

Our increasing connectedness is driving new ways of working together to deliver business value. Globalizing organizations, outsourcing, mobile work, innovation, interorganizational teams, innovation, and reaching out to suppliers and customers are driving today's need to improve collaboration within firms. And, of course, IT is at the center of these trends. A study on what makes widely dispersed virtual teams effective found that, contrary to expectations, technology was a significant factor in facilitating their success (Majchrzak et al. 2004). However, literally hundreds of software packages are being promoted for improving collaboration. These technologies, such as virtual worlds, Web 2.0 applications, social networking, content management, and new ways of communicating (e.g., blogs, wikis, instant messages, tweets) appear almost daily and are being adopted and adapted rapidly in the wider society. They are challenging many of the traditional conventions of how work is done and the role of IT functions themselves.

As the menu of available technologies widens, becomes virtually free, and employees clamor to use them anywhere, anyplace, and anytime, IT managers are asking many questions including the following:

- What is the business value of these technologies?
- What is the best way to assess them and make decisions about their use?
- How can these technologies best be managed and adapted for organizational purposes?

Furthermore, as new technologies appear, businesses are experimenting with different types of collaboration, such as those already listed, and IT functions are often expected to make collaboration happen through the implementation of technology, even though technologies are only one piece of any collaboration initiative. Certainly,

¹ This chapter is based on the authors' previously published article, Smith, H. A., and J. D. McKeen. "Enabling Collaboration with IT." *Communications of the Association for Information Systems* 28, no. 16 (March 2011): 243–54. Reproduced by permission of the Association for Information Systems.

IT functions provide the “heavy lifting,” such as connectivity and information integrity, without which most collaboration efforts would not be effective, and a well-designed IT architecture is a key enabler of collaboration (Johansen 2007). And, at the most basic level, IT also protects the privacy and security of information and users. But how new applications are implemented is often as important as the technology itself in delivering business value. As one IT manager stated, “We sometimes jump directly to the tool without thinking through the strategy and tactics involved.” As a result, IT managers can sometimes feel that the deployment of collaboration is less than optimal.

This chapter explores IT’s role in enabling collaboration in organizations, and at the same time what IT’s role should not be (i.e., what responsibilities and accountabilities should properly be the function of the business). It accomplishes this by identifying the principal forms of collaboration used and the primary business drivers involved in them, how business value is measured, and the roles of IT and the business in enabling collaboration. The chapter first looks at some of the reasons why collaboration is becoming so important in organizations and the business value it enables. Next it examines some of the different characteristics of collaboration in various organizations. Focus then switches to the key components of a collaboration program, how these influence its effectiveness, and IT’s role in promoting collaboration. The chapter concludes with a series of recommendations for IT managers to use as a guide for how they can best facilitate collaboration in their organizations.

WHY COLLABORATE?

There is no doubt that information and communications technologies are enabling different ways of working—within organizations and between them. Who could imagine life without texting? Without Google? Without cell phones? These technologies and others have changed forever how we interact with others both personally and professionally, how we share information, and where work gets done. Thus, it should be no surprise that there’s strong interest in collaboration among business practitioners and academics alike. A simple Internet search on this topic yields literally thousands of articles. And it is no secret that what we are seeing now is just the tip of the technology iceberg. Whether we do or do not yet actually use the next generation of collaboration or social networking technologies in our work, everyone has heard about them, including instant messaging, Twitter, Facebook, webcams, and others, and no one is a stranger to speculation about how these technologies are going to change the face of organizations yet again.

Almost any business or IT journal these days contains speculative “think pieces” or case studies about how essential it will be to collaborate (in various ways) in the future and how failing to do this will result in the organization becoming a dinosaur (Amabile and Khair 2008; Lynch 2007; Romano et al. 2007). And it is certainly without question that hundreds of new technologies—including hardware, software, applications, and services—are currently being promoted to businesses as enabling collaboration and all of the benefits it will bring. Yet business and IT managers are struggling to cut through the hype to get at the real value collaboration will bring. They have seen this before in both the “Internet bubble” and the knowledge management fad and know from bitter experience with previous generations of groupware, knowledge management, and

collaboration investments that achieving positive results is not as easy as plugging in a piece of technology (Iandoli 2009a). Many have a long history of deploying collaboration technology and seeing it gather dust (McAfee 2006).

It is therefore no surprise that the focus group reported a great deal of conflicting feelings in their organizations about collaboration, from wildly enthusiastic to highly skeptical. One company has invested substantial amounts of time and money in collaboration technologies and in adapting its organizational culture and behaviors accordingly and believes that they have become more productive, effective, and successful as a result. On the other hand, another manager reported his company's senior executives were grumbling that no one has yet given them a real business need for collaboration. Some members reported that there's a lack of business push for collaboration in their organization, and others stated that their business units were "coming around in some areas because they feel they need to be where their customers are." Most agreed that virtual interaction is becoming increasingly commonplace and that the percentage of time employees work virtually (and therefore need collaboration technology) is increasing (Drakos et al. 2009; Romano et al. 2007). One study found that spending on collaborative software represents one-fifth of most organizations' technology budgets, but business leaders are still uncertain if these investments are improving either collaboration or the quality of work (Cross et al. 2005). This sentiment was reflected by most of the focus group participants. "We're still experimenting with collaboration," explained one. "We don't have a business project, but we're developing a collaboration strategy."

Because collaboration is evolving so rapidly, it's difficult to definitively articulate the business drivers and benefits involved. However, there appear to be five main categories of potential business value:

1. **Top-line value.** A great deal has been written about the importance of collaboration in improving and/or increasing creativity and innovation in organizations. One study found that collaboration technologies play a critical role in improving knowledge creating and sharing practices and in developing new processes, products, and services (Fink 2007). Another noted that "great ideas can come from anywhere and IT has dramatically reduced the cost of accessing them" (Pisano and Verganti 2008). The expectation is that collaboration both across an organization and with customers, suppliers, and other third parties, will strengthen an organization's ability to identify new business opportunities and formulate creative solutions (Fink 2007). The goal is "real time, rich, location independent collaboration" by creative teams that can rapidly process and assimilate knowledge from many different sources and apply it in practical ways (Gordon et al. 2008). This type of value is especially important in highly dynamic and competitive industries where the generation of a large number of new, good ideas is critical to competitive advantage. Within the focus group, most organizations were just beginning to recognize how technology, collaboration, and innovation could be harnessed to change their business models, products, and services. "We're beginning to see our executives more open to these concepts and how changing how we work together and with our customers can make a difference," said one. One firm has included collaboration and innovation in its performance review criteria.

Nevertheless, these appear to be the exceptions, and focus group managers mainly commented that their business leaders were not yet really thinking about how technology could help them in this area.

2. **Cost savings.** In a number of focus group companies, collaboration is seen as having real cost savings potential in such ways as reducing travel costs through virtual meetings, improving communications, and enabling remote access to documents. Participants noted that collaborative technology facilitates the work of global and virtual teams by compressing work flow, reducing development costs, increasing communication, minimizing misunderstandings, improving coordination between groups, and enabling linkages with vendors, suppliers, and customers that speed up the supply chain and other work processes.
3. **Effectiveness.** There is wide recognition that collaboration technology, used properly, can make group work more effective. This is particularly true for virtual teams. For example, one focus group company uses social networking technologies (behind its firewall) to enable team members from around the world to learn about each other, have fun events, and understand each others' customs and culture. "This has been really useful for us in building strong global teams," said the manager involved. Collaboration technology, particularly unified communications, is especially useful in integrating remote and mobile workers seamlessly into team or project activities. It enables them to "touch down" in an office and plug into the applications and information they need, wherever they are in the world. Increasingly, too, for many professionals, whose work consists of participation in a number of ad hoc projects, collaboration technology enables them to more effectively juggle a variety of commitments. One firm uses it extensively for its multidisciplinary projects, such as pandemic planning. Finally, online education is a big application of this technology, allowing employees to participate from a variety of locations, have virtual and real-time discussions, and incorporate learning into the demands of their workday.
4. **Accessibility of people.** A key feature of collaboration and its associated technology is that it provides a company with access to a much broader range of skills, capabilities, resources, and services than have been traditionally available. Collaboration technology significantly expands the number of potential partners and expertise available to a company (Pisano and Verganti 2008), and in recent years different types of interorganizational alliances—from supply chain integration to design coordination to innovative partnerships—have become commonplace (Attaran 2007). However, it is the ability to access internal expertise that is currently of most interest to the focus group companies. Only one firm had successfully implemented a comprehensive enterprise directory, including phone book, expertise location anywhere in the organization, reporting structures, and connection with social networking information. Yet even this firm recognized how difficult building such a capability can be. "Over the years, it has been a huge stumbling block for us," one focus group member said. Other members were envious. "We're trying to build this facility," said one, "because right now it's really hard for us to find people in our organization." Ideally, this type of accessibility also enables the development of communities of interest within the organization—either work focused or built around personal interests. In our virtual, networked

world that is rapidly losing the “human touch” and is characterized by “ephemeral relationships,” these communities can help build staff morale and create a sense of belonging (Tebbutt 2009; Thomas and Bostrom 2008).

5. **Accessibility of information.** One of the biggest benefits of collaboration and its associated technology is that it makes information much more accessible than in the past. Information repositories, such as the intranet, enable the management and sharing of digital content on an as needed basis (Chin et al. 2008). Other technologies, such as wikis, support the creation of new content and its publication. These tools enable information and knowledge sharing across time and space in ways that were unheard of a mere decade ago (Fink 2007). Many focus group members believe that portal and content management applications will be the biggest value of collaboration. But they also feel it will take a lot of work to get there. “Our intranet is just a garbage scow of information,” sighed one manager. “The same document can exist in literally hundreds of places.” Another noted, “While our corporate level content is well managed, it gets messier and messier the lower down in the organization you go. We need much more information management and filtering to make our Intranet really useful.” Finally, although everyone agrees that collaboration will only be successful if more information is made more widely available, there is still a great deal of fear that “someone will do something bad with it,” which explains why in many organizations the default position is not to share.
6. **Flexibility.** The world is becoming increasingly volatile, uncertain, complex, and ambiguous and this is creating a highly dynamic business environment for many companies (Johansen 2007). Flatter, more networked, and collaborative structures create the right work and leadership environment, facilitating fluid workforces and speedy decision making and providing transparency of information and capabilities while retaining clarity around the organization’s beliefs, values, and responsibilities (Reeves et al. 2008). A networked organization, with situational leadership, less structure, and the ability to create new capabilities through its networks, will be much more able to cope with these challenges. Flexibility will involve space, technology, and protocols for working in networks and will exist at the intersection of real estate, HR, and IT (Johansen 2007). Flexibility underlies many of the reasons why focus group members are interested in collaboration. Although most are still seeing this as a need within a more traditional, hierarchical organizational structure, some recognize that their structure and governance practices will have to change substantially.

CHARACTERISTICS OF COLLABORATION

Although there is much talk about the benefits of collaboration and the need for more of it in organizations, clarity is significantly lacking about what collaboration actually is. As one focus group member put it, “If you asked a hundred people to describe collaboration, you would get a hundred different answers. There’s a huge disparity in understanding about this topic.” There is also significant confusion about collaboration, which is a human activity, and collaboration technology, which is the hardware, software, and applications that enable the work of collaboration (Camarinha-Matos et al. 2009). Finally, the group noted that collaboration is often used interchangeably with such terms as networking, social networking, and cooperation. It is therefore important

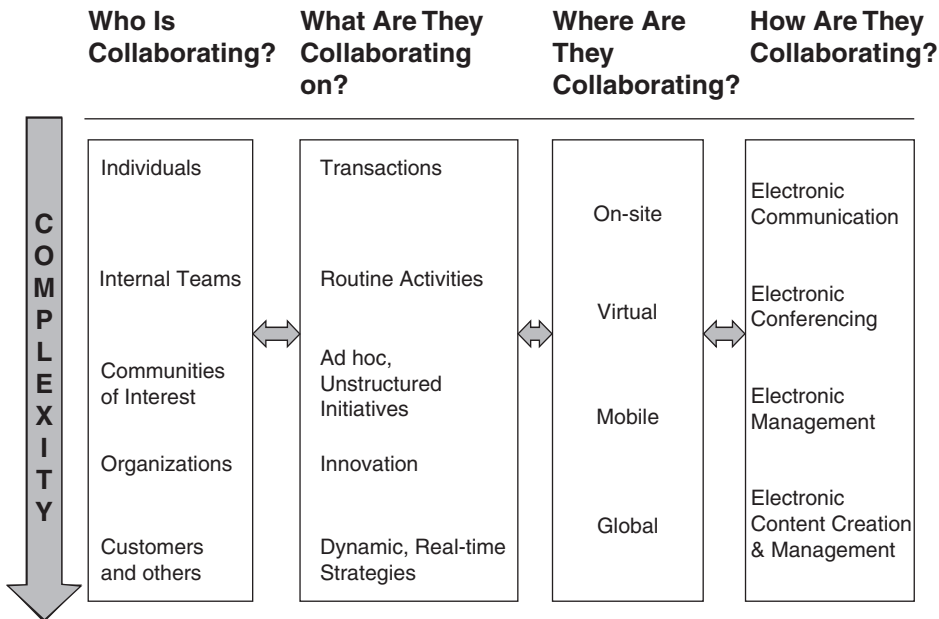


FIGURE 16.1 The Range and Scope of Collaboration

to be clear about the range and scope of collaboration in organizations these days, including who is involved in collaboration, what type of work is being done, and where it is being done, since these have a direct bearing on how the IT function can best support collaboration with technology (see Figure 16.1).

- Who is collaborating?** At its simplest, *collaboration* describes work that is done jointly with others (Wikipedia 2011). In modern organizations, this covers a lot of territory. Sometimes, collaboration can be as basic as two people working together to achieve a goal, but it also refers to a wide spectrum of different types of collaborative participants. In organizations, there can be collaboration within teams (both formal and ad hoc), between business units, and within communities of interest. Collaboration can also occur beyond a firm's boundaries, including between an organization and its customers, between one or more organizations (as in a supply chain or an innovative partnership), and, as we are beginning to see, with the world at large (also known as "mass collaboration"). As organizations have become more comfortable with collaborative work, they are extending it in new ways and to more and more types of participants. Most focus group organizations still focus on internal collaboration, yet there was general agreement that the trend is toward opening up collaboration beyond organizational boundaries. At present, most organizations are fairly "locked down" but have practices in place to enable key suppliers and trusted third parties to access internal company data and to work collaboratively with internal participants.
- What are they collaborating on?** Collaboration can take many forms. The early wins in organizations, according to the focus group, were simple transactions. These included e-mails, conferencing, extranets with partners, and basic

workflow. Next came collaboration around routine activities, such as access to information and its reuse, ease of information creation and publishing; coordination of experts to solve common problems and to reduce the work involved in mundane tasks, such as coordination and planning (Cross et al. 2005; Edmonston 2008; Fedorowicz et al. 2008). Most organizations in the focus group have substantial initiatives in this area, although they believe there's more work to be done, especially in such matters as improving content management and creating enterprise directories. A third type of collaboration is more unstructured in nature and includes the development of communities for various purposes, creating collaborative work environments where innovation can occur, and collaboration for issue and information management. Most focus group members had only just begun to understand how best to leverage this type of collaboration, and their efforts in this area are still mainly experimental. However, one firm has created a new technology adoption environment, where any technology innovation can be shared and where others can use and provide feedback about its utility and effectiveness. The most challenging form of collaboration is probably best epitomized at present by the online gaming community. Here, various participants work together in real time to achieve structured goals under rapidly changing conditions. Dynamic collaboration is characterized by speed of decision making with incomplete information, the ability to modify decisions in response to changing conditions, trial and error, the continual need to address and deal with risk, hyper-transparency of information, and situational leadership (Reeves et al. 2008). None of the organizations in the focus group had achieved this type of collaboration, but all recognized that this is increasingly the way members of the younger generation expect to work and also felt that as business challenges become more complex, organizations will have to find better ways of collaborating in this way.

- ***Where are they collaborating?*** Increasingly, collaboration needs to take place on an anywhere, anytime basis. Inside organizations, members noted the need for more meeting spaces and meeting rooms as well as “touch down” areas where contractors and outside staff can temporarily set up office. Almost all focus group organizations already support virtual and mobile work, at least to some extent. Several members of the focus group also routinely utilize international or global teams where collaboration takes place across time zones, national boundaries, cultures, and language groups. Some were also beginning to experiment with different forms of collaboration with individuals and enterprises beyond their organizational boundaries, which requires dealing with different organizational cultures, practices, processes, systems, and data.
- ***How are they collaborating?*** Collaborative technology comprises the tools that are used to facilitate the work of collaboration. These fall into four main categories: electronic communication (such as e-mail, instant messaging, blogs), electronic conferencing (e.g., video conferencing, meeting software), electronic management (e.g., file sharing, activity assignment, task management), and electronic content creation and management (e.g., publishing tools, enterprise directories). However, newer collaborative technologies, such as social networking applications, tend to fall into multiple categories depending on how they are used (e.g., for communication or information creation). As a result, the boundaries between the categories are blurring with the rapid evolution of this technology.

COMPONENTS OF SUCCESSFUL COLLABORATION

Understanding what collaboration and its potential benefits are is important to achieving an awareness of how collaboration can be effectively used in an organization, but the high failure of collaboration projects suggests that successful collaboration requires mastering how to implement and manage it (Schuh et al. 2008). The key challenges for managers (both business and IT) are to create a supportive working environment and motivational conditions and to develop the skills and organizational arrangements within which collaboration can flourish (Fedorowicz et al. 2008; Thomas et al. 2007). Four components of collaboration must work together to ensure successful collaboration of any type (MacCormack and Forbath 2008):

- 1. *People.*** Collaborative work requires different skills than more traditional forms of work. In particular, strong communication skills are essential. This is especially true the more work is mediated through technology, virtual, and across organizational and cultural boundaries (Romano et al. 2007). Cultural differences around social expectations, the need for more openness, flexibility, and interdependence in work assignments; the need to develop trust in an “opaque” environment (i.e., one that lacks many traditional social cues); and differences in organizational practices all add up to a requirement for managers to rethink how people will work together in this new world of work (Evans and Wolf 2005; Fiore et al. 2008). Inexperienced teams, lack of management attention, and different expectations of partners are some of the major reasons why collaboration initiatives can fail (Schuh et al. 2008). Thus, when implementing collaboration, managers should be aware that it is not “business as usual” and should pay more attention to the social and behavioral changes that will be necessary (Edmonston 2008; Thomas and Bostrom 2008). One focus group manager noted, “You cannot overemphasize the importance of culture. It will make or break you.” Finally, as the complexity of the tasks involving coordination increases, so does the need for management attention to coordination (Schuh et al. 2008). In short, creating the working environment within which collaboration occurs becomes the primary role of the manager, rather than monitoring individual productivity or performance. Signs that these efforts have been successful are engaged, satisfied, and committed staff who fully participate in collaborative processes (Nohria et al. 2008). Conversely, managers who cultivate a fear of failure or who do not protect their staff from what is often a larger, hostile corporate environment, are likely to see collaborative initiatives fail (Amabile and Khaire 2008).
- 2. *Program.*** Collaboration needs to be part of a coherent program to create and capture value, not a series of stand-alone efforts (Schuh et al. 2008). It is highly unlikely that collaboration initiatives will achieve an organization’s goals unless they are managed holistically (MacCormack and Forbath 2008). Furthermore, it is essential that managers understand the strategic trade-offs involved in collaboration and make conscious decisions about how to structure and govern it. This is especially true when external partners are involved (Pisano and Verganti 2008). Most important, organizations need to understand comprehensively how to use their knowledge and information assets. Focus group members stressed that well-organized, searchable information is the foundation for any type of

collaboration, and this resource requires a significant investment to develop and maintain. As a result, many companies are working primarily on content management strategies. In addition, high-level decisions need to be made about how to develop new collaboration capabilities, determine what types of collaboration the organization seeks to engage in, what policies are needed, and how to create an environment where the desired collaboration can thrive. Two key principles of any collaboration program are emergence (i.e., the recognition that we don't always know who will make the greatest contribution to a problem in advance) and planned serendipity (i.e., designing a working environment where underexplored relationships between people, data, and applications can become visible) (Majchrzak 2009).

3. **Processes.** Within a strategic and holistic approach to collaboration, it is important to develop processes that support or help manage this type of work. Since collaboration is a moving target in the modern enterprise, managers need ways to rapidly learn what is working and what isn't and to make changes as the work unfolds (Edmonston 2008). Managers also need a process to take advantage of successful innovations and a way of recognizing failures and killing them off quickly (Amabile and Khair 2008). Effective processes are also required to support collaborative teams and partnerships, to help them know what they know and coordinate their thinking (Johansen 2007). Specific processes that the focus group identified as being supportive of collaboration include administrative practices that recognize the convergence of many different types of communication (the management of which is often separated), content management processes, the ability to identify a "single source of truth" (i.e., the official documents pertaining to any topic), and the creation of parameters to help staff understand how and under what conditions they can collaborate. Conversely, a siloed focus and an emphasis on process efficiency above all else will likely stifle collaboration (Kleinbaum and Tushman 2008).
4. **Platforms.** These are the tools, technologies, and standards that enable people to share data and to work together seamlessly from a variety of locations. The advent of cheap connectivity has been the driving force behind many new ways of collaborating in recent years, yet efforts to promote collaboration have focused largely on connectivity with little recognition of the other factors that make it effective (Cross et al. 2005). Technology is a key resource in enabling collaboration, but it must be designed to achieve the organization's goals and fit with its culture and practices. As with the other components of collaboration, the objective of a platform is to create an environment within which collaboration can take place, rather than the traditional systems approach of hardwiring specific information and work processes (Iandoli 2009b). An effective technology platform should support plug-and-play communications, provide access to information, and enable the transformation of information into knowledge. It should also provide tools for the rapid creation of communities, teams, and networks; be based on open standards; and be flexible and adaptive (Camarinha-Matos et al. 2009; Iandoli 2009b). However, most focus group organizations are nowhere near creating such a platform. Most are still questioning whether they should invest in collaborative technologies rather than look for ways to coherently manage a set of business tools for collaborative work (Drakos et al. 2009).

THE ROLE OF IT IN COLLABORATION

Clearly, the IT function alone cannot make collaboration happen, even if it provides robust collaboration technology. The business plays a critical role in determining its strategy and creating processes and a working environment that make it possible to collaborate for business value. That said, there is still no answer to where an organization's collaboration strategy "belongs." In most, IT still owns it and, as a result, the whole field of collaboration is an opportunity for IT managers to demonstrate real business leadership (Lynch 2007; Mann 2008). CIOs can work with business executives to identify and orchestrate collaborative capabilities, coordinate enterprise services, and educate leaders about opportunities and possibilities.

In addition, IT leaders have some very specific technology responsibilities that must be put in place to enable collaborative work to occur. At present, four major technology areas must be addressed iteratively and concurrently. These are merely the fundamentals, however. Because this field is evolving rapidly, IT leaders must be prepared to continually reassess all aspects of collaboration technology, its governance, and policies and to rebalance these as necessary (Smith et al. 2007).

- 1. *Communication.*** A significant and growing area of collaborative technology is enabling a wide spectrum of communications options, from voice mail to video and everything in between. "Users increasingly see communications and collaboration not as separate activities but as a smooth continuum of modalities where the difference between talking on the phone and posting on a wiki becomes a matter of choice and preference" (Mann and Elliot 2007). As such unified communications become a technological reality, IT leaders will need to develop an architecture that supports them as a single technology spectrum rather than as separate components. Gartner Group predicts that phone directories, e-mail, voicemail, instant messaging, presence awareness, computer telephony, and conferencing technologies will increasingly converge over the next five years, leading to serious organizational challenges in how these services are managed (Mann and Elliot 2007). However, other types of communication and collaboration software, such as voice, call centers, mobile, team workspaces, and social software will not be part of this convergence and will have to be appropriately managed as they too evolve. Ultimately, communications technology will be embedded in all business applications and will need to be ubiquitous, reliable, secure, and integrated (Andriole 2006).
- 2. *Information access and management.*** Developing an improved information processing capability, including accurate and visible information, manipulability, exchangeability, and ease of information transfer is a primary goal for all IT functions in supporting collaboration. One focus group member explained his mandate as follows: "We want to make it easy for anyone to share information via the intranet, to support collaboration with information, and to link people to documents and vice versa." To accomplish this goal, it is important for organizations to reduce the number of databases and data management platforms they maintain and to develop the intranet into a robust information-sharing platform. Typically, organizations also need a document management system with proper versioning and access controls, although these systems are notoriously difficult to integrate with other information management tools. "We're finding it really hard to upload

and share documents,” said one manager. “It’s a big headache for us.” Content management, particularly at the business unit and team levels, is also challenging as the use of many separate tools tends to replicate information in a relatively unmanaged fashion. At present in most companies, attention needs to be paid to integrating fragmented information resources, improving information visibility, filtering and navigation, and establishing principles for information access (Cain 2008; Thomas et al. 2007).

Several focus group companies commented that the perception is still widespread in their organizations that if information is made more widely available “bad things will happen.” “We instinctively don’t want to share,” said one manager. Managing the tension between the need for information availability to facilitate collaboration and protecting the organization from the associated risks is an area where IT managers should be working proactively to ensure they deliver the optimal value (Gordon et al. 2008; Smith et al. 2007).

3. **Security and risk.** It is a primary responsibility of the IT function to protect the integrity of its systems and data. This is becoming increasingly more challenging as both internal and external organizational boundaries break down and new forms of collaboration are introduced (Smith et al. 2007). IT managers recognize that removing the traditional layers of separation between departments and enterprises makes the organization more vulnerable and their job more difficult. Therefore, IT departments can often be viewed as obstacles to collaboration (Gordon et al. 2008). There is no easy answer to this dilemma. Companies need safe and secure communications, but it is no longer possible to use “stovepipe” security to ensure this. Instead, IT functions must improve security architectures and infrastructures and continually assess the balance between the openness required by collaboration and the risks involved. Focus group members noted that security must become more granular and principles based. “We are beginning to develop a policy for how we as a company use social networking tools,” said one manager. “The broader the team, the greater the risks involved.” Another added, “We need better authentication tools, and we must be clearer about the types of information that can be shared.” Others noted that security must be commensurate with the risks involved. “We must use the most appropriate tools for the particular task at hand.” Finally, they pointed out that this task is about to get much more difficult as companies begin to open themselves up to collaboration with their end customers. “This is a huge challenge that we have not yet faced up to,” said one.
4. **Technology integration.** The more IT can achieve integration of data, applications, hardware, and software, the easier it will be to provide the information and tools needed to facilitate collaboration. Thus, focus group members recommended the massive simplification and rationalization of applications, databases, and software as a precursor to any significant collaboration initiative. The drive to collaboration is also behind the increasing interest in industry-neutral and global IT standards of all types (Chituc et al. 2009). “Technology should be a facilitator of collaboration, not an obstacle,” said one manager. “Our users want to plug and play in this area, and we can only achieve this through standardization.” Some organizations in the focus group provide “canned” collaboration tools, such as blogs, personal Web sites, team sites, and wikis that allow the rapid formation of

ad hoc teams and ease of social networking. These can then be tailored to particular needs requiring just enough information so they can be effectively managed and decommissioned in the longer term.

In addition, centralized and integrated structures within IT for developing enterprisewide communications and collaboration capabilities can facilitate synergistic interactions between these tools and create useful cross-technology opportunities that might not previously have been obvious (Sanders 2007). Focus group organizations varied widely in this area. Some assigned IT a leading role in delivering collaboration technology, and others are implementing it on a more piecemeal basis. All agreed, however, that without centralized support for this technology, it is unlikely to deliver enterprise-level value.

These four collaborative technology building blocks are the most critical elements to which IT should pay attention at present. However, new technologies are already on the horizon, and these will require continual assessment from IT managers as to their usefulness and how they can be integrated into the existing organizational infrastructure and collaboration architecture. Some of these technologies include dynamic modeling tools, simulation engines, visualization tools, data reduction and summarization applications, and intelligence gathering tools. In short, IT managers are going to have to remain aware in this very rapidly changing market and be willing to adapt quickly to changing conditions. Paying attention to these four fundamental building blocks now will enable them to do this more easily and effectively in the future.

FIRST STEPS FOR FACILITATING EFFECTIVE COLLABORATION

Given the multifaceted nature of collaboration and its many potential but as yet unproven benefits, IT managers could understandably adopt a wait-and-see approach. In fact, this is what many members of the focus group are doing: talking about strategy and planning small pilots to test the waters. However, amid all the confusion, they also had some practical ideas for ways that organizations could begin to approach this complex and dynamic new way of working and using technology.

1. ***Develop a coherent vision.*** Effective collaboration requires a multidisciplinary approach and a shared business–IT vision (Lynch 2007). It is essential that such a vision begin with understanding the organization’s values, legal requirements, and core intellectual property. From this, a strategic perspective can be developed about what the business wants to accomplish with collaboration and what types of technology would best support it. Focus group members suggested that developing a vision for collaboration must be carefully approached because “the judgment line is shifting rapidly” and our static paradigms of work are rapidly becoming much more dynamic. These factors will change business models and strategies and affect how companies will need to manage the complex business environment of the near future. Ideally, a vision for collaboration should include a unified strategy and business models, tools, and experiments to help the organization gain further insights. The vision’s ultimate goal should be to nurture an internal working environment (and in the longer term a broader business ecosystem) that will enable productive collaboration to emerge. At this

early stage, both business and IT leaders should play a key role in articulating a collaboration vision and connecting it to the right people who can make it happen.

2. ***Plan for adaptation.*** If there's one aspect of collaboration about which everyone agrees, it's that collaboration is evolving and complex and will require significant and ongoing management attention (Schuh et al. 2008). Organizations, and particularly IT functions, therefore need to develop the "flexing skills" needed to cope with the rapid development of collaboration and its associated technologies (Iandoli 2009b). Focus group members noted that their organizations are already becoming flatter and more complex as collaboration and networks emerge. "Business is speeding up, and we will need new skills for coping and adapting rapidly," said one. It is therefore essential that organizations develop processes for learning what is working with collaboration and what isn't and mechanisms for sharing these lessons. Above all, the management of collaboration needs to be multidisciplinary and responsive to change.
3. ***Start with specific fundamentals.*** Facilitating effective collaboration will take time—both to build a strategy and to get the technology fundamentals in place. Many organizations have specific "pain points" that could be worthwhile places to start putting energy into collaboration. In the focus group, these were clearly around information management and access. "Our Intranet is unmanaged and not relevant," complained one manager. Another noted that it was very hard finding people in his organization. "We'd love to have a 'blue pages' to enable us to start internal social networking," he said, referring to one firm's internal company directory. In addition, several participants noted that their office space doesn't support collaboration. "We need to have many more collaborative workspaces," one participant noted. A simple assessment of these gaps and some management attention to them could lead to a great improvement in how people are able to collaborate.
4. ***Establish principles of behavior.*** As already noted, much of the governance of collaboration is based on principles, rather than rules. The most basic principle is transparency, not only of information but also of behavior (Majchrzak 2009). Some focus group companies have already established a code of conduct to govern electronic communication and collaboration, and others are working on one. A big fear is that providing improved communication will enable employees and customers to post negative comments about the organization. One important way of allaying these fears is to eliminate online anonymity. "Anonymity results in bad behavior," said one manager. "With a clear online identity, negativity is quickly found out and is usually self-policed by others in the community." Another noted, "In a business environment where all posts are traceable, abuse is unlikely." As social networking takes hold in our culture, and organizations explore ways they can use it to connect with their customers, they are realizing that establishing rules of etiquette for how to do this is important. "We have a hard and fast rule that if you are using social networking to do business, you must state your company affiliation," said a manager.

Cultural and behavioral practices are changing as a result of collaboration, and agreement is widespread that these will require serious management attention. For example, as staff become empowered to innovate and make real-time decisions, organizations will need to foster increased psychological safety

so people don't fear being penalized if they make a mistake (Edmonston 2008). Similarly, work will need to be done to align work management and human resources practices, as well as incentives, if collaboration is to really make a difference (Cross et al. 2005). Finally, as connectivity becomes more pervasive and global, companies will have to develop policies and practices that enable staff to achieve an effective work-life balance. For example, one global firm has developed a small scheduling application to determine the least invasive time to have a meeting across different time zones. Tools can also be used to assist staff with controlling their accessibility and protecting their privacy (Mann 2008).

5. *Gradually move beyond the firewall.* None of the focus group companies was comfortable as yet extending collaboration beyond their firewalls, unless in very tightly controlled circumstances (e.g., with vendors or third-party service providers). Major concerns about risk, privacy, and corporate liability remain. These issues need to be discussed and managed so that the power of collaboration can be realized. For example, one firm's privacy officer is now involved in determining what information can and cannot be shared. Some initial external target groups will include retirees, clients, and business partners. "We are gradually working through our concerns because of the unbelievable power of these tools," one manager said.

Conclusion

Collaboration is a complex concept with uncertain benefits and requires major organizational change. The drive to adopt collaboration is being accelerated by the possibilities enabled by information technology, which support real-time, global communication and anytime, anywhere access to information. In addition, companies are feeling considerable pressure to adopt collaboration technology because of their increasingly widespread use among individuals, many of whom are becoming their employees. There is no question that collaboration will play a major role in how we work and live in the future. However, as we move into this new era, companies are taking their time to determine how best to take advantage of what collaborative technology has to offer. This chapter has identified the major ways companies might want to collaborate and the benefits that are anticipated from each. It has also explored some of the major characteristics

and components of collaboration in order to clarify concepts and to distinguish between the work of collaboration, which is a human activity, and collaboration technology, which facilitates it. It has shown that effective collaboration will not result from simply implementing more collaboration software. Instead, it will require a proactive and holistic strategy that integrates business goals and technology potential. At present, all aspects of collaboration and collaboration technology are in their infancy, so it is understandable that many companies are proceeding cautiously into this new world. Nevertheless, the speed with which both technology and practice are moving suggests strongly that it is time for managers to put some collaborative fundamentals in place. Furthermore, IT managers have an opportunity to provide business leadership around collaboration if they can clearly articulate its business potential and benefits, rather than focusing on the technology itself.

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