the OpenSocial API, you can make only the calls that the API allows you to, but it is designed for systems that have the concept of social. So if I wanted to find out how many of my friends of friends have posted content on a particular subject, I could do that with OpenSocial.

In Andrew McAfee's book on Enterprise 2.0 [McAfee is a Harvard Business School professor and the author of *Enterprise 2.0: New Collaborative Tools for Your Organization's Toughest Challenges*], he talks about the fact that in the social network, your direct friends are at one degree of separation. If all you do is spend time making the relationships you already have stronger and ignoring the ones you don't yet have that potentially have more information and more use for you, what you're doing has limited value.

But if you can see activities at more than one degree of separation, a friend of a friend or a friend of a friend of a friend, then you can create very interesting applications. You want to create those applications, but you also want to open the API so that people who want to do this in their own setting in their own environment can do that as well.

PwC: You could have two organizations but because they define policies different ways or they're using the thing in a different way, they can't actually combine communities across enterprise boundaries, which is what you really probably want to do in some cases.

KG: That policy control is critical, and it's one of the reasons that the focus is so much on federated social software among different groups.

We've seen some of the leading research groups in the world look at platforms like this, where they might be doing joint research projects. Maybe a major UK university has some funding and is going to bring in a major US university for six months. They want that temporal view, so they have access to this community for six months.

Maybe they want to bring in a university from China or from somewhere else and set up a longer-term federation between both systems where they maintain their independent systems but they share information. I think there's going to be a lot of opportunity for standardization. You can federate at a protocol level. Some platforms can federate very well with things like SIP [Session Initiation Protocol] and XMPP [Extensible Messaging and Presence Protocol], but there's social federation, too.

PwC: What have your customers been interested in doing with this sort of platform?

KG: It's not all to do with social software directly. For example, if somebody wants to change how their intranet works, they look at it from a completely different perspective. That's one of the things Cisco itself did. Our intranet of applications grew over 10 years and often not with a lot of structure. So Cisco changed the user experience.

2

4^{to}
6

Indexing the interest graph

SIREn, Sindice's search engine, can index 2 billion triples in 1 day on 2 machines, 4 to 6 times faster than conventional database indexing methods.

PwC: *In a sense, it's a redo of the home page.*

KG: Yes, but now it's widgetized. And this is where governance comes in once again. We have our internal browser-based home page, but then we do all of our work in other applications. They're displayed close to each other, but the two don't even talk to each other. For example, we front-ended our engineering document control system with a gadget-type definition as a unit of work or a unit.

PwC: *So if you happened to be an HR employee you'd have a different view, one that's tied to the HR system instead of engineering.*

KG: Exactly. This is a major step to move from the Flash intranet to the Web 2.0 enterprise.

PwC: *One last question: What's emerging in this space that hasn't really been harnessed commercially yet?*

KG: Have you seen Sindice [<http://sindice.com/>]? It's a Semantic Web index developed at DERI [Digital Enterprise Research Institute]. It's coupled with the Sig.ma presentation tool [<http://sig.ma/>], which builds a social information mashup live from the web. For example, if you search on Stefan Decker [DERI's director], it should pull in his picture from LinkedIn. It's not like a directory where you're going to get whatever is published in

the directory. It's getting whatever is on the web right now, and it can assemble pages on the fly from individual data elements because of the power of the RDF or Linked Data graph. That kind of dynamic publishing capability is at a much more granular level than RSS feeds. So if Stefan Decker published something at a conference last week, it should be in that mashup now.

Sindice is crawling, and it's RDF-izing. It's creating triples from every site it can get its hands on, and it's pulling that in. It's a demonstration of the plumbing-level semantic interworkings that are emerging on the web. Of course, this has some obvious enterprise implications. Just think about the ability to pull in individual data elements from LinkedIn profiles (or any external source) and combine them with your company's own internal profile information and also the social information or stream activity, all of which is referenced via the corporate directory. Once you've set up the linkages and domain descriptions, the profiles can be automatically updated, and the system can infer new linkages, too. You're actually using more information—the richer metadata—to link data silos together.

These are just technology examples. It's not that these things don't exist. It's just that you need to map what's available and what's capable, and also consider what the user is capable of dealing with. I'd look at something like Sindice, and I would say that it's fine. I could probably navigate my way through it, but I shouldn't need to navigate my way through it. It should happen very naturally.

So we continue to do our user experience studies and research to find the most optimal way to do this.





The CIO's role in social enterprise strategy

Transforming collaboration demands an evolutionary approach.

By Bud Mathaisel

Social technology offers considerable promise, but CIOs and business units are struggling to figure out how to use it effectively. A key reason is that most social media outside the enterprise is just pure communication. Making the same use of these tools inside the enterprise only imposes more channels on already overwhelmed staff. What's needed are alternatives woven into the existing IT fabric that help users sift through information and that augment existing business processes, making it possible to alleviate rather than add to communications overload. (See the article, "The collaboration paradox," on page 06 for more information.)

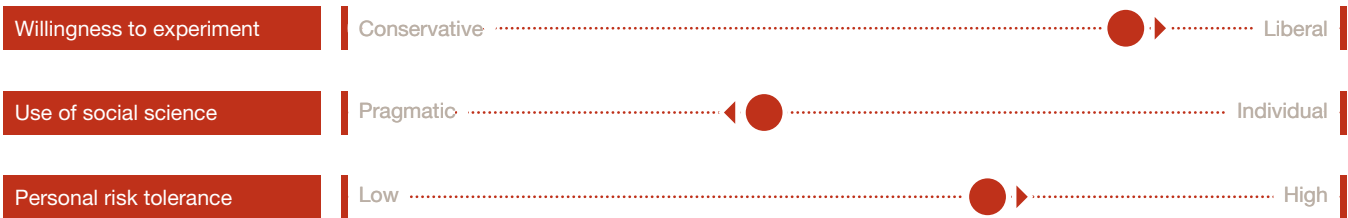
Some popular social enterprise tools do meld communication and context for better collaboration, which is where the focus should be. But too many enterprises still assume that social tools can only mimic consumer use. That assumption is why it is hard for the CIO to make a strong case for enterprise adoption of social technologies, and why an evolutionary approach is warranted.

An evolutionary CIO must adopt a new style of governance and create a new approach to deploying social tools. Social activities are inherently human and unpredictable. The approach and style must synchronize to the realities of social technology and to the organization, both of which are evolving. This evolution determines how CIOs need to introduce social technologies compared to previous business initiatives. CIOs actually may find themselves leading or pulling businesspeople along in this area—the opposite of the usual "IT is behind the curve on what we want" complaint. Social technology efforts are likely to be different.

This fundamental difference means that the evolutionary CIO enables experimentation, with few clear a priori outcomes to aim for but many possibilities for gain. CIOs must prepare to try things, some of which will almost certainly fail—and that's a reputational risk. The controlling CIO may dismiss the capability as not secure, not controllable, or not productive. The progressive CIO may let a thousand flowers bloom but not know when to harvest them or walk away, and the enterprise may consider too many trials as tools in search of a purpose.

Figure 1: The evolutionary CIO's middle ground

The best approach blends a progressive but planned approach to social tools with fiscal conservatism and some willingness to risk failure, considering that important tool capabilities are just now emerging.



Trust derives from a clearly stated vision of what the enterprise could achieve with the use of the technology, as well as the means that are evident to achieve those goals.

An evolutionary CIO, as Figure 1 illustrates, stakes out a middle ground that has two principal attributes. First, the evolutionary CIO is liberal on the technology and process for experimentation, while conservative fiscally. Second, the evolutionary CIO employs new skills from social science, balancing the individual motives of staff with the business goals to be achieved. The evolutionary CIO achieves a balance between the extremes of closing the doors to any social technology and flinging the doors too wide open, without purpose, hoping that the enterprise will achieve something of value.

A framework for evolving social technology success

At its best, social technology blends with workflow tools and provides information mining capabilities and organizational synergies. But, like baking a soufflé, the proportions are important. This section describes suggested combinations of social science and technical elements for the evolutionary approach.

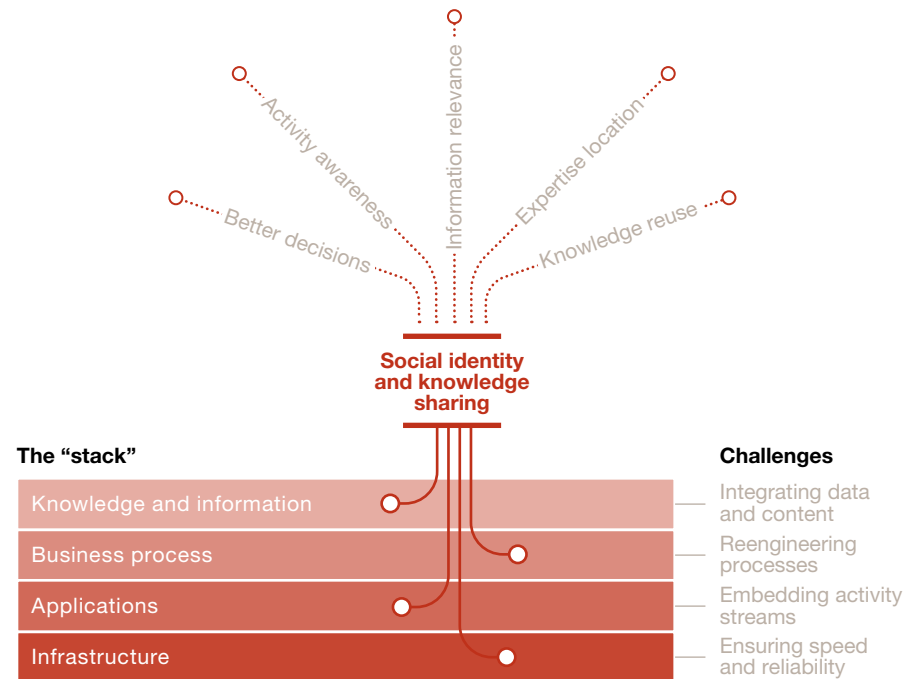
Social technology warrants investigating a number of opportunities. The evolutionary CIO establishes strategy, goals, and objectives, as well as the resources and ground rules to deal with what is inherently not totally predictable. There are two important elements. First, how should CIOs address the social science and politics of social technology? Second, what are the practical technical considerations?

Planning for the experimental nature of social technology

The CIO and the investigation team must be able to experiment publicly, and any wins or failures should not negatively reflect on their professionalism. Earning the right to perform this experimentation is part of the CIO being a trusted advisor for emerging technology. Trust in this case derives from a clearly stated vision of what the enterprise could achieve with the use of the technology, as well as the means that are evident to achieve those goals.

Figure 2: Where social technology can provide value

The base layers of the value stack provide a sound foundation, but the social identity and knowledge sharing associated with social software implementations make the rest more valuable by clarifying how information gets used and by whom. That function allows the harnessing of the “group brain.”



There are many elements a CIO should consider adding to a framework for effective social technology trials.

The utility of social technology is a direct function of the level of adoption and the effectiveness of people using it. Its highest potential is in harnessing the “group brain”—the collective knowledge and capability of all employees and contributors—but without causing the communications overload created by legacy tools such as e-mail. (See Figure 2.)

There are many elements a CIO should consider adding to a framework for effective social technology trials. The following eight serve as a starter list:

- **Shared understanding of goal and purpose**, down to what it means to the individuals and the organization. What are the business goals of the social technology investigation? Some possible goals are discussed later in

this article. Goals may evolve with experience, but it might be useful to clearly express and reinforce the primary business goals throughout.

- **Sensitivity to the cultural identity of the enterprise**, anticipating the behavior patterns and beliefs that will play out during the trial. An enterprise’s cultural identity would include the risk profile of the organization and the individuals who are participating in the trial. If the organization is extremely risk averse, by nature or regulation, the trials need to incorporate any existing communications governance policies and consider the need for new policies given the unique traits of social tools. A process owner should be assigned an ongoing role to assess behavioral alignment with risk management policies as part of the trial.

The good news is that much of social technology is independent of other technologies.

- **A well-thought-out rationale behind the authority granted to individuals**, including what access is allowed to information inside and outside the enterprise, and what restrictions are placed on that access and repurposing that information, by type.
- **Best use protocol**, such as what are the expectations of users to contribute or share. Are those who have access to the social tool encouraged to reply or contribute through performance assessment rewards, or is participation entirely voluntary? Are guidelines distributed that describe what makes a reliable and effective contributor? When and how are new communities formed, and what sunset provisions are made for previous communities?
- **Optimal ways to encourage participation**, whether tangible, such as compensation, intangible, such as public recognition, or both. (See the article, “Turning handheld power into enterprise clout,” on page 06 of *Technology Forecast 2011*, Issue 1 for more information about how workforce motivation has changed in the 21st century.) Can a CIO say in advance what level of participation will constitute success? When success occurs, how are the results publicized?
- **Essential privacy and security rules, appropriate to the enterprise**, understood, and reinforced. There are tradeoffs, because the more that people share relevant information, the greater the benefit. However, some information is confidential and privileged, and the boundaries need to be set in advance beyond which

information cannot be shared. The many-to-many capabilities of social tools create some productive tension for information privacy and security. Social technology trials could be an opportunity to update the privacy rules and reconsider how the risk landscape is changing.

- **Initial and ongoing communications**, both oral and written. Social technology is about exchange, so communications skills that foster dialogue are important, both for leaders and participants. And leadership participation, promoting by doing, is one key. But too much leadership participation can dissuade other employees from joining. A balance must be struck.
- **Clear leadership and ownership**, including a sponsor for the initiative and an owner responsible for keeping it within the framework. This may not be the CIO or a member of the IT leadership team, but someone else who is part of the user group. At Egon Zehnder International, a user group was assigned to launch an intranet portal called Symphony and then expand it to other groups. (See the sidebar, “Microblogging in a new paradigm,” on page 09.)

Requirements of evolving collaboration methods

Most CIOs are skilled at the politics of initial deployments, ensuring that key influencers understand the scope, purpose, and goals of the initiative. They buy into the effort to the point of personal ownership, and they extend their enthusiasm to the user community. In addition to that commitment, social technology will demand continued skill to keep the capability relevant. After almost any new IT tool or service is introduced, some level of early adoption occurs because of its novelty. Dick Hirsch, senior consultant for Siemens IT Services and Solutions, notes that “How you keep them involved is much different from the normal enterprise project life cycle. You must be much more aware of people coming and going.” The ongoing relevance of a microblog, for example, depends on the freshness of ideas and continued motivation of the users.

Sustaining the initial rush is important. Many collaboration approaches of the past were initially hot, but soon devolved into maintenance headaches, data leak risks, and underutilized assets. The missing ingredient has been a way to scale collaboration enterprise-wide without creating communications overload. Tools that integrate rather than fragment the collaboration environment and that filter via social analytics are the solution, but every enterprise has social circumstances that are unique. Thus, the continued success of social tools applied in the enterprise will require sustained efforts at experimentation, especially in the area of social analytics.

How social technology initiatives will be different

Because the successful adoption of social technology is evolutionary, CIOs can adapt their own strategic framework to accommodate the investigation, the identification of business benefits, and the scale-up for broader use. Once CIOs are clear about how social technology is different and what that means to design, goals, and internal politics, they can look at the technology aspects—and only then. The good news is that much of social technology is independent of other technologies. Even those social technologies that integrate with existing workflows let CIOs take advantage of this technology independence to do greater experimentation.

Only for the experiments that stick should CIOs then perform the deeper technology analysis of systems and data integration for the long term. Given that the non-adoption rate is likely to be high, at least initially, this approach is the only sensible one. The following section suggests some changes to traditional strategic planning that CIOs should incorporate in a social technology adoption framework.

Business drivers of social technology

To gain enterprise acceptance, social technology needs to have business drivers, like any other enterprise software proposition. However, unlike many applications that support work process flows apparent to everyone, social software can be seen as a bit “squishy.” That’s because the “work process” of connecting people to make them smarter isn’t normally thought of as a business process. So some education of senior leadership and business stakeholders may be needed. In doing

CIOs must be willing to experiment more. Most CIOs value their command of events and precision in all they do, so this new approach may be uncomfortable for many.

so, it is important to highlight a number of tangible contributors to employee performance made possible by social tools. These can include the following:

- **Pulling richer, more relevant context into human-computer interactions and moving away from siloed information—**

Third-generation social tools reach their full potential when they integrate social information with nonsocial business data. The richer metadata that such an approach relies upon can have a substantial impact on enterprise search, for example.

Social identity becomes an additional means of navigation, relevant to both search software and end users. Conveying this capability to a range of stakeholders—including data, content, and knowledge management groups—as well as business units will be important.

- **Embedding the collaborative communication venue (usually called an “activity stream”) into existing applications or suites—**

Social technologies can be aligned to a workflow context, bringing collaborative potential to where employees are working. The more strategic and specific the workflow process, the more likely the endorsements will be universal from senior management and the key influencers within the enterprise.

- **Adding tacit knowledge to otherwise structured workflows—**

SAP’s StreamWork, for example, injects “unstructured collaboration into a structured process,” Hirsch says. It’s feasible to merge a stream of unstructured dialogue about subjective supplier qualifications into the formal enterprise resource planning (ERP) procurement process.

Previously, these conversations took place on phone calls, or not at all, as the effort seemed an interruption to the rigorous processes. Social technology enables this injection of new insights in real time and can help with results adoption. Tools such as StreamWork use an activity stream familiar to those who have used consumer social tools such as Facebook. Social technology could be the added part of an existing or planned solution that just puts it over the goal line and enhances some other functionality.

- **Tracing conversations—**Social technologies can trace an online “conversation” in ways that e-mail often doesn’t, in essence replicating what formerly took place in physical meetings.

Displacing a number of physical meetings with a more reproducible and traceable replacement both extends the value of “meetings” and is a more eco-friendly solution.

- **Enhancing governance, risk, and compliance—**

Many developments in markets or inside the enterprise can be quite ambiguous in meaning and the degree to which they create risk for the organization. Putting such developments in front of a broader, more diverse internal audience for consideration and discussion can enhance governance, risk, and compliance.



The evolutionary CIO's checklist of information sources should include an expansive consideration of data, with a focus on pattern recognition capabilities to connect the dots.

Regardless of the other technical considerations, the value in social technology will be in the effectiveness of information integration and pattern identification.

Formulating goals

When formulating goals, it is important to establish the key metric or metrics for each goal, measure them, and make course corrections. Goal formulation can also draw on approaches learned from business process redesign. The mantra of business process redesign during the 1980s was to break old glass (procedures and approaches) through changes in behavior, process, and technology. It's back to the future with social technology, as that is precisely the order that applies. The emphasis on politics and team constructs described earlier is part of the behavior focus. Process changes are what will bring results and warrant all the discipline CIOs have used in business process redesign for IT deployments.

Other process changes could be more formal, such as a change in the work breakdown structure that requires an explicit checkpoint in an activity stream before a process is complete. For example, a hiring process could mandate that social technology be used as the exchange mechanism, replacing a prior loose process of seeking inputs on a candidate before extending an offer.

Components of the technology strategy

Given the investigative nature of social technology trials, the evolutionary CIO needs a different planning framework. Some of the same elements of traditional IT strategic planning apply, although CIOs must be willing to experiment more. Most CIOs value their command of events and precision in all they do, so this new approach may be uncomfortable for many. In this experimental mode, the CIO will closely monitor and more flexibly change elements of information systems, infrastructure, and staff competencies. The following sections describe four major components to a social technology strategy that differ from traditional strategic planning for IT.

More complete information sources

Social technology will include structured and unstructured data. Structured data in the context of social technology could include the total number of postings and comments made by employees on a topic as an index of who the experts are in any given domain. Unstructured data could be subjective descriptions of knowledgeable people. In social contexts (inside or outside the enterprise), there is no substitute for a qualified source to influence those who seek information. Organizations sometimes want a pause button in the middle of a transaction that can be used to collaborate and confirm the transaction. Indexing this unstructured information, keeping channels open dynamically, and keeping all information as real time as possible are important.

How social tools can link silos and enable the “group brain”

1

Bob is facing a parts shortage in Japan. He keeps trying to find other sources, but can't.

Data management

2

Bill posts a new demand forecast for flash memory that evaluates the situation in Japan.

Knowledge management

3

Jaelin sees Bill's report and looks at the same smartphone camera components list that's affected by the flash memory shortage.

Content management

4

Mary alerts Bill to Jaelin's post about the components.

Data management

5

Bob calls Bill to talk about some of the specifics of the demand forecast. He incorporates confirmation of the tight supply from the knowledge management system into the procurement system.

Data management

6

Tomas sees the buzz about parts shortages and pulls all the information from the silos together.

Knowledge management

7

Sherry sees the summary information in Tomas's activity feed on her dashboard and talks to Bob and Bill. She makes sure to alert shareholders and analysts to the shortage and how it will affect smartphone shipments.

CFO

Better decisions with silo linking

Bob and **Mary** are part of procurement and have been looking at information just in the data management silo. **Jaelin** has been limited to information in the content management silo, and **Bill** and **Tomas** have been accustomed to looking at information just in the knowledge management silo. **Sherry**, the CFO, is preparing remarks for a speech to analysts, part of an analysts' day session her company has scheduled.

With the right information architecture and more integrated social tools, the people who have struggled with siloed data and content can share information in ways they couldn't before.



Social technology has the potential to address several perennial goals for enhanced, more efficient collaboration and communication in a flexible and low-cost way.

The evolutionary CIO's checklist of information sources should include an expansive consideration of data, with which thoughtful employees could use their innate pattern recognition capabilities to connect the dots. Regardless of the other technical considerations, the value in social technology will be in the effectiveness of information integration and pattern identification. As the adoption of social technology evolves, some of the most relevant sources may be outside the normal internal information systems, and CIOs must decide how to provision those sources while following important ground rules for governance, risk, and compliance.

Social technology tools with information integration and filtering capabilities

There will be new tools to consider, and they may be unfamiliar to most CIOs. (See the article, "Enterprise success with emerging social technology," on page 26.) Moreover, organizations may need to try many tools before they find one that best fits the organization's culture and processes. For CIOs who want to start by leveraging current investments in infrastructure, the major ERP vendors, such as Oracle and SAP, and customer relationship management (CRM) vendors, such as salesforce.com, provide social technology to work alongside existing suites. Startups such as Socialtext or Socialcast allow best-of-breed style integration. Tools such as Cisco Quad

provide a unified communications-oriented platform with data layer interconnection for filtering, pattern recognition, and search capabilities. TIBCO's tibbr offers an approach that may take advantage of deep integration with the company's existing middleware platform, which may integrate into the overall information fabric quickly. Other tools may be optional components of the existing database management system already in use.

Implications for infrastructure during the production phase

Some CIOs have decided to pilot social technology outside their enterprise on cloud services, either temporarily or until a pattern of use develops. This decision recognizes that an evolutionary approach must be careful not to invest too heavily in highly tailored tools during the early phases of deployment. Social technologies may lend themselves readily to cloud services. In this way, social technology is different from other IT investments in the past, when consideration of the long-term aspects of the investment were assumed. For IT, social technology is more organic and needs to be planned and managed accordingly.

New IT department competencies

The skills needed in an evolutionary approach are often different from or at least extensions of preexisting skills. This is true for the evolutionary CIO, as noted earlier in the flexible approach to planning, and for the staff that will perform the investigations. In

researching this issue of the *Technology Forecast*, PwC found only a few IT organizations that had staff with competencies in social technology explicitly. According to CIO Rick Napolitano, ARINC uses summer interns as part of the IT investigation team, because they generally are younger people with personal experience in social technology outside the enterprise. The issue is not usually lack of interest but lack of investment. Mistakes can occur in how enterprises adopt social technology, especially in areas of privacy and security, so CIOs do need a plan for acquiring or developing staff competencies. Social technology is here to stay, in some form, so the investment will pay dividends and is a way to engage IT staff who want to apply their personal experiences to the enterprise.

Don't just sit there— evolve something

By any indication—media attention, investor interests, initial public offerings (IPOs) and pending IPOs, personal use—social technology is hot. At the moment, the technology promises different capabilities for different kinds of enterprises, and the activity stream paradigm is already being blended into ERP, CRM, and supply chain management (SCM) applications from the major vendors. As with some other recent IT innovations, social technology gained momentum outside the enterprise first and then achieved sufficient critical mass to become relevant to enterprises.

Social technology has the potential to address several perennial goals for enhanced, more efficient collaboration and communication in a flexible and low-cost way. Although an initiative could start as skunkworks independently of IT, its requirements to link into the databases, infrastructure, and processes managed by IT will mandate that the CIO lead. CIOs must develop a framework and then adopt and support social technology in an exploratory, evolutionary way. Doing so will align use cases for social technologies to the culture and business strategies of the enterprise and ensure effective and meaningful adoption.

Why collaboration hasn't changed much—yet

Sheldon Laube focuses on the essentials that still need to emerge to create real improvements in enterprise collaboration.

Interview conducted by Alan Morrison, Bo Parker, and Bud Mathaisel



Sheldon Laube

By the time this issue of the *Technology Forecast* is published, Sheldon Laube will have retired from PwC, where he most recently was chief innovation officer. His career has included stints in C-suite positions at CenterBeam, USWeb, and Novell. Between 1985 and 1995, he was CIO at Price Waterhouse (PW) and was behind the firm's decision to license the first 10,000 copies of Lotus Notes ever sold to an enterprise. After his return in 2003 to what had become PwC, as chief innovation officer he led the US firm's iPlace web-based idea-sharing initiative.¹

¹ See "PwC iPlace—Six Factors Behind Our Success" at the *PwC Innovation Blog* (<http://pwcinnovate.wordpress.com/2010/07/23/pwc-iplace-six-factors-to-our-success/>) for more information on iPlace.

PwC: How do people collaborate better and more effectively, especially as teams get larger and more distributed? People on one team often need help from another team in a different place, in a different unit. Maybe these teams don't even know each other.

SL: That's the problem of collaboration. The general problem case is that we've made no fundamental progress over the past 30 years in using tools that help that group of people do their jobs better, other than e-mail.

PwC: How does social networking help solve that problem?

SL: The jump to solving that problem through things like Facebook and Twitter just is not obvious to me. Get rid of the words "social network." Forget that for a second, because when you say it to anyone else who is not in our conversation, they think Twitter and Facebook.

That's why companies get confused. The question is, how do you make teams more effective through the use of technology?

PwC: That's why Notes was brought in back in 1990 or so.

SL: That's why Notes was brought in, and that's what [web pioneer] Tim Berners-Lee had in mind. The web was initially a collaboration environment. The world of collaboration was set back by a mere 15 or 20 years because the web turned into a one-way publishing environment, instead of a collaboration medium.

Milestones

1990s: Bulletin boards and Notes databases

2000s: Web for publishing, not collaboration

2010s: Dynamic communities

2000

1990

2010

Back then, there was a domain: computer-supported collaborative work. There were conferences. But soon, all of the money got sucked into a one-to-many publication model.

So what's happened is that because of social media, with people interacting on a more peer-to-peer level, people have started asking about web collaboration once again.

PwC: Every time you try and get off of e-mail, you find yourself inexorably held back.

SL: There have been some attempts. Google Wave was a good example, and now there are new ones. What's being attempted are dynamic communities that are sensitive to your temporal work. In other words, the community would change as you move from task to task.

When I'm doing my timesheet there'd be one community, and when I'm working on a project, there'd be another.

PwC: In 1990, what was the aspiration and how was that aspiration informed by the experience with Notes?

SL: In 1990, remember, most companies did not have e-mail. You dialed up and logged onto a bulletin board system. CompuServe started coming out, but there were bulletin board systems and AOL had just been started.

PwC: The WELL [Whole Earth 'Lectronic Link] had been around.

SL: The WELL had been around, and there had been these places you could go—such as CompuServe and some others like that—and the notion was always exactly the same. It was, “I would like to be able to share something that others could easily see.” Those notions were all one to many, or many to many.

Things like the WELL facilitated discussions. You'd read through the posts and maybe somebody had an answer to your question, much like threaded discussions now. That hasn't changed dramatically.

The thing was, I couldn't set up my own discussions very easily. In other words, if I just walked into work and said that I wanted to set up a bulletin board system to discuss the latest tax news, that was not a lightweight operation. From a technology point of view, you'd get a PC and put in a card that had multiple connections to modems so people would dial in. You had to be pretty savvy just to run one of those.

And from an enterprise point of view, it wasn't scalable. The biggest bulletin board systems you could buy maxed out at 64 simultaneous users because the PC had only eight slots—you put these

cards in, and each card could support eight modems and whatever it was. There was a pretty clear limit, and of course the notion of security and access never existed.

Ray Ozzie's vision [Ozzie led the development of Notes, and then Groove, which was acquired by Microsoft. He was one of Microsoft's CTOs and then its chief software architect until the end of 2010.] was always about collaboration. It was never about e-mail. The point was, how do you allow people to self-assemble into working groups?

PwC: Notes was the do-it-yourself WELL?

SL: Yes, but Ozzie's vision was bigger than the WELL because it was aimed at companies. Back in 1990, everybody was starting to understand the power of a database, dBASE. That was one of the top popular products. That's what people did with computers. But dBASE was a one-user database.

By comparison, Notes was this magical thing that allowed you to do everything you could do in dBASE, and with no effort it became a completely distributed database that everyone could see and you could simultaneously update it. It was an amazing vision for 1990.

Notes use at PwC

Number of Notes databases at Price Waterhouse in the early 1990s
Number in 2006 before the purge

200,000

900,000

When I first talked about Notes to people here in the firm, I would stand in my office in New York [at Price Waterhouse]. As people would walk down the hall to the chairman's office to pay homage to the chairman—I was on the same floor just by random chance—I'd grab them and say, "Come and take a look at this." And I'd show them Notes on my desk because it was the only copy running.

After five minutes people said, "You know, we could share information like this." I could put in a question and the community could come together and answer questions. Tax people would look at it, and intuitively they understood this notion: There is some community that is thinking about the stuff we're thinking about. How can we tap into each other and share knowledge or collaborate?

Our philosophy in the early days of Notes was anybody could create a database. This was a lightweight operation and it was so simple. The original Notes was like dBASE, just a form, and you basically lay it out and you say, this is a field, and it's either a number or it's a character, or it's a rich text field. So it was very easy for anyone in the firm who had an idea like this. It was very easy

to throw together a database and with the press of a button, anybody on any desktop had access to it, without any IT involvement.

It also had enterprise-level security, encryption, and scalability—all of that was in 1990, in the first version of Notes.

Sure enough, it went wild, and with nobody doing anything, other than us getting it out there, we went from no databases to about 200,000. At the great purge of five years ago, there were something like 900,000 Notes databases.

The knowledge management people said, "Oh, this is out of control, it's wrong." It was all about informal knowledge. They said, "How do you know what's right and who is saying what to whom?" A lot of it was out of date, except for the fact that there were people using it in valuable ways—otherwise it wouldn't exist.

You get to 900,000 databases—and those are all mini collaborations—that was the aspiration and it worked. What happened, and it happens over and over again, is the IT people said, "We've got to get it controlled, and then you need to add all of these enterprise application features."

PwC: By 2000, what were the collaboration aspirations?

SL: In 2000, the web itself—even though it was one to many—faced the same set of issues. There were an unlimited number of websites with many individuals—lots of one to many—but when you get a lot of ones, that's still a big number.

In the age of the web, these issues became even more acute to everyone else in the world, because 900,000 websites ain't nothing. I remember when there were still 300, when you could go to wherever the directory was, and each week you'd see more added, right?

But the web really put this problem in relief because you can think of each website as a database, as a wiki, or whatever, just conceptually. It faces the same set of issues. How do you find the right ones? The problem isn't any different.

Then there was search. Google and others have shown that through pure computational force you can get pretty good about allowing a lot of people to find information that's useful to them. We can argue about how good it is, but while there might be half a billion people on Facebook, there are billions using the web and Google every day and getting useful—at least in their minds—information out of that.

PwC: Although search inside of enterprises remains very difficult....

SL: Because it's the scale problem in reverse. There's not enough information to allow the techniques that the Google search people developed. The way Google PageRank works is the true law of very large numbers of people independently choosing to link to X, Y, and Z.

Enterprises don't even allow that. It's exactly contrary to their belief. The only links are the ones they approve, right?

PwC: With a social layer of data, there could be a human-assisted element that you could just search. That's what Cisco and other vendors have been talking about.

SL: That's an interesting hypothesis, but there's no empirical evidence that that will get you a good answer.

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PwC: If you look at ranking and reputation and all of those qualitative attributes we try to assign to people and things, there is a way to fill the gap that exists when you're not doing the very large numbers.

SL: I think you're right. That's a good insight. What we're learning is that social technology lends itself more toward the unstructured problems. In other words, with all of the brute force sorts of things—search, just for example—you're looking for an answer that's a definable answer, that's a small range of answers. The social stuff gets you a range of options about the future or even about today.

What will Egypt look like in five years, for example? The answer is indefinable, but Twitter is very useful in helping you form a thought about that. You watch this stream of discussion and comment, and it lays out a probability cloud of what's happening there, and that gives you some insight.

So social technology brings people back in around the unknown, which is why it's interesting.

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We're here to help

To have a deeper conversation about how this subject may affect your business, please contact:

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Subtext

- Social graph** A map of people and how they're connected. In relational form, the social graph has interesting but limited utility. In Resource Description Framework (RDF) graph form, however, it can be a powerful means of navigation. In this form, the social graph can be connected to a larger knowledge graph that can help make the whole more intelligible.
- Interest graph** A map of interests and how they're interrelated. Following interests, rather than just people, can be a way to reduce information overload. When connected to the social graph and the larger knowledge graph via RDF, a map of interests can make content much easier to browse or to search and retrieve.
- Social media** Blog, microblog, wiki, and other kinds of many-to-many postings on the public web. Contrast social media with collaboration-generated media inside the enterprise, a very different form of online information. The latter media are also evolving to a many-to-many paradigm with the help of an activity stream, but that's where the similarity ends.
- Sense making** Gaining an initial understanding. Enterprise teams need to engage in sense making as part of any major business process. The ad hoc nature of sense making contrasts with more predictable kinds of execution, the kinds of tasks addressed by transactional systems. Collaboration systems attempt to make sense making easier.
- Collaboration** How teams work together to create value. Technology, even the web, hasn't had much impact on collaboration over the past 20 years yet. Changing that situation is becoming more feasible, but only with the right vision and long-term commitment.