

# Management Information Systems

## MANAGING THE DIGITAL FIRM

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### Chapter 2: Global E-business and Collaboration

#### Learning Track 2: IT Enables Collaboration and Teamwork

##### Outline

Introduction: It's a Collaborative World

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2.0 What Are the Business Benefits of Collaboration?

3.0 What Makes a Good Team Member And Collaborator?

4.0 What Makes a Good Team Leader?

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##### RECOMMENDED VIDEOS:

- ◆ “Teamwork and Collaboration at Cisco.” Cisco CEO John Chambers explains how abandoning command-and-control leadership has enabled the company to innovate more quickly, using collaboration and teamwork.
- ◆ See the Video Case Package for this book.

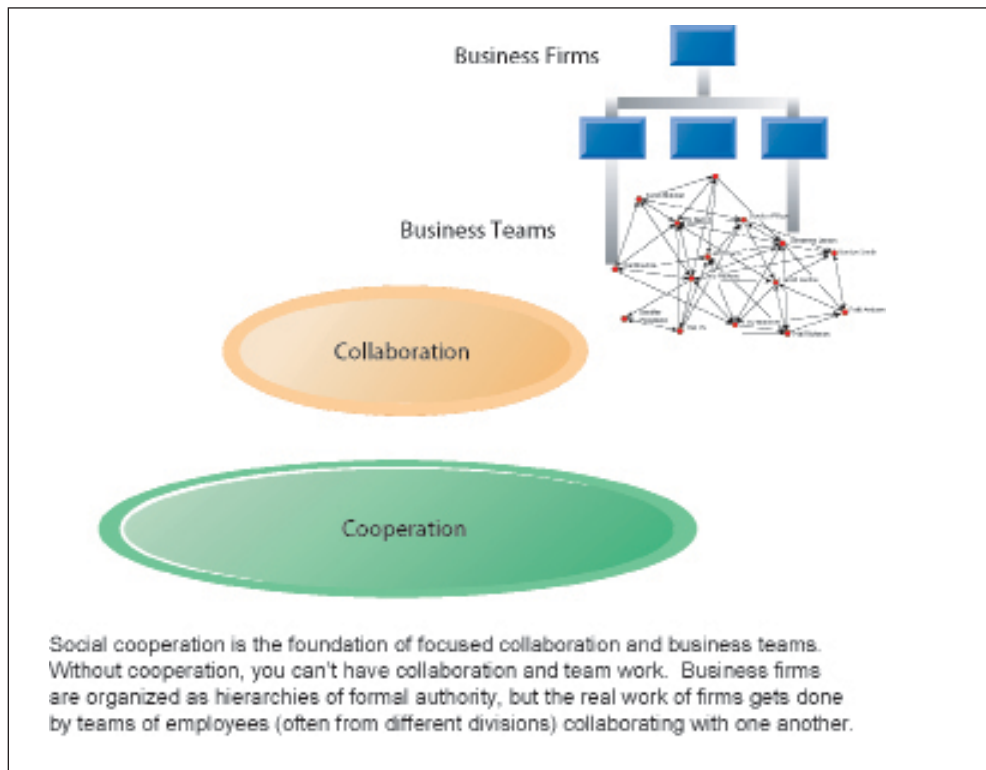
##### Introduction: It's a Collaborative World

It's a collaborative world that depends on teams of people working together across time zones and continents. It's a world of high bandwidth and “rich” communications, and “interaction” jobs where the value added by the employee is the ability to talk, write, present, persuade, sell and empathize with others. Over 40% of the labor force now has these kinds of jobs.

So what is collaboration, and what's the difference between cooperation, collaboration, and team work (project teams)? Figure 1-1 illustrates the differences and their relationship.

**Cooperation** (also referred to as “coordination”) is working with others to achieve some shared (but not necessarily stated) goals. Cooperation comes from the fact that we are dependent on others, and we need to manage those dependencies somehow. For instance, you cooperate with your neighbors in keeping the neighborhood sidewalks clean; keeping an eye out for strangers; or deciding how to paint a fence that divides your property or a shared entrance. You cooperate with your spouse by putting dirty laundry in the washing machine. You help with the cooking and

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**FIGURE 1-1** Cooperation, Collaboration, and Team work

dishes. You cooperate with complete strangers on the street by passing on the right, and you always go through revolving doors in the “right” way. Cooperation is general, broad, and the foundation of any organized social life. It occurs most often without anyone saying anything to one another. Without it, we would not have villages, towns, cities or countries. Or business firms. Now let’s take it up a step.

**Collaboration** is cooperation that’s more focused on task or mission accomplishment and usually takes place in a business, or other organization, and between businesses. It is explicit: we generally do talk about, plan and manage collaboration with one another.

You collaborate with a colleague in Tokyo looking for expertise on a topic you know nothing about. You collaborate with many colleagues in publishing a company blog. If you’re in a law firm, you collaborate with accountants working in an accounting firm in servicing the needs of a client with tax problems. Collaboration can be short-lived, lasting a few minutes, or longer term if the dependency among participants remains constant. You can collaborate informally with colleagues many times over a period of years through e-mail, voice mail, instant messaging, wikis (collections of documents), and bulletin boards. Collaboration can be one-to-one (among individuals), and many-to-many (collaboration among a number of people). Such collaborative groups are generally not a formal part of the business firm’s organizational structure, but are rather informal groups. Now let’s step it up one more time to talk about teams.

**Teams** take all this one step further. Teams are part of the organization's business structure for getting things done. Teams and project groups are interchangeable terms. Teams have a specific mission that someone in the business assigned to them. They have a job to complete. The members of the team need to collaborate on the accomplishment of specific tasks and collectively achieve the team mission. The team mission might be to "win the game," or "increase online sales by 10%," or "prevent insulating foam from falling off a space shuttle." Teams are often short-lived, depending on the problems they tackle and the length of time needed to find a solution and accomplish the mission. Teams often involve people in very different parts of a business firm, often in other time zones.

## 1.0 Why Are Collaboration and Teamwork So Important Today?

Collaboration and team work are more important today than ever for a variety of reasons.

- ◆ **Changing nature of work.** The nature of work has changed from factory manufacturing and pre-computer office work where each stage in the production process occurred independently of one another, and was coordinated by supervisors. Worked was organized into silos. Within a silo, work passed from one machine tool station to another, from one desktop to another, until the finished product was completed. Today the kinds of jobs we have require much closer coordination among the parties involved in producing the service or product. These so-called "interaction" jobs tend to be professional jobs in the service sector that require close coordination, and collaboration. But even in factories, workers today often work in production groups, or pods. Interaction jobs include most office jobs that require close coordination of many different people in order to complete the work. For instance, creating a Web site for a firm requires collaboration among senior management, marketing professionals, Web designers, and information technology specialists who can implement the site; delivering legal services requires a team of lawyers and accountants working together on a single case.
- ◆ **Growth of professional work.** In the last 50 years, the professional nature of work has greatly expanded. Professional jobs require substantial education, and the sharing of information and opinions to get work done. Each actor on the job brings specialized expertise to the problem, and all the actors need to take one another into account in order to accomplish the job.
- ◆ **Changing organization of the firm.** For most of the industrial age managers organized work in a hierarchical fashion. Orders came down the hierarchy, and responses moved back up the hierarchy. Today, more work is organized into groups and teams, who are expected to develop their own methods for accomplishing the task. Senior managers observe and measure results, but are much less likely to issue detailed orders or operating procedures. In part this is because expertise has been pushed down in the organization, as have decision making powers.

- ◆ **Changing scope of the firm.** The organization of the firm has changed from work at a single location, to work taking place in offices or factories throughout a region, a nation, or even around the globe. For instance, Henry Ford developed the first mass production automobile plant at a single Dearborn, Michigan factory. In 2012, Ford produced 6.5 million automobiles and employed about 245,000 employees at 100 plants and facilities worldwide. More than half of its sales come from outside North America, as do one third of its revenues. With this kind of global presence, the need for close coordination of design, production, marketing, distribution and service obviously takes on new importance and scale. Large global need to have teams working on a global basis.
- ◆ **Emphasis on innovation.** While we tend to think of innovations in business and science as coming from great individuals, but more common is that these great individuals are working with a team of brilliant colleagues, and all have been preceded by a long line of earlier innovators and innovations. Think of Bill Gates and Steve Jobs (founders of Microsoft and Apple) both of whom are highly regarded innovators, and both of whom built strong collaborative teams to nurture and support innovation in their firms. Their initial innovations derived from close collaboration with colleagues and partners. Innovation in other words is a group and social process, and most innovations derive from collaboration among individuals in a lab, a business, or government agencies. Strong collaborative practices and technologies are believed to increase the rate and quality of innovation.
- ◆ **Changing culture of work and business.** There is growing support for the proposition that collaboration and team work produce better results, faster, than a similar number of people working in isolation from one another. Most research on collaboration supports the notion that diverse teams produce better outputs, faster, than individuals working on their own. Popular notions of the crowd (“crowdsourcing,” and the “wisdom of crowds”) also provide cultural support for collaboration and team work.

Briefly, collaboration and social networking have become a growing theme of social, political, and business organization in the age of the Internet. Economies, organizations and firms, along with their employees are becoming more informational, more global and above all more networked. Information technologies—from smart phones, netbooks and inexpensive servers, to high capacity broadband and large data centers, are all key components and enablers of collaboration practices.

## 2.0 What are the Business Benefits of Collaboration?

There are many articles and books that have been written about collaboration, some of them by business executives and consultants, and a great many by academic researchers in a variety of businesses. Nearly all of this research is anecdotal and testimonial rather than empirical assessments of collaboration within or between organizations. Among both business and academic communities there is a general belief that the more a business firm is “collaborative,” the more successful it will

be. Nearly all writers agree that collaboration is now more required within and between firms than was true in the past (for reasons outlined above).

Table 1-1 summarizes some of the benefits of collaboration identified by previous writers and scholars.

**TABLE 1-1** Business Benefits of Collaboration and Their Rationale

Benefit	Rationale
Productivity	People working together can complete a complex task faster than the same number of people working in isolation from one another; there will be fewer errors.
Quality	People who work collaboratively can communicate errors, and take corrective actions faster, when they work together than if they worked in isolation. Reduction in buffers and time delay among production units.
Innovation	People working collaboratively in groups can come up with more innovative ideas for products, services, and administration than the same number working in isolation from one another. Advantages to diversity and the “wisdom of crowds.”
Customer service	People working together in teams can solve customer complaints and issues faster and more effectively than if they were working in isolation from one another.
Financial performance (profitability, sales, and sales growth)	As a result of all of the above, collaborative firms have superior financial performance

One of the difficulties of obtaining solid empirical evidence of these contributions involves the difficulties in measuring “extent of collaboration.” One empirical study sponsored by Verizon Business and Microsoft created a collaboration index to measure the impact of communications culture, and deployment of collaborative technologies. That study concluded that “collaboration is a key driver of overall performance of companies around the world. Its impact is twice as significant as a company’s aggressiveness in pursuing new market opportunities (strategic orientation) and five times as significant as the external market environment (market turbulence)... The results show that collaboration can positively impact each of the gold standards of performance - profitability, profit growth and sales growth - to determine a company’s overall performance in the marketplace,” according to Jaclyn Kostner, Ph.D., best-selling author, and expert on high-performance virtual collaboration. “As a general rule, global companies that collaborate better, perform better. Those that collaborate less, do not perform as well. It’s just that simple.”

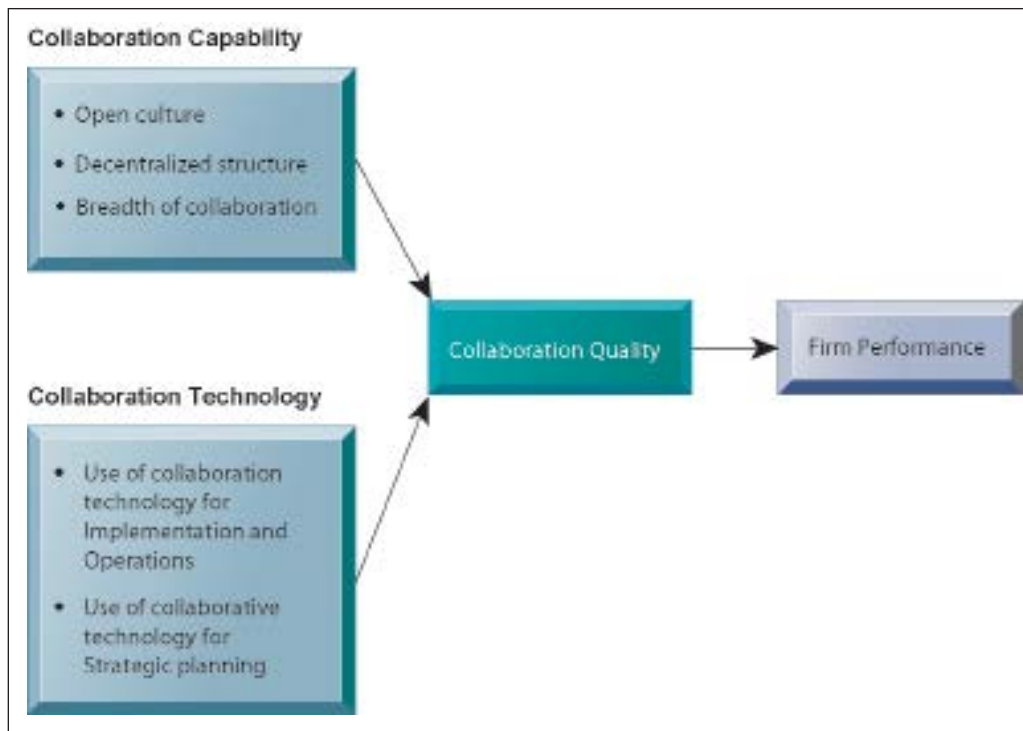
A more rigorous empirical analysis of the diffusion of information in a single corporation found that social networks--the foundation of collaboration-- were exceptionally powerful in moving news information up and down the hierarchy of a firm, while discussions of topics were expedited among peers at that same level in an organization. The overall economic benefit of collaboration

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was significant: for every word seen by an employee in emails from others, \$70 of additional revenue was generated (Aral, Brynjolfsson, and Van Alstyne, 2007).

Figure 1-2 depicts the model which the researchers came up with to explain their findings.

**FIGURE 1-2** A Model of Collaboration



While there is scant empirical information to back up these statements, there is a wealth of anecdotal accounts which supports this general framework. While there are many presumed benefits to collaboration, as you can see in Figure 1-2, you really need the right business firm culture and the right decentralized structure before you can achieve meaningful collaboration. And you also need a health investment in collaborative technologies. We talk about these requirements below.

### 3.0 What Makes a Good Collaborator a Good Team Member?

So what does it take to be a good collaborator, a so-called “team player?” Think about some of the teams and groups you’ve been a member of, and consider the kinds of qualities of participants you respected. Table 1-2 provides a list of the eleven most important characteristics which are commonly found in the research literature on the qualities of good collaborators. This list is not exhaustive, but seeks to capture the central themes found in discussions of collaboration. These characteristics are in alphabetical order, not in order of importance.



**TABLE 1-2** Eleven Important Individual Characteristics for Collaboration

Characteristic	Description
Adaptable	Ability to learn; creative; works with a variety of others; mitigates problems; finds solutions.
Believe in collaboration	See teammates as collaborators; focused on team not self; selfless
Committed	Passionately believes in the mission and success of the team; enthusiastic; persistent.
Communicative	Ability to write, present, support; candid; truthful; believable; relates to others' needs; empathic.
Competent	Ability to complete assigned tasks; detail oriented; consistent
Dependable	Responds consistently to team requirements; individual requests
Disciplined	Hitting schedules, targets; persistence; tenacious
Value adder	Enhancing the abilities of others; teaching; exemplary.
Mission conscious	Big picture orientation; putting details into perspective.
Solutions orientation	Ability to come up with alternative solutions; brainstorming; thinking afresh.
Mission conscious	Big picture orientation; putting details into perspective.
Trustworthy	Dependable; discrete; reliable; integrity.

The characteristics of a good collaborator may seem a little abstract, but think of a basketball, football, or soccer team that you might have played on. Are these the characteristics you would want of your teammates? Are these characteristics they would want of you? Teams in business are not that different from teams in sports.

But this list is an “ideal” list. It’s not what really happens in the real world of business (or sports teams). In fact, it would be a rare individual indeed who ranked number 1 on all these characteristics. Most of us might be passable on some, pretty good on others, and a star on a few. However, a good team has diversity: one or more people who are excellent on a few different characteristics. On a team of ten people, you might have two or three excellent learners; two really good communicators; a couple of solutions thinkers; most are highly competent for the mission although in different specialties, and most are committed, dependable, and mission conscious. These last three qualities-committed, dependable, and mission or goal oriented-seem to be absolute minimal requirements for good team members.

The significance of this finding is that it takes a diverse group of people to make a really successful team. You need a lot of different talents to make a team work. Sometimes this is also called synergy: the strengths of each of us complementing the strengths of others on the team. There

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are also management consequences discussed later. With a diverse group of talented people, it's possible for the output of a team to be much larger than the output of all the individuals in a group. In this case, the whole is greater than the sum of the parts.

### TEAM BUILDING EXERCISE

With a team of 3-5 students, ask each member working alone to rank order the list in Table 1-1 in terms of importance to collaboration based on their own personal experience either in business or sports. Next, ask everyone to rate themselves on each characteristic using a 1 (weak) to 5 (very strong) scale. Come together and compare the rank orders that each person produced. You might find out how many people chose each feature as #1. If you have quantitative skills, you might calculate the rank order correlation coefficient for the rankings. What do you find? Next, compare the lists of individual strengths. What do you find?

From a business point of view, the meaning is obvious. If you could get all your people working together effectively on teams, you would greatly increase the total output, and the productivity of the firm would grow, all without hiring new people. So teamwork becomes integral to having a successful firm.

## 4.0 Leadership: What Makes a Good Team Leader?

All teams require some kind of leadership, some person or persons who take charge, to get things done and accomplish the mission. When we think of sports teams, from basketball to hockey, they all have leaders, people who call the plays and issue directions. Leaders are very important for collaboration on any team: they keep the team focused, support team work, and provide direction.

What makes for a good team leader? Thousands of books and an even larger number of articles have been written about leadership in business and elsewhere. Some "leaders" are appointed by their superiors (formal leaders like generals, and managers). Other leaders emerge spontaneously among a group of people working together (informal leaders). Quite often the formal leaders and the informal leaders are two different kinds of individuals: formal leaders are chosen by a hierarchy to serve the interests of those who appointed them, and informal leaders are chosen by the members of the team or business to represent the group or team to the larger world.

One way to think about both kinds of leaders is to consider that they generally are thought to have "more" of the key eleven characteristics that make for good team members, or more of the really important characteristics (Table 1-3).



**TABLE 1-3** Qualities of Leaders

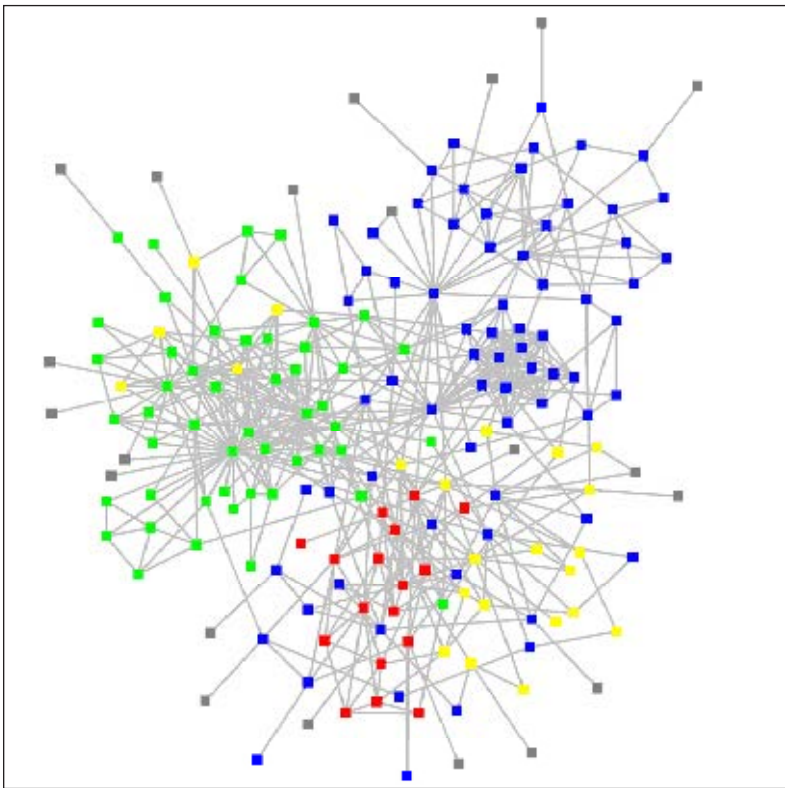
Adaptable
Believe in collaboration
Committed
Communicative
Competent
Dependable
Disciplined
Value adder
Mission conscious
Solutions orientation
Mission conscious
Trustworthy

For instance, if you ask real world managers how they choose leaders for the teams needed by their business, they will tend to emphasize competence (does this person have the skills to get the job done), and communications capability (can this person talk and/or write, present, and listen). The other qualities are either assumed to be true, or as derived from superior competence and communications ability.

### LEADERSHIP EXERCISE

With a team of 3-5 students, ask each member working alone to rank order the list in Table 1-3 in terms of the qualities of leadership they would use as managers when appointing leaders for their teams. You can score the team's performance by asking how people chose each characteristic as number 1. For instance, how many people in your group chose Adaptability as the number 1 quality they would use in choosing a leader. Do this for each characteristic. When finished, compare notes with one another, and examine the list of most favored characteristics. What kind of agreement is observed across members of the team?

Studies of teams and other social networks show that leaders-both formal and informal-are at the center of communications for their team, and also highly connected to other social teams and networks. Leaders are connected people (Figure 1-3).

**FIGURE 1-3** Social Networks in Crisis: E-mail Analysis

Following the missed deadline of an important project, a social network analysis company developed the above map of e-mail communications in the firm. One goal of the study was to identify the leaders in the company who potentially could get the project back on track, and another goal was to discover how the various groups were linked together and the identity of these key people (so-called “bridges”) across groups. There are five different colors of nodes (people): blue, grey, red, green, yellow) which represent members of five different groups or teams.

Source: [mailchimp.com/blog/using-email-to-uncover-hidden-social-networks](http://mailchimp.com/blog/using-email-to-uncover-hidden-social-networks).

Examining Figure 1-3, you can see some interesting patterns. The groups blue, red, and green each have real “centers” where a small number of people receive and send a great deal of communications. These people are “leaders” of their teams because they are near the center of communication. You can also see some of these leaders are closely connected to other teams. These leaders are especially important as “bridges” across the organization: they communicate with a lot of people throughout the company as well as with their own members. These people tend to be the ones who can get additional resources for their teams. They are connected not just to people like themselves, but to others in different groups. Yellows, and grays, appear to talk more with other teams than they do among themselves. If you need leaders who can get the organization moving, these very highly connected individuals will be very influential.

## 5.0 How to Build and Manage a Collaborative Team

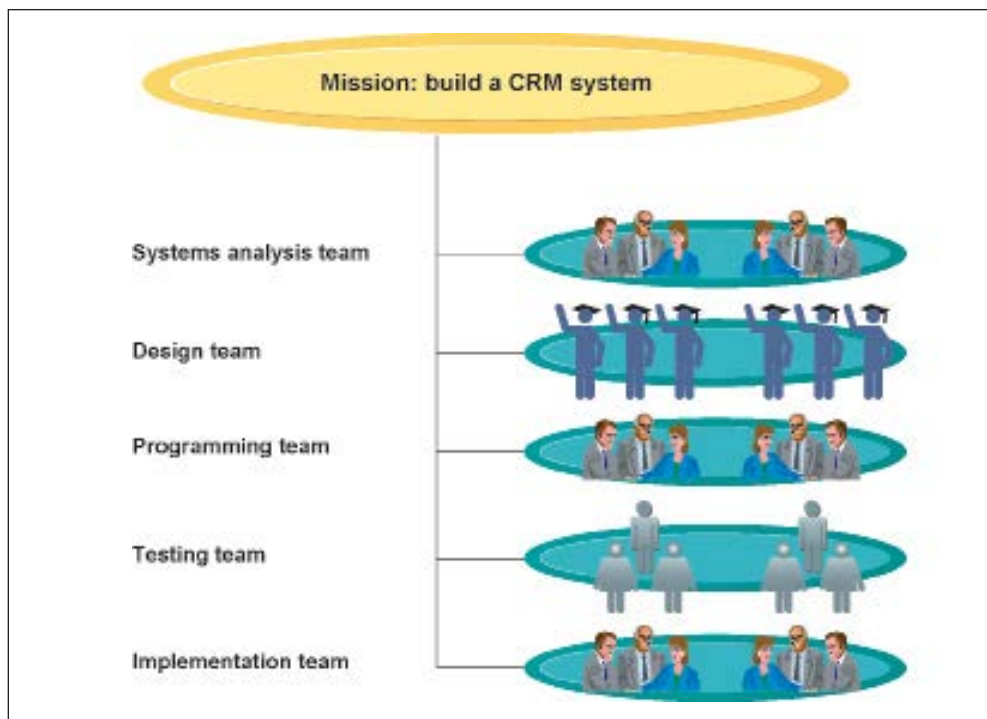
As a manager you will find that your success in large part will depend on the success of the teams you build and manage (Cohen and Prusak, 2001). Learning how to form successful teams in business is very important. Unfortunately, very little is written about how managers should form and manage teams. There are six steps to forming effective, collaborative, business teams.

1. **Identify the mission and teams.** As a manager you have some overarching objectives such as increasing sales to a new market, reducing costs in one part of the firm, or implementing

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a new information system. Your job is to break this larger mission down into sub-objectives that smaller teams can be responsible for. Your next job is for the life of the project to integrate (coordinate) the work of all the teams until you achieve the larger mission. For instance, if the mission is to build a new sales force customer relationship management system (CRM), then you will want at least five teams including a systems analysis team to identify the business information requirements; a design team to select from a variety of different technical solutions; a programming team that builds the system (or adapts a packaged system to your firm); a testing team that ensures the system works; and an implementation team that handles the roll out of the system (Figure 1-4). Even if the technology solution involves purchasing a license to use an online CRM system, you may still need a group of technically competent people on staff who can build customized adaptations (e.g. programmers).

**FIGURE 1-4** Missions and Teams



- 2. Identify the skills required for each team.** Once you have identified the sub-objectives, and the teams, you will need to identify the skills needed for each team. Not all teams have the same requirements. The systems analysis and implementation teams interface directly with users and other business units, generally at a fairly high, middle management level. For these interaction jobs, communications skills are the most important, along with competence. The design, programming, and testing teams require technical competence first, and then the ability to communicate. Some members could be foremost in competence, others will need to be foremost in communication skills. It's the mix that counts. Just because some people don't communicate well does not mean they will not be valuable members of the team, and well respected for the things they can do really well.

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3. **Choose people who have the right qualities.** In all the teams you will need diversity of talent. In choosing people, you can rely on your own past experience with individuals, the recommendations of colleagues or other members of the team. You can choose a Team Leader and ask the Team Leader to choose people who will best help achieve their objectives. If you've been in the firm for a few years, you will know from your personal experience who to choose and why.
4. **Oversight.** Your job as a manager is to hold the team leaders and their teams accountable for meeting their objectives on schedule, and on budget. Call regular meetings with each team leader individually, and with all team leaders meeting as a group to review progress, identify blockages, and come up with solutions. Provide a support collaborative culture by rewarding team work, and providing incentives for teams to succeed. Incentives might be something simple like a party celebrating a team success, or a reward ceremony.

In order to build effective teams in a firm, you will need two more elements. You will need a supportive collaborative culture. And you will need a suite of information technology tools and systems to enable the teamwork and collaboration.

## 6.0 Building a Collaborative Organizational Culture

Collaboration won't take place spontaneously in a business firm, especially if there is no supportive culture. If people are afraid to speak up, there might not even be cooperation, let alone working together collaboratively. Business firms, especially large firms, had in the past a reputation for being "command and control" organizations where the top leaders thought up all the really important matters, and then ordered lower level employees to execute senior management plans. There often was a senior management Planning Group that spent most of each year just planning what lower level people should do. The job of middle management supposedly was to pass messages back and forth, up and down the hierarchy.

To some extent this is a caricature of how firms used to behave in the 1950s to 1990s, but caricatures often have some truth. Command and control firms required lower level employees to carry out orders without asking too many questions, with no responsibility to improve processes, and with no rewards for teamwork or team performance. If your work group needed help from another work group, that was something for the bosses to figure out. You never communicated horizontally, always vertically, so management could control the process. As long as employees showed up for work, and performed the job satisfactorily, that's all that was required. Together the expectations of management and employees formed a culture, a set of assumptions about how things really are. It is surprising how many business firms still operate this way.

A collaborative business culture is very different. Senior managers are responsible for achieving results, but rely on teams of employees to achieve and implement the results. Teams have some decision making power. Policies, products, designs, processes, and systems are much more dependent on teams at all levels of the organization to devise, to create, and to build. Teams are rewarded

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for their performance, and individuals are rewarded for their performance in a team. You might be a brilliant star on a failed team and receive only half the rewards. The function of middle managers is to build the teams, coordinate their work, and monitor their performance. That's a far cry from the old style middle manager who was primarily a message processor.

In a collaborative culture, senior management establishes collaboration and teamwork as vital to the organization, and they actually implement collaboration for the senior ranks of the business as well.

You can tell if you work in a collaborative culture by answering six questions:

1. Is it easy to talk with just about anyone in your firm (ease of cooperation) regardless of their position?
2. Does your unit cooperate regularly with other units at work? (frequency of cooperation). You can substitute office, or department, depending on how your firm organizes itself.
3. Are people in other departments easy to access and communicate with?
4. Does your firm reward individuals only, or does it reward teams and individuals?
5. Does your firm extol the virtues of teamwork in public and private conversations?
6. Do your managers and executives work as a team?

## 7.0 Information Technology and Systems to Enable Collaboration and Team Work

Building a collaborative, team oriented culture will do little good if you don't have the information systems in place to enable that collaboration. This would be like having a house without the plumbing and electrical infrastructure.

Today with the Internet, it is possible for nearly the entire labor force of firms to be online and to collaborate with their respective fellow employees, customers, and suppliers. Research on the various ways in which information technology supports collaboration has been going on since the late 1980s when the Internet was in its infancy, and the first software tools began to appear that supported what was called "group work." These early tools were called "groupware," and the field of study was called "computer supported cooperative work" (CSCW). Groupware included capabilities for sharing calendars, collective writing, e-mail, shared database access, and electronic meetings with each participant able to see and display information to others, and other activities. Today, groupware is one of many software tools and applications for supporting and enhancing collaboration, many of which are Internet-enabled.

Currently there are literally hundreds of tools designed to deal with the fact that, in order to succeed in our jobs, we are all much more dependent on one another, our fellow employees,

customers, suppliers and managers. For instance, one company enlisted the talents of over 100 groupware experts at a conference and produced a map listing 150 free (or nearly free) online collaborative tools in fifteen categories (Table 1-4 lists the categories or types of collaboration software identified by experts in the field).

**TABLE 1-4** Fifteen Categories of Collaborative Software Tools

Collaborative writing
Collaborative reviewing
Event scheduling
Instant messaging
VoIP audio conferencing
Screen sharing
Video conferencing
White boarding
Web presenting
Work grouping
Document sharing (including wikis)
File sharing
Mind mapping
Large audience Webinars
Co-browsing

The entire map of over 150 collaboration tools is too large to reproduce here, but it is available at [http://www.mindmeister.com/maps/show\\_public/12213323](http://www.mindmeister.com/maps/show_public/12213323). Some of the high-end tools like IBM's Lotus Notes are expensive, but powerful enough for global firms. Others are available online for free (often with premium versions for a modest fee) and are suitable for small businesses.

For example, one of the most widely used "free" online services is Google Apps/Google Sites. Google Sites is a tool that allows users to quickly and easily design group-editable Web sites. Google Sites is one part of the larger Google Apps suite of tools. Google Sites users can put up Web sites in minutes and can, without any advanced technical skills, post a variety of files including calendars, text, spreadsheets, and videos for private, group, or public viewing and editing.

Google Apps include the typical desktop productivity software tools (word processing, spreadsheets, presentation, contact management and mail). Table 1-5 describes some of the capabilities of Google Apps and Google Sites.



**TABLE 1-5** Google Apps / Google Sites Features

Google apps/sites	Description
Google Calendar	Private and shared calendars; multiple calendars (family schedules, business schedules).
Gmail	Google's free online email service is used for e-mail messaging and IM.
Google Docs and Spreadsheets	Word/Excel replacements; simultaneous online editing, sharing, publishing
E-mail, online storage, chat, programming	Premium addition adds make this a full featured collaborative tool
Google Sites	Team collaboration sites for sharing of documents, schedules, calendars, and search documents.
Google Video	Firm wide video sharing and commenting capability

Socialtext, a widely used enterprise collaboration environment, takes a different approach from Google. Instead of shared applications, Socialtext provides a set of capabilities that support social networking. Socialtext's flagship product, Socialtext Workspace, is the first enterprise wiki and the foundation of the connected collaboration platform. Socialtext People enables enterprise social networking. Socialtext Dashboard provides personalized and customizable widget-based interface for people and teams to manage attention. Socialtext wiki provides enables employees to find expertise within the firm. SocialCalc is the social spreadsheet for distributed teams.

There are many other online collaboration tools (Table 1-6), among them is Microsoft's SharePoint, one of the most widely adopted collaboration environment for small and medium businesses.

**TABLE 1-6** Other Popular Online Collaboration Tools

Tool	Description
Socialtext	A server-based collaboration environment which provides social networking, Twitter-like micro-blogging, wiki workspaces, with integrated weblogs, distributed spreadsheets, and a personal home page for every user. Connectors to Microsoft SharePoint and Lotus Connections are also available.
Microsoft SharePoint	A browser-based collaboration and a document-management platform, combined with a powerful search engine. These can be used to host web sites that access shared workspaces and documents, as well as specialized applications like wikis and blogs from a browser. Installed on corporate servers, not software as service.
Zoho Notebook and Project	Collecting and collaborating on text, line drawings, images, Web pages, video, RSS feeds. Project management (task management, work flow, reports, time tracking, forums, and file sharing). Free or \$5/project/month for premium service.
Bluetie	Online collaboration with email, scheduling, to-do lists, contact management, file sharing. Free for less than 20 users, \$4.99 user/month after that.
Basecamp	Share to-do lists, files, message boards, milestone tracking. Free for a single project, \$12/month for 3 projects with 200 megabytes of storage
OneHub	Share documents, calendars, Web bookmarks; email integration and IM. Manage hub resources; bulletin board.
WorkZone	Collaboration with file sharing; project management; customization; security.

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Several of these online services have excellent video introductions to their products. These videos can give you a keen sense of what is available on the Internet for a very low cost or no cost. For a tour of OneHub, point your browser at: <http://onehub.com/tour>. For Google Sites go to [http://www.youtube.com/watch?v=X\\_KnC2EIS5w](http://www.youtube.com/watch?v=X_KnC2EIS5w).

For small and medium size firms that use Microsoft server products and local area networks, Microsoft SharePoint is the most widely adopted collaboration system. Microsoft's strategy is to take advantage of the fact that it owns the desktop through its Microsoft Office and Windows products. For Microsoft, the path towards enterprise wide collaboration starts with the Office desktop and Microsoft network servers. SharePoint software makes it possible for employees to share their Office documents and collaborate on projects using Office documents as the foundation.

Microsoft SharePoint is a collection of products and technologies that provide an enterprise-level environment for Web-based collaboration. SharePoint can be used to host Web sites that organize and store information in one central location to enable teams to coordinate work activities, collaborate on and publish documents, maintain task lists, implement workflows, and share information via wikis and blogs. Sharepoint has a Web-based interface and close integration with everyday tools such as Microsoft Office desktop software products. Site content is accessible from both a Web browser and client-supported Web services. Because SharePoint stores and organizes information in one place, users can find relevant information quickly and efficiently while working together closely on tasks, projects, and documents.

Here is a list of SharePoint's major capabilities:

- ◆ Provides a single workspace for teams to coordinate schedules, organize documents, and participate in discussions, within the organization or over an extranet.
- ◆ Facilitates creation and management of documents with the ability to control versions, view past revisions, and enforce document-specific security and maintain document libraries.
- ◆ Provides announcements, alerts, and discussion boards to inform users when actions are required or changes are made to existing documentation or information.
- ◆ Supports personalized content and both personal and public views of documents and applications
- ◆ Provides templates for blogs and wikis to help teams share information and brainstorm.
- ◆ Provides tools to manage document libraries, lists, calendars, tasks, and discussion boards offline, and to synchronize changes when reconnected to the network.
- ◆ Provides enterprise search tools for locating people, expertise, and content.

For very large firms (Fortune 1000 and Russell 2000 firms) the most widely used collaboration tool is IBM's Lotus Notes. IBM's strategy is to take advantage of the fact that it dominates the Fortune 1000 data processing and networking environment. IBM's approach to collaboration is therefore to start from the top down through implementation of an enterprise-wide Lotus server solution by the central IS Department. In large multinational corporations with tens of thousands of employees this may be the only enterprise-wide solution and is beyond the capabilities of Microsoft local area networks. Lotus Notes does indeed work with Microsoft Office documents, but has its own proprietary software for other tasks including word processing, spreadsheets, and presentation software.

Lotus Notes is a client-server, collaborative application developed and sold by IBM Software Group. IBM defines the software as an "integrated desktop client option for accessing business e-mail, calendars and applications on an IBM Lotus Domino server." The Notes client is mainly used as an email client, but also acts as an instant messaging client (for Lotus Sametime), browser, notebook, and calendar/resource reservation client, as well as a platform for interacting with collaborative applications. Today Notes also provides blogs, wikis, RSS aggregators, CRM and Help Desk systems.

Thousands of employees at hundreds of large firms use IBM Lotus Notes as their primary collaboration and team work tools. Firmwide installations of Lotus Notes can cost millions of dollars a year for a large Fortune 1000 firm, whereas Google Apps/Google Sites comes in a limited free version or a more sophisticated premium version for \$50 per user/per year. A client-server product like Lotus Notes inherently involves the central IS department, and it is a major implementation effort. Online software services are therefore attractive because they do not require any installation on corporate servers, or even the IS Department to be involved. Nevertheless, existing online tools like the Google collaboration services are not as powerful as those found in Lotus Notes, and it is unclear they could scale to the size of a global firm (at least for now).

Very large firms adopt IBM Lotus Notes because of the promised higher level of security, and the sense that the firm retains control over sensitive information. Large firms in general do not feel secure using popular software-as-a-service (SaaS) applications for "strategic" applications because of the implicit security concerns, and the dependency on external servers controlled by, and subject to the fate of, other firms. Most experts agree, however, that these concerns perhaps will lessen as experience with online tools grows, and the sophistication of online software service suppliers increases to protect security and reduce vulnerability.

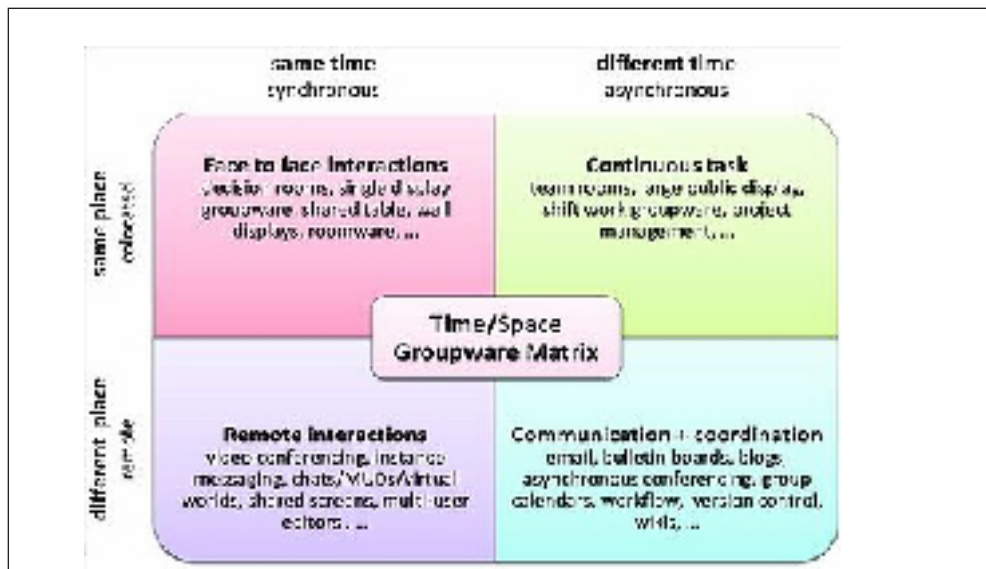
## MAKING SENSE OUT OF COLLABORATION TOOLS

We have avoided trying to formally define contemporary collaboration and team work software tools. Instead we have gathered lists of many popular software tools (both online as a service and as installed client-server applications), and described their capabilities. We have pointed at

examples. While these lists help you understand the broad range of tools that are available in the marketplace, how do you choose the right tool for your firm? Are these software tools just solutions looking for a problem to solve? What problems do they solve?

To answer these questions you need a framework for understanding just what problems these tools help solve. One framework that has been helpful for us to talk about collaboration tools is the time/space groupware matrix developed in the early 1990s by a number of collaborative work scholars (Figure 1-5).

**FIGURE 1-5** The Time/Space Groupware Matrix



The Time/Space matrix focuses on two dimensions of the collaboration problem: time and space. For instance, you need to collaborate with people in different time zones and you cannot all meet at the same time. Midnight in New York is Noon in Bombay, so this makes it difficult to have a video conference (the people in New York are too tired). So time is a problem inhibiting collaboration on a global scale.

Place (location) is also a problem that inhibits collaboration in large global or even national and regional firms. Getting people together for a physical meeting is made difficult by the physical dispersion of distributed firms (firms with more than one location), the cost of travel, and the time limitations of managers.

One way to think about software collaboration tools is to see them as ways of overcoming the limitations of time and space. Table 1-7 above shows four kinds of time/space scenarios (the intersections of the two dimensions in Figure 1-5).

**TABLE 1-7** Collaboration Challenges and Generic Solutions

Scenario	Solution Types
Same time/same place	Face to face meetings; decision rooms; whiteboards; telepresence
Same time/different place	Remote interactions; video conferencing; IM and Twitter; telepresence \$5/project/month for premium service.
Different time/same place	Continuous tasks, digital team rooms; project management; asynchronous communication
Different time/different place	Asynchronous communication and coordination; workflow; project management tools; blogs; wikis

You can use this classification scheme to categorize the different collaboration and team work software applications.

## 8.0 Choosing Collaboration Tools: Management To-Do List

Now let's apply these frameworks. You can use these classification tools to start thinking about how to choose collaboration and team work tools for your firm. As a manager, you will want to purchase and use the tools that solve the issues your firm is facing. Here's a To-Do list to get started:

1. What are the collaboration challenges facing the firm in terms of time and space? Locate your firm in the Time/Space matrix. Your firm can occupy more than one cell in the matrix. Different collaboration tools will be needed for each situation.
2. Within each cell of the matrix where your firm faces challenges, exactly what kinds of solutions are available? Make a list of vendor products.
3. Analyze each of the products in terms of their cost and benefits to your firm. Be sure to include the costs of training in your cost estimates, and the costs of involving the Information Systems Department if needed.
4. Identify the risks to security and vulnerability involved with each of the products. Is your firm willing to put proprietary information into the hands of external service providers over the Internet? Is your firm willing to risk its important operations to systems controlled by other firms? What are the financial risks facing your vendors? Will they be here in three to five years? What would be the cost of making a switch to another vendor in the event the vendor firm fails?

continued

5. Seek out the help of potential users to identify implementation and training issues. Some of these tools are easier to use than others;
6. Make your selection of candidate tools, and invite the vendors to make presentations.

If you follow these six steps, you should be led to investing in the correct software for your firm at a price you can afford, and within your risk tolerance.

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