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Until a few years ago, unless you worked in a high-technology firm (such as Xerox or Hewlett Packard), a consulting firm (such as Pricewaterhouse Coopers or Andersen Consulting), or a global business unit, you typically operated in a face-to-face environment. Meetings and other interactions were postponed until all team members could be together in one room.

Technology and globalization now have created an environment in which teams communicate and collaborate virtually, across boundaries of time, geography, and organizations. Today, in many organizations, most teamwork is virtual. Even in the most provincial and domestic firms, it is rare to find all team members located in one place. Most of us have quickly, and without a choice, become virtual team leaders and members.

Communication and collaboration are the two most important factors in team success. A virtual environment fundamentally transforms the ways in which teams operate. Technology introduces a critical variable that radically changes the choices for, and the effectiveness of, communication and collaboration. For example, many of us have struggled through at least one boring and nonproductive video conference in which the images lagged behind the audio to the point of distraction, and many of us have sent an e-mail or voice mail message in an emotional moment and had it misinterpreted by the recipient.

Crossing geographic boundaries also affects the ways in which virtual teams communicate and collaborate. The preference in some cultures to consider the
individual first, then the team, may make someone who has grown up in a more collective or group-oriented society feel uncomfortable with the independence of teammates. The practice of “saving face” in some cultures can make a slightly negative e-mail message about a team member’s work a terribly embarrassing experience. Significant differences in time zones often make virtual team meetings inconvenient for some team members.

Although we have the technological capability to work across time and distance and we dream of teams that leverage technology into competitive advantage, the fact is that we need new competencies and practices to do these things. Leading and working in virtual teams require much more than computers and technology. Success or failure depends on the attainment of competence in, and implementation of, practices that facilitate working effectively virtually. It is no longer enough to just understand that technology or national culture affects teamwork; successful team leaders and members need tools, techniques, and decision-making strategies that work in a virtual environment.

### Who Will Benefit from This Book

This book was created to provide the “how to” for people who work in or lead virtual teams and for people who do both. This book is appropriate for those who are just entering the world of virtual teams and for those who have more experience. It is targeted at people from large and small organizations as well as at individuals who work independently and need straightforward and down-to-earth advice to make their virtual teams successful. Readers from all cultures and all types of organizations can benefit from this book.

This book offers theoretical and conceptual information about working in and leading virtual teams as the foundation for more practical strategies. It contains many practical tools, including checklists, tables, and worksheets. It also answers some basic questions and offers strategies and techniques that are especially important for people who are new to virtual teams, such as:

- What types of virtual teams are there and how does the type of team I work in affect how I work?
- How does a virtual team differ from a traditional team?
- Is my organization ready for virtual teams? How can I help it to prepare for them?
- How do I start a virtual team; what are the steps and important considerations?
- What are the different technological options open to me, and how do I select the most appropriate?
- How do I select a technology that matches my team’s task, organizational culture, and team-member experience?
- How do the different aspects of national, organizational, and functional cultures affect virtual team performance, and what can I do about it?
- How do I manage the interaction of culture with selecting and using technology, building trust, and team dynamics?
- What are the competencies I need to develop in order to work in or lead a virtual team?
- What is my role as a virtual team leader?
- What is my role as a virtual team member?
- How do I build and maintain trust among team members when we can’t see one another?

This book also provides more advanced information in the areas of team dynamics, virtual meeting facilitation, and working adaptively. It answers questions such as:

- How do I plan for and facilitate a virtual team meeting?
- How do I leverage technology to make virtual meetings more effective than face-to-face ones?
- How do the dynamics of virtual teams differ from those of traditional teams?
- What are the other team variables and how can I influence them?
- How can I design team interventions?
- What styles and leadership practices work in an adaptive and virtual environment?

Both authors work in or consult to bottom-line and results-oriented organizations in the public and private sectors. This affects the ways in which we view leadership and the roles of leaders and team members. Although it is likely that our biases will emerge at times and that our North American cultural perspective will show, we have tried to maintain broad and balanced cultural and organizational perspectives.

**How to Use This Book**

*Mastering Virtual Teams* has three parts. In Part One, “Understanding Virtual Teams,” we define and explore the complexities of virtual teams. We present the important factors that make a virtual team different from a traditional one. In Chapter One, we describe different types of virtual teams and present a set of
critical success factors. We offer team leaders and members recommendations for action to ensure that these success factors are in place. In Chapter Two, we sort through the myriad of information about technology, integrate it, and offer practical guidance about the different technological options available to virtual teams. We provide guidance about what works best in different situations and present criteria to evaluate the usefulness of each technology for a particular team. In Chapter Three, we examine the ways in which national, organizational, and functional cultures affect the performance of virtual teams. We also investigate how culture can be used to leverage performance and, on the darker side, how it can be used as an excuse for nonperformance. Part One provides a foundation for understanding the pragmatic advice in the remainder of the book.

In Part Two, “Creating Virtual Teams,” we present the nuts and bolts and the intricacies of starting a virtual team. This part provides straightforward suggestions, checklists, and worksheets about startup strategies that make virtual teams work. In Chapter Four, we introduce a set of myths and realities about leading virtual teams. We translate these into seven competencies that are critical for virtual team leaders. Each competence is accompanied by recommendations for developmental activities. A competence assessment is also offered as an individual-development planning tool. In Chapter Five, we present a step-by-step process for starting a virtual team. This includes directions, checklists, agendas, worksheets, and techniques for obtaining sponsors, chartering the team, conducting team orientation meetings, team building with different cultural groups, developing team norms, using technology, and planning communication. In Chapter Six, we present two critical roles for virtual team members: autonomy and collaboration. We build a set of team member competencies around these two roles and offer competence assessment tools and recommendations for personal development. In Chapter Seven, we cover the critical element of building trust in a virtual-team environment. We also describe how trust can be affected by national culture and by the use of technology. This chapter presents a variety of tools, checklists, and exercises that are useful in building and maintaining trust.

In Part Three, “Mastering Virtual Teams,” we offer more advanced information for virtual team leaders and members. In Chapter Eight, we give recommendations for facilitating virtual team meetings. This includes methods for planning and running virtual meetings and for using technology so that the virtual meeting has the potential to surpass a face-to-face meeting. In Chapter Nine, we present a model of team development and team dynamics for virtual teams. We recommend strategies for tracking and diagnosing a virtual team’s effectiveness and provide interventions for dealing with typical problems of virtual teams. In Chapter Ten, we present a model for working and leading in adaptive and unpredictable situations. We also present eight practices that are factors in the success of virtual teams.
New to the Second Edition: The CD-ROM

We are honored to be able to present the second edition of *Mastering Virtual Teams*. Since the first edition was published, in 1999, we have received a great deal of positive feedback about the book and its value to members and leaders of virtual teams. In particular, we have found that the practical checklists and worksheets have been especially useful. Teams have used these tools as templates for their own processes or as food for thought when developing new techniques and methods. Colleges and universities have used the book and its realistic tools as a springboard for discussing the academic and real-life challenges associated with working on or leading virtual teams.

In response to these comments, this edition includes a CD-ROM containing all the checklists, agendas, worksheets, and diagnostics that were available only in the book. Readers can use the CD-ROM to tailor or customize these tools for their own purposes or to print them out and use them “as is” in their teams. We hope that the CD-ROM provides readers the flexible and useful tools they need to make their virtual teams successful.

Sources of Information

Three streams of information contributed to the content of this book. They represent a blend of some theory and a lot of practice. First, our interest in virtual teams evolved during our work with diverse teams and organizations as different as the National Aeronautics and Space Administration, the United Nations, The Gap, Johnson & Johnson, NORTEL, CHIRON, and Whirlpool Corporation. Many teams in these organizations operated virtually, even if they did not call themselves virtual teams. These teams, and the people in them, have been rich sources of information and of stories about what works and what doesn’t. We are indebted to them and to their willingness to share their experiences. Our personal experiences in leading and working in virtual teams supplements their stories. Our own work with clients and colleagues is also almost always virtual in nature. In addition, our experience in consulting about the human resource and team implications of globalization with Whirlpool, Johnson & Johnson, NASA, and other clients has provided us with a unique opportunity to develop tools that can assist virtual teams with issues related to cross-cultural membership.

An important point is that this book contains experiences and stories from people who are not technical experts and, for the most part, who do not work for the most technically advanced companies. As a result, their advice and information is relevant for most people who work in virtual teams, not just for people
who know about the latest computer technology and have degrees in computer science.

A second source of information is academic and applied work in the area of computer-supported collaborative work. The literature has proven invaluable in grounding the practical recommendations about technology to a theoretical body of knowledge. This research is often difficult to access and interpret. We hope that we have translated it into an understandable and usable format.

A third source of information is recent literature in the area of management and organizational behavior on teamwork and boundary management. New models of trust building and team dynamics that are suited to virtual and cross-cultural teamwork have emerged in the past ten years but are not often seen in popular literature. Again, we sought to bring this information to our readers in a manner that is relevant to their environments.

Acknowledgments

Part of what made writing this book so enjoyable were the wonderful and supportive colleagues, family members, and friends who believed in us and provided ongoing encouragement through the writing process. Our husbands, Clay Durr and Robert Snyder, helped to proofread and critique many drafts of the manuscript. Clay was also responsible for much of the research and content in Chapter Two.

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The people at Jossey-Bass define true virtual teamwork. In particular, our editor, Julianna Gustafson, coached us every step of the way, kept our spirits up, and taught us a great deal (even though she was three thousand miles away).
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December 2000

Deborah L. Duarte
Incline Village, Nevada

Nancy Tennant Snyder
St. Joseph, Michigan
To Ralphine and Donald:
We remember the laughter, love, and song of you.
THE AUTHORS

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MASTERING VIRTUAL TEAMS
PART ONE

UNDERSTANDING VIRTUAL TEAMS
In today’s business environment, organizations adapt quickly or die. Gaining competitive advantage in a global environment means continually reshaping the organization to maximize strengths, address threats, and increase speed. The use of teams has become a common way of doing this. The formation of teams can draw talent quickly from different functions, locations, and organizations. The goal is to leverage intellectual capital and apply it as quickly as possible. The methods that organizations use to manage this process can mean the difference between success and failure.

Consider the example of a team in a global firm that produces durable goods. This product-development team, with members from around the world, had just completed the development of a new product. When the team unveiled the product to the senior staff of the organization, it included a description of the way the team worked. The presentation showed an icon of an airplane, with the entire team of twenty-two people traveling from country to country. The team members had continually moved from site to site for activities such as status reviews, design meetings, and prototyping sessions. The cost of the travel was tremendous, not only for hotels and airline tickets but also in terms of the human costs of being away from home and the lost work time and productivity.

Contrast this with the experiences of teams in organizations such as Hewlett Packard, the National Aeronautics and Space Administration (NASA), John
Brown Engineers & Construction, DEC, and Rank Hovis. These organizations also form world-class teams to quickly address customer problems, develop products, and deliver services, but these teams often operate virtually, without the physical limitations of distance, time, and organizational boundaries. They use electronic collaboration technologies and other techniques to lower travel and facility costs, reduce project schedules, and improve decision-making time and communication. For many teams, traveling and having continual face-to-face meetings is not the most efficient or effective way of working.

Organizations that do not use virtual teams effectively may be fighting an uphill battle in a global, competitive, and rapidly changing environment. Organizations that will succeed in the next millennium have found new ways of working across boundaries through systems, processes, technology, and people.

Understanding how to work in or lead a virtual team is becoming a fundamental competence for people in many organizations. Virtual teams often are formed as a reaction to a business requirement or as a result of programs, such as telecommuting, that introduce new ways of working.

It is not uncommon to talk with people who lead or work in virtual teams who do not have a great deal of experience working on teams in a co-located environment. Most of the large consulting firms (Andersen Consulting is one primary example) do a large majority of their work virtually. Consultants who join these firms may never have the opportunity to work in or lead a traditional team in a co-located environment. They are immediately placed in situations that are more virtual than traditional. IBM has an entire unit in which employees telecommute, so new hires may never have a chance to work in a traditional office setting.

People who lead and work in virtual teams need to have special skills, including an understanding of human dynamics, knowledge of how to manage across functional areas and national cultures, and the ability to use communication technologies as their primary means of communicating and collaborating.

**Types of Virtual Teams**

There are many different configurations of virtual teams. One of the central themes of this book is that the task affects how a virtual team is managed. Although virtual teams can undertake almost any kind of assignment, team leaders and members need to have a solid understanding of the type of virtual team they work in and the special challenges each type presents. What these teams have in common with all teams is that team members must communicate and collaborate to get work done and/or to produce a product. Virtual teams, unlike traditional ones, however, must accomplish this by working across distance, time,
and/or organizational boundaries and by using technology to facilitate communication and collaboration. There are seven basic types of virtual teams:

- Networked teams
- Parallel teams
- Project or product-development teams
- Work or production teams
- Service teams
- Management teams
- Action teams

**Networked Teams**

A networked virtual team consists of individuals who collaborate to achieve a common goal or purpose. Such teams frequently cross time, distance, and organizational boundaries. There typically is a lack of clear definition between a network team and the organization, in that membership frequently is diffuse and fluid, with team members rotating on and off the team as their expertise is needed. Team members may not even be aware of all the individuals, work teams, or organizations in the network.

Examples of this type of virtual team often are found in consulting firms and in high-technology organizations. For example, one group at Pricewaterhouse Coopers received a request from a client to quickly research and identify a set of best practices for managing the implementation of a large supply chain reengineering project. Although the consultants did not have all the answers themselves, they were able to tap into their network of external partners and internal and external databases and provide a set of best practices for the client by the end of the week.

Organizations that develop technological products also can use networked virtual teams. The National Aeronautics and Space Administration (NASA) uses a networked team for the Space Station Freedom Program. Team members come from over a dozen different nations and all NASA centers and include a large number of external suppliers, scientists, and corporate partners. Team members from different organizations come in and out of the network as their expertise is needed to make recommendations on the design and utilization of the Space Station.

**Parallel Teams**

Parallel virtual teams carry out special assignments, tasks, or functions that the regular organization does not want or is not equipped to perform. Such teams
frequently cross time, distance, and organizational boundaries. A parallel team is different from a networked team because it has a distinct membership that identifies it from the rest of the organization. It is clear who is on the team and who is not. The members of a parallel team typically work together on a short-term basis to make recommendations for improvements in organizational processes or to address specific business issues. Virtual parallel teams are becoming a fairly common way for multinational and global organizations to make recommendations about worldwide processes and systems that take into account a global perspective.

Whirlpool Corporation used a virtual parallel team to make specific recommendations for a global customer-loyalty system. Team members came from around the world and were supplemented by participants from an external consulting organization. After its recommendations were made to the CEO, the team dissolved. Much of the work of this team involved data collection and analysis by individual team members. The collaborative work was often accomplished in audio conferences at 7:00 a.m. Eastern standard time (to accommodate people from all time zones) and by using e-mail to communicate and pass on information. Like many people who work in parallel teams, the team members had other projects and accountabilities. As a result, they often participated in meetings while they were in automobiles or airplanes on their way to other assignments.

Parallel teams also are used domestically when expertise does not reside in one location or in one organization. The Federal Aviation Administration is using a virtual parallel team to recommend a set of common flight-certification standards. Team members are drawn from flight-certification and standards offices across the United States. Expert external consultants and team members from other governmental agencies supplement the team.

**Project or Product-Development Teams**

Virtual project and product-development teams also can cross time, distance, and organizational boundaries. Team members conduct projects for users or customers for a defined, but—typically—extended, period of time. Their tasks usually are nonroutine, and the results are specific and measurable. A typical result is a new product, information system, or organizational process. The difference between a project team and a parallel team is that a project team usually exists for a longer period of time and has a charter to make decisions, not just recommendations. A project team is similar to a networked team in that team members may move on and off the project as their expertise is needed. It is different from a networked team in that membership is more clearly delineated from the rest of the organization, and a final product is clearly defined.

NORTEL used a virtual product team to develop a common platform for a world telephone. The outside of the phone looks the same in every country, but
its displays are capable of being modified by the consumer to meet almost any language requirement. The project team that created the new Boeing 777 jet was virtual, with participation by external design firms, suppliers, and vendors. The engineering design was facilitated by common access to design documents by partners and suppliers.

**Work or Production Teams**

Virtual work teams and production teams perform regular and ongoing work. Such teams usually exist in one function, such as accounting, finance, training, or research and development. They have clearly defined membership and can be distinguished from other parts of the organization. Many work or production teams are now beginning to operate virtually and to cross time and distance boundaries. Work teams in the Information Systems Division of NORTEL operate virtually; team members do not see one another on a daily basis. Many even telecommute. They have access to workflow processes over the firm’s intranet, which allows them to work as a group on systems-development activities. The Survey Department at the Federal Highway Administration, Federal Lands Highway, also works virtually to survey new roads. Team members work individually to survey in remote locations and share data through electronic communication and collaboration technology with map makers and design crews in other remote locations. Team members meet face to face once per year for a conference. The members of the Organizational Development Division at MCI also work virtually. Consultants are located around the United States, and team members may rarely see one another face to face. At Peoplesoft, most employees in all functions telecommute.11

**Service Teams**

Service teams are now beginning to be distributed across distance and time. Network support at Andersen Consulting is a continuous operation, with technicians located around the world taking turns dealing with network problems and upgrades.12 The technicians “follow the sun” and are situated so that one team always is operational. Each team works during its members’ daylight hours and transitions work and problems to the next designated time zone at the end of the day.

**Management Teams**

Management teams can be separated by distance and time. Today, many management teams are dispersed across a country or around the world but work collaboratively on a daily basis. Although these teams often cross national boundaries,
they almost never cross organizational boundaries. Companies such as Eli Lilly and Whirlpool have executive team members who hold a number of different passports and live in many parts of the world. Like many other top-management teams in other global or multinational organizations, they collaborate on a regular basis by means of audio conferences or video conferences about the achievement of corporate goals and objectives. The United States Army’s chief of staff operates his staff (of 350 general officers located around the world) as a virtual team. Staff members communicate regularly via e-mail and use a chat room on an Internet Web-based network to discuss important issues as they arise.13

Action Teams

Action teams also can work virtually. Such teams offer immediate responses, often to emergency situations. They cross distance and organizational boundaries. A weather team at a television station in Huntsville, Alabama, is a good example of a virtual action team. During a weather emergency, action team members are distributed in the field. The weather person at the television station uses NEXRAD radar information to tell him where tornadoes may be forming and directs field-crew movement toward those locations. He analyzes the data that the crews send back and, using National Weather Service information, communicates the results and possible implications immediately to his viewers.

The way in which NASA works during a mission is an excellent example of a virtual action team. During a flight, mission operations, usually located in Houston, collaborates with the astronauts; with tracking stations around the globe; and with experts, such as engineers and scientists, in different locations, in order to ensure that the mission proceeds nominally.

How Being Virtual Adds Complexity

It is easy to characterize the types of virtual teams using the same categories as traditional teams. They can, however, be much more complex. The two primary categories of variables that make virtual teams more complex are (1) they cross boundaries related to time, distance (geography), and organization and (2) they communicate (share information) and collaborate (work together to produce a product) using technology. (We use the term technology to denote electronic communication and collaboration technology.)

As the distance between team members increases, so do differences in time zones. This makes communicating and collaborating at the same time problematic. Working across national boundaries complicates the situation because dif-
ferences in language, culture, and access to technology impede effective communication and collaboration.

As members from different organizations join a virtual team, integration of work methods, organizational cultures, technologies, and goals make communication and collaboration more difficult. Partners and suppliers often have conflicting goals and organizational cultures. This even holds true when team members come from different functional areas within the same organization. For example, people from functional areas such as marketing and human resources frequently operate with a different set of processes than those from more technical areas, such as engineering and information systems.

Finally, complexity is increased by the number of different choices for team interaction. Traditional teams typically interact face to face, at least some of the time. Virtual team interactions, however, are almost always mediated by electronic communication and collaboration technology. Interactions fall into four categories: (1) same time, same place (like face-to-face meetings); (2) same time, different place (such as an audio conference or video conference); (3) different time, same place (such as using a chat room or a shared file on a network); and (4) different time, different place (such as exchange of e-mail or voice mail messages). The selection of technology and choice of interaction vary according to factors such as the type of team, the nature of its task, and the members' access to technology.

Checklist 1.1 provides a way to categorize your virtual team and to determine the number of factors that affect complexity. Understanding the type of team you work on and its complexity will assist you in getting the most out of the remaining chapters of this book.

**Critical Success Factors for Virtual Teams**

The business justification for virtual teams is strong. They increase speed and agility and leverage expertise and vertical integration between organizations to make resources readily available. Virtual teams also lessen the disruption of people’s lives because the people do not have to travel to meet. Team members can broaden their careers and perspectives by working across organizations and cultures and on a variety of projects and tasks.

Although the effective use of electronic communication and collaboration technologies is fundamental to the success of a virtual team, virtual teams entail much more than technology and computers. When virtual teams and their leaders are asked about successes and failures, they rarely mention technology as a primary reason for either. Bill Davidow, a former executive with Intel and Hewlett Packard, comments: “Information and communication technology provides an
CHECKLIST 1.1. TYPE OF VIRTUAL TEAM.

Part 1. Team Description
Instructions: Check the description that best matches your team.

<table>
<thead>
<tr>
<th>Type of Team</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Network</td>
<td>Team membership is diffuse and fluid; members come and go as needed. Team lacks clear boundaries with the organization.</td>
</tr>
<tr>
<td>□ Parallel</td>
<td>Team has clear boundaries and distinct membership. Team works in short term to develop recommendations for an improvement in a process or system.</td>
</tr>
<tr>
<td>□ Project or Product Development</td>
<td>Team has fluid membership, clear boundaries, and a defined customer, technical requirement, and output. Longer-term team task is nonroutine, and team has decision-making authority.</td>
</tr>
<tr>
<td>□ Work or Production</td>
<td>Team has distinct membership and clear boundaries. Members perform regular and ongoing work, usually in one functional area.</td>
</tr>
<tr>
<td>□ Service</td>
<td>Team has distinct membership and supports ongoing customer, network activity.</td>
</tr>
<tr>
<td>□ Management</td>
<td>Team has distinct membership and works on a regular basis to lead corporate activities.</td>
</tr>
<tr>
<td>□ Action</td>
<td>Team deals with immediate action, usually in an emergency situation. Membership may be fluid or distinct.</td>
</tr>
</tbody>
</table>

2. Team Complexity
Instructions: Check as many as apply.

My team . . .
1. Has members from more than one organization
2. Has members from more than one function
3. Has members who transition on and off the team
4. Is geographically dispersed over more than three contiguous time zones
5. Is geographically dispersed so that some team members are 8–12 hours apart
6. Has members from more than two national cultures
7. Has members whose native language is different from the majority of other team members
8. Has members who do not have equal access to electronic communication and collaboration technology
9. Has members who are not formally assigned to the team.

Total number of categories checked: 

Complexity Index: 1–2 = some complexity; 3–5 = moderate complexity; 6–8 = high complexity
infrastructure for the corporation to communicate with customers and deliver information necessary for decision making. . . . If management insists on maintaining a purely functional organization or does not empower workers, information systems will add little value."18

There are seven critical success factors for virtual teams, of which technology is only one. Others are human resource policies, training and development for team leaders and team members, standard organizational and team processes, organizational culture, leadership, and leader and member competencies. These are discussed in more detail later in this chapter.

Of course, all the critical success factors do not have to be in place for virtual teams to succeed. The implementation of virtual teams within an organization can actually push toward the attainment of critical success factors. Successful virtual teams seem to demand certain conditions, and the existence of the teams will, over time, help to create the infrastructure conditions that make them work.

NORTEL’s Information Systems Group implemented virtual teams before it had attained many of the critical success factors. The teams immediately recognized that they needed certain things to succeed, such as high levels of autonomy to do their jobs, standard team-initiation processes, structured communication plans, and appropriate electronic communication and collaboration technologies for all team members. They also recognized that they needed to reeducate their customers about what to expect from a virtual team work environment.

The leaders of the virtual teams independently created team processes and standards, communication plans, and empowerment guidelines for team members. They put together customer-education packages. The training organization created a virtual team Web site and collected and placed the processes and lessons learned on the intranet for new virtual team leaders and members. Over time, NORTEL took a more deliberate approach to moving toward an infrastructure that would support virtual teams. Many of the processes it formally institutionalized got their start through the “bootstrap” approach of its first virtual teams.

This book is not specifically about preparing the organization for virtual teams. Its focus is on tools and techniques for team leaders and team members. However, team leaders and members influence the implementation of critical success factors that are associated with team success.

The next part of this book outlines a set of critical success factors for organizations. Complete the diagnostic tool that follows prior to reading about the factors. Your results on the diagnostic tool can direct your attention to the categories of success factors that affect your situation. Although you may not be able to influence all of them, the results can serve to direct your actions when it is possible or help you to develop a case to present to management for virtual team resources.
Seven Critical Success Factors

Seven factors affect the probability of a virtual team’s success:

- Human resource policies
- Training and on-the-job education and development
### CHECKLIST 1.2. (CONTINUED).

<table>
<thead>
<tr>
<th>Section Three: Standard Organizational Processes</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. There are standard and agreed-on technical team processes used throughout the organization and with partners.</td>
<td></td>
<td></td>
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<tr>
<td>10. There are standard and agreed-on &quot;soft&quot; team processes used throughout the organization and with partners.</td>
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<tr>
<td>11. Adaptation of processes is encouraged when necessary.</td>
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<tr>
<td>12. The culture supports shared ways of doing business across teams and partners.</td>
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</tr>
<tr>
<td>Section Four: Electronic Communication and Collaboration Technology</td>
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<td>Disagree</td>
<td>Neither Agree nor Disagree</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>13. There are consistent standards for electronic communication and collaboration tools across the organization.</td>
<td></td>
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<tr>
<td>14. There are ample resources to buy and support state-of-the-art electronic communication and collaboration technology.</td>
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<tr>
<td>15. People from all functional areas have equal access to, and are skilled in using, electronic communication and collaboration technology.</td>
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<td></td>
</tr>
<tr>
<td>16. People from all geographic areas have equal access to, and are skilled in using, electronic communication and collaboration technology.</td>
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</tbody>
</table>

- Standard organizational and team processes
- Use of electronic collaboration and communication technology
- Organizational culture
- Leadership support of virtual teams
- Team-leader and team-member competencies
The following discussion describes the seven factors and tells how team leaders can help to create the conditions that lead to success.

**Human Resource Policies.** Human resource policies should support working virtually. Systems must be integrated and aligned to recognize, support, and reward the people who work in and lead virtual teams.
CHECKLIST 1.2. (CONTINUED).

<table>
<thead>
<tr>
<th>Section Seven: Competence</th>
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<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>25. Team leaders are experienced in working in virtual environments.</td>
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<tr>
<td>26. Team members are experienced in working in virtual environments.</td>
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<tr>
<td>27. Team leaders are experienced in working across organizational and cultural boundaries.</td>
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<tr>
<td>28. Team members are experienced in working across organizational and cultural boundaries.</td>
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</tbody>
</table>

Analyzing Your Results

Average your scores in each of the seven areas:

<table>
<thead>
<tr>
<th>Critical Success Category</th>
<th>Average Score in this category (add total and divide by 4):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Resource Policies</td>
<td></td>
</tr>
<tr>
<td>Training and Development</td>
<td></td>
</tr>
<tr>
<td>Standard Organizational Processes</td>
<td></td>
</tr>
<tr>
<td>Electronic Communication and Collaboration Technology</td>
<td></td>
</tr>
<tr>
<td>Organizational Culture</td>
<td></td>
</tr>
<tr>
<td>Leadership</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td></td>
</tr>
<tr>
<td>Overall average (total divided by 28):</td>
<td></td>
</tr>
</tbody>
</table>

An overall score of 4.0 to 5.0 in any one category and as an average of all categories is excellent. Moderate scores are in the 2.5 to 3.99 range, and low scores fall between 0 and 2.49.

Low scores in specific areas may indicate some of the challenges you face as a virtual team leader. Scor- ing low in technology, for example, may tell you that all your team members may not have equal ac- cess to electronic collaboration technology. In this case, you may need to make a case for funding for groupware. The text provides an explanation of each category and actions to attain success criteria.

Career-Development Systems. Team leaders can help to support virtual team members by providing career opportunities and assignments that are comparable to those in traditional team settings. Applying promotion and career-development policies and actions fairly to people who work in virtual settings helps to reinforce the
perception that working virtually is an accepted career option. Virtual team members often mention that they fear that they will be looked over for promotional opportunities because they are not seen every day. This fear is not unfounded. Managers who lose visual and verbal proximity to their employees often put up the strongest resistance to alternative work and team arrangements. Virtual team leaders must ensure that the members of virtual teams have the same career-development opportunities as the members of traditional teams.

**Rewarding Cross-Boundary Work and Results.** Organizational reward and recognition systems often favor individual and functional work. Virtual team members, however, frequently operate in a cross-functional and/or cross-organizational environment. Changes must be made in the ways in which people are recognized and rewarded. Leaders must develop performance objectives for team members that include working across boundaries and sharing information to support virtual teamwork.

In addition, performance measures must be adapted to reward results. In a traditional office environment, where people are seen putting in effort every day, it is relatively easy to at least partially reward people for effort as well as for results. In a virtual environment, effort is more difficult to discern. When IBM went to a virtual environment, a shift to a reward structure that was based more on results than effort was a major part of the transition.

The use of formal and informal public recognition of virtual teamwork through “on the spot” awards, bonuses, and other mechanisms can reinforce the perception that working virtually is valued. You can use Web-based technology, such as setting up a site for virtual team “best practices” and advertising team successes and performance, as a way to publicly recognize people in a virtual setting. You also can use examples of your virtual team’s success in speeches, presentations, and discussions with other team leaders and with management.

**Providing Resources and Support for Working Virtually.** Create and support policies that provide your team with technical support for working remotely. All team members should have equal and immediate access to electronic communication and collaboration technology, training, and technical support. Many virtual team leaders set a standard for technology and make certain that everyone has access to the same hardware, intranet and Internet connections, and applications. They ask the information systems group to assist in the implementation. NORTEL helps virtual team members who are telecommuters to set up “home bases” to ensure that they have access to the best and latest technology.

**Training and On-the-Job Education and Development.** Formal training in using technology is vital for success. For example, team leaders at the World Bank be-
lieved that underfunded technological training for team leaders and team members was one reason that their efforts to implement groupware did not fully succeed. Money was spent on the technology—machines, applications, and compatibility—but not on teaching people how to effectively utilize it.21

In addition to a formal training curriculum, make certain that the team members have access to continual on-line training and technical support. Ask your training department about the feasibility of creating and implementing these types of systems. For example, Federal Express provides many of its technical and leadership classes through its intranet, so people can select when and where they want to learn. NASA provides a Web site for its project managers so that they can receive help in learning how to select, access, and use the appropriate electronic communication and collaboration tools. In both cases, the training, tools, and support are upgraded on a regular basis to ensure that they are state of the art.

Learning how to use technology is not enough to guarantee success. Team leaders should make certain that they get the training and support they need to be adept at facilitating meetings using technical and nontechnical methods. Training in facilitation skills should be an integral part of a development curriculum for team leaders and team members.

Provide training and support for your team in working collaboratively across organizational, cultural, and functional boundaries. Many organizations provide direct consulting support and training to virtual teams in this area. Johnson & Johnson’s Learning Services offers support to virtual team leaders in enhancing collaboration skills in cross-cultural and functional interactions, using what it calls the Team Performance Series. See if your organization offers similar services.

Create and implement systems for sharing knowledge across functions, projects, and organizations. Shared lessons, databases, knowledge repositories, and chat rooms are used in organizations that embrace virtual teamwork. NASA’s Web site for project managers contains a place where “lessons learned” are stored. It also has a bulletin board where project managers can ask questions and receive suggestions from other project managers. In many cases, these knowledge-sharing projects were created by virtual teams themselves.

**Standard Organizational and Team Processes.** Consider developing and implementing standard team processes. The use of standard processes reduces the time needed for team startup and may eliminate the need for unnecessary reinvention of operating practices each time a team is chartered. Practices need to be flexible, however, to promote adaptation to a particular virtual team’s situation. Common standard technical processes, especially for parallel, project, or network teams include
• Definitions of requirements
• Estimates of costs
• Procurement
• Team charters
• Project planning
• Documentation
• Reporting
• Controlling

It also is a good idea to define the preferred software for each of these major processes. Many organizations use standard project-management software packages so that any team, virtual or co-located, is familiar with and trained in using that package. Also have agreed-on team processes in “soft” areas, such as the establishment of team norms, conflict-resolution procedures, and communication protocols. Experienced virtual teams prepare team charters that delineate suggested team norms and communication standards. They use these as starting points to create processes suitable for their unique situations. Reinforce and expect the use of both technical and soft processes from the team.

Electronic Collaboration and Communication Technology. As a virtual team leader, you will need to select electronic collaboration and communication technology that meets the needs of your team. You also will need to ensure that the organization is ready to support your technical needs. Introducing the electronic communication and collaboration technology needed for virtual teamwork, such as desktop video conferencing or groupware, requires that three primary organizational conditions be in place:

1. The organization has a well-funded, respected, and established information systems staff, whose members are experienced in installing and supporting electronic collaboration technologies in many different locations.
2. There is commitment by the organization to keep personal computer systems as up-to-date as possible, regardless of a person’s title or duties. When systems fall behind, the costs of upgrades and the time to introduce them mounts quickly. Productivity also may fall as people spend time attempting to fix their equipment or work around it.
3. The organization has a well-maintained corporate network that has room to expand to meet the needs of more complex systems and users.

If your organization is lacking in any of these three areas, you might consider adopting a less complex suite of technology than if they are in place. In either
case, it is important to select a reasonable set of standards for your team in electronic communication and collaboration technology. Standards should meet the business needs of the team and match its mission and strategy. A global team that needs to communicate and work collaboratively, for example, must have a minimum set of standards for technology. For communication, this includes touch tone telephones, audio conferencing equipment, voice mail, fax capability, and access to a common e-mail system that allows people to send messages and exchange files. Video conferencing, scheduling, real-time data conferencing, electronic meeting systems, collaborative writing tools, and whiteboards can be added if the strategy calls for intensive collaborative work or if sufficient information systems resources exist to make the technology work reliably. Make certain that external partners and suppliers have access to compatible communication and collaboration technologies if they are considered part of the team.

Ensure that skill in using the electronic communication and collaboration technology is equally distributed among team members from different functional areas, geographic locations, and partner organizations. Often skill in, access to, and use of electronic communication and collaboration technology is more prevalent in technical functions, such as engineering and information systems, than in less technical areas, such as marketing, human resources, and finance. If this is the case, there is a risk that team members from less technical areas, if they are not able to use the technologies well, may be perceived by other teammates as having less status.

Ensure that the technology used by each virtual team is available to all team members, wherever they are located. One team leader ran into trouble when some of her team members in China did not have access to touch tone telephones and their word-processing software was outdated. The Chinese managers were using technology to signify status and intentionally did not upgrade the team members’ equipment. Of course, these actions put the team members at a disadvantage relative to their teammates and decreased productivity.

Finally, factor electronic collaboration hardware and software directly into the team’s budget. It is important to recognize that the benefits of technology grow over time. Virtual teams do reduce costs, but often there is an up-front and long-term investment for technology and training to make them work effectively. The more people and teams work virtually, the more quickly these business practices will translate into savings.

**Organizational Culture.** Organizational culture includes norms regarding the free flow of information, shared leadership, and cross-boundary collaboration. Help to create organizational norms and values that focus on collaboration, respecting and working with people from all cultures, keeping criticism constructive,
and sharing information. The organization’s culture sets the standard for how virtual team members work together. An adaptive, technologically advanced, and nonhierarchical organization is more likely to succeed with virtual teams than is a highly structured, control-oriented organization.24

The success of virtual teams is related to how the organization fosters or impedes trust between itself and its external partners. Treating partners as less than equal, hoarding information, forgetting to share data or results in a timely manner, and using competitive or proprietary information inappropriately can erode trust quickly. For example, many Australian firms report that they have abandoned virtual partnering structures because of issues of trust and control.25

If the organization is multinational or global, norms must honor different ways of doing business if they are to be effective. Create policies about how to do business in different cultures. Be aware that legal issues, such as who owns the copyright to product designs, can become murky when teams are working across national boundaries.26

Many virtual team leaders cannot affect organizational culture with the same clout as can senior managers. It is possible, however, to create a “microclimate” that supports effective norms and values. Team leaders who act in a conscious manner to build trust across boundaries and to share information and power create environments in which this type of culture can grow from the ground up.

**Leadership.** For virtual teams to succeed, the organization’s leadership must establish a culture that values teamwork, communication, learning, and capitalizing on diversity. The key to establishing an organizational culture that promotes virtual teamwork is that managers and virtual team leaders at all levels must be open to change and must support virtual teamwork. Richard Karl Goeltz, vice chairman and chief financial officer of American Express, notes, “It’s important to have a multifunction team of [senior] managers promoting and supporting a virtual office initiative right from the start.”27

Virtual team leaders and members can help managers to develop supportive behaviors. They can offer specific suggestions to management regarding the four categories of leadership behaviors that encourage virtual team performance: communicating, establishing expectations, allocating resources, and modeling desired behaviors.

First, it is critically important to communicate throughout the organization that working across time and distance and with organizational partners is not just a temporary fad but a new way of doing business, one that leverages knowledge and skills and capitalizes on diversity. This includes assigning virtual teams important and high-visibility tasks and projects and reporting the benefits and results of their work so that virtual teamwork is respected in the organization.
Second, it is important to establish clear expectations about how virtual teams work. Procedures and goals must be clear, so that virtual team members know how they are to work and what their objectives are. With all the new things they must learn about operating in a virtual team, the team members need clear guidelines and objectives to steer by. The other members of the organization also need to understand how virtual teams operate and that the teams’ end goals are aligned with organizational objectives and are, in effect, the same as those of co-located teams. Setting high expectations for performance also strengthens the perception that virtual teams deliver results.

It also is important to gain the support of customers and other important stakeholders by helping them to see the benefits of virtual teamwork. This includes establishing expectations about the virtual work environment and how virtual teamwork is going to affect their contacts with team members. Leaders must stress the benefits, such as lower costs and what the stakeholders have to gain, and find ways to make customers part of the change. One best practice is to invite external customers who work with virtual teams to team kickoff sessions in which norms and communication plans are discussed. Customers and other stakeholders also can be offered training in team technology. Customers can be provided with software to “sit in” on team meetings. This helps customers who are unsure of the virtual team approach to become more comfortable with it.

Leaders also can work with stakeholders such as leaders and managers from other functions, or suppliers who interface with the teams, to help them to understand and support the virtual team concept. They can make it clear to peers and to other managers in the organization that virtual teams work as hard and as productively as co-located teams. Leaders can become adept at providing evidence, including schedule and cost data, to sway more skeptical stakeholders. Finally, they can help to establish reasonable expectations about the time it takes to realize a return on the investment. The paradox is that the complexities of working across time and distance can, in the short run, lead to increased costs and longer cycle times because of difficulties with operating procedures and startup issues.28

Third, leaders who allocate resources for training, technology, and travel send strong signals that bolster the message that virtual teams are important. Charting virtual teams to work in an underfunded environment is a prescription for failure. Time and money must be allocated for training for virtual team members in areas such as cross-cultural work, project management, and technology. Time and money must be allocated for team leaders to travel for face-to-face meetings with team members at the beginning of the team’s life and then when necessary. Resources also must be dedicated to acquiring and maintaining the technology needed to facilitate the team’s work.
Fourth, and most important, effective leaders model the behaviors they expect. They align cross-functional and regional goals and objectives. They work with other managers across geographic and cultural boundaries. They solicit team members’ input and demonstrate trust in their judgment, particularly in the members’ functional areas of expertise. Effective team leaders show flexibility, changing as business conditions dictate. They do not expect behaviors from others that they do not engage in themselves.

**Team-Leader Competencies.** The challenges that virtual team leaders face are immense. Many report that they feel as if they are the “glue” that holds their teams together. They have to establish trust in an environment with little or no face-to-face contact or feedback. These challenges necessitate the development of an additional set of competencies that complement the skills for leading traditional teams. These competencies are as follows:

1. Coaching and managing performance without traditional forms of feedback
2. Selecting and appropriately using electronic communication and collaboration technologies
3. Leading in a cross-cultural environment
4. Helping to develop and transition team members
5. Building and maintaining trust

<table>
<thead>
<tr>
<th>TABLE 1.1. LEADERSHIP BEHAVIORS THAT SUPPORT VIRTUAL TEAM SUCCESS.</th>
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<tbody>
<tr>
<td><strong>Communicating</strong></td>
</tr>
<tr>
<td>Communicate the business necessity of virtual teams.</td>
</tr>
<tr>
<td>Communicate that virtual teamwork is respected.</td>
</tr>
<tr>
<td>Discuss the value of diversity and of leveraging skills.</td>
</tr>
<tr>
<td>Communicate the benefits and results of working virtually.</td>
</tr>
</tbody>
</table>
6. Networking across hierarchical and organizational boundaries
7. Developing and adapting organizational processes to meet the demands of the team

Team leaders can champion their own development by deliberately undertaking training and on-the-job assignments that build competence in these areas. Each competence is covered thoroughly in Chapter Four.

**Team-Member Competencies.** The people who work as virtual team members have to develop their own competencies. First, virtual teamwork is not for everyone. Serving on a virtual team may seem too transitory for some individuals who need face-to-face interaction and stability in a work environment. Without the structure of a co-located setting and day-to-day contact with team members, they may feel lonely or left out.

All members of traditional and virtual teams need solid grounding in their respective disciplines. However, virtual team members need new competencies. Team leaders can help to facilitate competence development by working with team members to create learning plans that use training and on-the-job assignments. The definitions of team-member competencies will vary, depending on the team’s type, mission, and composition. There is, however, a relatively stable set of six critical competencies:

1. Project-management techniques
2. Networking across functional, hierarchical, and organizational boundaries
3. Using electronic communication and collaboration technologies effectively
4. Setting personal boundaries and managing time
5. Working across cultural and functional boundaries
6. Using interpersonal awareness

Over time, most people can develop the competencies that are needed to work virtually. Adequate training, education, and leadership support and feedback can speed development. More detail about team-member competencies is provided in Chapter Six.

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**Implementing Pilot Projects**

Less than optimal results on the diagnostic tool may indicate the need for a pilot project that can assess how virtual teams perform in a controlled and manageable environment. A pilot project is a good idea in an organization in which virtual
teamwork is new and untried. If you do decide to create your own pilot test with your team or to orchestrate a larger pilot project, you may use the guidelines offered here.

First, select a problem to work on that is highly visible and difficult to solve traditionally.29 Set expectations that the pilot will take extra time and attention from management, staff, consultants, and information systems. It will include some expenses for equipment, software, and travel. Ask for executive sponsorship; find an upper-level manager who has a vested interest in the pilot and ask him or her to help in obtaining resources and stakeholder support.

Second, don’t make it overly complicated. Begin the pilot with two or three teams in a function or area that makes sense, such as sales, telemarketing, project engineering, or consulting.30 Most employees in these functions already are used to working remotely. For example, American Express began its pilot project in 1993, with virtual sales teams that were accustomed to working on the road.31

Third, check on the team leader’s and team members’ progress on a regular basis. Make sure that they understand the performance objectives and the ways in which results will be measured. Most people who work in a co-located team can meet with their teammates or leader in impromptu moments and ask for advice. Plan new ways for team members to exchange information and receive feedback in order to ensure that they are receiving the support they need to perform well. These ways might include mandatory Monday-morning telephone conferences to discuss performance or documentation of interim deliverables with feedback from the customer and the team leader.

Fourth, assign a dedicated (not necessarily full-time) member of the information systems staff to assist the team with equipment, software, and operations.

Fifth, evaluate the effort with multiple measures. “Hard” measures include the costs of equipment, software, travel, and consultant time. “Soft” measures include how people feel about the arrangement, the problems they encounter, and the feeling of cohesiveness on the team.

Points to Remember

1. Virtual teams are more complex than traditional teams because of factors associated with working across time, distance, and organizational boundaries and the need to use technology to communicate and collaborate.
2. There are many different types of virtual teams.
3. There are seven critical success factors associated with success, and virtual team leaders and members can influence them.
The role of technology in virtual teamwork is one of overcoming the complexities of time and distance in communication and collaboration. Virtual teams and their leaders need up-to-date knowledge about technology and its role in facilitating performance. However, as this book emphasizes, the successful use of technology involves more than that. It includes understanding the technological needs of the task and the team, matching the technology available to the task, and facilitating the technology to maximize team performance.

This chapter surveys the rapidly changing and frequently confusing arena of electronic communication and collaboration technology and the various tools available to the virtual team. Its goals are to simplify this topic and make it relevant. The first part explains considerations that can be used to guide selection of technologies. The second focuses on the technologies themselves and the strengths and weaknesses of each. Readers who are not familiar with electronic communication and collaboration technology can survey this part now and use it as a detailed reference later. The third part presents cases that illustrate some of the real-life consequences of selecting technology.

Other issues regarding the use and impact of technology are distributed throughout the other chapters of this book. For example, Chapter Eight covers concepts and techniques in facilitating virtual meetings.
Factors That Affect the Use of Technology

The starting point in enabling effective communication and collaboration over time and distance is selecting the technology that matches the requirements of the team’s task. Complicated and ambiguous situations require different choices than straightforward and simple ones. The selection process also is linked to a number of other variables, such as whether or not the team requires a permanent record of its interactions and decisions, the need for symbolic meaning in communication, team members’ experiences with working virtually, how tight the team’s schedule is, the team’s functional and organizational cultural makeup, and the team members’ access to technological support and training.1

Two Primary Factors

There are two primary factors that can help virtual teams evaluate the effectiveness of one technology over another in different situations: the amount of social presence required and the amount of information richness required.2

Social Presence. Social presence is the degree to which the technology facilitates a personal connection with others.3 A face-to-face discussion has one of the highest levels of social presence, whereas an e-mail message or a form business letter has far less. Interactions with high social presence are described as more lively, social, warm, and intimate than those with little social presence. Synchronous (same-time) communications, such as face-to-face meetings, audio conferences, and video conferences, have more social presence than asynchronous (different-time) communications, such as e-mail and voice mail, mostly because they enable the spontaneous, back-and-forth exchanges that we associate with normal conversation. When new team members are introduced to the team, when the team interacts for the first time with a customer, when the team addresses a touchy or interpersonal issue or solves a new problem, the use of technologies with more social presence may be perceived as better. Situations that are ambiguous or ill defined or that require the expression of emotions call for a technology with high social presence.

However, it is not safe to assume that more social presence is always better.4,5 Less social presence sometimes can be better because it reduces interpersonal distractions, such as appearance, mannerisms, and being reminded of previous negative interactions with the person or group. All these have the potential of interfering with logical or analytical abilities.
The reality is that social presence is not inherently good or bad. Its usefulness depends on what the group is trying to accomplish in a given situation. Routine situations, such as the regular exchange of information between team members, may benefit from technologies with less social presence. Nonroutine situations that contain high interpersonal or emotional components or ambiguity and uncertainty usually require technologies with higher social presence.\(^6\)

**Information Richness.** Information richness has to do with the amount and variety of information flowing through a specific communication media.\(^7\) High information richness helps to accurately transfer clues to the meaning of the communication, thereby reducing confusion and misunderstanding. For example, the information richness in a video conference with text and graphic capabilities is high because there is a large amount of information available, including spoken words, facial expressions, body language, and environmental information about each attendee’s surroundings. Much of this information is not present in other forms of communication, such as audio conferences, voice mail, and e-mail.

**Using the Factors**

Social presence and information richness provide bases for a team to make choices about technology.\(^8\) The two factors can be used as key variables to predict the effectiveness of different technological options in different situations. Implicit in this approach are two concepts: (1) that the ideal technology will be different from one type of task to another and (2) that more social presence and information richness is not always better.

In selecting appropriate technologies, the types of tasks that teams work on can be divided into four broad categories:

1. Generating ideas and plans about the team’s work, including collecting data to make decisions about plans
2. Solving routine problems where answers already exist
3. Solving ambiguous or complex problems where routine answers may not exist
4. Negotiating interpersonal or complicated technical conflicts between individual team members or organizations

Each category of work can be arrayed against three general types of communication technologies: (1) data-only systems (such as e-mail), (2) audio-only systems (such as audio conferences and voice mail), and (3) video systems. The result is a matrix, like the one shown in Table 2.1, that rates the effectiveness of each
general type of technology to facilitate achievement of each of the three main
types of team tasks. Using the matrix, team members can assign a rating of “good
fit,” “marginal fit,” or “poor fit” by evaluating the amount of social presence and
information richness delivered by the technology versus what is needed to perform
the task.

A rating of “poor fit” may indicate too much or too little social presence or in-
formation richness. Too much social presence or information richness is called “sur-
plus meaning.” Surplus meaning, over and above what the task demands, may
create a distraction from performance. For example, even though a video confer-
ence provides relatively high information richness, team members often experience
the video as distracting, especially if they know one another and are discussing rou-
tine information. Detailed information about meeting attendees’ environments,
such as seeing team members coming in and out of the video conference room
or watching them eat lunch, probably adds little value to the meeting.

Too little information richness or social presence also can affect team per-
formance and decision making. The potential impact of too little social presence
or information richness is illustrated by an example of a decision-making process
in the United States regarding parole from prison.

<table>
<thead>
<tr>
<th>TABLE 2.1. TASK/COMMUNICATION-MODE MATRIX.</th>
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<tbody>
<tr>
<td>Types of Tasks</td>
</tr>
<tr>
<td>Communication Modes</td>
</tr>
<tr>
<td>Generating Ideas and Plans and Collecting Data</td>
</tr>
<tr>
<td>Audio only</td>
</tr>
<tr>
<td>Video only</td>
</tr>
<tr>
<td>Data only (e.g., e-mail, bulletin boards)</td>
</tr>
</tbody>
</table>

Adapted from J. E. McGrath and A. B. Hollingshead, “Putting the ‘Group’ Back in Group Support Sys-
tems: Some Theoretical Issues About Dynamic Process in Groups with Technological Enhancements.” In
lan, 1993. Used with permission.
Officials in a midwestern state were considering converting its prison parole board to a virtual team, using closed-circuit television as the media for interviewing prisoners. Board members were scattered across the state and had to travel to the various correctional facilities, which were widely separated. In a pilot test, the board split into two groups for a parole interview with prisoners, with four members operating face to face and four operating remotely over closed-circuit television. The voting results for two of the prisoners were striking, with the remote members unanimously voting for parole and the face-to-face members united against parole. Subsequent interviews revealed that the board members who met face to face with the prisoners had received cues through facial expressions and body language that led them to believe that two of the prisoners were lying. These cues had not been detected by the board members in the less information-rich environment of closed-circuit television.

Other Factors in Selecting Technology

In addition to social presence and information richness, a number of other factors should influence the team’s selection of technology. These are: permanence, symbolic meaning, experience and familiarity with virtual operations, time constraints, organizational and functional cultures, and access to technological training and support.

Permanence. Permanence is the degree to which the technology is capable of creating a historical record of team interactions or decisions. A discussion by e-mail has permanence because all team members’ inputs can be saved on what are called e-mail threads. An audio conference often does not have permanence, unless the conversation is recorded or someone takes detailed notes. More, of course, is not always better. Many teams end up with reams of data that are never referred to again.

Symbolic Meaning. Symbolic meaning refers to context (meaning) over and above the message that is implied by the technology, such as receiving a handwritten thank-you letter rather than a typed one. With symbolic meaning, the act of selecting one technology rather than another, such as voice mail versus an interactive telephone call, adds meaning to the message. Even though the words are the same, the handwritten thank-you note means something different than the typed note, and the real telephone conversation means more than the voice mail message. For example, team leaders who use voice mail to express concern about team performance send a different message than do those who schedule face-to-face meetings or video conferences to discuss problems. The first choice implies that
the problem is not important and that the leader is not actively involved in the solution. The second relays the message that the problem is serious and important to the team leader.

**Experience and Familiarity with Virtual Operations.** Team members who are familiar with working virtually become accustomed to performing work without seeing one another daily—or at all. Such individuals sometimes prefer, and can actually perform work effectively with, less rich technology. Experienced virtual team members often find high social presence or information-rich environments distracting and call them a waste of time. Many elect not to attend a face-to-face team-orientation meeting because of the demands of travel and the time it takes for detailed discussion! However, most teams report that a face-to-face meeting or other environment with social presence and information richness is necessary for effective team interaction at the beginning of the team’s life cycle. The point is that the more experienced we become in working virtually, the better we become at—and the more we can begin to prefer—using technology with less social presence and information richness.

**Time Constraints.** Often, there is not sufficient time to select and procure the optimal technology and to train people to use it. In such a case, the team needs to make the best possible decision regarding technology, given the schedule and the resources available.

**Organizational and Functional Cultures.** Virtual teams that have varied membership require special consideration because of the differences in functional or organizational norms among members regarding group work and technology. For example, one individual moved from a telecommunications company in which e-mail was the preferred mode of communication to a consulting firm in which voice mail was favored. She learned quickly that people did not answer e-mail messages for weeks (if ever) but would respond to voice mail the same day. The use of video conferencing and the use of groupware also vary greatly from one organization to another. In some organizations, all global management meetings are conducted by means of biweekly video conferences; in others, quarterly face-to-face meetings are held.

**Access to Technological Training and Support.** Some technologies may not be available to all team members, or there may be issues regarding the compatibility of systems or the availability of hardware and software in certain parts of the organization or in partner organizations. It is not uncommon for one part of an organization, or for partner organizations, to be ahead or behind in hardware
and/or software capability. One virtual team leader, in California’s Silicon Valley, was shocked to discover that one of her partner organizations, a biotechnology firm, did not have access to a groupware system for team meetings. She offered to buy the system for the partner organization but then discovered that it did not have money allocated for training. Even if there is money to buy and distribute technology for all team members, they need access to training and practice.

In grappling with these variables, the virtual team faces challenges and opportunities. The challenges are to overcome the deficiencies that result from working across time and distance with little of what we consider normal, face-to-face feedback. The opportunity is that the thoughtful use of technology can overcome some of the traditional problems encountered in face-to-face environments. By planning for the challenges and taking advantage of the opportunities, virtual team leaders may be able to achieve performance levels that approach—and possibly even exceed—traditional, face-to-face work.

The following section explores the complicated world of technology. It categorizes the major technological options currently available to virtual teams and rates them on some of the factors outlined in this section, such as social presence, information richness, and permanence. We suggest that team leaders and members use it to develop a working knowledge of different technologies and their uses and benefits.

Technologies

We use the term *groupware* to describe the entire category of electronic options available to a virtual team. It is a broad term that refers to electronic systems that integrate software and hardware to enable communication and collaborative work. The most commonly used groupware today is e-mail. Most other groupware, such as desktop data and video conferencing, either has not been available to, or is not widely used by, most people in most organizations.

Groupware currently is going through a revolution, however, as individual products increase in functionality and as the industry transitions to the Internet. This reinvention, along with rapidly increasing data-transfer capacity called “bandwidth,” is ushering in a totally new era of practical and user-friendly groupware products. Perhaps soon, most groupware will be available to, and in use by, the typical virtual team.

In the development of this chapter, we researched an extensive literature base and talked with groupware vendors and users in large and small organizations. Our task was to identify and focus on those technological families that have the potential to improve the performance of virtual teams. We avoid identifying
specific vendor products by name, because many of these are rapidly evolving in both function and the ways in which the technology is accessed (for example, through user licenses or “by the yard” off the Internet).

The following section describes the most commonly used groupware applications, using the categories outlined by Coleman. It describes each category and then rates it on a number of factors, such as its ability to produce social presence, information richness, and permanence. We have separated groupware into two general categories; synchronous (those that enable team members to interact at the same time) and asynchronous (those that facilitate delayed interaction).

Synchronous groupware includes

• Desktop and real-time data conferencing
• Electronic meeting systems (EMS)
• Electronic display
• Video conferencing
• Audio conferencing

Asynchronous groupware includes

• E-mail
• Group calendars and schedules
• Bulletin boards and Web pages
• Non-real-time database sharing and conferencing
• Workflow applications

Synchronous Technologies

**Desktop and Real-Time Data Conferencing.** Team members who use desktop and real-time data conferencing engage in synchronous interaction with one or more team members from their individual computer workstations. Individual team members have up-to-date computer, video, and audio capabilities (this may include a separate telephone or data line for conference-call or video linkups) and specialized groupware software. Such systems allow team members to store common documents and to use a number of separate functions, including electronic chat, whiteboards, and desktop audio and video links.

Electronic chat allows team members to have typed conversations with other team members. The questions, responses, and comments of all participants are visible in a “chat window” on each participant’s desktop monitor. Unlike e-mail, an electronic chat is a conversation that occurs in real time. A feature that many team members like is that a record of the discussion is immediately available so that the development of ideas can be traced. However, because comments from everyone appear as they are typed, the more people who are participating in a chat session, the more chance for confusion regarding who said what and when.
Also, participating in chat conversations can be difficult for team members who have poor typing skills or who are participating in a language that is not their native one.

Chat applications are gaining popularity as office communication media for all types of teams as a way to circumvent clogged e-mail. Some software packages make it possible to instantly create a private chat room (metaphorically on the computer) so that two team members can have a private conversation at any time. The drawback is that electronic chat can be intrusive. Many team members view it as yet another way of having their work interrupted.

Desktop and real-time data conferencing frequently combines electronic chat with an electronic whiteboard that can display shared documents and allow the sketching of thoughts or ideas. A whiteboard allows team members to view a shared document, to diagram ideas on their computers, and to see the notations and comments of other participants. Some desktop and real-time data-conferencing tools include audio links that allow real-time voice discussion, in addition to chat, about the shared work.

The most advanced form of desktop and real-time data conferencing, “multipoint multimedia” technology, includes full-motion video in addition to the chat, whiteboard, and audio links. This integrated capability allows team members to see and hear one another and to create and edit still-frame documents or images. Each participant can view other team members on the screen through the video capability; talk with them; and see, manipulate, and annotate the same images. For team members who want to talk one on one or in breakout groups, there is the capability of creating private chat rooms for small-group discussions.

Multipoint multimedia, due to its information-rich, multichannel capability, is ideal for team tasks that require a high amount of information richness and social presence. Still, team members report that it often does not have enough social presence or information richness for tasks that involve quick and lively interaction about highly contested technical issues or interpersonal conflicts. In addition, it does require a high-speed Internet or corporate network (intranet) link and it requires all team members to have specialized desktop software and hardware with audio and video capabilities.

Tables 2.2 and 2.3 summarize the strengths and weaknesses of two types of desktop and real-time data conferencing. The text in each table summarizes the strengths and weaknesses on factors such as social presence, information richness, and permanence. In general, desktop and real-time data conferencing—in particular, multipoint multimedia—provides high social presence, information richness, and permanence. The cost of the system can be high, and all team members must have access to compatible systems. These systems are good for teams that have complex and long-term projects and those that have tasks that require high levels of interaction.
Electronic Meeting Systems (EMS). Electronic meeting systems have been used in face-to-face settings for a number of years to increase the productivity of group deliberation and decision making. Face-to-face electronic meeting systems range in complexity from simple voting or polling systems, with wireless data-entry keypads that each participant uses to cast a ballot (and a projection system to process and display the results), to computer-aided systems in which each participant uses a laptop computer to provide input to a central display screen. As the effectiveness of electronic meeting systems has grown, they have been adapted to a distributed environment to enable same-time but different-place collaboration. EMS technology is now based on wide-area networks or intranets and are becoming suitable for the Internet. The use of EMS typically requires every team member

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Brainstorming and generating ideas for plans, ideas about products, comments</td>
<td>Collecting data, discussing trends</td>
<td>Listing options, discussing opinions</td>
<td>Stating opinions</td>
<td>Low cost, easy to use, permanence, minimum technical support needed</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Voting on ideas, prioritizing ideas, outlining</td>
<td>Organizing data, prioritizing data, displaying data</td>
<td>Debating options, voting on options, prioritizing options, making decisions</td>
<td>Discussing opinions, reaching compromises, deciding among optional approaches, settling interpersonal disputes</td>
<td>Not suited for large groups; may require facilitation to maintain focus; low social presence</td>
</tr>
</tbody>
</table>

* = most useful  = useful  = least useful
to have a computer loaded with special electronic meeting software. A professional facilitator also is needed to structure the agenda, lead the meeting, and work with the electronic meeting software.

Teams traditionally have used electronic meeting systems to facilitate tasks that

- Tend to be sidetracked with excess discussion
- Require everyone to get a chance to submit his or her opinion
- Require anonymity for a more free flow of ideas

### TABLE 2.3. MULTIPOINT, MULTIMEDIA, REAL-TIME DATA CONFERENCING (CHAT, WHITEBOARD, VIDEO, VOICE).

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Sketching ideas, drawing concepts, gaining agreement on concepts</td>
<td>Listing data, displaying data, analyzing data, discussing trends, working on documents</td>
<td>Listing options, debating options, prioritizing options, making decisions, making judgments, working on documents</td>
<td>Stating opinions, discussing opinions, reaching compromises, deciding among optional approaches</td>
<td>Multi-technology collaboration, permanence, social presence, information richness</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Brainstorming, voting on ideas</td>
<td></td>
<td></td>
<td>Settling interpersonal disagreements</td>
<td>Moderate-to-high cost, requires skill and facilitation requires high bandwidth connection, video quality may be low</td>
</tr>
</tbody>
</table>

= most useful  = useful  = least useful
EMS provide a number of useful functions that address these types of tasks, including the following.

1. **Idea generation/brainstorming.** For this function, EMS resembles a chat application. Virtual team members enter ideas about a topic from their desktop computers simultaneously and are able to see the ideas from all other team members immediately on their monitors. Participants are also able to annotate or add comments anonymously about other people’s items or ideas so that there is a documented and free-flowing commentary. In this way, everyone has a chance to submit his or her ideas. Input also can be anonymous, which reduces the social pressure to conform or to freely state opinions that differ from those of the majority.

2. **Idea grouping/issue analyzing.** This function allows the virtual team to collectively move ideas into different categories. After team members brainstorm and comment on ideas or topics, they can identify the ideas or topics that merit further discussion and then agree to categorize them into smaller lists. Again, because EMS can be used anonymously, there is not social pressure to agree or disagree with a categorization.

3. **Voting.** Teams can use this function to gauge the degree of consensus about ideas and decisions without team members feeling pressure to respond one way or another. Virtual team members can prioritize and vote on ideas or decisions anonymously without the pressure to conform to the majority in the group or to the most powerful people on the team. The use of rank ordering, rating scales, and other prioritizing methods is also possible. Results are displayed in graphic or tabular form.

4. **Outlining.** This function allows team members to translate ideas and concepts into the beginnings of work products through the use of outlining features. Team members can jointly organize ideas into product or document outlines that the whole group can view and comment on. Individual team members can take the outlines and associated comments away to work on them.

5. **Annotating.** Individuals can respond to an identified set of topics in any order, making comments and suggestions at their own pace. It is up to the team leader and facilitator to decide whether comments and annotations are to be anonymous or ascribed to specific individuals. Some team leaders and members use the annotating function to begin a meeting—using the participants’ comments on a group of ideas or concepts as the basis for the remainder of the session.

Electronic meeting systems are becoming more compatible with other applications, such as word-processing, spreadsheet, presentation, and project-management software. Team members can move back and forth from the work application to the EMS system as the situation requires. If they need information to help them make a decision, they can import it from the other application so
that all team members can view it, discuss it, vote on it, and revise it. After a decision is made, the new data can be transported back.

EMS also can be integrated with other systems, such as desktop video, so that the interpersonal dynamics of a meeting can be captured. Participants can view

### TABLE 2.4. ELECTRONIC MEETING SYSTEM (EMS) WITH VOICE LINK.

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Brainstorming, prioritizing, outlining, voting on ideas, reaching consensus</td>
<td>Defining problems, reaching consensus</td>
<td>Listing options, prioritizing options, making decisions</td>
<td>Stating opinions, discussing opinions, deciding among optional approaches, reaching compromises</td>
<td>Permanence; compatible with other applications, such as project-management software; available on Internet and can be purchased as needed or “by the yard” for specific meetings; moderate social presence and information richness</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Depicting complex concepts, process flows, scenarios, or sketches</td>
<td>Displaying and diagraming data, performing in-depth and complex analysis</td>
<td>Debating options, making judgments about ambiguous topics</td>
<td>Resolving interpersonal conflict</td>
<td>High cost, requires special training and facilitation</td>
</tr>
</tbody>
</table>

○ = most useful  ○ = useful  ○ = least useful
other team members on their desktop screens at the same time as they view the information generated from the meeting. In this way, gestures, facial expressions, and other cues that provide a feeling of being there add to information richness. Chat capabilities also can be added, so that participants can break off into small groups to focus on specific items or decisions.

In their current versions, many EMS require a significant economic investment by the organization, as well as an organizational culture that will support their use. Cost may become less of an issue as software vendors make such applications available on their Web sites on a use-charge basis.

In summary, electronic meeting systems are good for teams who require a lot of meeting time in which ideas can be generated and issues can be categorized and prioritized. EMS technology also is appropriate when large power differences exist between team members and when a team wants to facilitate differing opinions. EMS technology has high permanence and moderate social presence and information richness. Currently, the cost of such a system is a factor and there is a need for a skilled facilitator.

**Electronic Display.** Like the blackboard, flipchart, and overhead projector, a family of technologies has evolved to aid in the presentation, communication, and discussion of ideas and concepts. These tools recently have been adapted to virtual environments. Computer-based whiteboards bring the utility and versatility of the office whiteboard to virtual teams. They allow team members to display the shared whiteboard on their computer monitors. Virtual meeting participants, seated at their workstations, can watch teammates write or draw ideas and can add their own thoughts and drawings. Whiteboards are most effective with added communication links, such as audio, video, and chat windows. Computer whiteboards usually do not require special computer equipment and frequently are bundled with other software features into integrated groupware products.

Although computer whiteboards are designed for fully distributed virtual teams, with each member at his or her own workstation, electronic whiteboards also can be used by virtual teams that are distributed into small groups. Electronic whiteboards that participants work with in small groups facilitate the joint preparation, discussion, and editing of information that is simultaneously displayed to all participants at all locations. These systems are optimized for conference rooms that are equipped with compatible hardware and software and are electronically linked. They also incorporate audio, video, and computer conferencing to simulate a face-to-face environment.

The primary advantage of using these display tools is that they build on the team members’ existing skills and meeting behaviors and provide some sense of social presence. The primary disadvantages are that the team members must
have access to specially equipped conference rooms and must disrupt their work to physically go to these rooms. Desktop systems provide the advantage of permanence. These systems are good for teams that need to share ideas and concepts graphically.

**Video Conferencing.** Video conferencing is one of the most commonly used tools for virtual teams. Although it can provide high information richness and social presence, it often is not the tool of choice of experienced virtual team members. The quality of the video picture, in terms of motion quality (jerkiness of motion) and the crispness or resolution of the image, is dependent on the bandwidth of the data link. Bandwidth is determined by variables such as the speed of the computer modem, the type of network (Internet or intranet), and the capacity of the cables or wires attached to the team member’s desktop computer. Virtual team members who have low bandwidth connections can experience low-quality images.

### TABLE 2.5. ELECTRONIC DISPLAY WITH VOICE LINK.

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Brainstorming, sketching ideas, drawing concepts</td>
<td>Listing data, displaying data, discussing trends</td>
<td>Listing options, debating options</td>
<td>Stating opinions, discussing opinions</td>
<td>Low cost, easy to use, permanence</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Voting on ideas, converging on complex concepts</td>
<td>Detailed or complex analysis</td>
<td>Prioritizing options, making decisions, making difficult judgments</td>
<td>Reaching compromises, deciding among a number of technical approaches, resolving interpersonal conflicts</td>
<td>Lower social presence, less information richness</td>
</tr>
</tbody>
</table>

- ● = most useful
- ■ = useful
- ○ = least useful
Team members who use the Internet can encounter Internet congestion that also degrades the video transmission. Video transmission and reception problems such as these can restrict the usefulness of desktop video, so that the video image distracts from, rather than enhances, the collaborative experience.  

There are two primary types of video applications: desktop video and specialized video facilities. Desktop video almost always is accompanied by audio communication and frequently by document-sharing capabilities. As most computers are equipped with the necessary hardware for desktop video, virtual teams that have recently purchased desktop equipment and a data link to an intranet or the Internet probably have video capabilities. A team member who has older desk-

### TABLE 2.6. VIDEO WITH VOICE.

<table>
<thead>
<tr>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usefulness for Virtual Teams</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good for</td>
<td></td>
<td></td>
<td></td>
<td>Available on Internet, low cost (desktop) transmits some information for social presence</td>
</tr>
<tr>
<td>Not so good for</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Generating Ideas and Plans and Collecting Data: | | | |
- Problems with Answers: | | | |
- Problems Without Answers: | | | |
- Negotiating Technical or Interpersonal Conflicts: | | | |
- Other Factors: | | | |

- **Generating Ideas and Plans and Collecting Data**
  - Black = most useful
  - Medium Gray = useful
  - White = least useful

- **Problems with Answers**
  - Black = most useful
  - Medium Gray = useful
  - White = least useful

- **Problems Without Answers**
  - Black = most useful
  - Medium Gray = useful
  - White = least useful

- **Negotiating Technical or Interpersonal Conflicts**
  - Black = most useful
  - Medium Gray = useful
  - White = least useful

- **Other Factors**
  - Available on Internet, low cost (desktop) transmits some information for social presence
top equipment may have to augment his or her hardware by purchasing a video card, microphone, speakers, and a video camera.

A second option that may be available to virtual team members in larger organizations is the use of specialized video rooms. Video rooms employ video equipment and high bandwidth networks that transmit full-motion video. They also may contain whiteboard or other presentation software that allows the sharing of and collaboration on documents. Video rooms can augment desktop systems by providing higher quality video images than some desktop systems. Unfortunately, however, like desktop systems, these video images can degrade and become distracting, especially if there are more than two locations linked together.

Another video technology that has been experimented with in high technology organizations such as Xerox is video walls or windows. These are shared audio and video spaces that are open all the time. People in the halls, conference rooms, and offices of one location are continually able to see and hear team members in other locations walking through halls, working in conference rooms, and sitting at their desks. In essence, it is like being in the same building with other team members.

Team members who use these types of systems over long periods of time say that they really contribute to a sense of social presence and ongoing team unity, especially after people get to know one another. There are reports of team members looking for one another through the video wall and the forming of lasting and personal relationships.26

Teams that use a video wall technology find that the development of social protocols for taking turns, avoiding sudden movements, and minimizing “video rudeness,” such as leaving a meeting site empty in the middle of a meeting, is important. In addition, privacy is sometimes an issue, as people are able to watch other people work without the others’ awareness. To help counter this, Xerox developed a “Big Brother” system, in which a set of eyes on the computer screen opened when someone was looking at a team member. The system also created a five-second “peek” capability to allow someone to look into an office to see if the other person was there.27

Most teams can benefit from the use of video technology. When used appropriately, it provides a high level of social presence and information richness. Overuse in situations that do not have these requirements is a mistake, as is attempting to link too many parties into one conference.

Asynchronous Technologies

E-Mail. E-mail is the most common and well-understood computer-mediated technology for distance collaboration. It is the electronic version of postal-service
mail. The message, usually a written one that can have a computer file attached, is sent over a network from one computer to another. The features of e-mail as a collaborative tool are frequently compared to postal mail and to voice mail. Like voice mail, e-mail is easy to use, provides people with time to reflect and consider their responses, can reach people in a short time, and can broadcast the same message to a number of different people. Most companies have e-mail systems, through their intranets or the Internet, that require specialized software for the specific e-mail systems.

E-mail is more effective than voice mail when extensive information, such as a text or video file, needs to be included with the message, or when the message, or the response to it, is complicated and requires a written explanation. E-mail also makes it easy to forward messages or to send copies or blind copies to others.

Unlike the telephone or voice mail, some e-mail systems will notify the receiver that a message was “opened” by a recipient (although not whether it was read and understood). Most e-mail systems also provide a means of visually tracking the original message, as the original is restated in the reply and in replies to replies. This concept of “message threads” is analogous to documenting or recording a face-to-face or telephone dialogue. A major advantage of e-mail over the telephone or voice mail, however, is that e-mail provides a permanent, written record of the discussion with no extra effort. Attorneys are even starting to use e-mail threads as evidence!

For teams that are working on highly proprietary product ideas or other activities that require confidentiality, e-mail security services can ensure that messages have not been altered or modified and can even identify the origin of a message. The authors used e-mail to administer a 360-degree feedback instrument to over ten thousand people globally. The e-mail system not only allowed us to track responses but also provided security features that were invaluable in assuring managers who were not used to using an electronic process that their feedback had not been tampered with and that it was confidential.

More advanced, “smart” e-mail systems are able to filter and prioritize incoming messages. Using filters and “if-then rules” (for example, if it is from my boss or customer, then I want to see it first!) team members can designate which messages they want to see immediately, based on the content or the sender. A team member also can designate the location to which a message should be forwarded, based on the topic, date, or names of team members. This feature facilitates quick responses to action items.

As with other groupware, e-mail is being merged with other technologies, such as voice and video. It is now possible to leave voice mail messages in e-mail mailboxes and to have e-mail messages read by voice-synthesizing computers over the telephone. This provides more social presence and information richness to e-mail systems but still falls short of video, audio, and other synchronous interactions.
E-mail is a necessity for virtual teams. It is an excellent way to communicate about simple and straightforward issues and to share information. It is inexpensive and easy to learn to use. The drawback is its low information richness and social presence.

**Group Calendars and Schedules.** The importance of time and coordination to a virtual team makes calendaring and scheduling software a high-priority tool. Calendaring involves the manipulation of information on an individual’s calendar; scheduling involves the communication and negotiation of information, meetings, and other items that need to be coordinated between individual calendars.30

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**TABLE 2.7. E-MAIL.**

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Discussion of ideas and plans, exchanging comments, revising plans and documents</td>
<td>Defining problems, discussing problems, transmitting data</td>
<td>Identifying options, discussing options and approaches</td>
<td>Stating opinions, discussing opinions</td>
<td>Low cost, easy to use, widely available, fits with the culture of most organizations, cross-platform compatible, high permanence</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Brainstorming, prioritizing, outlining, voting on ideas, reaching consensus</td>
<td>Reaching consensus on problems, performing analysis</td>
<td>Debating options, prioritizing options, making decisions, making judgments</td>
<td>Deciding among optional approaches, reaching compromises, resolving conflicts</td>
<td>Subject to misuse for messages requiring higher symbolism, low social presence and information richness</td>
</tr>
</tbody>
</table>

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Such programs are widely available, and the software is included with many groupware applications.

Calendaring and scheduling systems range from individual schedule managers to enterprise-wide systems based on client servers. Enterprise-wide systems permit coordination of schedules between team members from any location or function. They are most useful to virtual teams, especially if team members are located across a number of different time zones, because they coordinate differences in time zones. Depending on the size and complexity of the team, scheduling may also necessitate coordination across organizational lines with vendors, customers, and venture partners. If multiple organizations are involved, the team needs to establish rules that determine the priority of scheduled events that originate outside the team or in the parent organization. In other words, decisions must be made about what takes precedence—the needs of the team or the parent organization.

Teams also need to determine who has the authority to schedule whom, and when. Some teams make their systems available to anyone in the organization, even those with whom they would not normally be in touch. At Pricewaterhouse Coopers, calendaring systems are combined with a database that provides consultants with information about other people in the firm who have specialized expertise. A consultant can tap into the database, identify other consultants and partners with the expertise they are interested in, and then use the system to make appointments to talk with those experts. Everyone has access to everyone else’s calendar and is able to request appointments.

Virtual teams also are able to link to project-management software, such as scheduling and reporting applications, to integrate personal and team calendars with project or work schedules.

As these systems become as ubiquitous as e-mail, the tendency to overuse them may parallel the overuse of e-mail. For example, the scheduling of team activities on a global basis will have to be carefully monitored to combat “time-zone creep”—the tendency to routinely commit team members to activities outside their local working days. Calendaring and scheduling tools are meant to be used for team coordination; they have no social presence and little information richness and they are not appropriate for resolving technical or interpersonal issues.

**Bulletin Boards and Web Pages.** Electronic bulletin boards and Internet or intranet Web pages provide shared work spaces for the posting of messages and ideas, the display and editing of documents, and for non-real-time discussions about questions that do not require immediate answers. Many teams set up their own team bulletin boards or Web sites. The bulletin board and Web site are accessible to all team members (and to other stakeholders if the team wants this) and
have a degree of permanence similar to that found in chat rooms and e-mail. Bulletin boards are useful for gathering large amounts of information about specific topics from diverse groups of people outside the team. A bulletin board feature often is included as a standard part of a large, corporate, e-mail system and can be accessed by desktop or laptop computers.

Because bulletin boards and Web pages allow many conversations to occur at once, these technologies are time savers. People do not have to meet face to face or talk on the telephone in order to offer input in a topical area. Bulletin boards and Web sites also allow people to deliberate what others have said before composing their own input. In addition to the generalized ability to build on and comment on the ideas of others, these technologies allow for the creation of specialized topical databases that can be used in team collaboration and in the joint authoring of products.

One good example of the use of a bulletin board can be found in the Virtual Research Center at the NASA Marshall Space Flight Center. Project teams use a bulletin board to pose questions about technical and project-management problems or issues. Other team members, and other project managers, respond to the questions with ideas and suggestions. Because the text of the discussion remains in the database, new project managers and their teams can use the database to develop or refine their own processes, practices, or policies, based on the experience and wisdom of others. Many large consulting firms use bulletin boards to facilitate the sharing of information and knowledge across teams and work areas. This passive sharing of information can save teams time in developing and integrating best practices into their work.

Bulletin boards also can lead to disasters when not properly utilized. One company’s employee-morale team (a parallel team) set up a public bulletin board and posted “questions of the week” about specific employee-morale issues. The idea was that instead of holding a face-to-face focus-group session every week to gather employee feedback, the team would do it remotely. Many responses were very constructive, but others were cutting and directed at specific managers in the organization. Although the team learned a lot about what some people were feeling, it was not able to judge how representative the sentiments were or to control the damage to people’s reputations. It might have been better to hold this type of no-holds-barred discussion in a face-to-face and less public setting.

Although these tools are relatively inexpensive and easy to use and they facilitate permanence, they have low information richness and low social presence.

**Non-Real-Time Database Sharing and Conferencing.** For virtual teams that are part of a larger organizational effort, or whose work will be used as a basis for future work by other teams or organization units, the management of large
amounts of information and knowledge is critical. Shared database systems were among the first groupware applications on the market and they perform a number of information-management functions, such as these:

- Providing the team access to reference materials and stored knowledge from other teams or from the results of other organizational activities such as studies
- Providing a place to store the work of individual team members
- Assuring that all work in process is updated to the latest edition and available to all team members
- Providing a place to store the team’s experiences, lessons, and products for future use

Shared database systems usually accept a wide range of data, including multimedia information. Information frequently is distributed on servers throughout the organization, and individual team members have extensive freedom to search the database and to transfer the information to personalized databases and

### TABLE 2.8. BULLETIN BOARDS AND WEB PAGES.

<table>
<thead>
<tr>
<th>Usefulness for Virtual Teams</th>
<th>Generating Ideas and Plans and Collecting Data</th>
<th>Problems with Answers</th>
<th>Problems Without Answers</th>
<th>Negotiating Technical or Interpersonal Conflicts</th>
<th>Other Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good for</td>
<td>Brainstorming, generating ideas for plans and ideas about products, commenting on products</td>
<td>Collecting data, discussing trends</td>
<td>Listing options, discussing options</td>
<td>Stating opinions</td>
<td>Low cost, easy to use, high permanence</td>
</tr>
<tr>
<td>Not so good for</td>
<td>Voting on ideas prioritizing, ideas, outlining complex topics, in-depth feedback on products</td>
<td>Organizing data, prioritizing data, displaying data</td>
<td>Debating options, voting on options, prioritizing options, making decisions</td>
<td>Discussing opinions, reaching compromises, deciding among optional approaches</td>
<td>Low social presence, low information richness</td>
</tr>
</tbody>
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tailor it for their own use. Most systems require the purchase of special software and a desktop system to download, view, manipulate, and store the information.

Another application for non-real-time data conferencing is collaborative notebooks. Notebooks are built on distributed databases and employ a user interface that simulates real notebooks. The interface, usually on a desktop or laptop, features pairs of pages separated by a binder. Often, the right page, like a commercial organizer, contains space to make notes or add comments and provides hyperlink capabilities to other notebook pages. The left page contains flexible space in which any document or team product can be embedded. Notebooks can be created for specialized team topics and are designed so that each team member can

<table>
<thead>
<tr>
<th>TABLE 2.9. NON-REAL-TIME DATA CONFERENCING.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generating Ideas and Plans and Collecting Data</strong></td>
</tr>
<tr>
<td>Usefulness for Virtual Teams</td>
</tr>
<tr>
<td>Good for</td>
</tr>
<tr>
<td>Not so good for</td>
</tr>
</tbody>
</table>

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contribute to the others’ notebooks on the topic. Individual team members control the authoring and editorial access to the notebook in accordance with their task responsibilities and, in this way, can facilitate and manage collaborative authoring, document sharing, and editorial review by multiple users.

Non-real-time databases contribute to permanence but have little social presence or information richness. Their use is heavily dependent on team-member access to software and training and on whether or not the culture of the organization supports their use.

**Workflow Applications.** Workflow applications are used to design and operate repetitive business processes that involve sequential steps, such as the electronic processing of forms in a loan application and a new-hire request. The adaptation of workflow software to organizational intranets and the Internet enables repetitive work to be done virtually. Workflow software has a rather specialized application to virtual teams that are engaged in assembly-line work, service, or production teams and those engaged in operational or reengineering tasks.

### Cases in Virtual Collaboration

The following mini case studies are based on the experiences of real virtual teams in real organizations. They have been selected to illustrate some of the factors discussed earlier and for their varied approaches to the use of technology. In the first example, a government research team applies a technology-intensive approach; in the second, a team is in a technological environment coping with a task that is complex and politically charged. The third example describes a research team that is operating from ten remote locations.

**The Government Research Team**

The advanced launch vehicle (ALV) virtual team’s task was to identify and assess the most promising new technologies to lower the cost of launching satellites into space. The team was the first user of the organization’s new virtual research center (VRC), a groupware suite designed to bring together, virtually, the best technical specialists available, regardless of where they were located in the United States or around the world.

The team’s virtual home was a wing in the VRC, a make-believe facility located on the surface of the moon. Each team member checked in by e-mail to get a badge that enabled him or her to have access to different rooms of the facility, including the library, where project-related data were stored; the laboratory, where
engineering simulations and analyses were performed; and the conference room, which accommodated real-time team meetings.

The team’s first task was to discuss a preliminary listing of state-of-the-art space-propulsion technologies that were to be examined by the team. This discussion was the first use of the real-time meeting technologies in the virtual conference room. The technologies were desktop video, audio, and a shared electronic whiteboard. The VRC had been designed as an Internet-based capability in order to accommodate scientists who were not on the government’s high-speed data network.

Early tests conducted during the development of the VRC groupware suite raised questions about the suitability of the Internet to support multimedia, multipoint, real-time data conferencing. During these tests, low-modem-speed connections and Internet congestion combined to limit communications. It was decided to let the first team try the system before making any final decisions about modifying it.

The team’s leader started the meeting with an introductory presentation using the whiteboard. The presentation started out with the full system, which included—in addition to the whiteboard—an Internet telephone and slow-scan video. When several participants complained that the audio was breaking up, the team switched to a separate conference-call link (a normal telephone line) that was available as a backup. This cleared up the audio problem, but now the audio was out of synchronization with the whiteboard, because Internet congestion was slowing down and sometimes freezing the whiteboard images. Meanwhile, the video image was cycling in speed (frames per second) from very slow to stop and was a distraction to the participants. Once the video was turned off, the whiteboard speeded up, and the meeting proceeded with good results.

The pilot test had served its purpose. It had demonstrated that the Internet (on a bad day) was not yet robust enough to support bandwidth-heavy multimedia usage.

**Learnings.** As the ALV team discovered, use of the Internet is still more of an art than a science. The current Internet protocol (TCP/IP) was designed in the 1960s, and upgrades are on the way. But in the meantime, virtual team leaders should become familiar with the limitations of Internet use. Lessons learned include the following:

- Plan carefully for the use of untested technology.
- For synchronous communication utilizing the Internet or low-bandwidth organizational networks, make the most of traditional technologies, such as conference calls, augmented with single-function groupware, such as a whiteboard.
- Encourage virtual team members to get the latest in computer modem technology and the highest speed (bandwidth) Internet access available.
- Carefully assess the quality and benefits of desktop video in relation to the task at hand, especially for larger team sessions.

The Certification-Process Team

A large international organization implemented a virtual team to design and pilot a professional certification process for a significant population of managers. The team consisted of fourteen members in North America and Europe. Eleven members were considered a technical advisory group. There was one project manager and two individuals from an external consulting organization. The project was considered strategically important to the organization and had a high degree of management visibility. It was also unique in that a formal certification process for nontechnical work had never been developed or implemented in the organization.

The external group and the project manager did most of the development of the certification-process documentation, with the other team members acting in review and advisory capacities. Upper management granted final approval of the process. Because travel money was tight and the organization had a long history of working virtually, it was decided that there would be no large, face-to-face meetings. The technology selected was traditional and included

- E-mail for the coordination of schedules and for sending messages and small, attached files
- Regular conference calls for team meetings
- A Web page for posting the draft-certification process

After several meetings, the process began to bog down. Because the laser printers in the different locations created different page breaks within the sixty-page e-mail files, it was difficult to discuss the documents during the conference-call meetings. In addition, the meetings became repetitive, covering the same materials as previous sessions. Even bringing in a meeting facilitator, who prepared objectives and detailed agendas, did not seem to help. To make matters worse, some team members appeared to lose interest and stopped attending the regular reviews. When they did attend, their inputs were increasingly negative, rather than constructive. Some even began to question their investments of time. Meanwhile, the authors were making so many changes to the documents that it was hard to track them all.

Finally, the first team product was placed on a team Web page for open review and comment. Although the product was not complete, it was considered a
good way to get feedback from the broader organization. The comments were less than positive in some areas, and it was hard to know which comments to take seriously. The team overcompensated by taking them all seriously. Making changes to the Web page, however, was a complicated process that involved coordinating with the corporate organization responsible for Web-page development. Working through a third-party organization not only made it difficult to make changes, it also made it almost impossible to check them in a timely manner.

**Learnings.** The certification-process team learned that it needed to select its technology more wisely for such a complex project. In some parts of the project, technology was underutilized and, in others, it was overused or misused.

- The team had underestimated the degree of complexity involved in the coordination and review of team products. More information-rich technologies, such as desktop video with audio and shared text and graphic support, could have avoided the page-break problem and made reviews more efficient.
- The team had underestimated what it took to collaboratively author this type of document. Collaborative notebooks or authoring software would have helped greatly.
- Because the team kept going over the same information in its review meetings, it could have benefited from using an electronic meeting system to generate ideas, prioritize them, vote on them, and make decisions.
- One or two face-to-face sessions might have helped to eliminate confusion and address the more complicated and politically charged parts of the task.
- Placing unfinished products on a Web page for anyone to review is dangerous. It was difficult to know who to take seriously and when to change the document. Also, once a product is on a Web page, it is much more difficult to modify.

**The Leadership Research Team**

A government research team was formed to collect information for a study of leadership competencies. Team members came from across the United States. Only two team members were from the same location. Part of the team’s task was to collect data through interviews and focus groups about leadership knowledge, skills, and experience from over eight hundred people in ten different locations.

The government organization had extensive experience in using EMS. As a result, the team members decided to leverage their experience with that technology and to use the EMS system to collect and manage the interview data. After an initial face-to-face meeting that included training in the use of EMS, all team
members gathered information using EMS at their locations and then downloaded their data into a central database. All team members used a prescribed data-collection and input format and a protocol that was agreed on in the orientation session. Following each team member’s input, the system automatically updated the database with the latest information. Technical support in using EMS and the central database was available to all team members if they needed it.

During the data-collection phase, the team members kept in touch by e-mail and voice mail. Regular updates about the progress of the data collection were provided by all team members to the team leader and then distributed to the team members. Any problems that were encountered were shared in these communications.

Because the nature of leadership is a complex phenomenon, a face-to-face session was held to discuss the results of the interviews, conduct detailed data analysis, and reach agreement on the final leadership model. Information from the database was downloaded during the meeting and was used in analyzing results and in discussing and agreeing on the final model. A face-to-face EMS system also was available in the meeting to help the members to brainstorm ideas, vote on final results, and prioritize areas that were ambiguous.

At the end of the project, many team members said that the project had been productive as a result of the use of the central database and the use of EMS to collect and analyze the data. They also said that they felt a sense of team unity and camaraderie.

**Learnings.** The leadership-research team selected its technology wisely. It leveraged existing experience with a specific technology that was already well-accepted in the organizational culture. The team leader also called for face-to-face meetings when they were necessary: at the beginning of the project, to gain agreement on the task, process, and method, and at the end of the project, when detailed discussion and debate were required. In addition, the team was provided training in the use of EMS and the central database, and team members had adequate technical support and updates on progress and problems.

**Points to Remember**

1. All teams benefit from face-to-face discussion, especially in the beginning. Experienced teams can be effective with less.
2. There is no ideal set of technologies for all teams. There are basic, computer-mediated capabilities that most teams will benefit from, including e-mail, calendaring and scheduling systems, whiteboards, and document sharing.
Many teams—even experienced teams in high-technology organizations—rely on non-computer-mediated technologies (such as the telephone and facsimile) and single-function technologies (such as e-mail).

3. A virtual team needs to have a clear strategy for matching technology to the task. It should consider the needs for social presence, information richness, and permanence. Other factors, such as time constraints, the experience levels of team members, and the availability of technology, also need to be considered.

4. A great deal of social presence and information richness is not always desirable. For example, some team activities, such as standard review meetings, can be performed better without the distractions of face-to-face interaction.

5. Complicated or unproven technology is not always a good choice. For example, many people find video conferencing, in its current technological maturity (with poor picture quality and inconvenient facilities) to be inferior to well-run audio conferencing.

6. Bandwidth, cost, and compatibility issues can affect a team’s performance.

7. Underestimating the complexity and scope of the job can lead to number of other problems, including the wrong choice of technology.
Culture is one of a virtual team’s most significant boundaries. Culture can be national, organizational, or functional. This chapter describes all three types of culture and how each can affect the performance of virtual teams.

Defining Culture

The word culture comes from the same root as cultivate, “to till the soil.” It means the way in which people act on nature. For humans, culture is a set of learned mores, values, attitudes, and meanings that are shared by the members of a group. Culture often is one of the primary ways in which one group differentiates itself from another.

Culture can be viewed as the collective programming that separates one group of people from another. One way to look at culture is as the hidden “scripts” that people use to guide their behaviors. These scripts are created by repeated interactions between members of a group. They often are not even visible to the members of the group that created them. Over time, they become second nature and serve as shortcuts for guiding actions and making decisions. Like an iceberg, culture is often partially or totally hidden. It can, however, affect people’s assumptions, behaviors, and expectations about leadership practices, work habits, and team norms.
Three Categories of Culture

There are three types of culture that can affect a virtual team: national, organizational, and functional. Each team member brings his or her culture, and, as the team evolves, the unique blend of team members’ national, functional, and organizational cultures create a unique team culture.

National Culture

With the escalation of the globalization of organizations, more virtual teams are multinational. Even in domestic teams, cultural differences may influence the team members’ ways of working. For example, within the United States there are many different cultural groups that could be represented on a team. It is possible that
a domestic virtual team could have as much diversity as an international team—or more.

The patterns associated with national culture often are established in childhood and are the most embedded. These, coupled with life experiences, create the differences in behavior and thinking that exist when we talk about a person’s cultural background. It is a long-term identity that most of us cannot remove or replace. It becomes such an identifier that, second to our names, it represents who we are as much as anything in our lives. This is evident in the resistance to the merger of European economies and currencies into one European Union. People in the European community have described the resistance as partially an expression of national pride; people from the different European countries identify with their cultural histories, practices, boundaries, and currencies.

In 1967, Geert Hofstede began looking at employees of IBM Corporation worldwide to discern patterns of national behavior. Hofstede studied responses to employee surveys from many countries around the world. From this research, he derived four dimensions of culture: (1) power distance, (2) uncertainty avoidance, (3) individualism–collectivism, and (4) masculinity–femininity. Later, with the help of Michael Bond, Hofstede added a fifth dimension, long-term–short-term. A sixth dimension is based on the work of Edward Hall, who presents a contextual dimension of communication.

**Power Distance.** Power distance refers to the degree of inequity among people that the population expects and accepts. Organizations in low-power-distance countries tend to be more participative, with managers seeking input from their staff members. Different levels in the organization freely challenge one another. In high-power-distance countries, employees expect and accept that managers make decisions with little or no consultation with their staff members. In a virtual team, this may affect team members’ expectations about leadership styles and the role of the team leader.

For example, one virtual team in a durable goods firm with a global presence created a set of shared values for the team. One value encouraged employees to challenge the team leader openly in order to reach the best solutions. The Chinese members of the team could not agree to challenge the team leader, no matter what the circumstance. China is a high-power-distance country in which there is great respect for one’s superiors, so questioning a superior is not appropriate behavior in the Chinese culture. As a result, this value was not adopted because it directly clashed with the values held by the Chinese team members.

High-power-distance countries include Brazil, Venezuela, Indonesia, India, Singapore, France, Hong Kong, Mexico, and Arab countries. Lower-power-distance countries include Great Britain, Germany, Switzerland, Finland, Norway, Denmark, Austria, and the United States.
**Uncertainty Avoidance.** Uncertainty avoidance is the extent to which members of a culture are comfortable with uncertainty. Individuals from cultures that have high uncertainty avoidance seek details about plans, desire closure, and prefer more predictable routines. People from such countries may exhibit more anxiety in ambiguous situations or when there are no right or wrong answers. People from cultures that have low uncertainty avoidance tend to be more comfortable with ambiguous situations and tend not to have as strong a need for defined rules, procedures, and processes. Differences in uncertainty avoidance create differences in team members’ preferences for detailed team plans, formalization of team members’ roles and responsibilities, defined schedules, and review processes.

Countries that have higher uncertainty avoidance include Belgium, Japan, Peru, France, South Korea, Brazil, and Italy. Countries that have lower uncertainty avoidance include most of Great Britain, Hong Kong, Singapore, Ireland, Canada, the United States, and India.

**Individualism–Collectivism.** Individualism is the degree to which people prefer to act as individuals rather than as members of groups. A culture with high individualism is one in which there are loose ties between people, and individuals are expected to look after themselves. People from countries with high individualism value personal time and the freedom to take individual approaches to their jobs. Countries with high individualism include the U.S.A., Australia, Great Britain, Italy, France, and Germany.

In a collective society, people integrate into strong, cohesive groups—often for life. People from countries with high collectivism value a strong identity with the group and tend to put the needs of the group before their own. They prefer not to be singled out for praise or reward. Countries in most of Asia and Central America have higher collectivism.

Implications for virtual teams include differences in team members’ expectations about team unity, differences in closeness to other team members, and the ways in which rewards and recognition are handled. Members from collective cultures, for example, may prefer team-based rewards to individual recognition.

**Masculinity–Femininity.** The title of this dimension dates Hofstede’s work. The masculinity–femininity dimension describes the extent to which a “masculine” orientation—concerned with things such as earnings, signs of visible success, and possessions—has priority over a more “caring” (that is, feminine) orientation, which includes nurturing, cooperation, and sharing. Countries rated higher on the masculinity dimension include Japan, Austria, Italy, Mexico, Germany, and the United States. Countries rated higher on the femininity dimension include East Africa, Thailand, Norway, and Sweden.
**Long Term–Short Term.** Long-term cultures value persistence and thrift. They are oriented toward the future. Short-term cultures value more immediate physical and financial returns. Asian countries score highest in long-term cultural behaviors. European countries occupy the low-to-middle range, and the English-speaking countries have a shorter-term orientation. This dimension has implications for what motivates virtual team members. Team members from long-term cultures may be motivated by long-term success. Team members from short-term cultures may be more impatient and need more immediate reinforcement.

**Context.** Hall identifies another cultural variable: context. Context may be one of the more important cultural variables for virtual teams. It refers to how people perceive the importance of different cues in communication. In high-context cultures, messages have little meaning without an understanding of the surrounding context. People from high-context cultures prefer more historical information and more subjective personal opinions. This may include information about the backgrounds of the people involved, previous decisions, and the history of the relationship. People from low-context cultures prefer more objective and “fact-based” information. The message itself is sufficient. This has a significant implication for the way in which team members communicate. Members from high-context cultures may prefer communications that are able to carry a great deal of contextual information. This implies that information-rich technologies that convey a number of clues regarding meaning may be more suited to a team with a number of members from high-context cultures.

High-context cultures include Japan, China, Greece, Mexico, and Spain. Moderate-context cultures include Italy, France, French Canada, and Britain. Low-context cultures include English Canada, the United States, Scandinavia, and Germany.

Table 3.1 summarizes Hofstede’s and Hall’s dimensions of culture and the implications for virtual teams.

Culture also may have an impact on the way in which technology is used by a team. Table 3.2 offers several considerations to be used when selecting technology for teams with members from different cultures.

**Organizational Culture**

The organizational cultures of team members also may influence their performance and, consequently, the performance of the team. Members of virtual teams are drawn from various organizations, including customers, suppliers, associations, communities, and other stakeholder groups. Each member brings his or her
### TABLE 3.1. NATIONAL CULTURAL DIMENSIONS AND BEHAVIORS FOR TEAM MEMBERS.

<table>
<thead>
<tr>
<th>Cultural Dimensions</th>
<th>Definition</th>
<th>Advice for Team Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance</td>
<td>Extent to which the less powerful members expect and accept that power is distributed equally</td>
<td>Expect that team members from high-power-distance cultures will want to make decisions and take charge. Team members from low-power-distance cultures will prefer more consultation. Set very clear expectations about the leader’s management style and what it implies for team members’ behaviors.</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>Degree of structure required for a task</td>
<td>With members who require more structure, spend more time detailing the task. With members who require less structure, detailing the task will cause them to feel micromanaged.</td>
</tr>
<tr>
<td>Individualism–Collectivism</td>
<td>Preference to act as individuals rather than as members of groups</td>
<td>In collectivist cultures, tasks will be completed by members together, bringing along the slower members. In individualist cultures, assign tasks to individuals but make sure they realize that they are part of the larger team and cannot work alone.</td>
</tr>
<tr>
<td>Masculinity–Femininity</td>
<td>Extent to which masculine values are given priority over more “caring” values</td>
<td>With members from feminine-nurturing cultures, be careful not to overdo the “kill the competition theme.”</td>
</tr>
<tr>
<td>Long Term–Short Term</td>
<td>Degree of parsimony, family orientation, virtuous behavior, and acquisition of skills and knowledge</td>
<td>For members from long-term cultures (such as Asian cultures), providing opportunities to contribute to long-term goals and to learn and acquire skills can be very motivating.</td>
</tr>
<tr>
<td>High or Low Context</td>
<td>Amount of sensing and extra information needed to make decisions versus “just the facts”</td>
<td>With members from high-context cultures, spend more time reviewing the histories and backgrounds of situations. Use more information-rich technologies. With members from low-context cultures, more information than just the “facts” will appear nonessential and be frustrating.</td>
</tr>
</tbody>
</table>
Schein defines organizational culture as: “A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.”

These basic assumptions cover many complex areas. For example, different organizational cultures carry different perceptions of the importance and nature of time (regarding schedules and timetables), the organization’s relationship to its competitive environment (leading it or reacting to it) and theories about human nature (good or evil). It is a challenge to identify shared basic assumptions in an organization.

### TABLE 3.2. TECHNOLOGY AND CULTURE.

<table>
<thead>
<tr>
<th>Cultural Factor</th>
<th>Technological Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Distance</td>
<td>Members from high-power-distance cultures may participate more freely with technologies that are asynchronous and allow anonymous input. These cultures sometimes use technology to indicate status differences between team members.</td>
</tr>
<tr>
<td>Uncertainty Avoidance</td>
<td>People from cultures with high uncertainty avoidance may be slower adopters of technology. They may also prefer technology that is able to produce more permanent records of discussions and decisions.</td>
</tr>
<tr>
<td>Individualism–Collectivism</td>
<td>Members from highly collectivistic cultures may prefer face-to-face interactions.</td>
</tr>
<tr>
<td>Masculinity–Femininity</td>
<td>People from cultures with more “feminine” orientations are more prone to use technology in a nurturing way, especially during team startups.</td>
</tr>
<tr>
<td>Context</td>
<td>People from high-context cultures may prefer more information-rich technologies, as well as those that offer opportunities for the feeling of social presence. They may resist using technologies with low social presence to communicate with people they have never met. People from low-context cultures may prefer more asynchronous communications.</td>
</tr>
</tbody>
</table>
According to Cameron and Quinn, organizational culture sometimes has been overlooked as a determinant of performance because it deals with basic assumptions that people are not aware of until the culture is challenged or organizational performance deteriorates. When properly managed, cultural differences can lead to innovative solutions. However, failure to address differences in organizational cultures can even derail teams with experienced members.

For example, a multinational organization formed a virtual team to develop an executive-education course for senior leaders. The members of the team included three directors who were located in three different parts of the world and two university faculty members who were based in Europe. The directors had global positions and consulted with cross-cultural leaders within the organization. The faculty members also worked almost exclusively in global settings.

A university culture has a different concept of time than that of most companies. Faculty members tend to think in terms of academic cycles, semesters, and trimesters, and generally have longer task-to-completion time spans. They also tend to schedule calendars in yearly increments and have higher degrees of certainty about their commitments. In business organizations, however, most calendars do not exceed one fiscal quarter, and priorities shift continually.

As the task progressed, tension built. The organization pushed for a final design. The faculty members said that they needed longer lead times. They wanted to wait until they had breaks in their course schedules to work on the program. This frustrated the organization’s directors, who needed to show ongoing action to their supervisors.

Over time, because of these and other culturally rooted assumptions, the relationships in the team deteriorated. Weeks slipped by without a single telephone call or e-mail message. The distance between the team members made it difficult to communicate, and the team members eventually used distance as an excuse and stopped communicating.

Cameron and Quinn developed one of the most comprehensive and easily applied techniques for understanding organizational culture: the Competing Values Model. The Competing Values Model is based on the premise that every group has shared and competing values and assumptions. These reflect the group members’ preferences for certain things over others. When two virtual team members who have different values and assumptions come together, their values and assumptions may compete and create tension. The tension is the result of two sets of polar opposites, resulting in four types of cultures, as follows.

**Clan Versus Market.** The first pairing is clan versus market cultures. The clan culture views the organization as an extended family and its leaders as parent figures. Clan members are highly committed. Teamwork and participation are
paramount. The market culture is results-oriented, with competitive members and aggressive leaders. There is a penchant for winning.

**Hierarchy Versus Adhocracy.** The second pairing is hierarchy versus adhocracy cultures. The hierarchy culture is very formal and is governed by procedures, with a focus on stability and control. Low risk and “no surprises” characterize success. The adhocracy culture is dynamic and adaptive, with a great deal of risk taking and innovation. There is a penchant for trying new things.

By using the Competing Values Assessment Instrument, a team can map the degree to which each of the four cultures is represented on the team. The resulting score can be plotted on a kitelike graph, with the four cultures forming the four quadrants, as shown in Figure 3.2. The strength of each culture is shown on a scale from 0 to 50. The culture pictured in Figure 3.2 is strong in clan and hierarchy.

**FIGURE 3.2. THE COMPETING VALUES MODEL.**

![Diagram showing the competing values model with four quadrants representing different cultures: clan, adhocracy, hierarchy, and market.](source)

The Competing Values Model facilitates examination of a team’s organization culture, and it can be used to determine whether that culture is aligned with the team’s task. If there is a mismatch between the existing culture and the demands of the task, the team may decide to develop new norms or to add new members who represent the culture it is trying to create. In Figure 3.2, for example, the thin lines indicate that the team is trying to become more market focused.

**Functional Culture**

Most specialists in organizations work in functional groups, such as engineering, marketing, finance, production, and human resources. People who work in the same functional area often share a common background in terms of education, professional goals, and skills. Functional experts develop their own practices and ways of doing business, so when members of a virtual team come from different functional areas, they bring different assumptions and practices that may affect the team. Engineers, for example, learn a slightly different set of techniques for managing projects than software designers do. In a virtual project team, these two groups may disagree about which approach is most appropriate.

The cultural dimension of context also affects functional perspectives. In general, people who are in functional areas such as human resources, marketing, and sales tend to prefer more contextual information in communication than do people from information systems, engineering, and finance. Team leaders need to take these preferences into account when sending messages and establishing agendas for meetings. Members who come from high-context functions may prefer and expect more information-laden communications. They may be frustrated by agendas that are developed by low-context team members. Conversely, the low-context team members may be frustrated if they feel that they have to provide “extraneous” information to the high-context members.

In organizations that have traditions of cross-functional teamwork, a virtual team leader will likely have an easier job in managing functional differences. Team members from such organizations have experience in subordinating their functional biases to achieve the broader, integrated goals of their teams. They also know how to bring needed functional expertise to their teams and how to leverage differences and maintain balance. Table 3.3 provides examples of selected functional areas and suggested actions to manage functional integration.

**Culture in the Negative Zone**

Cultural sensitivity can be taken too far. There are many stories about organizations or teams that did not act fast enough because they were being overly sensitive
to the local culture. Bad performance is bad performance in any culture. Cultural traits should not be used to cover poor performance or used as excuses for poor performance.

To help make the issues described in this book come to life, we present a series of vignettes with Sara, a virtual team leader, as the main character. We base the stories on real examples that we have experienced. In the first vignette, Sara is having trouble with one of her virtual team members, who is hiding behind cultural differences to cover up performance problems.

Sara worked with her virtual team for several months. As the team leader, she structured the team in an exemplary way. She even conducted a cultural workshop during the team’s orientation. She assigned each member tasks and she is now in the process of checking to see how each member is progressing.

Sara had not heard from the member from Italy and decided to e-mail her. After two e-mails, there still was no response. Not wanting to seem too pushy, Sara waited much longer than her instincts told her was appropriate—much longer than she would have waited if this member were Canadian, like Sara. She finally reached the Italian team member by telephone and asked how she was progressing. Sara was told that there had been several Italian holidays and a transportation strike in the team mem-

| **TABLE 3.3. EXAMPLES OF BEHAVIORS THAT AFFECT FUNCTIONAL CULTURES.** |
|---------------------------------|----------------------------------------------------------------------------------|
| **Engineering**                 | Prefer to lay out plans in a rational fashion and work with logical detail.       |
| **Software Development**        | Prefer to lay out plans in a rational fashion. Have a horizontal process orientation to work versus a vertical orientation within functions. |
| **Research and Development**    | Prefer structure and detail within a research or scientific context. May not appreciate rush schedules, cost limitations, and a short-term business focus. |
| **Accounting and Finance**      | Prefer to organize, plan, and quantify. Add structure to tasks.                   |
| **Sales and Marketing**         | Operate with a sense of urgency. Can conceptualize and create quickly. Prefer high-context communications. |
| **Production and Manufacturing**| Manage projects, processes, and problem solving. Operate with a sense of schedule and urgency. |
ber’s part of the country that had prevented her from traveling. The message was that Sara needed to understand that Italy is very different from Canada. Sara listened and asked when she could expect the first output, which was due the previous week. She was told that it would come in a few days. Sara waited and then e-mailed the member on the agreed-on date. Meanwhile, other things were being held up, waiting for the input from the team member from Italy.

When there was still no communication, Sara called the team member and was told that the task was much more difficult than Sara realized when she assigned it. She also was told that the information systems in Italy are much more rudimentary than those in Canada. The Italian member said that she had to do much of the information systems tasks manually, which took more time. Again, there was the implication that Sara was insensitive to the team member’s culture.

Days passed, and Sara still did not receive the input she needed. Finally, she called the team member to discuss the situation. The team member said that she had sent her work to Sara and was surprised that Sara had not received it, implying that Sara’s office was less than efficient. Sara waited two more days. Finally the e-mail arrived, and Sara reviewed it. It was a dismal attempt at the task. Sara did not want to go through another round of interactions with the Italian team member. Instead of sending the work back, Sara decided that it would be easier to finish the task herself.

Sara wrote in the journal she had been keeping that, on reflection, she should have listened to her instincts in her first encounter with the team member. After all the back-and-forth communication, Sara realized that the problem was a performance problem, not a cultural one.

Sara faced a problem that is faced daily in virtual teams. Although national culture figures in Sara’s story, it could be retold using functional or organizational culture. No matter what the type of culture, when problems arise, sorting out whether they are performance based or culturally based is difficult. In similar situations, team leaders and members need ask only two questions: (1) If this person were from the same culture as I am, would I still think that there was a problem? and (2) Is this person violating agreed-on team norms regarding performance? The answers to these questions can help team leaders and members to decide whether a problem is culturally based or performance based. However, making such a determination still can be difficult for virtual teams because of distance and the limits of technology.

Keeping a journal can help a virtual team member to reflect on his or her actions and to consider new approaches to cultural issues. Keeping a journal also can help a team member to identify patterns in behavior, which may help in determining whether problems are culturally based or performance based. Checklist 3.1 is a format that can be used to create a journal in which to reflect on cultural issues.
Using Culture as a Competitive Advantage

Cultural diversity in a virtual team can be a competitive advantage. Hofstede argued over a decade ago that “the presence of national culture is an asset rather than a liability for the functioning of an organization, and should be fostered carefully.” Virtual teams that leverage the power of differences can outperform teams that have members who are more similar in background and culture. Many innovations come from people who are outside the prevailing schools of thought.

One question that perplexes virtual team leaders is “To what extent should I try to change functional, national, or organizational cultures to fit the team culture?” It is next to impossible for a virtual team to change organizational and functional cultures. And it is not the purview of a team or an organization to try to change national culture, even if it could. A more appropriate question is “What
of these different cultures can be adopted into the team culture to create an advantage?"

In managing cultural diversity within a virtual team, being aware of and countering built-in biases is one of the biggest challenges. Triandis and Brislin found that when a supervisor from one culture appraises the performance of a subordinate from another culture, the accuracy of the appraisal is likely to be lower than if these individuals came from the same culture.\(^{15}\) Triandis and Brislin concluded that people from different national cultures have different ideas about what constitutes good performance. Virtual team leaders should be mindful of this and understand their own cultural bases and how these biases may affect their judgments.

Virtual team members should engage in cultural training at the beginning of the teams’ life. Training about national, organizational, and functional cultures is a useful component of team orientation, no matter how experienced the team members. Training creates a shared experience and language that the team members can draw on in working together. Checklist 3.2 provides suggested topics for cultural training.

Understanding that culture consists of values and shared assumptions is critical to helping a team succeed. Bringing cultural differences to the surface in a

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**CHECKLIST 3.2. SUGGESTED TOPICS FOR CULTURAL TRAINING.**

1. Present basic cultural dimensions (such as the work of Hofstede, Hall, or another researcher). Make sure that the presentation is based on research. If possible, let subgroups of team members from different cultures present these to one another. _____

2. Discuss how these dimensions might affect team interactions and performance. Let members from the different cultural groups speak for their own cultures at this point. _____

3. Discuss business practices and ethics that might affect team performance and interactions, including:
   - Differences in time zones _____
   - Holidays _____
   - Availability of technology _____
   - Work hours _____
   - How decisions are made (off-line, in meetings, and so on) _____
   - Facilitation payments and bribes _____
   - Entertainment _____

4. Discuss when and how such differences will be discussed on an ongoing basis within the team. _____

5. Discuss how these differences might affect team norms and practices, including the exchange of information, decision making, and communications. _____
productive way can help to create a virtual team culture that builds on differences. Rather than trying to circumvent differences that members bring to the team, or to attempt to make everyone the same, teams can leverage the differences to create a team culture that is the basis for team development, growth, and success.

There are several considerations to ensure that culture is used to the team’s advantage. Checklist 3.3 offers a way for team members to begin to open up to cultural differences. Checklist 3.4 presents some guidelines for using cultural differences to the best advantage.

### Business Practices

Business practices (work hours, holiday schedules, and the like) vary significantly in different parts of the world. In many Latin countries, people tend to work from 9:00 a.m. to 7:00 p.m. and to work late on Friday evenings so that they can take the weekends off. Business dinners in Latin America, especially in Argentina, rarely begin before 9:00 p.m. and can last until midnight. On the other hand, dinner in the United States can begin as early as 5:30 p.m. and be finished by 7:00 p.m. Many Latins wonder why Americans eat dinner “in the middle of the day.”
Differences in time zones can derail tasks. Even sophisticated executives may count on their fingers when trying to figure out what time it is somewhere else in the world. Even differences in time zones within one country can cause problems. One effective practice is to distribute a guide to team members, with the time zones in each team member’s location beside the member’s name. Include not just the name of the time zone, but the difference in hours—for example, “If it is 12:00 p.m. at the corporate headquarters, it is 6:00 p.m. in Italy and 12:00 a.m. in Hong Kong.”

Holidays also create dilemmas for global virtual teams. The process of selecting dates for meetings and conferences can be hampered significantly by trying to work around all the holidays that exist around the world. One team started by having each team member list the holidays he or she observed and indicate which were absolutely essential and which were not (meaning that the members could work on those days). This was a culturally sensitive way to solve the problem. Care was taken to ensure that members from any one culture were not unduly inconvenienced.

**Business Ethics**

Work schedules, time zones, and holidays are relatively simple problems to solve compared to the more significant issues related to business ethics. Problems related
to bribes and facilitation payments plague teams that have members in certain countries. It is essential to be very clear about the organization’s and the team’s positions on these issues and the ramifications and consequences if team members do not comply.

Organizations are often hypocritical about what is allowed. One global company set clear ethical standards prohibiting facilitation payments in India or Indonesia. When questioned as to why a salesperson in the United States could take a customer on a cruise ship without that being considered a bribe, the company could not answer the question satisfactorily.

In terms of bribes and facilitation payments, there are shades of gray that the organizational leaders and team leader need to resolve. In China, it is often impossible to get a business telephone without making a facilitation payment. Most organizations have decided that this is the price of doing business in China. On the other hand, giving under-the-table money to customers or suppliers is still frowned on by many Western companies that operate in China.

**Points to Remember**

1. There are national cultures, organizational cultures, functional cultures, and team cultures. They can be sources of competitive advantages for virtual teams that know how to use cultural differences to create synergy. Team leaders and members who understand and are sensitive to cultural differences can create more robust outcomes than can members of homogeneous teams with members who think and act alike. Cultural differences can create distinctive advantages for teams if they are understood and used in positive ways.
2. The most important aspect of understanding and working with cultural differences is to create a team culture in which problems can be surfaced and differences can be discussed in a productive, respectful manner.
3. It is essential to distinguish between problems that result from cultural differences and problems that are performance based.
4. Business practices and business ethics vary in different parts of the world. Virtual teams need to clearly articulate approaches to these that every member understands and abides by.
PART TWO

CREATING VIRTUAL TEAMS
This is the age of the “accidental” virtual team leader, a person who is asked to lead a virtual network, parallel, project or product-development, or action team. Sometimes a reorganization propels someone into the leadership of a virtual work team, service, or production team. Also, when organizations merge or form joint ventures, especially internationally, it is not uncommon for people who have been leading functional areas to find that they are virtual team leaders or on virtual management teams.

Very quickly, most “accidental” virtual team leaders discover that leading a virtual team is not like leading a co-located team. Although many traditional leadership principles apply to virtual teams, virtual team leaders experience unique challenges. First, they have to rely on electronic communication technology to send and receive information. As a result, they need to modify the ways in which they provide feedback and gather data. In most instances, the team leader cannot walk down the hall to ask a question, work out an issue over lunch, or call his or her team together for a meeting in the conference room. Some virtual teams struggle to find a common language. If the team is located throughout the world, the team leader must be available in all time zones, while balancing heavy work demands with home life. An audio conference at 6:30 a.m. in the United States or 8:30 p.m. in Asia may be the only way to talk through a problem. When virtual team leaders are asked about the biggest challenge in leading a virtual team, they usually mention the increased sense of burden and responsibility it places on
them. Perhaps because of geographic dispersion and the potential for team-member isolation as a result of cultural and language differences or functional specialty, the team leader usually feels as if he or she is the “glue” that holds the team together.

More often than not, organizations and team leaders pay little systematic attention, beyond cross-cultural awareness training, to developing the competencies that team leaders need in a virtual environment. This is a mistake. Virtual team leaders need to find ways to develop competencies that are specific to virtual teams, even if the organization does not formally support their development.

The first step in developing competencies is to understand (1) what it is really like to lead a virtual team and (2) the competencies needed for success. Once people have experienced leading virtual teams, they quickly identify mistaken ideas that they held prior to their virtual-team experiences and they begin to realize the competencies they need to develop.

Myths Regarding Virtual Teams

There are several common myths about virtual team leadership. Competencies necessary for leading a virtual team effectively can be aligned to the myths, and developmental activities can be recommended for each area of competence.

Myth 1: Virtual Team Members Can Be Left Alone

The knowledge that this is a myth distinguishes successful virtual team leaders from unsuccessful ones. Successful virtual team leaders understand the fundamental principles of team output and accountability and do not let time and space alter these precepts. The team leader, whether virtual or co-located, is accountable for the team’s output. Top management and customers hold the virtual team leader accountable for the performance of the team. Even when the team’s task calls for a high level of team-member autonomy, the leader still is accountable for the final output of the team.

Some virtual team leaders believe that, because they are spread out and under time pressures, each member can produce output without coordinating with the leader and other team members. It seems awkward for a team member in Bangkok to have to check with the team leader in London on key decisions. For this reason, successful virtual team leaders are very explicit with their team members concerning the issues about which they have to be informed, when they need to be involved, and on what level decisions will be made. Virtual leaders need to work with team members to develop a shared understanding of the level of detail the leader needs to know before and after a decision is made. Virtual team leaders
also need to be effective in coaching and in managing performance in virtual environments.

**Competence 1: Performance Management and Coaching**

Effective virtual team leaders actively balance the tension between business and people. Although team-member autonomy, empowerment, and participation are important concepts in making a virtual team successful, there is a task that needs to be completed. An effective virtual team leader is the team’s leader, performance manager, and coach. Effective team leaders understand that they can provide some autonomy within a structure that facilitates results. Managing performance occurs at the team level and at the individual level.

**Managing Team Performance.** At the team level, the leader is accountable for completing the task within certain technical requirements. Activities at the team level that can make this happen include the following:

- Developing the team’s vision, mission, and strategy with input from team members and stakeholders. In a virtual setting, clarity and shared understanding of vision, mission, and strategy direct the actions of team members in ambiguous situations.
- Negotiating the accountabilities of the team members in relation to one another. In a virtual setting, because team members cannot see one another’s work, it is very important that there is shared understanding about roles and accountabilities. This leverages expertise, facilitates coordination, and avoids redundancy and duplication of work.
- Identifying results-oriented performance measures for the team and for each team member. Although all team leaders should identify performance measures, performance measures for virtual teams may have to be more concrete and results oriented than they do for co-located teams. Because there is no day-to-day feedback about the efforts of individual team members, results-oriented measures provide an objective and reliable way to determine whether action is needed to get the team back on track.
- Developing methods to review progress and results. Working virtually does not allow the give-and-take of normal, day-to-day feedback on progress and problems. As a result, successful virtual team members don’t take anything for granted and create formal mechanisms to accomplish this. Weekly audio-conference updates and templates for reporting remotely often are critical parts of a strategy to provide visibility in team performance.
- Sharing best practices with other teams in the organization. Virtual team leaders often develop or provide input into “lessons learned” databases, electronic
bulletin boards, and other mechanisms by which to share intellectual capital. Most large consulting firms have “sharing knowledge and best practices” as a job requirement for their team leaders.³

Effective virtual team leaders, even if they are not leading project teams, often borrow practices from the discipline of project management to help them accomplish team-level performance-management activities. Some of the first virtual teams were project teams, and many of their management methods can be used with most virtual teams, especially in the areas of team startup and chartering and in the development of ongoing status and review mechanisms.

**Managing Individual Performance and Coaching.** There are a myriad of activities in the area of managing performance and coaching that virtual team leaders need to undertake with individual team members. Leaders must provide members with timely feedback about their performance. In virtual teams, this often requires soliciting informal input from various people, such as customers and remote stakeholders, who interact with team members. It also can include formal communication with invested parties about the performance of team members. Often—especially in parallel, project, or product teams—negotiating a performance rating for a team member includes gathering input from functional leads, customers, matrix managers, and/or the team’s sponsor.

A successful virtual team leader uses this input and acts as a performance coach for team members. It is dangerous to assume that anyone can perform effectively without timely feedback. Virtual team leaders need to interact with team members on a regular basis regarding their performance. Virtual team leaders in cross-cultural environments also must adapt their coaching styles to accommodate team members from different cultures. For example, team members from high-power-distance cultures may expect more direct coaching than members from low-power-distance cultures may expect.

**Managing Compensation.** A virtual team leader may have accountability for the compensation of team members. Most organizations use the same compensation and benefits system for virtual teams as they use for the rest of the organization. A virtual team leader should determine whether special circumstances must be acknowledged for the virtual team’s unique nature. For example, some virtual teams count vacation accrual in terms of hours rather than days. This is to account for the unusual work schedule that some virtual teams have.

The real difficulty, especially with ongoing work, service, and production teams, arises when compensation systems do not flow across boundaries and the organi-
zation does not have one compensation structure for all businesses. If virtual team members are pulled out of disparate places, with different compensation structures, the compensation and benefits schedule for virtual team members is impossible for the team leader to manage. When this is the case, the team leader must address the issue with top management and push for an organizationwide solution.

Development Actions

Development activities in this area of competence include

1. Participating in organization-sponsored courses in performance management and coaching
2. Developing a performance plan for the team and a performance and coaching plan for each individual team member
3. Participating in organization-sponsored or external courses in project management or reading about project management and applying its principles to the virtual team
4. Meeting with compensation specialists within the organization to understand what is possible and what is not
5. Leading or working in as many virtual teams as possible

Myth 2: The Added Complexity of Using Technology to Mediate Communication and Collaboration over Time, Distance, and Organizations Is Greatly Exaggerated

The complexity of communicating over time, distance, and organizations causes unique problems that are not easy to solve. Practical experience and research show that, when not managed properly, virtual teams can be less effective than traditional teams. For example, virtual teams often take longer to get started in meetings and to produce results than many traditional teams do. Even the use of very advanced technology, such as groupware, is no guarantee of success.

One virtual team that was tasked with developing recommendations to increase customer satisfaction for a lagging product line used a distributed EMS to help generate ideas to increase sales. Although the system was well-suited to assist in the task, hardware- and software-compatibility issues made it difficult for people in Europe to participate. As a result, their input was not well-represented in the final product, although it should have been, because the product was lagging in sales more in Eastern Europe than in any other part of the world. The team no longer uses the system, but the European team members still have negative feelings about the team.
Competence 2: Appropriate Use of Information Technology

Virtual team leaders must select and use appropriate methods of communication and collaboration. A leader cannot rely exclusively on technology to satisfy all of a team’s communication, information-sharing, and productivity needs, but technology provides the critical link. A team leader must be able to match the appropriate technology to the team’s task, the current stage of the project, the type of team, and the level of technological sophistication of the team members. The leader also needs to keep up with new technology to evaluate its usefulness for the team.

Matching Technology to the Task and the Type of Team. Effective virtual team leaders have a number of technology-based strategies for communication and collaboration. They understand that the nature of a team’s task will, to some extent, dictate which technology is selected. Tasks that are ambiguous often require a communication and collaboration technology that is media rich and provides a wide bandwidth that mimics the give-and-take of normal conversation. For example, using audio conferences and e-mail to design a complex technical system may not be as effective as using a combination of video, audio, whiteboard, data conferencing, and face-to-face interaction.

The team leader also needs to match the use of technology to the type of team. Work and production teams, for example, are more likely to need workflow software than are parallel or action teams. A parallel team that is working on a complex organizational problem is more likely to have an ongoing need for groupware that can import project-management software than is a virtual management team.

Virtual team leaders also must consider whether to use synchronous or asynchronous methods. Synchronous methods are better for complex and ambiguous subjects, for brainstorming and reaching consensus, and for collaborative writing and authoring sessions. Asynchronous methods, such as scheduling software, e-mail, and voice mail, can be used for updates and information exchanges and for collaborating on schedules. They are very appropriate for workflow processes. Team leaders need to be competent in developing agendas for and facilitating both synchronous and asynchronous meetings.

Matching Technology to the Team’s Life Cycle. Another critical skill is aligning the use of technology and face-to-face interaction to the team’s life cycle. Typically—and especially with a team whose members have not worked together virtually—information-rich technologies, such as video conferencing, desktop video conferencing, and face-to-face interaction, are necessary at the beginning of the
team’s life so that the team members can get to know one another. Leaders of project and parallel teams may select these types of technologies and face-to-face interaction at the beginning of the project and in the middle, in order to maximize team dynamics.

**Matching Technology to the Team Members’ Backgrounds.** In many large and complex organizations that operate on a global basis, there are wide discrepancies between the levels of technological sophistication of employees. People who work in information systems or engineering functions may be very comfortable working with groupware, whiteboards, and e-mail as their primary means of communication. People in other functions, however, may not have much skill in using these technologies.

Discrepancies also can exist between a team and its external partner organizations. The virtual team leader needs to select a set of technologies that matches the skill levels of all team members or provide training and backup resources in the technologies selected. The team leader also needs to address hardware- and software-compatibility issues and ensure that all team members’ systems work well. If necessary, the team leader should provide technical support at each team member’s location.

**Humility and Skepticism.** Finally, virtual team leaders must know what they don’t know about technology. Virtual team leaders who are not technical experts need to seek help in evaluating the use of technology and in facilitating distributed meetings using technology that they are not familiar with. They must be aware of new systems and technologies that might be of use to their teams, and they should remain skeptical enough not to use an untested system without trying it out first. Team leaders also can attend conferences on demonstrations of new technologies and ask to “pilot test” technologies that might help their teams.

**Development Actions**

Development activities in this area of competence include

1. Developing a technology-utilization plan that takes into account the appropriateness of the technology to the team’s task, the type of team, and how the selection of technology may change over the team’s life cycle
2. Participating in organization-sponsored or external courses in selecting and using information technology
3. Attending technology conferences and demonstrations and asking to have one’s team serve as a pilot team for new technology
4. Keeping a log of and noting which technologies work well and which do not in different situations

**Myth 3: The Leader of a Cross-Cultural Virtual Team Needs to Speak Several Languages and Have Lived in Other Countries**

People who are new to working virtually or globally often overrate the need to speak several languages or to have lived in different cultures in order to be effective in a cross-cultural environment. Conversely, team leaders often underrate these attributes, believing that the language of the headquarters country is what is widely accepted. Speaking multiple languages or having lived in other countries is not a requirement for a virtual team leader. What is required is a sensitivity to other cultures and an attempt to learn how to communicate on more than a “menu” level with team members.

**Competence 3: Managing Across Cultures**

Managing across cultures entails understanding more than the obvious differences in backgrounds and languages. There are what O’Hara-Devereaux and Johansen call a multitude of subtle and less obvious ways in which culture affects the ways in which people work. The challenge for the virtual team leader is to understand the differences among team members and to leverage them to create an advantage. Virtual team leaders need to develop multicultural as well as multidisciplined perspectives. In doing this, they need to become aware of their own cultural biases and how those affect personal assumptions and behaviors toward team members. Furthermore, they need to understand the many ways in which each team member’s culture affects his or her biases and his or her expectations of other team members and the team leader.

Team-leader competence goes beyond knowledge of surface similarities and differences; the leader must proactively create what O’Hara-Devereaux and Johansen call “third ways” of working. Third ways of working are techniques for working or interaction that do not elevate one cultural bias over another. For example, one team leader from North America made the mistake of taking a typically North American management custom—publicly recognizing an individual on a team for his work—and applying it to a multicultural setting. To make matters worse, he singled out, complimented, and gave a generous individual performance reward to a team member from Japan in front of the entire team (most were from Japan and China). For a North American, this may have been slightly embarrassing. For this Japanese team member, who was from a collective culture, to be singled out for high performance in front of other team members who had also
contributed to the team’s performance was not a rewarding experience. After dis-
cussing the matter with more experienced team leaders, the leader in question said
that the next time he led a multicultural team, he would ask the team members in-
dividually how they would like to be recognized before planning to do so.

Development Actions

Development activities in this area of competence include

1. Participating in organization-sponsored courses on working cross-culturally
2. Aligning with another team leader or mentor who has worked cross-culturally
3. Keeping a log or journal of actions and biases and tracking what works and
what doesn’t
4. Asking people from other cultures how they prefer to work
5. Visiting as many countries as possible and observing cultural mores
6. Working in a number of cross-cultural teams

Myth 4: When You Can’t See People on a Regular Basis, It Is Difficult to
Help Them with Current Assignments and Career Progression

Most of us are not used to working with people whom we don’t see frequently.
Some virtual team leaders think that if they can’t see a team member, they can’t
assist in the person’s career development. However, the virtual environment does
not change the fact that the leader is still a primary force in planning for the team
members’ next assignments and career progressions. Because it is easy for vir-
tual team members to feel isolated and unnoticed, it is even more important for
the virtual team leader to actively assist them with their career planning and de-
velopment. If members of virtual teams feel that they have been shortchanged in
this important area, their motivation to work on such teams will diminish rapidly.

Competence 4: Aiding in Team Members’ Career
Development and Transition

When virtual team members are asked about the negative aspects of working in
virtual teams, they almost always say that they are afraid that their careers will suf-
fer. Their fear is that no one will keep track of their contributions and professional
growth. Many high-performing professionals have been passed over for good as-
signments in favor of someone who has more visibility with management.

Virtual team leaders must anticipate this concern and develop specific strate-
gies to deal with it. This is especially true for parallel, project, and product-
development teams during the closeout phases of the team’s work. Even if a team
member is assigned formally to a local or functional manager, the team leader needs to act as an advocate for that person and provide the manager with a solid understanding of the team member’s accomplishments, experiences, abilities, and interests.

In a work, production, service, or management team, the team leader is responsible for the virtual team members’ careers and must fulfill the role of mentor and career coach. Care must be taken not to give preference to people who are closer geographically. The team leader also needs to be diligent about being cognizant of the team members’ accomplishments, goals, and objectives by actively seeking this information.

The virtual team leader is in a position to help team members to obtain good assignments after a project has been completed. Team leaders can serve as advocates for team members with the team members’ managers, stakeholders, and other virtual team leaders. Team members’ reassignments should be planned in advance in order to minimize down time and to optimize the utilization of newly acquired expertise. Virtual team leaders who show concern for the welfare of their team members after the end of their projects provide a valuable service to the organization and gain reputations as good people to work for.

Another frequently mentioned problem with virtual teams is the transition period required for new members to get up to speed on the project and the technology used. A virtual team leader needs to have competence in training and coaching new team members. The quality and timeliness of the orientation new members receive can affect the entire team’s productivity. An inadequate or untimely orientation of a single member can result in wasteful down time for the entire team. Good team leaders develop novel ways to orient members, such as using a “partner” system for the first few weeks of participation. Some create partners for the entire project.

**Development Actions**

Development activities in this area of competence include

1. Participating in organization-sponsored courses on career development
2. Creating and using a process for career planning and next-assignment planning for team members
3. Holding career-development discussions with team members
4. Attending to personal career needs
5. Asking team members about their next-assignment preferences and coordinating this information with other team leaders, stakeholders, and customers
Myth 5: Building Trust and Networking Are Relatively Unimportant in Virtual Teamwork

One of the biggest mistakes a virtual team leader can make is to underestimate the power of trust. Charles Handy points out that trust is one of the foundations for performance in a virtual setting. He suggests that if we do not find ways to build trust and understand how technology affects it, people will feel as if they are always in a very precarious state. The fact that virtual team members might be outside what we consider to be our normal radius of trust, the immediate work group, makes the task of developing and maintaining trust even more critical for performance. Trust requires leadership to set and maintain values, boundaries, and consistency.

In addition, even though the use of technology is omnipresent in virtual teamwork, the team leaders should never forget that work is accomplished through people. Networking; keeping people informed; and soliciting input from team members, stakeholders, partners, and customers always will be an integral part of a team leader’s job. Because virtual teams are more dispersed than traditional teams, team leaders may find themselves spending even more time networking across boundaries.

Competence 5a: Building and Maintaining Trust

Although trust usually is thought of in the context of a long-term relationship, when people join teams for a short period of time, building and maintaining trust is more difficult and, therefore, more important.

In face-to-face settings, we perceive a number of familiar clues that help us to determine whom we should trust and whom we should not. Direct exposure to people provides us with the history and context necessary to understand their motivations and, therefore, to make judgments about their trustworthiness. We are able to evaluate people’s nonverbal communication and observe their interactions with other team members. Part of the way in which we judge trustworthiness is through our perceptions, over time, of the other person’s reliability and consistency.

In a virtual team, team members may never have the opportunity for face-to-face contact or to use other traditional sources of information that form the basis for developing trust. In a virtual team, creating trust requires a more conscious and planned effort on the part of the team leader. For example, when one of the authors assumed leadership of a virtual project team and took a tour to meet the team members, people in three locations voiced serious concerns about what
would happen to them after the team had finished its work. These individuals had
known other people who had worked on a similar project. When the project failed,
nine months into the work, none of the team members were able to find new work
on interesting assignments. It seems that the team leader not only did not help
them find new assignments but allegedly criticized the team to upper manage-
ment. It was clear that these individuals would have a difficult time focusing on
the new team’s work until the issue of trust was addressed.

Development Actions

Development activities in this area of competence include

1. Developing an explicit trust plan for the team
2. Examining the behaviors of someone you trust, noting what the person has
done to build this trust, and modeling your actions after that person’s
3. Asking team members what you can do to build trust and asking team mem-
   bers to state how they will evaluate whether or not they trust you

Competence 5b: Networking

If we analyze how effective virtual team leaders spend their time for the first few
weeks of the project, we notice that often no “real work” is completed. Activities
are focused on establishing links across boundaries and networking. These bound-
daries and networks are numerous. Networks include team members; managers
from local and remote functional areas; customers; and people who are external
to the organization, such as partners, customers, vendors, and suppliers. A large
portion of the team leader’s time needs to be spent finding ways to create shared
perceptions among outsiders about the project and its goals. The network has to
be broad and strong enough to withstand competing priorities and changing re-
quirements, to obtain needed resources, and to instill a sense of trust in the team
and its work.

By way of example, NORTEL has identified crossing boundaries and net-
working as key competencies for its virtual project managers. When NORTEL ex-
plored the key competencies for project managers in the twenty-first century, the
ability to understand and work across boundaries and to develop a strong network
emerged as critical for success. A team leader’s credibility often is perceived to
be directly related to the extensiveness of his or her network and his or her abil-
ity to obtain resources across traditional organizational lines.

The irony of crossing boundaries and networking in a virtual environment is
that, in the early stages, much of it takes place face-to-face. Attending planning
meetings with senior management, conducting team-initiation sessions with team
members, and visiting customers to establish expectations are all expected of the team leader. After solid relationships have been established, some of the face-to-face interaction can be replaced with technology.

**Development Actions**

Development activities in this area of competence include

1. Analyzing relationships with important people across different boundaries, noting patterns of good and poor relationships and what may cause them, and noting what you can do to address the poor patterns
2. Examining the behaviors of someone you respect as a good networker, noting what the person has done, and modeling your actions after that person’s
3. Asking team members in what areas they believe the team is effectively networked and in what areas it is not and then working with them to develop a plan to more effectively network and to reach new and important stakeholders

**Myth 6: Every Aspect of Virtual Teams Should Be Planned, Organized, and Controlled So That There Are No Surprises**

Virtual teams exist in adaptive, changing environments. These environments can turn chaotic and can menace or destroy a team’s progress. Team leaders should lead in an adaptive way, helping the team members to understand the uncertainty and nonroutine nature of their work. Managing a virtual team with rigid controls and plans will destroy the team’s ability to experience breakthrough performance. Balancing structure with adaptability is a constant tension that virtual team leaders face.

**Competence 6: Developing and Adapting Standard Team Processes**

At Anderson Consulting, software-development team processes are standardized around the world. As a result, newly formed teams require little time to establish processes, such as how they will develop their software, plan their work, and document their results. Team members and team leaders understand the processes. Anderson has a strong corporate culture that enhances the probability that teams will adopt standard approaches. To provide the optimum degree of flexibility, however, teams are free to adapt processes if the customer or project demands it. No two customers have exactly the same requirements.

In some organizations, although standard processes are available, there may be significant functional or regional differences. The team leader must be adapt-
able enough to adjust these for the team’s task and situation. For example, Whirlpool Corporation uses a standard product-development process. Although the process is used globally, there are distinct differences between regions in how it is implemented. The research and development organization in North America requires more detailed technical documentation at the first review point than other functional areas in North America do. North American functions, in general, require more detailed documentation (engineering, financial, marketing, and so on) than European functions do. An experienced virtual team leader at Whirlpool understands that there is a need for subtle differences in implementing the process and can lead a team in doing it.

A leader who has detailed process knowledge and a practical understanding of process exceptions is able to address such issues early and provide the team with needed adaptability.

Development Actions

Development activities in this area of competence include

1. Speaking with other virtual team leaders to discover if there are common processes that are relevant to all teams
2. At the team-initiation session, developing a list of standard and agreed-on practices and noting the processes that can be adapted

Using the Competencies in Selection and Development

Checklist 4.1 is a diagnostic instrument that can be used to determine the readiness of virtual team leaders through self- or peer assessment. The instrument evaluates the seven areas of competence. The resulting scores can be used to help identify and develop virtual team leaders. To improve the accuracy of this instrument, it is recommended that other team leaders, team members, partners, and/or customers also complete the assessment with respect to the individual.

The results of the assessment will help to identify areas for developmental action.

Developing Expertise

Development efforts should be focused on areas of strategic importance to the organization and the team and on areas that are critical to the leader’s career. Virtual team leaders can identify their needs for competence development by taking the following assessment and then asking the four questions on page 89.
### CHECKLIST 4.1. COMPETENCE AUDIT.

*Instructions:* Select the level in each area of competence that best characterizes the current skills and experience of the individual being assessed (your own skills and experience if this is a self-assessment).

<table>
<thead>
<tr>
<th>Competence Area</th>
<th>Skills</th>
<th>Experience</th>
<th>Skill Level Rating (1 = low, 2 = medium, 3 = high)</th>
<th>Experience Level Rating (1 = low, 2 = medium, 3 = high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance management and coaching</td>
<td>• Is able to develop strategy and set performance objectives</td>
<td>• Has led and managed a number of virtual teams</td>
<td>1 = low, 2 = medium, 3 = high</td>
<td>1 = low, 2 = medium, 3 = high</td>
</tr>
<tr>
<td></td>
<td>• Can establish measures for team effectiveness</td>
<td>• Has been accountable for a team output</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is able to give and receive informal and formal performance feedback</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is able to implement strategies that make the contributions of team members visible to the organization</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate use of technology</td>
<td>• Can plan for the use of technology, given the team’s task and type, the backgrounds of team members, and the sophistication of the organization</td>
<td>• Has experience using a number of different electronic communication and collaboration technologies</td>
<td>1 = low, 2 = medium, 3 = high</td>
<td>1 = low, 2 = medium, 3 = high</td>
</tr>
<tr>
<td></td>
<td>• Is skilled in planning agendas and facilitating virtual work meetings</td>
<td>• Has planned and facilitated a number of virtual team meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is aware of general technology options to support virtual work</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-cultural management</td>
<td>• Is able to constructively discuss dimensions of cultural differences</td>
<td>• Has worked in teams with cross-cultural membership</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is able to create ways of working that not only accommodate but optimize cultural differences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is able to plan major team activities, such as planning, communicating, reviews, and team meetings while taking into account how these activities interact with the cultures of team members</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
<table>
<thead>
<tr>
<th>Competence Area</th>
<th>Skills</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career development and transition of team members</td>
<td>• Is able to work with team members to plan careers and transition processes • Is able to act as an advocate for team members’ careers and transitions to new assignments</td>
<td>• Has acted as a career and transition coach for team members</td>
</tr>
<tr>
<td>Building trust</td>
<td>• Keeps commitments • Can state personal values • Can portray the team’s work to management • Is able to build personal relationships in short periods of time</td>
<td>• Has worked in a virtual team or in a virtual environment</td>
</tr>
<tr>
<td>Networking</td>
<td>• Can identify important stakeholders • Is able to plan and implement networking activities • Is able to exert influence over time and distance</td>
<td>• Has worked in a number of different locations and functions within the organization • Has worked with external partners, such as vendors and suppliers</td>
</tr>
<tr>
<td>Developing and adapting team processes</td>
<td>• Is able to identify the types of standard team processes appropriate for the team’s task • Is able to identify standard processes that link to team performance • Is able to adapt team process to the task, the culture of team members, and functional differences</td>
<td>• Has worked with major organizational processes • Has created and/or adapted team processes for other virtual teams</td>
</tr>
</tbody>
</table>

Total number of 3s: ____  
Total number of 2s: ____  
Total number of 1s: ____  
Total: ____  

(continued)
1. Given the goals of the organization and of the team, what are the important requirements for succeeding as a virtual team leader?

2. Given my results on the competence audit, what are the areas in which I need development? What are my strengths?

3. Where do gaps exist between what the organization and the team require and my personal career plans, skills, and experience?

4. What developmental actions (such as training, special assignments, reading, sharing lessons learned and best practices, mentoring, on-the-job experiences) can I take to fill the gaps?

Checklists 4.2 and 4.3 together provide a framework for analyzing competence gaps and a format for constructing an action plan for improving skills and experience in target areas.
**CHECKLIST 4.2. INDIVIDUAL COMPETENCE.**

*Instructions:* Locate the rating of each area of competence as a high, medium, or low priority for your virtual team. Note areas in which there is a mismatch between the priority for the team and your level of competence. Developmental priorities are areas in which a high team priority exists and your competence rating is medium or low.

<table>
<thead>
<tr>
<th>Type of Team</th>
<th>Performance Management and Coaching</th>
<th>Appropriate Use of Technology</th>
<th>Cross-Cultural Management</th>
<th>Career Development and Transition of Team Members</th>
<th>Building Trust</th>
<th>Networking</th>
<th>Developing and Adapting Team Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>Medium</td>
<td>High</td>
<td>Depends on team composition</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Parallel</td>
<td>Medium</td>
<td>High</td>
<td>Depends on team composition</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Project or Product</td>
<td>High</td>
<td>High</td>
<td>Depends on team composition</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Work or Production</td>
<td>High</td>
<td>Medium to high</td>
<td>Depends on team composition</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium to high</td>
</tr>
<tr>
<td>Action</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Depends on team composition</td>
<td>Low to medium</td>
<td>High</td>
<td>Medium</td>
<td>Medium to high</td>
</tr>
<tr>
<td>Service</td>
<td>High</td>
<td>Medium to high</td>
<td>Depends on team composition</td>
<td>Medium</td>
<td>High</td>
<td>Low to medium</td>
<td>Medium to high</td>
</tr>
<tr>
<td>Management</td>
<td>Medium</td>
<td>Medium</td>
<td>Depends on team composition</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Priority for development? (Yes/No)
CHECKLIST 4.3. PLANNING DEVELOPMENTAL ACTIONS.

*Instructions:* Use the following worksheet to plan training, on-the-job-assignments, and other activities that can develop your skills and/or experience.

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Developmental Plans</th>
<th>Estimated Time Frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance management and coaching</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appropriate use of technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-cultural management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Career development and transition of team members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building trust</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developing and adapting team processes</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Points to Remember

1. There are many “accidental” virtual team leaders.
2. Experienced virtual team leaders recognize the myths associated with leading virtual teams.
3. Leading a virtual team requires the development of additional competencies that go beyond the traditional ones.
4. A virtual team leader needs to have a personal-development plan that is based on the seven competencies.
CHAPTER FIVE

STARTING A VIRTUAL TEAM: SIX MAJOR STEPS

This chapter highlights the process involved in starting a virtual team and suggests a six-step plan for the team. It is possible to enter the process at any of the following steps:

1. Identifying team sponsors, stakeholders, and champions
2. Developing a team charter that includes the team’s purpose, mission, and goals
3. Selecting team members
4. Contacting team members
5. Conducting a team-orientation session that includes orientation to the task, team norms, technological planning, communication planning, and team building
6. Developing team processes

Many of the six steps are also appropriate for traditional teams. For a virtual team, however, each step has the underlying objective of providing structure and support in bridging time and distance.

This chapter applies more to network, parallel, project, product, and action teams than to management and work teams. The latter types of teams usually are preexisting rather than starting up. Nevertheless, some of the principles covered in this chapter can be applied to management and work teams after a reorganization, reengineering effort, or transition to a virtual work environment. In such
cases, activities such as rechartering, selecting team members, developing norms, and planning for communication and technology become relevant.

**Step 1: Identifying Team Sponsors, Stakeholders, and Champions**

Because the success of a virtual team often involves effective interaction with and the participation of constituents from a number of functions, locations, and external organizations, virtual team leaders need to ensure from the start that they have the strong support of sponsors, stakeholders, and champions. Sponsors, stakeholders, and champions link the team to the management power structure across locations and organizational boundaries.

**Sponsors**

A sponsor is the person (usually a member of management) who works closely with the team leader and who acts on the team’s behalf to cross organizational barriers, resolve conflicts of interest, obtain resources, and provide a link with upper management. It is vitally important that every virtual team have a sponsor who is strategically positioned in the organization. The sponsor should have a broad perspective, be respected by all appropriate constituents (such as external organizations and supporting functional areas), be influential, and be able to obtain resources.

**Stakeholders**

When a virtual team is created, it is also imperative that the team leader identify the stakeholders who have the greatest impact on the team’s success and those who will be most affected by the team’s results. Stakeholders may be individuals from different functional areas, regions of the world, levels of management, and partner organizations. The virtual team leader should take the time to map the team’s inputs and outputs and relate them to appropriate stakeholders. If the team has an identified client or an existing sponsor, that person may be able to assist in this activity.

**Champions**

A champion, although further removed from team activities than sponsors and stakeholders, may be able to find resources, promote the team’s activities, remove barriers, and provide advice. A champion frequently has a strong interest in the
team and may be found in different functions, regions, and in partner organizations. It is best, because part of the champion’s role is to assist in the attainment of resources and to create perceptions of the virtual team as successful and productive, if the team’s champion is a member of the organization’s top management.

Checklist 5.1 provides a strategy for mapping and identifying sponsors, stakeholders, and champions. It also presents a starting point for planning communication and boundary-management activities.

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Step 2: Developing a Team Charter That Includes the Team’s Purpose, Mission, and Goals

It is necessary to have a clearly understood statement of direction at the beginning of any team. The charter serves as a point of departure for more detailed plans. For traditional teams, if the starting point is properly aimed, the day-to-day contact of the team members can add meaning and reinforce shared understanding between team members. The synergy that results from day-to-day interaction tends to facilitate a smooth transition from the charter to other activities. For virtual teams, the lack of physical contact may erode meaning and understanding and make the link between charter and work more tenuous. For this reason, preparation must be more thoroughly planned and reinforced.

Most virtual teams have extended membership throughout the organization and beyond. Stakeholders, even if they are not part of the everyday work team, need to be included in creating the team’s charter. The task of developing the team’s charter is overlaid and affected by an equally important set of tasks having to do with ensuring “buy in,” participation, and input. Eliciting this support early in the team’s life cycle helps to reduce the number of issues that may arise later and which may stem from conflicts of interest, shifting priorities, and loss of resources. Because virtual teams cross so many boundaries, the potential for conflicts of interest or priorities is great.

Many organizations use a standard set of elements for a team’s charter. Some project-management software packages also provide templates for team charters. The best format is one that is familiar to the team’s stakeholders, clients, and team members.

Sometimes the team is provided with the charter’s content. If so, all that remains is to validate the information with the team’s sponsor, stakeholders, and client and to make sure that all the immediate questions and concerns are answered. It generally is a good idea to plan the validation session so that all the important stakeholders can interact in real time. If the project is complicated, a face-to-face session is especially recommended. If this is not possible, desktop
### CHECKLIST 5.1. IDENTIFICATION OF SPONSORS, STAKEHOLDERS, AND CHAMPIONS.

**Part One**

*Instructions:* Use this worksheet to identify the requirements for the sponsor, stakeholders, and a champion for your team. The top row of the table lists potential requirements for these individuals. Mark those that apply to your team. Rate each requirement as high, medium, or low for the specific category of sponsor, stakeholder, or champion.

On the second part of the worksheet, list people you know who might fit these requirements. If no one comes to mind, check with other team leaders, with your managers, or with your sponsor.

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Can Remove Roadblocks</th>
<th>Has Cross-Cultural Experience</th>
<th>Is Respected Across Functions or Organizations</th>
<th>His or Her Organization Has a Stake in the Outcome of the Team’s Work</th>
<th>Can Provide Relevant Technical or Political Input into the Team’s Work</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sponsor:</strong> Importance</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stakeholder:</strong> Importance</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Champion:</strong> Importance</td>
<td>High</td>
<td>Medium</td>
<td>Low</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
video with data-conferencing capabilities for reviewing documents is the next best option.

When a virtual team has been working for some time but does not have a well-stated charter, the “new” virtual team leader must create one. This is best done in a face-to-face session with management and other stakeholders and champions. Developing the team’s charter in a manner that facilitates interaction and participation from all stakeholders is best done in a face-to-face or synchronous meeting, especially if the team’s task may later have to address issues regarding conflicts of interest or resource reallocation. A less preferable option is to conduct the session remotely, in real time, using a video conference, desktop video with text and graphics, or audio conference with text and graphics. The least effective method is to use an asynchronous method, such as e-mail or voice mail, in which the virtual team develops the materials and forwards them to each stakeholder or member of management for comment and validation.

If a video conference is the selected technology, make certain that the video system is of sufficient fidelity to not be a distraction for the attendees. Choppy pictures that result from outdated or inadequate technology hinder effective interaction. Especially after the introductions, many participants find that the video does not add much to ensuring task performance.

Checklist 5.2 offers a suggested agenda for a meeting to validate a team’s charter.

**Step 3: Selecting Team Members**

When the sponsor, stakeholders, and champion have been identified and the charter has been approved, the team leader can begin to identify team members. Some-
times, especially in the case of work teams, team members already belong to the team. The optimal situation, however, is to have the freedom to identify and select members who meet the demands of the task and who are well-suited to working virtually.

### CHECKLIST 5.2. AGENDA FOR VALIDATING A TEAM’S CHARTER.

This agenda can be adapted by a facilitator for a distributed format.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Estimated Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Send agenda, draft of team’s charter, potential schedule, review schedule, and other relevant information to all participants at least one week before the meeting. Be certain that each person has all elements of the charter in front of him or her when the meeting begins.</td>
<td>N/A</td>
</tr>
<tr>
<td>Begin the session by introducing yourself, the agenda, and the outcomes (approval of team’s charter, mission, purpose, and goals). Ask for feedback on the agenda. Make changes if necessary and announce them to the group.</td>
<td>15 minutes</td>
</tr>
<tr>
<td>Have the team’s sponsor provide a short overview of the team and its history. Have stakeholders introduce themselves and their roles vis-à-vis the team.</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Go through each element of the current charter: mission, purpose, and goals, one at a time. Have each participant rate each element on a scale of 1 to 5, with 5 as “completely agree” and 1 as “not agree” with the element. Ask if there are questions regarding each element. Keep a written log of comments and changes.</td>
<td>60 minutes</td>
</tr>
<tr>
<td>Work through each element one by one until you have reached agreement on it. You may have to go around a number of times. Use a consensus process.</td>
<td>1–2 hours</td>
</tr>
<tr>
<td>Review changes, modifications, or new actions for each element.</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Discuss risks associated with the team’s work and how they may be mitigated. Introduce the idea of potential conflicts of interest and resources. Briefly discuss how these might be addressed.</td>
<td>15–30 minutes</td>
</tr>
<tr>
<td>Discuss a preliminary schedule and how often work should be reviewed with each type of stakeholder or champion. Have a draft of this to present to the group, including agreement on the method of information sharing (e-mail, shared software, and so on). Select the simplest method. Understand each stakeholder’s experience in using these technologies.</td>
<td>30–45 minutes</td>
</tr>
<tr>
<td>Set a follow-up schedule. Ask if there are any final comments. Distribute notes within 48 hours.</td>
<td>15 minutes</td>
</tr>
</tbody>
</table>
Most network, parallel, project, and product virtual teams have at least three types of team members: core, extended, and ancillary. Core team members are accountable for direct task output. Core members may include employees from distant locations, vendors, suppliers, and customers. Extended team members do not usually work with the team on a daily basis but provide expert support or advice when necessary. Extended team members may be internal and external consultants, sponsors, and stakeholders. Ancillary team members do not work on the team but review and approve the team’s work and deliverables. Ancillary team members include the team’s client, major stakeholders, and certain high-level managers. It is possible, depending on the type of team, the point in its life cycle, and its structure, that team membership may be dynamic, with certain members moving from one category to another. This is especially the case with network, parallel, project, and product teams.

After identifying individuals who appear to meet the team’s requirements, it may be a good idea to check the logic of the selection (and the reputation of each team member) with the sponsor and a few stakeholders or champions. Sometimes a person has a good local reputation but is not respected in other parts of the organization or in other functions. In teams that require extensive boundary management and networking, team members who are respected and productive in a number of different geographic or functional settings can help the team to attain its objectives.

Step 4: Contacting Team Members

Effective virtual team leaders pay a lot of attention to the first interactions they have with their team members. They carefully orchestrate how team members...
meet one another and how new members are introduced. There are some very simple practices that experienced virtual team leaders engage in during this step:

1. They make sure that all team members clearly understand the team’s task.
2. They arrange for appropriate amounts of interaction among team members before the work actually begins.
3. They make special efforts to facilitate the feeling of being part of the team.

The third item is complex. Because the focus of many virtual teams—especially action and parallel teams—is on the task, team members may feel as if too much focus on togetherness is inappropriate and nonproductive. This is especially true of team members whose national cultures are low-context and individualistic and of team members who come from engineering and science backgrounds. Highly experienced virtual team members also may have less need for activities that facilitate inclusion, especially if the task is a repetition of earlier work or if the schedule is extremely tight.

Let’s look at how Sara introduces team members to one another as an example of best practice in this area.

Sara prefers to have a face-to-face meeting to initiate the real work of the team. Prior to the meeting, she tries to visit each team member and major stakeholder, sponsor, and champion. At the very least, she sets up telephone calls with team members to review the fundamentals of the task or project, to introduce herself, and to find out a little about the individual team members and their backgrounds. Sara uses this opportunity to ask about each team member’s communication capabilities and computer hardware and software applications. She sends each team member the team’s charter and other relevant information. Sara has found from experience that meeting team members face to face or spending time with them on the telephone can facilitate feelings of being part of the team.

Sara also makes a practice of asking each team member to set up a personal Web page. (The objective of presenting each team member to the others also can be accomplished by utilizing CD-ROM or video technology.) Each Web page is linked to a directory of team members and contains the following information:

1. Contact information, such as telephone number, voice-mail number, e-mail address, fax number, and pager number
2. How often e-mail and voice mail are checked and how long it is until a page, e-mail message, or telephone call is answered
3. Time zone, work hours, and availability on evenings and weekends
4. Hardware and software tools and applications

Sara also encourages each person to offer something personal, such as his or her area of expertise, how that expertise relates to the team’s task, and any hobbies
or interests. After the team is working, the team members can add to the Web-page information regarding what they are working on each week and their progress.

The objective for the team leader is to facilitate interaction with each team member before the team actually begins work. The team leader should make sure that each team member has at least one personal interaction with the team leader, feels welcome, and has chance to discuss his or her background and expertise. At this point, it is important not to go too far with activities that may be too personal or threatening for any team member. The team leader should be aware of cultural considerations and understand that people from collective cultures may want more interaction than individuals from individualistic cultures.

Here are some best practices for establishing contact with team members, prior to the team’s formal initiation meeting:

1. Call or visit each team member personally.
2. Provide some mechanism by which team members can find out about one another.
3. Facilitate interaction in a nonthreatening way.
4. Send all team members information about the team, including its charter.
5. Make certain that a forum exists for answering team members’ questions.
6. Find out whether any team members have hardware or software availability or compatibility issues.

**Step 5: Conducting a Team-Orientation Session**

The ideal orientation, one that is cited as a best practice by virtual teams, is a face-to-face meeting that is attended by all team members.

**Face-to-Face Meeting**

Currently, no technology can provide the give-and-take, the feeling of human interaction, and the understanding that develop from a face-to-face meeting. Because the outcome of the session is the creation of a rather complex plan for team performance, which includes team norms and communication protocols, face-to-face communication can facilitate shared understanding. Such a session is especially important for team members from high-context and collective cultures who expect and respond to more personal contact. A virtual team leader should lobby diligently for the resources and time for a face-to-face meeting.
If a face-to-face orientation session is not possible, an audio conference or video conference is the next best choice. Virtual teams should not be tempted to use e-mail, bulletin boards, data-only conferencing, or groupware without video capability. These tools can help in the exchange of information prior to the session or afterward but they are not as suitable for events that require extensive interaction.

The Agenda

The agenda for the orientation session, at a minimum, should feature the following:

1. An orientation to the team’s task, including
   - An overview of the team’s charter
   - An opportunity for team members to react to and offer suggestions about the elements in the team’s charter
   - A review of each team member’s expertise and accountabilities
2. Development of team norms, technological plans, and communication plans
3. Team building

Orientation to the Team’s Task. All team members should leave the orientation session with a shared understanding of the task of the team and their roles in completing it. Using the team’s charter as a starting point is a good idea because most team members have had a chance to review it prior to the orientation meeting. The review of the charter should include the team’s mission, purpose, goals, initial time lines, and deliverables. The purpose of reviewing the charter in detail is to ensure that team members understand each element of the charter and have an opportunity to ask questions. Team members often can make useful comments about and add to the elements of the charter. They also should be given the chance to identify barriers to success that may be unique between specific functions, locations, or organizations.

An important part of the outcome of this part of the agenda is for every team member to develop a clear understanding of his or her task accountabilities in regard to the team’s schedule and the tasks of the other team members. The roles and accountabilities of external partners also must be defined. The resulting clarity will facilitate smooth collaboration across organizational boundaries in the future.

Other things to be defined include who has the authority to change other people’s work and who will approve final products. Often team leaders use a process in which team members’ and partners’ accountabilities and decision-making
authority are mapped with respect to critical team outputs. This can be done using a responsibility matrix, borrowed from project-management practices, to create a table of each team member’s accountabilities in regard to important team deliverables and decisions. In this way, team members know who is responsible for what and when. The matrix can be placed on the team’s Web page and can be updated as tasks are completed or when team members change.

Development of Team Norms. Establishing team norms helps to clarify expectations about acceptable and unacceptable behaviors for all persons who work in or with the team. Team norms guide participation, communication, conflict management, meeting management, problem solving, and decision making. Virtual teams may require unique and more detailed process norms than co-located teams do. Virtual team norms include the following:

- Telephone, audio conference, and video conference etiquette and meeting management, such as techniques for ensuring participation from all team members, protocols for saying who one is before one speaks, using the mute button when one is not talking, giving people who are using a second language time to collect their thoughts, using a meeting agenda, taking and distributing minutes, and rotating time zones.
- Guidelines regarding acceptable time frames for returning telephone calls and e-mail messages and the uses of voice mail and pagers.
- Guidelines about using e-mail: when it should be used, when it should not be used, and how e-mail messages should be constructed—including when to flag messages as “urgent” and as “important.”
- Which meetings must be attended face-to-face, which can be attended by audio conference or video conference, and which can be missed.
- How work will be reviewed and approved. This includes which team members will review work and which ones can approve deliverables.
- Procedures for scheduling meetings using group-scheduling systems.
- The types of technological applications to be used by team members and the policies regarding upgrades. (More than one team has encountered compatibility problems when a team member has upgraded software ahead of the others.)

A sample set of norms for a virtual team is shown in Checklist 5.3. A worksheet for developing team norms is shown in Table 5.1.

Development of Technological Plans. Planning what technologies the team will use is a vital part of the team’s orientation session. In planning how technology will be used, the first step is to consider the type of work the team will be doing.
CHECKLIST 5.3. SAMPLE TEAM NORMS.

Keep in Touch with Other Team Members

- Check your voice mail every day and return calls within 24 hours. ______
- Check your e-mail every day and respond to messages within 24 hours. ______
- Exchange documents using Application _________________. ______
- Attend all mandatory meetings. ______
- If you are going to be out of the office, let other people know and leave a message on your voice mail—an “out of the office alert.” ______
- E-mail messages are to be used for updating and exchanging information only. There are to be no surprises over e-mail about problems. Interpersonal issues are not to be resolved using e-mail: use the telephone or a face-to-face meeting. ______
- Communicate with those outside the team using our established communication plan. ______

Meeting Management

- Be on time for video conferences, audio conferences, and other meetings and attend the entire meetings. ______
- Rotate time zones for meetings in order to be equitable and fair. ______
- Link times and dates to ______ (for example, Eastern Standard Time in North America). ______
- In video conferences or audio conferences, keep the mute button on when not speaking. ______
- Take breaks every 60 or 90 minutes during audio conferences and video conferences. ______
- Do not interrupt others in meetings. ______
- Respect the facilitator’s attempts to foster participation from all team members. Respect the agenda. ______
- An agenda is sent out via e-mail 48 hours in advance of every meeting, and minutes are sent out via e-mail 48 hours after every meeting. Rotate taking minutes. ______
- If there are people attending the meeting or in the audio conference or video conference whose native language is different from the language in which the meeting is being conducted, give them time to think and time to speak. Provide “think breaks” so that people can gather their thoughts. ______
- At the end of each meeting, evaluate how we performed in terms of abiding by our team norms. ______

Decision Making and Problem Solving

- Strive for consensus but realize that consensus takes time and is not always necessary. If we cannot reach consensus, go with our expert team member’s opinion. ______
- Use the _______ approach to problem solving and decision making. ______

(continued)
Work on many teams can be characterized as parallel or independent, sequential, or pooled sequential or team work.\textsuperscript{2,3,4} Parallel work occurs when team members work independently on separate parts of a document or other product. Their outputs are then integrated into a final product.
Sequential work occurs when one or two individuals work on a document or product and then pass it to other team members, who also work on it and then pass it on. This way of working is analogous to an assembly line, in which parts are added sequentially until a final product is created. It is a common way of

TABLE 5.1. TEAM NORMS.

*Instructions:* Use this worksheet to document your virtual team norms. Make certain that all team members agree to each norm and have all team members sign the document. You may choose to post this on a team Web site.

Team Name: _______________________

**Team Norms**

<table>
<thead>
<tr>
<th>Category</th>
<th>Norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping in Touch with Other Team Members</td>
<td></td>
</tr>
<tr>
<td>Meeting Management</td>
<td></td>
</tr>
<tr>
<td>Decision Making and Problem Solving</td>
<td></td>
</tr>
<tr>
<td>Conflict Management</td>
<td></td>
</tr>
<tr>
<td>Working Together to Produce or Review Documents</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Team Member’s Signature: _______________________

Sequential work occurs when one or two individuals work on a document or product and then pass it to other team members, who also work on it and then pass it on. This way of working is analogous to an assembly line, in which parts are added sequentially until a final product is created. It is a common way of
working for work teams and production teams that use workflow processes and associated software.

Pooled sequential work can be likened to a library; team members check out a document (or part of one), make changes, and then turn it back in. The document or product is kept in its original place (pooled) and is updated each time a team member works on it. This way of working is well-suited to virtual teams. It allows all team members to work on a product simultaneously and can replace the sequential way of working that many traditional teams use.

Each virtual team needs to determine how it wants to work and then select the most complementary and cost-effective technology. For parallel work, there are very simple solutions. E-mail (assuming that there are no major compatibility issues) is often an easy answer. Sequential work can also be accomplished using e-mail or other data-exchange technologies. Pooled sequential work requires more sophisticated technology, such as a distributed database or an Internet document repository. Such systems store information and documents in a central electronic location, from which team members can access the latest versions of the team’s work, work on it, and then replace it. Such systems are capable of automatically updating all previous versions of the team’s work, including related documents and data.

---

**FIGURE 5.2. TYPES OF WORK.**

<table>
<thead>
<tr>
<th>Parallel</th>
<th>Sequential</th>
<th>Pooled Sequential</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image-url" alt="Parallel Diagram" /></td>
<td><img src="image-url" alt="Sequential Diagram" /></td>
<td><img src="image-url" alt="Pooled Sequential Diagram" /></td>
</tr>
</tbody>
</table>
The NASA team mentioned in Chapter Two that was collecting data from ten different locations to create a leadership model developed a Web site in which a data-collection format was stored in a database. As team members from the ten locations gathered information, they input the results into the database. It automatically marked their data as coming from their specific locations, integrated their data with existing materials, stored the data, and updated the database. The team members estimated that using this database saved them weeks of time that would have been spent passing the database from one location to another, as well as at least one cross-country trip for six or eight of the team members.

Using technology to perform pooled sequential work requires some preparation. First, team members must learn how to use the requisite software. Training and practice for all team members should become a requirement for orientation. In addition, the team needs to establish very clear team norms and protocols. These include, at a minimum, all of the following:

1. Authority and security measures that enable team members to check out materials. There may be core team members or ancillary members who do not need to see the information until a certain point in the process. They might be customers or external partners whom the team does not want to see an unfinished product.
2. A statement of who has the authority to add, change, and delete which portions of the product.
3. A statement of how often the team, or a subteam, will formally discuss and review the status of the product. Although many people prefer to communicate informally, formal discussions that mark decision points are important.
4. Established time schedules for development, modifications, and revisions.
5. A statement of who has the authority for final review and approval.
6. A mandate for team members to actually use the system consistently and not to exchange information or add to documents in any other electronic or non-electronic manner.

It is not uncommon for teams who attempt to use distributed databases, collaborative notebooks, and other, more sophisticated, computer-supported collaborative-work software for pooled work to find that implementation of these systems is not a smooth process. In many cases, the systems are never used or are underused by the team. The use of such systems must be to address specific problems, not as the result of a “technology push.” Four guidelines are relevant for teams in selecting technology for pooled work:

1. Team members may overestimate how much time they spend in team-related or pooled work. Most work actually may be accomplished using relatively
independent activities. If that is the case, the information shared by distributed databases may be perceived as irrelevant. Prior to selecting technology, ensure that the task actually requires pooled work.

2. Different styles of work usually are preferred by people in different professions. Professionals such as artists and architects tend to prefer more open work spaces in which they can peruse other people’s work. Software engineers, academics, and writers tend to prefer more enclosed and private work spaces. As a result, people from the latter categories of professions may prefer to wait until their products are more finished before sharing them with others.

3. The technology selected should integrate with existing systems, including messaging systems, calendars, scheduling systems, and other applications. Even if it is easy to use and portable, if it is not integrated, it will become another box on the desk.

4. Technology works best when it is integrated into the beginning of the team’s work. Infiltrating a system into existing work is difficult because it disrupts existing patterns of behavior.

Checklist 5.4 focuses on technological strategies.

**Development of Communication Plans.** How team members communicate with one another and with important stakeholders throughout the team’s life is a critical success factor. It is the primary way in which virtual teams manage organizational boundaries. Teams that keep to themselves or engage in low levels of communication negatively affect their performance. How often a team communicates, however, does not, in itself, ensure success. External communication needs to be carefully orchestrated, with the goal of managing other people’s perceptions of the team and their access to the team’s progress and problems.

Managing boundaries involves three vital functions: (1) providing the team with access to the power structure (usually top management); (2) managing horizontal interfaces and dependencies with other teams, organizational functions, and external partners; and (3) providing the team with access to important information. Each of these functions necessitates a separate communication strategy.

Access to the power structure is achieved through communications called ambassadorial behaviors. These activities promote the team and its work, building bridges to sources of resources and lobbying with the top management of the organization for support. Top managers who are crucial to the team’s success, stakeholders, and champions must maintain positive views of the team. The communication plan and other team activities are directed at influencing these key people. The team uses its communication plan almost as an organization performs public relations.
The active assistance of virtual team members is vital in performing this function. Team members are invaluable in identifying people in their functions, organizations, and regions who should be targeted for ambassadorial behaviors. Team members can help to establish a coordinated method for ensuring that the right messages are sent to these people at the right times. The answers to questions such as “What do people think of us?” “Who supports us and who doesn’t?” and “What can we do about it?” should be reviewed on a regular basis. Team members often are the best ambassadors for the team because they understand the team’s work and have high stakes in its successful outcome.

The second function of boundary management, managing horizontal interfaces, is accomplished through employing strategies that emphasize lateral communication and integration of work. This entails the establishment of two-way communication links about the team’s activities to people in other teams, functional groups, and external partner organizations. This is done in order to align or harmonize team efforts with outside activities.

<table>
<thead>
<tr>
<th>Type of Work</th>
<th>Team Members Who Work This Way</th>
<th>Technology to Be Used</th>
<th>Special Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallel</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sequential</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pooled</td>
<td>Sequential</td>
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</tbody>
</table>
The third function of boundary management, accessing information, is facilitated by a communication activity called scouting. Scouting is aimed at obtaining information from many different customers, stakeholders, experts, and managers about their preferences, wants, and needs. Extensive scouting is most useful in the beginning stages of the team’s life and during plan development. Intense scouting activity becomes less useful as the team moves forward.

In general, the most successful teams are those that either spend time engaging in ambassadorial behaviors or carry out comprehensive strategies that integrate ambassadorial, horizontal, and scouting activities. Over the short run, teams that emphasize ambassadorial strategies perform well in the areas of adhering to the schedule and budgeting. Team members also report strong feelings of team unity and cohesiveness. Teams that integrate all three strategies feel lower levels of team unity but have, in the long run, higher performance in terms of scheduling and budget outcomes. Teams that integrate ambassadorial, horizontal, and scouting activities also are more likely to be perceived by management as innovative. Teams that overuse scouting or horizontal integration, and teams that do not use any of the three strategies, usually are perceived as performing poorly in the long run.

The implication for virtual teams is that matching boundary-management objectives with detailed communication plans is a critical activity. A carefully crafted and integrated plan should identify items such as the following:

- What information scouting should target, how it should be accomplished, and when scouting should be suspended or modified
- When ambassadorial behaviors will be effective, who they will be directed at, and what the message will be
- When horizontal integration is appropriate, with what functions or organizations, and by what communication media

An effective communication plan establishes accountabilities for data collection, data analysis, and information sharing. It also defines the specific messages that will be delivered as well as the most appropriate communications media. For example, the members of a team that has an effective boundary-management and communication plan will never send e-mail messages to a top manager who prefers face-to-face briefings.

Checklist 5.5 provides a methodology for developing an external boundary-spanning and communication plan.

**Team Building.** A key part of the team’s orientation session is a nonthreatening team-building activity that is appropriate for the team’s task and the cultural
CHECKLIST 5.5. EXTERNAL BOUNDARY SPANNING AND COMMUNICATION.

Part One

Instructions: In column 1, list the major stakeholders, champions, and managers involved in your team’s success. Also list partner organizations, functions, and other groups that can impact your team’s work or may be impacted by its results.

For each listing in column 1, have the team members rate their perceptions of the person’s, group’s, or organization’s support of the team, with 1 being high and 5 being low. Use this information in planning what types of communication activities need to be part of the team’s interactions with those persons, groups, or organizations.

<table>
<thead>
<tr>
<th>Stakeholders, Champions, Managers, Organizations, Functions, Other Groups</th>
<th>Support of the Team? (1 = high; 5 = low)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
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(continued)
composition of the group. There usually is ample opportunity to do this in a face-to-face orientation session. Possible activities include going out to dinner as a team, engaging in outdoor activities, completing personality inventories that reveal how team members prefer to communicate and/or work, and engaging in indoor games that point to the value of teamwork. In an audio conference or video conference, the options for team building are more limited. In both types of sessions, the team leader should keep two things in mind: (1) the selection and use of team-building activities may be subject to cultural bias and (2) experienced virtual team members may perceive too much time spent on team building as inappropriate and a waste of time.

## CHECKLIST 5.5. (CONTINUED).

### Part Two

*Instructions:* Use the information you generated in Part One of this worksheet to plan your boundary-management and communication activities. Use the following table to plan activities. Pay particular attention to any individuals or groups rated as low supporters.

Try to anticipate communication that should occur throughout the team’s life cycle. The team should check the effectiveness of communication and boundary-spanning activities on a regular basis.

<table>
<thead>
<tr>
<th>Boundary-Spanning Function</th>
<th>To Whom?</th>
<th>How Often? At What Points in the Team’s Life Cycle?</th>
<th>By What Media or Technology?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambassadorial</td>
<td></td>
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</tr>
<tr>
<td>Horizontal communication</td>
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<tr>
<td>with other functions,</td>
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<td></td>
</tr>
<tr>
<td>partner organizations,</td>
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<td></td>
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<tr>
<td>groups</td>
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<tr>
<td>Scouting and information</td>
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<tr>
<td>gathering</td>
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</tbody>
</table>
Cultural Bias. Formal team building is conducted primarily in Western nations. In North America, Canada, and Northern Europe, team-building exercises typically focus on sharing personal information, discussing the results of personality inventories, and participating in competitive games. People from collective and/or low-context cultures may not feel comfortable when participating in many of these activities. Individuals from more collective cultures may feel that discussing personalities draws too much attention to each individual team member. People from low-context cultures may perceive personal information as irrelevant. In addition, although many personality inventories work well in North America and in some parts of Europe, most have never been validated in Asia, South America, Africa, and other parts of the world. “Adventure” activities and competitive games may be perceived by people from collective cultures as breaking down rather than building up a team. For these reasons, a team leader should be very careful in selecting team-building activities.

Table 5.2 outlines how specific cultural dimensions fit with team-building activities. Table 5.3 lists team-building activities that are appropriate in any cultural setting.

Working with Experienced Virtual Team Members. Many experienced virtual team members view team building that does not involve discussion of the work content as misplaced and a waste of time. Experienced virtual team members want to understand the task and get to work. Sometimes it is better to wait until the team members have had a chance to begin work and get to know one another as dependable and competent before initiating in-depth team building.

Step 6: Developing Team Processes, Such as Status Mechanisms, Review Points, and Documentation

During the orientation meeting, the team leader should explain the processes that will be used to manage and control the team’s work. These often can be reviewed or developed with the team members’ assistance during the orientation meeting. Many high-performing virtual teams adopt project-management practices to control their work. Even work teams and production teams often are able to use these tools effectively. They provide some of the additional rigor necessary to provide visible time and distance boundaries. It is quite easy to find project-management software packages that assist in this process. Many can be imported into standard groupware systems.

The most frequently used items are templates that are used for scheduling, assigning tasks to team members, reporting work status, and obtaining data on slips
Teams also should plan how they will engage in regular, frequent reviews. This includes establishing agendas that address milestones, plans, problems, status vis-à-vis milestones, and costs.

An important part of this step is a discussion about the ways in which information about the team’s history and progress will be documented, stored, and ex-

<table>
<thead>
<tr>
<th>Cultural Dimensions</th>
<th>Individualism/Collectivism</th>
<th>Uncertainty Avoidance</th>
<th>Power Distance</th>
<th>High or Low Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>If your team has a high concentration of individuals from individualistic cultures: Use team-building activities and instruments that allow individuals to talk about themselves first, then move to how the team members will work together.</td>
<td>If your team has a high concentration of individuals from high-uncertainty-avoidance cultures: Use team-building activities and instruments that allow individuals to discuss very concretely how the team members will work together.</td>
<td>If your team has a high concentration of individuals from high-power-distance cultures: Use team-building activities and instruments that allow individuals to discuss their backgrounds in relation to others in the organization. Use team-building activities that do not disrupt power differences in the team.</td>
<td>If your team has a high concentration of individuals from high-context cultures: Use team-building activities and instruments that allow individuals to discuss their backgrounds and preferences in great detail.</td>
<td>If your team has a high concentration of individuals from low-context cultures: Use team-building activities and instruments that allow individuals to discuss their backgrounds and preferences in general terms.</td>
</tr>
</tbody>
</table>
changed. Information such as reference materials, historical information, plans, scouting reports, the status of related internal or external activities, and team-generated products are valuable in orienting new team members. They also are valuable resources for future teams that are performing related tasks. Team leaders must ensure that distributed databases and other information-sharing applications provide equal access to all team members.

Many project, product, parallel, and network teams create electronic project folders that support communication and collaboration on a single project. Different types of system users—usually owners, members, and an administrator—are identified. Accounts for team members are created with passwords to ensure control over the system. Owners, perhaps of subteams, create folders and can invite other people to use, view, or modify the contents. In this way, documentation about the project is maintained by team members who “own” certain tasks or part of the project or process. At NORTEL, folders are maintained on all aspects of a project, including requirements, testing, schedules, costs, and customer reactions. Suggestions for documentation are provided in Table 5.4.

### Table 5.3. Team-Building Activities

<table>
<thead>
<tr>
<th>Team-Building Activities That Can Be Used in Any Cultural Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Team-member dinner party for a face-to-face setting.</td>
</tr>
<tr>
<td>2. Ask each individual to describe his or her expertise and background as well as his or her best practices collected from other team experiences.</td>
</tr>
<tr>
<td>3. Ask each team member to tell the team something interesting about his or her culture or function and its way of doing business that the team may want to adopt.</td>
</tr>
<tr>
<td>4. Ask each team member to explain how he or she plans to facilitate boundary-management activities with his or her function, region, or organization.</td>
</tr>
<tr>
<td>5. Ask each team member to describe how the team can best use his or her particular expertise.</td>
</tr>
<tr>
<td>6. Use a whiteboard or other presentation software to share interesting information about previous projects or best practices.</td>
</tr>
<tr>
<td>7. Examine best-practice documents from other teams and apply them to the team. Subteams of people from different cultures can work together on this activity.</td>
</tr>
<tr>
<td>8. Use groupware functions, such as anonymity, to vote or poll in the early part of the team's activities so that team members from collective or high-power-distance cultures feel comfortable stating their opinions.</td>
</tr>
</tbody>
</table>
Steps for Existing Teams

Leaders of existing virtual teams may choose to undertake some of the activities described in this chapter. Many of the activities also are appropriate for use in replanning, indoctrinating new team members, redirecting work, and addressing team problems. For example, after significant team deliverables or a process-reengineering activity, the team leader may conduct a lessons-learned session to explore improvement opportunities. This lends itself well to re-establishing norms, communication plans, and technological plans. Because a number of face-to-face team sessions are common for long-term virtual teams, including work and production teams, a team leader also can use such gatherings to review the effectiveness of the team’s norms, technological plan, and communication plan.

Finally, team-orientation sessions are appropriate when a number of new members join the team and when new stakeholders are introduced to the team. The following is a list of activities that should be considered critical in orienting new team members.

1. Every new team member should participate in a face-to-face or telephone meeting with the team leader, during which the team leader should welcome the new team member and cover the following items:
   - The team’s mission, purpose, objectives, and charter
   - Team deliverables and schedules
   - The roles and accountabilities of other team members

---

**TABLE 5.4. DOCUMENTATION AND STORAGE GUIDELINES.**

1. Templates should be available to document the following:
   - The team’s charter, technology plans, and communication plans
   - Schedules
   - Cost estimates
   - Requirements from customers
   - Changes in plans
   - Weekly status reviews
   - Monthly status reviews
   - Problems
   - Lessons learned and best practices
2. All team members should exchange documents using ________ (application).
3. All team members should store current deliverables in ________ (location). Use the following security protocol: __________________

---
• The new team member’s role, accountabilities, and deliverables
• The schedule for status meetings and the access processes (phone, e-mail, and so on)
• Technical and other resources that the team member may need

2. The next step is to introduce the new team member to his or her orientation “partner,” who will serve as the new team member’s initial link to the team and who will provide important information about the team’s operations and policies. The orientation process with the partner should include a face-to-face meeting, audio conference, or video conference with the new team member. The meeting should include the following items:
• An introduction of the new team member to his or her partner
• A review of the face-to-face orientation with the team leader to see if there are questions
• An overview of team norms and codes of conduct, including remote team norms (for example, telephone etiquette)
• A review of software and other groupware and technology requirements, with tutoring if it is needed
• A review of how the team member will introduce himself or herself during his or her first team session
• Technological coaching during the new member’s first team session, if necessary
• Coaching in finding the team’s notes from previous meetings and answers to questions about them

3. The new team member and his or her partner also should participate in a second orientation session that follows the new team member’s first meeting with the team. It should include
• A review of the team’s session and answers to any questions
• Feedback on the new member’s use of team norms and processes
• Feedback on the new member’s use of technology
• Answers to questions about the roles of other team members, customers, and stakeholders
• A discussion of best practices and lessons learned from the team meeting and any associated best practices

**Time Frame for the Orientation Process**

The time needed to identify stakeholders, develop a charter, select team members, and hold an orientation session varies from team to team. In general, however, the more complex the team’s task—measured in the number of people and the time
and distance between them, the longer it takes. Team leaders should allow at least one month to identify stakeholders and develop a charter and two to four weeks to select and orient team members. Less time may be needed for experienced virtual teams.

Ample time must be allocated for the orientation session. For a team that has a moderately complex charter, the orientation can take up to three days, especially if detailed work planning is an activity. For teams that have simple charters, only one day may be required. Because team leaders usually know more about the task and deliverables, they need to allow enough time for the team members to catch up. If the session is conducted remotely, the team leader may want to schedule two separate sessions.

Checklists 5.6 and 5.7 show the outcomes the team should strive for in the first two meetings.

**Points to Remember**

1. The team-orientation process has six steps that teams can enter at any time.
2. An effective team orientation is essential to high performance.
3. It is best to conduct the team-orientation meeting face to face.
4. The leader should ensure that all team members can attend the team-orientation session.
5. The leader should ensure that team norms, technological plans, and communication plans are developed during the team orientation.
6. The leader should determine the types of team-building activities that are appropriate for the cultures represented on the team.
CHECKLIST 5.6. OUTCOMES FOR FIRST TEAM MEETING.

Outcomes

1. Team members understand the charter, mission, and scope of the team.

2. The team develops norms for team behavior and team processes.
   - How to schedule meetings; who has authority to schedule others; use of electronic scheduling or calendaring systems
   - How often voice mail and e-mail are to be answered
   - Etiquette for face-to-face meetings, audio conferences, and video conferences
   - How agendas for team meetings will be developed and distributed
   - How minutes will be taken and distributed (timing and method)
   - Who will facilitate meetings

3. Team members understand their accountabilities and those of other team members.
   - Accountabilities of all team members are reviewed and agreed on.

4. The team develops a plan for the use of technology, including
   - Agreement on major type of work (parallel, sequential, or pooled sequential)
   - Technology needed given the type of work
   - How to exchange information and documents
   - Hardware and software needs of team members (e-mail, fax, telephone, video, and so on)
   - How information and documents will be stored (team Web site, shared files, or other)
   - When to mark e-mail messages and other documents “urgent,” “important,” or the like
   - Acquisition of new technology (for example, groupware, electronic meeting systems)
   - Training and orientation for team members in technology
   - Review of compatibility issues (MAC or PC, word-processing applications, Internet providers)

5. The team develops an external communication plan:
   - Which stakeholders, partners, champions, and others will get what information and when?
   - Which team members will coordinate with those individuals and answer questions?

6. The team determines how it will review progress:
   - Frequency of team meetings
   - Preliminary agenda for review sessions
   - Who will be required to attend
   - How meetings will be held (audio conference, video conference, face to face, and so on)

7. Team-building activities are conducted, and team norms are reviewed.
### CHECKLIST 5.7. OUTCOMES FOR SECOND TEAM MEETING.

<table>
<thead>
<tr>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The team reviews norms for team behavior and team processes and validates and updates them.</td>
</tr>
<tr>
<td>- Review of etiquette for audio conferences, video conferences, face-to-face meetings, and so on.</td>
</tr>
<tr>
<td>2. The progress of the team’s work to date is reviewed.</td>
</tr>
<tr>
<td>3. Accountabilities are clarified, if necessary.</td>
</tr>
<tr>
<td>4. The team reviews technological issues and problems:</td>
</tr>
<tr>
<td>- Exchange of information and documents, hardware and software needs of team members, information and document storage and access, e-mail and voice mail problems</td>
</tr>
<tr>
<td>- Additional technology needs</td>
</tr>
<tr>
<td>- Training and orientation</td>
</tr>
<tr>
<td>5. The team reviews progress regarding the external communication plan:</td>
</tr>
<tr>
<td>- Is information getting to other team members, stakeholders, and champions?</td>
</tr>
<tr>
<td>6. The team assesses its work to date:</td>
</tr>
<tr>
<td>- Progress of technical work, overlap or redundancy of roles and accountabilities</td>
</tr>
<tr>
<td>- Availability of team members</td>
</tr>
<tr>
<td>- Availability of information and documents</td>
</tr>
<tr>
<td>- Access to technology</td>
</tr>
<tr>
<td>- Access to stakeholders and other important team members</td>
</tr>
<tr>
<td>7. Additional team-building or trust-building activities are conducted, as appropriate.</td>
</tr>
<tr>
<td>8. The team reviews its current meeting effectiveness and plans for the next meeting.</td>
</tr>
</tbody>
</table>
The need to balance coordination and collaboration with autonomy exists in any team situation. In a virtual team, this challenge is more complex because time, distance, and organizational boundaries separate team members. Frequently, when people join a virtual team, they believe that it will be a part-time and fairly easy task, especially as they do not have to physically attend meetings. Although they may correctly calculate the difficulty of the technical task, they may underestimate the time that they need to spend in coordination and collaboration activities. They may overcommit themselves and end up trying to manage too many tasks.

Balancing Coordination and Collaboration

Successful virtual team members understand the importance of balancing coordination and collaboration with autonomy. Maintaining this balance may not be easy. Team members may be tempted to work independently because coordination and collaboration are more difficult in a virtual situation and because common interests seem less compelling than local needs and preferences. Virtual team members often need to behave autonomously to perform activities traditionally performed by the team leader, such as networking, resolving conflicting loyalties, and clarifying ambiguous situations. However, the virtual situation also
requires that team members take the initiative in coordinating and collaborating with other team members, with other people in the organization, and with external partners. Traditional organizational structures, reporting hierarchies, processes, and systems do not ensure coordination and collaboration in virtual teams.

### Coordination and Collaboration Roles

Coordination and collaboration roles for virtual team members include the following:

1. Acting as ambassadors for the team by keeping local managers and stakeholders informed of the team’s work
2. Acting as conveyers of information in order to keep the team members informed of the concerns, interests, and reactions of their functional areas, local stakeholders, and management
3. Coordinating and communicating with other team members to ensure that all are aware of who is performing what activities and that all have access to important documents and other information
4. Building and maintaining trust with other team members by demonstrating reliable performance, integrity, and concern for others
5. Sharing learnings from their experiences with other team members and with their local organizations

### Autonomy Roles

Autonomy roles for virtual team members include the following:

1. Acting as self-managing team members by assuming accountability and leadership in their areas of expertise and by delivering quality products on time
2. Taking responsibility for identifying and reconciling team needs and priorities with the priorities of other teams on which they serve on and with local needs
3. Clarifying ambiguous tasks with the team leader and with other team members
4. Addressing conflicting loyalties between the team and other groups

Many virtual teams find balancing coordination, collaboration, and autonomy roles to be so important that their members regularly assess and discuss their performance. A sample team assessment is shown in Table 6.1, and an agenda for reviewing the data from the assessment is shown in Table 6.2. Prior to the
### TABLE 6.1. TEAM-MEMBER ROLE ASSESSMENT.

*Instructions:* Under each statement, please circle the answer that best characterizes your activities on the team.

#### Coordination and Collaboration

1. How often do you interface with top management at your location about the team and its progress?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

2. How often do you *systematically* report to the team about local concerns, interests, and reactions to the team’s work?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

3. How often do you report to other team members about progress on your work or on the success of deliverables?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

4. How often do you gauge your actions against their impact on other team members?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

5. How often do you and other team members discuss the level of coordination and collaboration that is appropriate for the team?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

6. How often do you and your team members take the time to share learnings?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

#### Autonomy

1. How often do you participate in activities with the team where you use specialized expertise?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

2. How often do you reconcile competing priorities between this team’s needs, other teams’ needs, and local needs?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

3. How often do you clarify ambiguous tasks with the team leader and/or with other team members?

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Sometimes</th>
<th>Quite a bit</th>
<th>Continually</th>
</tr>
</thead>
</table>

(continued)
assessment session, the team leader can send the questionnaire to the team members by e-mail or other means, summarize the team members’ responses to the questionnaire, and post them on the team’s Web site or via e-mail. If a team has access to an electronic meeting system (EMS), administration of the questionnaire and the subsequent discussion of ways to improve the team’s performance can be conducted interactively. Ample time—at least thirty to forty-five minutes—should be allowed during the meeting to discuss the results of the questionnaire and possible follow-up actions. The minutes of the meeting and a list of items to be followed-up on in the next session should be sent out to all team members promptly.

### TABLE 6.2. AGENDA FOR TEAM-MEMBER ROLE ASSESSMENT.

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review the purpose of the assessment: To reinforce our roles as team members and to take action in areas that need improvement.</td>
<td>5 minutes</td>
</tr>
<tr>
<td>2. Review the responses to each item, one at a time.</td>
<td>10 minutes</td>
</tr>
<tr>
<td>3. Ask team members whether they generally agree with the responses. Ask if there are any questions.</td>
<td>5 minutes</td>
</tr>
<tr>
<td>4. Go over the items, one at a time, and explore the team members’ responses and reactions. Focus on the top two or three priorities. Be certain that there is agreement about what the appropriate response to each item should be, given the team’s mission and the type of team.</td>
<td>20 minutes</td>
</tr>
<tr>
<td>5. For each item, brainstorm actions the team could take to improve the item scores.</td>
<td>15 minutes</td>
</tr>
<tr>
<td>6. Document actions and make plans to follow up. Adjust items on the questionnaire if appropriate.</td>
<td>5 minutes</td>
</tr>
</tbody>
</table>
The determination of whether or not an item warrants attention will depend on the team’s mission and its members’ reactions to the survey results. For example, teams that require extensive external boundary spanning will consider this item more seriously than will teams that focus on local issues.

Roles and the Impact of Culture

National culture can influence team members’ perceptions of their team roles, such as dealing with ambiguous situations, defining accountability, acting on behalf of the team leader, and interfacing with people at high organizational levels. The following is an example of this in Sara’s team.

The members of Sara’s team knew that for the team to succeed, the members all had to perform ambassadorial behaviors and that they had to coordinate horizontally with other teams and functions. The team members even distributed a detailed timeline for communication and sent one another e-mail messages about what to say to whom and when. What they did not consider was how differently they would interpret and carry out their roles in different cultural settings.

When Sara attended a progress meeting with upper management, one of the division vice presidents from South America acted surprised about the extent of the team’s activities. He asked Sara if she had appropriate sponsorship for her team’s work and complained that Sara had not informed him of the team’s activities.

After the meeting, Sara checked her communication log and saw that, indeed, this division vice president was listed as someone targeted for ambassadorial behavior. She called the team member accountable for this activity and asked what had happened. He replied that the division vice president was a high-level individual and that he did not feel comfortable communicating with the vice president directly. As a result, he had been sending e-mail updates to the vice president (the team’s communication plan called for the team members to request short face-to-face briefings with the senior staff). This vice president did not check his e-mail regularly and had missed the messages.

In hindsight, Sara felt frustrated with herself for not foreseeing this possibility.

Power distance is one cultural variable that can impact how well team members perform their collaboration and coordination roles. Sara’s team member, although not at the bottom of the organization, was not at a level where he would feel comfortable setting up a face-to-face meeting with a senior manager. Sara and the team learned that some team members feel uncomfortable performing boundary-management tasks that require collaboration and coordination between team members and people at higher status levels. Although these team members may
have the skills to do such tasks, they do not consider them to be culturally acceptable.

Another cultural variable, uncertainty avoidance, may also impact the ways in which team members carry out autonomy roles. Team members from cultures with high uncertainty avoidance are less likely to be comfortable in roles that are ambiguous. Members from low-uncertainty-avoidance cultures may view their teammates from high-uncertainty-avoidance cultures as needing too much definition and structure. Striking a balance that is appropriate for the cultural composition of the team and the team’s task is tricky and may require candid discussions between all team members.

The definition of accountability also varies from culture to culture. It has a very clear meaning in the United States, where it implies individual responsibility for final outcomes. In other cultures, the meaning is less clear. For example, there is no word in Spanish that translates directly as “accountability.” Members of Spanish-speaking cultures, as a result, may understand accountability differently from English speakers. In collective societies, sharing of accountability and goals by the entire team may be the preferred way to work. In more individualistic cultures, individual accountability for interdependent tasks may be preferred. Teams that have cross-cultural membership may want to discuss the meaning of terms such as accountability, autonomy, coordination, and collaboration to ensure that all team members share common understandings.

**Virtual Team-Member Competence**

Virtual team members need to possess six key competencies in addition to traditional team competencies that ensure success in collaboration and coordination and in autonomy roles. The competencies are as follows:

- Project management
- Networking
- The use of technology
- Self-management
- Boundary management
- Interpersonal awareness

**Project Management**

Project-management competencies are

1. Planning and organizing individual work to correspond to team schedules
2. Developing and using methods to report progress and problems
3. Monitoring and controlling costs
4. Taking actions to get back on track
5. Documenting and sharing individual learnings

Competence in project management facilitates autonomy and collaboration and coordination. Good project-management techniques can enhance performance even on teams that are not project oriented. Coordination and collaboration include carefully planning and scheduling work, keeping commitments, and reporting progress in relation to the plans in order to provide early warning of problems and delays to the team leader, affected team members, and outside stakeholders. Good planning discipline can help team members to be autonomous and to recognize when their work is off track or off schedule and can facilitate immediate action to get back on track or back on schedule.

Controlling the costs of labor, travel, and other expenses is another project-management competence. If team members are spending beyond their budgets, they need to let someone know. If they underspend, they should offer the money for other team requirements.

Virtual team members also need to document new knowledge and key learnings and share them with their teammates. This typically is done at the end of most project-management cycles. Successful teams distribute learnings within the team and beyond to the wider organization.

Networking

Networking competencies include

1. Knowing the organizational landscape and who is in it
2. Knowing what questions to ask to get others’ perspectives
3. Maintaining guidelines about when to see people face to face, when to send them messages, and when to avoid them altogether

Virtual team members need to take the initiative in learning about their organizations and the people in them. They should be able to map who is powerful, who can provide information, who usually is skeptical, and who usually is supportive. They must be able to navigate inside and outside the organization and talk with all levels of management and with people from varied backgrounds about complex topics. They should also be knowledgeable about external sources of information, expertise, and support. Like farmers, they need to know their landscape, what grows well, and which areas may need further cultivation.

Virtual team members need to develop skills in networking and in communicating with and without face-to-face contact. Knowing when and how to use different technologies to network and communicate effectively is a related skill. Savvy networkers seldom rely only on e-mail or voice mail to communicate
complicated, highly political, or emotional material. Before communicating with anyone, a team member must ask the following four questions:

1. What does this person have to lose by this decision or piece of information?
2. Does this communication change the power structure in the function or organization?
3. How would I react if this were presented to me?
4. Is this material or concept relatively easy to understand?

If any of these questions has a negative answer, the virtual team member must use a synchronous and information-rich communication media. A face-to-face meeting is preferable; a telephone call is the minimum option.

The Use of Technology

Technological competencies include

1. Using the appropriate technology to communicate, coordinate, and collaborate, given the task and the backgrounds of other team members
2. Knowing how to access training or help with new technologies
3. Knowing the etiquette of using technology
4. Knowing how to plan and conduct remote team meetings

Virtual team members need to develop skill in selecting and using technology to communicate, coordinate, and collaborate. Although team-member competence is likely to vary with individuals’ backgrounds and functional disciplines, all team members should be able to make informed decisions about when it is best to call, to use e-mail, or to meet face to face. In addition, all must be able to access and use basic technologies, which now include the telephone, video conferencing, voice mail, e-mail, basic word processing packages, document-exchange applications, and simple graphics. Team members who have subteam leadershipaccountabilities also need to understand how to plan and facilitate remote meetings.

In addition, all team members should be aware of the etiquette and practice of working remotely. Sending e-mail messages or voice-mail messages of appropriate length, leaving one’s telephone number at the beginning of a voice-mail message, and inquiring about format preferences before sending electronic files or e-mail messages all are good practices.

Team members who have technical backgrounds should remember that all team members may not be as experienced with technology as they are. The basic
competencies of all team members will increase over time, but team members should set their own minimum competence standards for their team, based on the team’s needs. Finally, team members need to be open to experimenting with new technology and pursuing training to increase their proficiency.

Self-Management

Self-management has a number of different aspects and may vary, depending on what the team is working on and the specific situation of each team member. Four areas of competence are extremely relevant in this category:

1. Skill in establishing personal and professional priorities and goals
2. Skill in prioritizing work and setting limits
3. Skill in creating and executing opportunities for individual learning and growth
4. Skill in taking the initiative to change working methods and processes to meet the demands of the work

A virtual team member’s world consists of many potentially conflicting priorities. Dealing with ambiguity, prioritizing tasks, setting personal and professional limits, and saying no are critical self-management strategies. For example, virtual team members who work on project teams and report to a number of team leaders may have trouble saying no to requests for work. In the end, these team members may find themselves working all the time and not enjoying any job. The ability to say no when the quality of performance or the team member’s work-life balance is sacrificed is a necessary skill.

Other important self-management competencies include career management, promoting oneself, and learning. Maintaining state-of-the-art expertise is a critical competence for virtual team members, who are selected primarily for their technical and teamwork expertise. Staying current technically through extension or college courses is critical to skill maintenance. A further step is to participate in the creation of knowledge in their professional fields by publishing or by presenting at professional conferences. For virtual team members who wish to work on their own in the future, these activities are essential in order to keep connected to their fields.

Finally, an accomplished virtual team member is able to conform or stretch to the requirements of the job. Adaptable team members understand the dynamics of the task and take the initiative to make changes in their accountability to meet shifting task goals. They also realize the importance of communicating these changes proactively with other team members, stakeholders, and managers.
Crossing Boundaries

Virtual team members need to be competent in crossing cultural, functional, and organizational boundaries. They need to be skilled in the following areas:

1. Understanding how cultural perspectives influence work and collaboration
2. Understanding how differences in national, functional, and organizational cultures impact working styles, team interactions, team-members’ expectations, and team dynamics
3. Being sensitive to differences in business practices in different parts of the world

Cross-functional awareness includes some comprehension of how areas of expertise impact working styles. People who have engineering and science backgrounds, for example, often tend to work in a more linear style than individuals from marketing and sales functions. People who have backgrounds in human resource development, reengineering, and quality improvement tend to view work from a systems perspective, and other team members may favor a task-specific approach. Although understanding differences in working styles attributable to functional backgrounds may seem burdensome, a competent virtual team member can leverage these differences to benefit the team. A useful strategy is to let team members from functions other than one’s own “win” and to enjoy the experience of learning how to work in a different way.

Of course, national culture impacts team members’ working styles, expectations, and communication preferences. Experienced virtual team members who work in teams that cross the boundaries of national culture expect that there are differences between team members, are able to discuss them openly, and are open to new ways of working other than what they are comfortable with. A team member who is uncomfortable with uncertainty, for example, may volunteer to work on a task with less structure than he or she prefers and use his or her reactions as learning experiences. Taking a deep breath and letting another way of working take over is a sign of an experienced virtual team member who is comfortable with himself or herself.

Virtual team members must cultivate awareness of their personal cultural biases and how they may impact the team. All of us hold stereotypes and preconceptions of others. Awareness is the precondition for changing or at least managing these biases. The key to mitigating bias is to develop openness to other ways of thinking and acting and to suspend judgment about what is “good” and “bad.” Openness is facilitated by gaining awareness through activities such as traveling, working with other functions, and talking with members of other cultures about reverse perceptions. Awareness of personal bias also is a component of overall interpersonal awareness.
Interpersonal Awareness

Interpersonal awareness competencies include

1. Being aware of interpersonal styles and their impact on others
2. Collecting feedback on one’s interpersonal style from other team members
3. Discussing one’s interpersonal strengths and weaknesses with other team members and providing them appropriate feedback on theirs
4. Being able to plan experiences that lead to improvement

The best-performing virtual team members are acutely aware of how others perceive them and how their behavior affects their team’s productivity. They are skilled in anticipating the consequences of their own behaviors in many different situations. They understand how they present themselves on the telephone and in writing and how people from different functions and cultures are likely to perceive them. They gauge when to be friendly, when to get down to business, when to be talkative, and when to be quiet. They also are sensitive to issues that affect trust. Most important, they frequently seek and give feedback to one another.

Some experienced virtual team members ask four simple questions after any meeting or major interaction to elicit feedback that will help them to be more self-aware:

1. Was my behavior consistent with expectations?
2. What was productive about it for the team?
3. What was unproductive about it?
4. If the team were to give me advice about how to behave differently next time, what would it be?
5. Did cultural or functional differences affect perceptions of me?

Table 6.3 summarizes the knowledge, skills, and experiences that define competence in each of the six areas discussed above. Team members can use this list of competencies to solicit feedback on their behaviors.

Assessing and Developing Team-Member Competencies

The following checklists can assist team members in assessing their general levels of competence in all six areas. Checklist 6.1 can be used as a self-report form or as a 360-degree feedback instrument. Team members can use the results to create personal-development goals. To improve the accuracy of the feedback, multiple people should assess each team member.
<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Experience</th>
</tr>
</thead>
</table>
| Project Management | Knows specific project-management techniques for planning, organizing, and controlling work  
Knows different methods for documenting and sharing learnings | Can develop personal, project, and task plans, schedules, and cost estimates  
Can develop different strategies to get work back on schedule  
Can derive and document learnings from a number of different situations | Has developed project or task plans, schedules, and cost estimates  
Has shared learnings in formal and informal forums |
| Networking         | Understands the formal and informal organization and where resources reside  
Understands how to interact and communicate with people from different functions and levels in the organization | Can identify important local stakeholders for the team  
Can plan and implement networking activities | Has worked in a number of different locations and functions within the organization  
Has worked with external partners, such as vendors and suppliers |
| Use of Technology  | Is aware of major technological tools and when the use of each is appropriate  
Understands etiquette and practices associated with using technology | Can plan for the use of technology, given the backgrounds of team members and stakeholders and the demands of the team's task  
Can access training and skill-building activities in this area  
Can plan and facilitate remote meetings | Has experience using a number of different communication and collaboration technologies |
<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Knowledge</th>
<th>Skills</th>
<th>Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Self-Management</strong></td>
<td>Understands personal and professional priorities&lt;br&gt;Understands personal limits&lt;br&gt;Understands the need for development and learning</td>
<td>Can plan and prioritize personal work&lt;br&gt;Can set limits and say no&lt;br&gt;Has personal strategies for handling ambiguity&lt;br&gt;Can identify learning opportunities</td>
<td>Has worked in a number of different teams simultaneously&lt;br&gt;Has developed and executed personal-growth plans through formal education, on-the-job learning, and other strategies&lt;br&gt;Has performed tasks that required learning new skills or changes in work habits</td>
</tr>
<tr>
<td><strong>Crossing Boundaries</strong></td>
<td>Understands the importance of cultural, functional, and organizational differences and how they can affect the team&lt;br&gt;Is aware of own cultural biases</td>
<td>Can constructively discuss dimensions of cultural differences&lt;br&gt;Is able to create ways of working that not only accommodate but optimize differences&lt;br&gt;Is able to plan team activities, taking into account how these processes interact with functions and cultures</td>
<td>Has worked in cross-functional teams&lt;br&gt;Has worked in teams with cross-organizational and/or cross-cultural representation</td>
</tr>
<tr>
<td><strong>Interpersonal Awareness</strong></td>
<td>Is aware of how own behaviors affect others and the productivity of the team&lt;br&gt;Is aware of areas in which further development is needed</td>
<td>Is able to collect and act on feedback from others about own interpersonal style&lt;br&gt;Is able to give appropriate feedback, when solicited, to others regarding their styles&lt;br&gt;Is able to foster interpersonal interaction about styles and their impact on others</td>
<td>Has worked in different virtual team situations and has modified own behavior to meet the demands of the situations&lt;br&gt;Has participated in feedback sessions on personal behaviors</td>
</tr>
</tbody>
</table>
CHECKLIST 6.1. ASSESSING TEAM-MEMBER COMPETENCE.

*Instructions:* Select the level in each area of competence that best characterizes the current skills and experience of the individual being assessed (your own skills and experience if this is a self-assessment).

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Skills</th>
<th>Skill Level (1 = low, 2 = medium, 3 = high)</th>
<th>Experience Level (1 = low, 2 = medium, 3 = high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td>Can develop personal, project, and task plans; schedules; and cost estimates</td>
<td>Score: Has developed project or task plans, schedules, and cost estimates</td>
<td>Score: Has shared learnings in formal and informal forums</td>
</tr>
<tr>
<td></td>
<td>Can develop different strategies to get work back on schedule</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can derive and document learnings from a number of different situations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking</td>
<td>Can identify important local stakeholders for the team</td>
<td>Score: Has worked in a number of different locations and functions within the organization</td>
<td>Score: Has worked with external partners, such as vendors and suppliers</td>
</tr>
<tr>
<td></td>
<td>Can plan and implement networking activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Technology</td>
<td>Can plan for the use of technology, given the backgrounds of team members and stakeholders and the demands of the team’s task</td>
<td>Score: Has experience in the use of a number of different communication and collaboration technologies</td>
<td>Score:</td>
</tr>
<tr>
<td></td>
<td>Can access training and skill-building activities in this area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can plan and facilitate remote meetings</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Management</td>
<td>Can plan and prioritize personal work</td>
<td>Score: Has worked in a number of different teams simultaneously</td>
<td>Score:</td>
</tr>
<tr>
<td></td>
<td>Can set limits and say no</td>
<td>Has developed and executed personal-growth plans through formal education, on-the-job learning, and other strategies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Has personal strategies for handling ambiguity</td>
<td>Has performed tasks that required learning new skills or changes in work habits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Can identify learning opportunities</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(continued)
## CHECKLIST 6.1. (CONTINUED).

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Skills</th>
<th>Experience</th>
<th>Score:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crossing Boundaries</td>
<td>Can constructively discuss dimensions of cultural differences</td>
<td>Has worked in cross-functional teams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is able to create ways of working that not only accommodate but optimize differences</td>
<td>Has worked in teams with cross-organizational and/or cross-cultural representation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is able to plan team activities, taking into account how these processes interact with functions and cultures of team members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Awareness</td>
<td>Is able to collect and act on feedback from others about own interpersonal style</td>
<td>Has worked in different situations and has modified own behavior to meet the demands of the situations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is able to give appropriate feedback, when solicited, to others regarding their styles</td>
<td>Has participated in feedback sessions on personal behaviors</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Is able to foster interpersonal interaction about styles and their impact on others</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total number of 3s:</th>
<th>Total number of 3s:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of 2s:</td>
<td>Total number of 2s:</td>
</tr>
<tr>
<td>Total number of 1s:</td>
<td>Total number of 1s:</td>
</tr>
<tr>
<td>Total:</td>
<td>Total:</td>
</tr>
</tbody>
</table>

**Scoring**

*Instructions:* Total the numbers in the “skills” and “experience” boxes for each competence. (For example, selecting 3 in all skill areas would give you a total score of 18 for skills.) Interpret the numbers as follows:

**Skills**

6 or less: You are probably just getting started in a virtual-team setting. Your challenge is to gain skill in competence areas in which you scored 2 or below. This can be accomplished through training, reading, working with a mentor, and working in multiple virtual teams.

6 to 12: You have a solid understanding of the requirements of virtual-team membership. Your primary challenge is to refine your skills for application in a number of different situations. This can be accomplished best by working in multiple virtual teams under the mentorship of experienced managers.

*(continued)*
Checklists 6.2 and 6.3 can be used by team members to plan development activities in each area of competence. They also can help to guide development prior to and after team assignments. Development should concentrate on the areas of importance to the team and the organization as well as those that are personally important to the team member. Developmental actions may include training, special assignments, reading, sharing lessons learned and best practices, mentoring, and on-the-job experiences.

Points to Remember

1. Virtual team members must balance coordination and collaboration with autonomy.
2. Culture can influence how members fulfill their obligations to the team.
3. Team members need to have basic competencies in project management, networking, the use of technology, self-management, crossing boundaries, and interpersonal awareness.
CHECKLIST 6.2. INDIVIDUAL-COMPETENCE INVENTORY.

Instructions: In the next-to-last row, rate each area of competence as a high, medium, or low priority for your type of virtual team, using the information provided in the table. In the last row, rate each area of competence as a high, medium, or low priority for your self-development. The table lists the priority of each area of competence for each of the seven primary types of virtual teams. Developmental priorities are areas in which a medium-to-high team priority exists and your competence rating is medium or low.

<table>
<thead>
<tr>
<th>Type of Team</th>
<th>Project Management</th>
<th>Networking</th>
<th>The Use of Technology</th>
<th>Self-Management</th>
<th>Crossing Boundaries</th>
<th>Interpersonal Awareness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Parallel</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Project or Product</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Work or Production</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>High</td>
</tr>
<tr>
<td>Action</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>High</td>
<td>Medium to high</td>
<td>High</td>
</tr>
<tr>
<td>Service</td>
<td>Low to medium</td>
<td>Low to medium</td>
<td>Medium to high</td>
<td>Medium to high</td>
<td>Low to medium</td>
<td>High</td>
</tr>
<tr>
<td>Management</td>
<td>Medium</td>
<td>High</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

*Priority for my team? (Yes/No)*

*Priority for my development? (Yes/No)*
### Checklist 6.3. Planning Developmental Actions

*Instructions:* For areas you listed as priorities for development for your team, use the following worksheet to plan training, on-the-job assignments, and/or other activities that can develop your skills and experience.

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Developmental Plans</th>
<th>Estimated Time to Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Networking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of Technology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crossing Boundaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpersonal Awareness</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The ways in which virtual team members identify with one another, share power, communicate, and build trust are important in achieving team results and in the subjective experience of being a member of the team. Effective virtual team members not only fulfill the team’s task objectives but also, in the process, contribute to a trusting relationship among themselves. Trust is a critical structural and cultural characteristic that influences the team’s success, performance, and collaboration. Without trust, building a true team is almost impossible.

Because virtual teams—especially parallel, project, action, and network teams—often form and disband quickly, trust has to be built immediately. The qualities of the first interactions among team members set the tone. Even one or two negative messages from a team member have the potential to create distrust early in the team’s life. Models of trust that focus on building long-term relationships may not apply to many virtual teams.

Three Factors in Building “Instant” Trust in a Virtual Environment

The actions of the team leader and team members that affect trust fall into three categories. Although trust is, to some extent, based on individual tolerances and
experiences, people tend to trust others who perform competently, act with integrity, and display concern for the well-being of others. All three factors must exist consistently in order for a virtual team to sustain a high level of trust. The following section briefly explores the three factors and provides examples of best practices in each.

Performance and Competence

*Reputation for Performance and Results.*

Sara has a reputation for “delivering” as a team leader. Her team members and many others throughout the organization know that her past projects have come in on time and within budget and that she has received accolades from organizational leaders and customers. Sara is action oriented and fulfills her commitments and obligations. Sara’s competence contributes to the trust her team members place in her. Her team members know that she has the knowledge, experience, and skills to perform the work and achieve results.

If a team leader or team member appears to have little or inappropriate experience or a reputation for nonperformance, it may erode the trust that team members have in the importance of the team and their belief that it can perform effectively. In a virtual team, all the team members have with which to judge the probability of success are the team leader’s and team members’ credentials and the reputation of the team’s sponsor. Other positive factors cannot compensate for poor performance.

*Follow-Through.* Timely follow-through on commitments is an important element in establishing a perception of performance and competence. Promising something—whether it be information, a telephone call, or an e-mail message—and then not delivering it, or not delivering it on time, erodes trust. Follow-through may be more important to virtual team members than to members of traditional teams because virtual team members have fewer clues by which to decide whether other team members are committed to the team’s performance. Developing a set of team practices for follow-through is one way for virtual teams to easily demonstrate a performance orientation.

The following is an example of how Sara’s team does this.

Each of the members of Sara’s team keeps a log of his or her commitments and checks them off in a timely manner. When a team member cannot meet a commitment, even a small one such as attending a meeting, he or she takes the time to explain this to
the team. This norm was established in the initial team-orientation session. If the commitment is critical, real-time communication with high social presence, such as a personal telephone call, is used, rather than e-mail or voice mail or rescheduling over the electronic calendaring system.

**Obtaining Resources.** The ability to obtain resources also contributes to the perception of performance, especially for the virtual team leader. Team members see virtual team leaders who are able to obtain needed resources as performance-oriented and trustworthy. For all team members, promising what they cannot deliver erodes trust.

Sara is diligent about understanding what resources her team needs and seeking them. She learned this the hard way. Once she managed a virtual team for which adequate resources were not provided. She accepted the situation and did not try to change it. When she broke the news to the team that it would have to operate without adequate money for travel, one of the members responded, “Why should I take this team seriously when the company does not?” Sara learned a valuable lesson from this. Now, from the start, she ensures that her team has what it needs to succeed.

**Integrity**

Integrity, the alignment of actions and stated values, creates a foundation for trust. Virtual team members watch and listen to determine whether others act in a manner that is consistent with what they say they will do. For example, team members who promise agreement during a review with top management, then do not act accordingly when the pressure is on, do not engender trust. In a virtual environment, such actions have an even worse effect than they do in a co-located environment, because inconsistencies in behavior often are not explained by environmental or contextual clues.

The perception of integrity complements the perception of performance. It is possible to believe that another person is competent and will perform well but to not believe that the person has integrity. Although there may be trust between two people in terms of getting the work done, there may be less in areas having to do with interpersonal relationships. Some team members find themselves working with people that they can count on to perform the task but whom they do not trust in areas such as acting in alignment with their stated values, taking individual credit for the team’s work, and portraying the team in a positive manner.

The two primary behaviors that indicate integrity in a team are: (1) standing behind the team and all its members and (2) maintaining consistent and balanced communication.
Standing Behind the Team and All Its Members. Integrity has to do, in part, with managing perceptions of team performance. Speaking poorly in public forums about the team’s performance, about other team members, or about the quality of the team’s product can not only destroy the team’s reputation but also signal a lack of judgment and integrity. In a virtual environment, with the lack of other transitional clues about performance, it does not take much negative information to ruin a team’s reputation. Team members who do this, whether inadvertently or not, endanger the trust that other team members feel in them.

Sara does a good job of standing behind her team and its members with management, stakeholders, and other important members of the organization. She finds ways to act as an advocate for the project and for individual team members in good and bad times. She never speaks badly of the team or accepts information that indicates poor member performance or poor team performance without first investigating it thoroughly.

The team has also developed a norm to never send public electronic messages that could be construed negatively by others about the team and its performance. The team has heard of an incident in which one slightly negative e-mail destroyed a team’s reputation. If Sara’s team members have concerns or issues about their team’s performance, they discuss them privately and in a nonbinding format.

Communication. Perceptions of integrity are built into the communication process. Ensuring that all team members receive critical information at the same time can foster integrity. In a virtual environment, it is difficult for team members to ascertain whether they have been systematically excluded by the team leader or other team members or just forgotten. In either case, trust can be eroded quickly when team members wonder if others have integrity.

It also is important that communications show a balanced picture of the situation. Information that makes one party look better than another or that slants results inappropriately can destroy trust. It is best to show both sides of an issue and take time to meet in an interactive session than to have team members wonder whether information is being hidden.

Sara’s team members are conscientious about ensuring that important communications reach all team members at the same time, regardless of their locations. They know that people in remote areas, or in partner organizations, often can feel left out and may believe that they are not communicated with as frequently as are members who are closer to the center of the organization. So Sara’s team members make special efforts to include everyone from remote locations and from partner organizations in audio conferences and video conferences and to take all their comments and concerns very seriously. In addition, team members often check with one another when communicating controversial information, in order to make certain that they are presenting a balanced perception of the situation.
Concern for the Well-Being of Others

We trust people who consistently are responsive to our needs and to the needs of others in the organization. Two aspects of caring that appear to be critical to establishing and maintaining trust in a virtual team setting are (1) transitioning people on and off the team so that their careers are affected positively and (2) understanding the impact of the team’s actions on people inside and outside the team.

Transitioning Team Members. An important aspect of trust is the belief that team leaders and members will display concern for team members who are leaving the team for other assignments. Expressing concern for others includes (1) the leader holding explicit discussions about transitions and (2) the leader and other team members helping one another to find next assignments. Virtual team members frequently remark that the manner in which they are transitioned on and off a team is representative of the trustworthiness of the team’s leader and of the organization’s trustworthiness in terms of managing their careers.

Impact on Others. The second factor under concern for others is the team’s awareness of its impact on other organizations, projects, functions, and remote customers and sites. Virtual teams that are “teamcentric” and exhibit disregard for nonmembers may have difficulty in convincing potential team members and others that they are trustworthy. A team decision that adversely affects another team, project, or function may easily reduce trust in the team.

At the individual level, team members who assess how their behaviors affect other team members most likely will be perceived as having more concern for others. Team members who appear to be insensitive to others’ personal situations and feelings will be perceived as less trustworthy.

In a virtual team, it is more difficult to form close relationships. For example, one virtual team member was embarrassed to find out, after he had asked another team member not to take a planned vacation during a crucial time in the team’s work, that the other team member’s wedding was going to occur during the “vacation.” Because most of the interactions between these two individuals were task focused and conducted by e-mail, little time had been spent in building interpersonal relationships.

Using the Three Trust-Building Factors

The three checklists presented here are tools that virtual team members can use to create and maintain trust. Teams can use the first trust-building exercise during their initiation activities and on a regular basis thereafter. It highlights the
development of team action in the three trust-building factors. The second tool is a trust log that aids in individual understanding and analysis of how one’s promises and actions can affect other team members. The third tool is an example of how elements from the three trust factors can be used to create a trust audit. Team members can use it to provide real-time feedback about how they are feeling about trust issues.

CHECKLIST 7.1. TRUST BEHAVIORS.

Trust Exercise

Instructions: The following steps constitute a one-and-one-half- to two-hour session with a virtual team and its leader to introduce the topic of trust. The exercise is intended to be used in a face-to-face session, if possible.

1. Introduce the topic of trust as an important element of leadership in the team and in the organization.

2. Ask the team members how trust promotes an effective work environment. (Responses may include facilitation of risk taking, learning, creativity, and innovation.) Also discuss the consequences of a low-trust environment.

3. Introduce the three factors of trust: performance and competence, integrity, and concern for the well-being of others. Provide some examples of each.

4. Divide the team into three subgroups. (If the session is being conducted by video conference or audio conference, assign individuals to work on specific trust factors.) Ask each subgroup (or individual) to create a list of behaviors or actions in the team that contribute to trust.

5. Reconvene the total group and discuss the lists.

6. Distribute the trust checklists and review the examples in each trust category. Link these items to the items presented in step 3. Add items if appropriate.

7. Split the team into three subgroups. Assign each group (or several individuals if the session is remote) one of the trust categories: performance and competence, integrity, or concern for the well-being of others. Have the subgroup members discuss the items generated in step 4 and the items in the trust checklist in relation to each of the elements in their category and decide how they could be implemented in the team.

8. Reconvene the total group and have subgroups present their results from step 7. Discuss which items might be implemented quickly and which will be more long term. Assign time frames to actions and accountabilities.

9. Ask each person to work individually to select one item/action from each trust category that he or she will commit to. Ask for volunteers to discuss their actions.

10. Close the session.

11. Follow up on action items.

(continued)
## CHECKLIST 7.1. (CONTINUED).

<table>
<thead>
<tr>
<th>Trust Factors</th>
<th>Examples</th>
<th>My Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance and Competence</strong></td>
<td>Focus on individual and team results.</td>
<td>Keep current in your technical area of expertise.</td>
</tr>
<tr>
<td></td>
<td>Keep promises even if circumstances have changed.</td>
<td>Keep your commitments in cost, schedule, and technical areas. Inform team members well in advance if you will be late in any area.</td>
</tr>
<tr>
<td></td>
<td>Be open to new ideas and methods.</td>
<td>Keep promises even if circumstances have changed.</td>
</tr>
<tr>
<td></td>
<td>Be able to say, “I don’t know.”</td>
<td>Keep your commitments in cost, schedule, and technical areas. Inform team members well in advance if you will be late in any area.</td>
</tr>
<tr>
<td></td>
<td>Allow others to be experts.</td>
<td>Keep promises even if circumstances have changed.</td>
</tr>
<tr>
<td></td>
<td>Foster expertise and sharing on the team—for example, set an agenda item for sharing learnings and establish a project Web page to share learnings.</td>
<td></td>
</tr>
<tr>
<td><strong>Integrity</strong></td>
<td>Align your behaviors at meetings, during reviews, and at other critical times to the values and expectations you want to promote within the team.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Have team members you trust watch you and give you feedback on the consistency of your words and actions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conduct regular trust audits.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>If your actions are not consistent, explain why to your team members.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Do the right thing in the best interest of the team or its members.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be able to say, “I don’t agree” to those above you.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Speak up for what you believe in with the team and with management.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Continue to do the right thing, even in a crisis or firefighting mode.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When appropriate, openly discuss your work-related convictions and values with team members and with management. Have an agenda item about this in team meetings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Keep up to date so that you can catch problems before you have to defend the team or any of its members.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Always investigate problems with the team before commenting to others about possible reasons for them.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Never speak negatively about the team to others.</td>
<td></td>
</tr>
</tbody>
</table>

(continued)
### CHECKLIST 7.1. (CONTINUED).

<table>
<thead>
<tr>
<th>Trust Factors</th>
<th>Examples</th>
<th>My Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Integrity (continued)</strong></td>
<td>Communicate and keep everyone informed about progress.</td>
<td>Hold a regular audio conference, video conference, or other meeting once a week and have an agenda that covers bad as well as good news. Don’t forget people in remote locations and extended team members. Post information and decisions so that everyone has access to them. Ensure that everyone receives information in a timely manner. Use multiple, synchronous, asynchronous, and redundant communication methods.</td>
</tr>
<tr>
<td><strong>Concern for the Well-Being of Others</strong></td>
<td>Help team members with transitions.</td>
<td>Have standard processes for selection, rewards, assignments, and sharing of information that do not favor certain people, functions, cultures, organizations, or locations. Rotate the “good” and “bad” team jobs. Help team members to transition off the team and to new assignments. Assign partners to new team members for orientation and reassignment.</td>
</tr>
<tr>
<td><strong>Be aware of your impact on others.</strong></td>
<td>Be aware that people are watching what you do, especially when you are a team leader. Take your role seriously. Take time to develop interpersonal relationships with team members, especially if team membership is permanent or long-term. Ask someone you trust to describe how you affect others on the team in different situations (for example, in crises or with demanding customers).</td>
<td></td>
</tr>
<tr>
<td><strong>Integrate team needs with other team, department, and organizational needs.</strong></td>
<td>Map how decisions on the team will impact other functional areas. Ask others for their opinions about how the team’s behaviors impact functional areas before implementing changes. Have team members explore this as a team assignment. Keep track of how decisions evolve and how they affect others on the team. Have team members report on how their decisions may affect other team members.</td>
<td></td>
</tr>
</tbody>
</table>
**CHECKLIST 7.2. TRUST LOG.**

*Instructions: All virtual team leaders and members should keep trust logs of items that are important to them and/or to the team. The idea is to select one or more of the trust elements from the checklist and to begin to explicitly track actions, words, and decisions and their consequences in terms of creating a foundation for trust, building trust, and maintaining trust. This written record can help each individual to weigh the consequences of actions, words, and decisions. It also facilitates sharing information with others.*

Sample items from a team leader’s trust log are provided below. You can construct one for your own use and/or for the entire team.

**Sample Trust Log**

<table>
<thead>
<tr>
<th>Trust Area</th>
<th>Situation</th>
<th>Actions, Words, Decisions, and Consequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keep</td>
<td>I told all members of the core team that they would be able to attend major customer reviews and that everyone would have a role in presenting the product. The original schedule was for early March, when there was plenty of travel money. The client is located in Santa Clara, California. Team members are from around the world. The presentations are now scheduled for late November, and travel money has been cut. There is only enough money for the team leader and the lead technical person to present in person. Not everyone in the team likes the lead person. Team members have really sacrificed for this project. They were looking forward to attending.</td>
<td>I should never have promised this, but it was the right thing to do at the time with the information I had. I need to ensure that everyone understands the situation and has his/her contributions recognized with the client and with his/her management. Actions: 1. Have everyone sign the final product. 2. Write letters of commendation to all team members’ managers, the team members, and the client. Copy other important people. 3. Consider a video-conference report with the client, with team members on-line. 4. Explain to the team in a face-to-face or electronic meeting the situation and my feelings about it. 5. Plan a success party and honor team members.</td>
</tr>
</tbody>
</table>
CHECKLIST 7.3. TRUST AUDIT.

A trust audit is a useful way to obtain real-time and/or ongoing feedback about actions that are important to the virtual team. After the team has determined items that are meaningful to it from the trust checklist, questionnaire items can be constructed that provide the team and its leader with feedback on how the team is doing. The questionnaire can be put into an e-mail format and administered on a regular basis. The results serve as a point of departure for the team members to debrief how they are performing in each trust area.

New items can be added as the team matures and as new issues arise. Rotating the responsibility for summarizing results and leading the team’s debriefing and action-planning session can give everyone a sense of participation in building trust. When debriefing, use an agenda that everyone has agreed to and be certain that all responses remain anonymous and that all items are thoroughly discussed and resolved. No item or response is too minute or unimportant to be addressed.

If debriefing sessions are conducted by audio conference or video conference, schedule at least two hours. If necessary, obtain the help of a meeting facilitator. Always find a way to follow up on actions in a timely manner.

An example of items from a trust audit is shown below. It is not necessary to have a large number of items. Instead, pay attention to creating a questionnaire that is meaningful, easy to respond to, anonymous, and focused on the team’s unique concerns and issues.

Example of Areas for a Trust Audit

Trust Element: Keep Commitments and Show Results

1. Team members meet all deliverable cost and schedule requirements.

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Some of the time</th>
<th>Most of the time</th>
<th>All the time</th>
</tr>
</thead>
</table>

2. In this team, we notify one another if we can’t meet our commitments.

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Some of the time</th>
<th>Most of the time</th>
<th>All the time</th>
</tr>
</thead>
</table>

3. This team does a good job of posting commitments on the network when they affect the team.

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Some of the time</th>
<th>Most of the time</th>
<th>All the time</th>
</tr>
</thead>
</table>

4. When circumstances change, all team members hear about it in a timely manner.

<table>
<thead>
<tr>
<th>Never</th>
<th>Once in a while</th>
<th>Some of the time</th>
<th>Most of the time</th>
<th>All the time</th>
</tr>
</thead>
</table>

Trust Radius

Shaw created the concept of a trust radius that is analogous to the human eye taking in light. When the human eye takes in light, the pupil expands. The more light that enters the eye, the larger the pupil in relation to the iris. A person’s trust ra-
dius also increases as he or she takes in team members, partners, and sponsors from across traditional boundaries.

A large radius of trust means that people are willing to trust others who are not from their own locations, cultures, functions, and organizations. The virtual team, at least initially, reflects the trust radius that each member brings to the team. For example, one of the authors had a recent experience working in a virtual team with members from an external consulting firm. At the end of each day, team members would send their work to members of the consulting firm, who would integrate it with previous work and send it back the next day. The integrated work almost never looked the same as the original. The author felt as if her efforts and the other team members’ efforts were not being fairly represented. This affected her trust in the members of the team from the consulting firm. Such an experience could decrease a person’s radius of trust with other external partners.

It is up to the team to help to expand the trust radius of each individual team member and, by doing so, of the whole team. The activity in Checklist 7.4 allows a team to examine its trust radius and to make plans to expand it.

**Trust in a Multicultural Context**

The three factors in trust—performance and competence, integrity, and concern for the well-being of others—appear to be acceptable to individuals in most cultures. The authors’ projects with multicultural organizations—such as the International Space University\(^7\) and the United Nations—address issues related to

![Figure 7.1. Traditional Trust Radius.](source: Adapted from R. Shaw, *Trust in the Balance*. San Francisco: Jossey-Bass, 1997. Used with permission.)
trust (in these organizations, not between cultural groups). In both cases, all cultural groups accept the three factors as meaningful and important. The ways in which they are enacted and perceived, however, are affected by cultural influences. For example, there is the possibility that individuals from more collective cultures may believe that concern for others and certain aspects of integrity, such as standing up for the team, are more important than performance and competence. Because collective societies have a stronger focus on the importance of relationships, trust may be influenced more by factors related to building and sustaining relationships.

**Power Distance**

People from high-power-distance cultures may have more of a tendency to accept that decisions will be made by higher-status individuals on the team without
consultation with other team members. This can erode trust with members from low-power-distance cultures, who expect to work and make decisions more participatively and to be consulted about decisions. When they are not, they may perceive a lack of concern for or trust in them or their perceived competence.

CHECKLIST 7.4. DEFINING YOUR TEAM’S TRUST RADIUS.

This exercise provides virtual team leaders and team members a way to begin to discuss how each team member’s experience and background affects his or her trust radius. The idea is not to develop a definitive statement about each team member’s radius but to use what each person reveals as a starting point for a team discussion about trust.

This exercise can be used by a virtual team leader at the team’s orientation session or at one of the follow-up sessions. It can be conducted on-line if the team uses an electronic whiteboard or collaborative groupware with graphics capability. It can be conducted in an audio conference if each team member has faxed his or her trust radius to the others prior to the session. It also can be conducted in a face-to-face setting and is probably preferable in that mode if team members are just getting to know one another.

Instructions: Have each team member draw three circles on the following template that best characterize the radius of team membership in their last three project or work teams (the circles farther out indicate a larger trust radius than those closer to the middle). Have team members use solid lines to represent their most recent teams, dotted lines to represent their next most recent teams, and lines with arrows to represent the teams before that.

Next, lead a team discussion about what the current team’s trust radius needs to look like. Does this team need a large trust radius or a smaller one? Who should be included in that radius (other teams, partners, other individuals or groups)? After the team has reached agreement, draw that radius on each team member’s worksheet, using two double lines.

Have each team member compare his or her previous trust radii with the trust radius required for the current team. Lead a team discussion with the following questions:

1. Is the current team’s trust-radius requirement larger or smaller than your previous teams’ requirements? ________________________________

2. If it is larger, who is included now who was not included by the previous teams? ________________________________

3. What are the implications for building trust in this team? ________________________________

4. With whom do we need to network and build bridges? ________________________________

5. What are the implications for getting to know more about one another? ________________________________

(continued)
Uncertainty Avoidance

The cultural dimension of uncertainty avoidance has to do with how comfortable people are in ambiguous situations. People from cultures with high uncertainty avoidance may tend to feel and act anxious in uncertain or unknown situations. People from cultures with low uncertainty avoidance may easily misinterpret this anxiety as low trust in their or other team members’ abilities or competence. In fact, the anxiety may have more to do with a need for structure. Helping individuals from high-uncertainty-avoidance cultures to feel comfortable may involve paying closer attention to predictability—developing written rules, procedures, and structures, especially in the beginning stages of the team’s life.

Individualism–Collectivism

Individualistic cultures tend to value autonomy; collective cultures place the needs of the group before those of the individual. People from cultures that are strongly individualistic are more likely to expect to look after themselves than are individuals from cultures that are strongly collective. As a result, their expectations of the team leader in terms of assistance with career development, coaching, and communicating with management may differ, depending on their cultural backgrounds.

In general, team members from more collective cultures expect more interaction and relationship-focused behavior than team members from individualist cultures. Keeping in touch with other team members and finding out about their

CHECKLIST 7.4. (CONTINUED).

Following this discussion, review what team members can do to build trust with one another. Use the trust checklist in this chapter as a guide.

Trust-Radius Worksheet

lives may be perceived as appropriate in more collective cultures and as inappropriate in more individualistic cultures. When team members from individualistic cultures do not do this, they may be perceived as having less concern for others. Behaviors such as taking individual credit for the team’s output and speaking inappropriately of other team members probably have a negative impact on trust in any culture. In a collective culture, however, they may be more damaging. It is possible that trust in collective cultures is based more on showing concern for others and acting with integrity than it is in individualistic cultures. Individualistic cultures, whose members see themselves working as individuals within the team, not as tightly linked with the team’s or another team member’s identity and history, may focus less on, and place less value on, the relationship aspects of trust.

**Long-Term Perspective Versus Short-Term Perspective**

A long-term perspective is evidenced in the tendency to display perseverance and thrift. A short-term perspective may be evidenced in the tendency to make decisions that are profitable immediately. The tension that arises between these two ways of looking at things can cause distrust in a team if certain members are seen as compromising the future to look good in the short term, while others are seen as having no sense of urgency or risk taking. One way to solve this is for the team to agree to make all short-term actions and decisions based on the longer-term perspective; in other words, keeping both perspectives in mind all the time.

**High Context Versus Low Context**

Context has to do with people’s preferences for the amount and type of information in the communication process. People from high-context cultures prefer more information and detail than people from low-context cultures do. It is possible that requests for information that originate from a high-context team member about a low-context team member’s idea or plan may be misinterpreted. The low-context team member may see the need for more information as irrelevant. Worse yet, it may be perceived as an insult to his or her competence and as a signal that the high-context team member does not trust him or her. A preference for more information-rich communication may be interpreted as distrust.

**The Impact of Technology**

Although there has not been extensive research on the topic, it is clear that technology interacts with the three trust factors. First, technology can be used to send subtle messages about who is considered to be a high performer and who is not.
High performers on teams tend to send more one-on-one electronic messages than low or moderate performers do. They also tend to send more one-on-one messages to other high performers than to low-performing team members. This formation of electronic “in groups” can communicate who is perceived as competent and who is not. Being left out of one-on-one communication patterns could indicate that a team member is perceived as less competent than others.

Second, technology can be used to facilitate the integrity of team processes and decision making. The integrity of team members’ opinions and ideas can be preserved using groupware with anonymity features, especially when the team members are discussing topics on which there may be disagreement or when one or two team members may be in the minority. This technology allows all opinions to be voiced without fear of recrimination. Scheduling software and similar features also facilitate timely follow up and the feeling that other team members are meeting their commitments. Electronic distribution lists make it easy to get the same information to everyone in a timely manner.

Third, because virtual teams operate in isolated environments rather than in social ones, there is less need for social posturing than in traditional settings. This may, however, create a tendency to display less concern for others. It is not uncommon for team members to ignore social mores and make blunt remarks that would never be uttered face to face or even over the telephone. One study showed that computer-mediated groups communicate more negative messages than face-to-face groups do. Teams should guard against this and reserve criticisms and challenges for face-to-face meetings (or, at least, audio conferences) so that they are not misconstrued. As mentioned earlier, just one negative e-mail message from a team member early in the team’s life can destroy the trust that the team has in this individual for a long time.

Points to Remember

1. Developing trust is a critical activity early in the life of virtual teams.
2. Trust depends on three factors: performance and competence, integrity, and concern for the well-being of others. These factors apply across cultures but may be interpreted differently in different cultures.
3. A virtual team’s trust radius needs to be larger than a traditional team’s.
4. The use of technology has implications for trust building in virtual teams.
PART THREE

MASTERING VIRTUAL TEAMS
Knowing how to facilitate and lead meetings is an essential skill for anyone in business. All groups need to share information, coordinate, collaborate, discuss, make decisions, and produce products.

Tom Peters, in *Liberation Management*, points out that groupware and other technical tools will change idea-generation and problem-solving processes forever.¹ The right technical tools enhance our ability to share concepts, merge ideas, and use synergy to accomplish our goals. They also give us the option of interacting synchronously or asynchronously. Meetings can occur over a number of hours or days, and team members can attend the same meeting at different times. “Store and forward” technology allows us to hold a video conference in China one day and “ship” the entire meeting, video and data, to Brazil in time for the next business day.

However, meetings always will be composed more of people than of technology. Virtual team leaders and members need to learn and use facilitation techniques that work for virtual teams. Technology cannot make up for poor planning or ill-conceived meetings. In fact, it can make the situation worse.² Without proper facilitation, virtual teams that meet on an ad hoc or short-term basis, such as virtual network and parallel teams, exchange information much less effectively than face-to-face teams do.³

Effective facilitation can help to ensure that relationships between team members, as well as productive patterns of interaction, develop and are nurtured so
that they continue. Over time, with the proper selection of technology and effective facilitation, the exchange of information and the decision-making processes in virtual teams can be as effective as, or more so, than those of face-to-face teams.4,5

Who Does What in a Virtual Meeting: Four Roles

Szerdy and McCall present four roles that are relevant for all virtual meetings: owner, facilitator, participant, and technology.6 Depending on the purpose of the meeting, some roles may overlap. The owner of the meeting also may be a participant. Often, the owner takes the role of facilitator. However, it is useful for clarity to outline each role discretely.

Owner

The owner or client defines the objectives and outcomes of the meeting. He or she determines who should participate and the types of background information that the participants will need. In addition, the owner should work with the facilitator to develop the agenda, select the technology to be used, and conduct the meeting. During the meeting, the owner should interact with the facilitator (if one is present) to ensure that the objectives for the meeting are met and that necessary decisions are made. Finally, he or she must decide the best way to follow up with next steps and action items.

Participant

The second role is the participant. Participants need to take responsibility for preparing for the meeting, including reading the background material and becoming familiar with the technology to be used. During the meeting, participants should be willing to speak out (or respond using electronic methods) as well as to listen and consider the ideas of others. In remote meetings, it is easier to “hide” than it is in face-to-face meetings. The participants must take active responsibility for making suggestions and decisions as well as for following up on meeting actions.

Facilitator

The facilitator is the person who conducts the process of the meeting. In a virtual meeting with members at remote locations, this role involves more technology than in a face-to-face meeting. The facilitator matches the technology to the goals
of the meeting and to the items on the agenda, tests the technology prior to the meeting, and checks the technology throughout the meeting.

In addition to selecting the technology, the facilitator is responsible for the meeting process. Process considerations for virtual team meetings are similar to those for face-to-face meetings and include:

1. Understanding the desired meeting outcomes and matching the agenda to them
2. Communicating the agenda and meeting process
3. Keeping the group focused and moving through the agenda during the meeting
4. Modifying the agenda, if necessary, and removing barriers to success, such as nonparticipation by some people
5. Addressing issues of team dynamics during the meeting
6. Summarizing decisions and actions to be taken and reviewing the effectiveness of the meeting at its end

**Technology**

The final role is that of technology. It cannot be overemphasized that technology should serve the meeting, not dominate it. Technology enables virtual team members to meet and to accomplish what would be difficult or impossible without it. It should increase productivity. Technology should not be in the way when it is not needed or is inappropriate. During meetings that use real-time data-conferencing systems with text and graphic support, for example, there are times when the facilitator may ask the participants to stop typing and to just talk with one another. (In some cases, where the technology is complex, a separate facilitator, or “technographer,” is sometimes used to focus solely on the technology. This frees the facilitator to focus on meeting process.)

**What Is Done in a Virtual Meeting: Three Activities**

All virtual meetings require three types of activities:

1. Selecting the appropriate technology and type of interaction (real time or asynchronous), given the purpose of the meeting
2. Planning for “people issues” (such as who will participate), scheduling the meeting around the availability of the participants, and dealing with meeting logistics
3. Developing an effective agenda and facilitating the effective use of technology
Selecting the Appropriate Technology and Type of Interaction, Given the Purpose of the Meeting

One of the primary determinants in selecting technology is the level of interaction a meeting demands. The purpose of getting people together in a meeting can vary from just catching up to producing deliverables. There are four major types of meetings:

1. Information-sharing meetings, in which information is shared and discussed among team members. Such meetings can range from one-way presentations to multiple-path exchanges of information. Examples are regular progress reviews and updates.
2. Discussion meetings that include the exchange of information but also promote dialogue, the generation of ideas or options, and discussion of issues or problems. Such meetings include discussions about technical approaches to problems and discussions about system issues, plans, and policies.
3. Decision-making meetings, in which issues are discussed and decisions are made collaboratively. An example is a meeting in which a final decision is made about a project schedule, technical approach, or policy.
4. Product-producing meetings, in which “hands-on work” is done and tangible products are produced, such as the analysis of data or work on a document or engineering design. These meetings require the most collaboration.

Categorizing meetings on a continuum of low to high interaction can be useful in deciding what technology would be most effective for a particular type of meeting.

<table>
<thead>
<tr>
<th>Low Interaction</th>
<th>Moderate Interaction</th>
<th>High Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice mail</td>
<td>Electronic bulletin board</td>
<td>Real-time data conference with audio/video and text/graphic</td>
</tr>
<tr>
<td>E-mail</td>
<td>Chat rooms</td>
<td>Whiteboards with audio/video link</td>
</tr>
<tr>
<td></td>
<td>Video conference</td>
<td>Electronic meeting system (EMS) with audio/video and text and graphic support</td>
</tr>
<tr>
<td></td>
<td>Audio conference</td>
<td>Collaborative writing tools with audio/video links</td>
</tr>
<tr>
<td></td>
<td>Real-time data conference</td>
<td></td>
</tr>
</tbody>
</table>

TABLE 8.1. MEETING-INTERACTION CONTINUUM.
An example from Sara’s experience illustrates the waste of time that can result from selecting inappropriate technology.

Sara just got out of a meeting that was supposed to be a regular progress review with her team. One team member had talked her into testing a new type of Web-based electronic meeting system that her organization had just started to use. The system looked great during the demonstration and had more functionality than the systems Sara was used to. It allowed team members to brainstorm anonymously, to categorize and prioritize their ideas, and to vote on the best ones. It also allowed team members to turn on and off anonymity as they desired, so that if people’s opinions were important, team members could know who said what. It allowed team members to move documents from shared databases in and out of the system.

A person from the IS group who had just been trained on the system helped Sara with the technical part of the session. He did a good job before the meeting in working with Sara to develop an agenda and with the team members to prepare them to use the software. He handled the technology during the session. Sara thought that if her team members worked with him long enough, they would be able to plan and facilitate their own sessions.

Unfortunately, the agenda and the technology turned out to be too complex for the purpose of the meeting. In trying to use all the capabilities of the EMS, her team wasted valuable time. Although the team members had fun using the system, they complained that the process was not really adding value. Brainstorming, prioritizing, and voting on each section of the report was too complicated, given the purpose of the meeting. In addition, the topics were not controversial enough to warrant anonymity. A simple audio conference would have done the job. The team members could have received materials via e-mail prior to the meeting, reviewed them, sent their comments back to Sara, and then discussed issues and next steps during a one-hour telephone conference. Even though Sara wants to draw out some of the more quiet members of the team, this was not the way to do it. Sara wants to use the EMS again, but this time she will select a more appropriate meeting.

Sara’s experience can teach us the following lessons:

1. Be clear about the purpose of the meeting. Is it to share information with two-way dialogue and discussion, to generate ideas and discuss them, to make a decision, or to produce a product?
2. Don’t overcomplicate the situation. Select the simplest technical solution, given the purpose of the meeting. The technology and the agenda should support the purpose of the meeting, not the other way around.
3. Don’t try out new technology during an important and time-critical session. Test new technology yourself before you subject the team to it.

From these learnings, we can construct a decision matrix that allows a team to match the technology to be used to the goal of the meeting. It allows the team
<table>
<thead>
<tr>
<th>Type of Technology</th>
<th>Information Sharing</th>
<th>Discussion and Brainstorming</th>
<th>Collaborative Decision Making</th>
<th>Collaborative Product Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice mail</td>
<td>Somewhat effective</td>
<td>Not effective</td>
<td>Not effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>Audio conference</td>
<td>Effective</td>
<td>Somewhat effective</td>
<td>Somewhat effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>E-mail</td>
<td>Effective</td>
<td>Somewhat effective</td>
<td>Not effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>Bulletin board</td>
<td>Somewhat effective</td>
<td>Somewhat effective</td>
<td>Not effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>Real-time data conference</td>
<td>Effective</td>
<td>Somewhat effective</td>
<td>Not effective</td>
<td>Somewhat effective</td>
</tr>
<tr>
<td>(no audio/video)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video conference</td>
<td>Effective</td>
<td>Somewhat effective</td>
<td>Effective</td>
<td>Not effective</td>
</tr>
<tr>
<td>without shared documents</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real-time data conference</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
</tr>
<tr>
<td>with audio/video and text and graphics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electronic meeting system</td>
<td>Effective</td>
<td>Highly effective</td>
<td>Highly effective</td>
<td>Effective</td>
</tr>
<tr>
<td>with audio/video and text and graphics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaborative writing</td>
<td>Effective</td>
<td>Effective</td>
<td>Somewhat effective</td>
<td>Highly effective</td>
</tr>
<tr>
<td>with audio/video</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
to rate the effectiveness of each meeting technology on a continuum from not effective to highly effective, given the goal of the meeting.

The general rule is that for meetings that require rich discussion to gather or generate unique and new information, use synchronous methods with a number of information-rich communication channels, such as a video conference with text and graphic capabilities. Synchronous methods work best when the issue is ambiguous and cannot be solved using data alone. The potential for conflict and the need to debate and discuss different approaches or methods are indicators that real-time conferencing is the best option. In extreme cases, where issues are highly emotional or ambiguous and when the team is newly formed or short lived, none of the technologies listed might be appropriate. In such a case, if possible, schedule a face-to-face meeting.

Asynchronous meetings are appropriate if team members need time to ponder or consider an issue or if they need time to collect additional information in order to make recommendations or finish a product. Asynchronous meetings also work best if the issue is rather clear-cut and can be solved using data. Simple idea generation can be accomplished using asynchronous methods such as bulletin boards.

Planning for “People Issues”

Virtual meetings need participants. The team leader (perhaps with the assistance or guidance of the facilitator) selects the attendees, schedules the meeting, and attends to meeting logistics.

Selecting the Participants. Because communication and collaboration technology can allow us to interact with more people than face-to-face methods can, and because people do not have to travel to participate, the temptation often is to invite all team members, stakeholders, and partners to every meeting. This is a mistake.

First, even though collaboration is important, sometimes everyone does not have to know everything at the same time. The team leader should decide who should have access to what information and when.

One team was working out a technical problem using a real-time data-conferencing system when its customer joined the meeting and reviewed some of the work. She was furious when she detected what she believed to a potential slip in the schedule about which she had not been informed. She described the project and team as “out of control.” In reality, the conference communication did not tell the whole story, and the problem was immediately solvable. It took the team a long time to recover from this, and the customer remained somewhat suspicious throughout the rest of the project.
Explain to those who are not invited to attend why it is not a good idea for them to attend and when (or if) they will receive information from the meeting. If the client or owner is not invited, make sure that this person knows when he or she will receive the results of the meeting.

Second, because people don’t have to travel, it is easy to assume that team members always have the time to attend all meetings. During the planning phase of the team, decide—as a team—who will attend which meetings and for which meetings attendance will be optional. That way, there will be no surprises. Some teams create a folder on a team Web site in which important documents and other information are kept so that people who do not attend meetings can keep up-to-date on decisions that affect the team.

**Scheduling the Meeting.** An electronic group calendaring and scheduling system should be part of any virtual team’s technology package. The use of such a system can save the team’s leader or facilitator days of effort in trying to coordinate people’s schedules. The following are the steps taken to schedule a meeting using a scheduling system:

1. After you identify who should attend the session, create a preliminary agenda or, at a minimum, a list of desired outcomes. Determine how long it will take to work through the agenda. Also determine whether the meeting will be synchronous or asynchronous. If it will be asynchronous, notify the attendees about the periods of time in which you want them to “attend” the session or to conduct an activity, such as to review and comment on a document.

2. If the meeting will be synchronous, select a time for the meeting. This should include starting and ending times. Be aware that scheduling systems are sometimes tricky to use across time zones. The person who is scheduling the meeting should be cognizant of differences in time zones and should not schedule any team members to attend in the middle of the night! Most scheduling systems offer a composite of schedules for all possible attendees. After a time is selected, an icon will appear next to each person’s name. Most systems also contain an automatic time-selection feature that determines the first available time slot for everyone on the team.

3. Send a notice about the meeting to each person who is selected to attend. Ask the potential attendees to respond to you by a specific date about whether or not they can attend.

**Dealing with Meeting Logistics.** Although we tend to ignore logistics because they are boring, they can make or break a meeting. If the agenda is not distributed before the meeting, the participants are likely to be ill-prepared to discuss
agenda items. In addition, not anticipating issues regarding systems compatibility or the unreliability of hardware and software can quickly ruin a meeting.

The agenda sent out prior to the meeting should inform the participants about what they will be expected to contribute during the session. Tell them whether you expect a high degree of participation or their input on one or two issues. If possible, let each participant know what his or her specific role will be. Regularly scheduled meetings should have standard agendas so that everyone knows what to expect.

If materials are distributed for preparation or prework, tell the participants how the materials will be used and whether any items are to be reviewed and returned to you and by when. Let people know where to find information they need on Web sites. If documents will be discussed during the meeting, especially during an audio conference or video conference, make sure that pages and important sections are well labeled so that people will not be flipping through documents trying to find the appropriate pages. It is a good idea to label page or section numbers on the agenda. If materials will be printed from e-mail files, use hard page breaks so that people who have different printers will be looking at the same pages. There is little that is more frustrating than to be disagreeing about a point and find out that you are referring to different pages.

If the meeting deals with a detailed review of a document or product, gather as much information about people’s reactions as possible prior to the session. Collect answers to questions you can anticipate before the meeting so that you can summarize reactions and direct the conversation. This way, if there are strong commonalities and themes, they can be reviewed but not become the focus of the meeting. The focus can be on areas or ideas that need more discussion. Virtual meetings, like face-to-face meetings, if not properly planned, run the risk of just rehashing old information.

Ensure that all team members have access to and are comfortable with the technology that is needed for the meeting. Make sure that attendees have the right hardware and software configurations; make a list ahead of time and send it to them. Schedule training and provide technical support, especially for people who are not experienced in using the technology. After several meetings, the team members may be able to handle the technology on their own.

Ask for a demonstration prior to selecting a new technology and test it again one or two hours before the actual meeting, so that you have time to work out any problems. Also, have a backup plan for each site in case of technical problems.

When introducing a new technology, it is a good idea to consult with someone who is an expert in using the system prior to the meeting to plan the best way to use the system. Never assume that everything will work well. Check to see that any technologies you plan to use are compatible with one another. Some
technologies, such as EMS, whiteboards, and collaborative authoring are used less frequently by many virtual teams than other forms of collaboration, such as e-mail. Today, although compatibility is improving, there is not one single technology that will interface with and support all the components desired (such as different data, graphics, and video) in all types of meetings. Be aware of any differences in the participant’s computer monitors. Some people may have slightly different displays than others and may become confused when they are not viewing the same information as everyone else.

Developing an Effective Agenda and Facilitating the Effective Use of Technology

Although academic research and practical experience regarding virtual teams is still maturing, it is possible to discuss what is known about virtual team meetings, with a focus on maximizing the exchange of information and discussion of ideas.

What Is Known

Factors That Influence Meeting Effectiveness. Four factors appear to affect the exchange of information in virtual meetings. First, people must remember what they want to say. This is affected by how familiar they are with the information, how much information is involved, and factors such as their individual preferences. Most of us find it easier to remember what we agree with and are familiar with. Also, people tend to remember what they have heard most recently.

Second, there must be an opportunity to contribute to the group discussion. Time constraints affect this. Everyone has had the experience of running out of time in a meeting and not getting to the part of the agenda in which one is most interested. Communication channels also affect the opportunity to contribute. Situations in which only one person can speak at a time limit the exchange of information. Audio conferences also limit nonverbal feedback between participants.

Social status is the third factor that affects the exchange of information. Often, people who have higher status, such as managers, dominate conversations in meetings. Social status also may relate to cultural dimensions. For example, individuals from high-power-distance cultures may feel more inhibited about participating when people of higher status, such as managers, are participating in a meeting.

Finally, people must have the motivation to participate. Most people find it difficult to be motivated to offer input or new information that is counter to the primary sentiment of the group. It takes energy to contribute if you know that
your opinion is going to be in the minority. Also, an opinion that is offered first often dominates the entire meeting, which makes it difficult for others to offer conflicting ideas. People can lose motivation very early in a meeting when they realize that their views will likely not be heard, let alone discussed. People who are not committed to the team or who have conflicting priorities also may not be motivated to contribute to the meeting.19

Finally, if a person contributes and then is ridiculed or punished in some way for voicing a dissenting opinion, that person will not be motivated to participate in the future. Anonymous procedures, such as balloting, can be used when discussion topics are very controversial, in order to ensure that each team member provides input.

How These Factors Affect Virtual Team Meetings. The total amount of information exchanged in virtual teams (especially in newly formed ones) is often less than that exchanged in face-to-face groups.20 Communication channels often limit the opportunity to offer input. The absence of nonverbal clues during audio conferences and other electronically mediated meetings limits communication and inhibits the normal give-and-take of face-to-face conversation. If team members are typing their comments during a virtual meeting, the opportunity to provide information is limited by their typing speeds. In teams with members who speak different native languages, issues arise around accents and jargon, the ability of some individuals to type quickly in their nonnative language, and a general apprehension about jumping into a conversation when the majority of participants may not understand you.

Virtual teams also can find it more difficult to coordinate their activities and to exchange information than co-located teams do.21,22 It takes more effort and motivation by a virtual team to reach understanding and complete tasks than it does for a co-located team. Virtual teams run the risk of spending more time talking about the procedural aspects of a meeting, such as where the team is on the agenda, than traditional teams do.23 This may lead to less opportunity to input and less motivation to do so as participants become tired of focusing on procedural topics.

The good news is that, especially for virtual team members who work on a long-term basis, select the right technologies and agendas, and become familiar with one another, some of these problems can disappear or be overcome.24,25 With the right task, agenda, and facilitation, virtual teams can actually surpass co-located teams in many areas.

Obtaining facts and reminding people of decisions made in earlier sessions can increase recall and move a meeting along. Real-time access to databases, search engines, articles, and other information prior to and during meetings can help team members to remember previous decisions and to resolve disagreements.
These features often are present in Web-based conferencing tools and other groupware products.

One team, working at the headquarters level on a policy issue, had developed a strategy that it thought would address a competitive threat. Some team members seemed to remember a similar strategy that was developed earlier by a field operation but was not accepted by upper management. The team was able, online, to search and access from the company’s resource library, the recommendations from the previous group. It reviewed the results and realized that it was reinventing a strategy that had proved ineffective.

Virtual team members can have the opportunity to participate more openly and fully than co-located team members. Under the correct conditions, such as using EMS groupware with anonymity features, virtual team members express more extreme views and unique ideas and can contradict one another more than team members who are meeting face to face, perhaps because they feel less social pressure.

Another team, tasked with developing market projections, used groupware to raise concerns during a meeting about market projections in Asia that were much more discouraging than those revealed during a face-to-face, sales-planning session with top management. When they were face-to-face, the team members were uncomfortable providing “bad news.” Team members from collective cultures and those from high-power-distance cultures are generally more able to provide divergent ideas in remote meetings than in face-to-face meetings. This is important, because divergent thinking is desirable for generating new and unique ideas and for identifying problems hidden in existing ideas.

Electronic polling systems, which often are features of EMS, are useful in the middle of a meeting to redirect discussions. They can assist at any time in making immediate decisions. Having team members anonymously criticize ideas or rate a topic improves decision quality as social pressure is diminished. Electronic polling systems also can motivate members to make decisions that may be too painful to make face to face. A decision about closing a facility or dropping an unprofitable product line can be made anonymously. Polling can also demonstrate agreement on the team and can help a group to get past unnecessary debate and discussion.

Using technology to more effectively structure collaborative tasks is another gain that virtual teams may realize. Group editing of a document, for example, can be structured in three different ways: (1) sequentially (the document is passed from person to person); (2) parallel (a part of the document is worked on by different authors and reassembled electronically); and (3) reciprocally (collaborators work to create a common document, edit it together, and adjust it in real time). The use of electronic document-authoring tools to perform the latter two
options, along with a tightly structured agenda, makes these editing options possible. The technology can produce significant gains in productivity over the usual process of passing a document from person to person. These gains exist, in part, because the technology facilitates a process in which team members have a structured opportunity to contribute. Motivation is increased because participation increases ownership of the final product.32

These findings, and lessons from experience, have implications for the ways in which team leaders and facilitators plan and carry out virtual team meetings.

Plan the Agenda Carefully and Link the Use of Technology to Specific Agenda Items

The meeting owner and facilitator must know what the meeting is to accomplish—a decision, a plan, a document, a product, and so on. In the agenda, map how you will use the technology to achieve each result. Teams that use collaborative writing tools, for example, gain from using a structured process that links the use of specific electronic tools to activities in the agenda.33 Generating the document outline, for example, is linked to the use of a group outlining tool. Feedback and discussion about the outline then connects with a collaborative-annotation or a parallel-discussion tool. The participants must perceive how the use of technology is related to specific outcomes and activities; otherwise they may perceive it to be a waste of time.

Table 8.3 shows a format that can be used to link agenda items to the use of technology during a meeting. It also shows how agenda items and technology relate to the four factors that facilitate the exchange of information in a virtual setting. The table uses agenda items as the anchor and then links the meeting process to the agenda item. Meeting process refers to factors such as who will participate in what activity. The third column lists the technology that might be used to accomplish the agenda item using the selected process. The fourth column provides a final check by listing how the agenda, process, and technology work together to facilitate the four factors associated with successful virtual team meetings: (1) recall; (2) the opportunity to input; (3) reduced social pressure; and (4) motivation. Technology and processes that consistently do not contribute to any of these factors should be reconsidered carefully.

Use Technology to Maximize the Contribution of Every Team Member

Technology should increase a participant’s ability and motivation to recall and contribute relevant information and opinions. It should also reduce social pressure and increase motivation. Structure the agenda and the technology to maximize
## TABLE 8.3. EXAMPLE OF A PLANNING FORMAT FOR ALIGNING AGENDA, GROUP PROCESS, TECHNOLOGY, AND FACILITATION GOALS.

<table>
<thead>
<tr>
<th>Agenda Item</th>
<th>Process</th>
<th>Technology Selected</th>
<th>Facilitation Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose of meeting: Identify trends that affect strategic plan.</td>
<td>Introductions</td>
<td>Audio conference and EMS</td>
<td>Increase opportunity to input Reduce social pressure Increase motivation</td>
</tr>
<tr>
<td>Introductions</td>
<td>Round-robin introductions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify trends that affect business in the future</td>
<td>Identify trends that affect business in the future</td>
<td>Use anonymous parallel-input feature that allows people to see everyone else’s input on the screen</td>
<td>Increase opportunity to input Increase recall of information Reduce social pressure</td>
</tr>
<tr>
<td>Begin prioritization of items listed</td>
<td>Begin prioritization of items listed</td>
<td>Use commenting tool and ranking</td>
<td>Increase opportunity to input Reduce social pressure</td>
</tr>
<tr>
<td>Discuss new list</td>
<td>Discuss new list</td>
<td>Topic commentator in EMS Audio/video link</td>
<td>Increase opportunity to input Increase motivation</td>
</tr>
<tr>
<td>Use new prioritized list as a beginning, adding any items</td>
<td>Use new prioritized list as a beginning, adding any items</td>
<td>Use EMS anonymous brainstorming Use bold to highlight new items</td>
<td>Increase opportunity to input</td>
</tr>
<tr>
<td>Sort top ten items into categories</td>
<td>Sort top ten items into categories</td>
<td>Use EMS organizer feature</td>
<td>Increase recall of information Reduce social pressure</td>
</tr>
<tr>
<td>Agenda Item</td>
<td>Process</td>
<td>Technology Selected</td>
<td>Facilitation Goals</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Rate each of the categories regarding importance vis-à-vis future trends</td>
<td>Use multicriteria evaluation process</td>
<td>Use multicriteria evaluation process</td>
<td>Reduce social pressure Increase opportunity to input</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Decide how confident the team is that these are the correct themes or categories</td>
<td>Ask team members for vote of confidence if these are the correct themes or categories</td>
<td>Use EMS voting</td>
<td>Increase recall of information Increase opportunity to input Reduce social pressure</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discussion</td>
<td>Discuss results of voting</td>
<td>Use audio/video link</td>
<td>Increase opportunity to input Increase motivation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close and plan next steps</td>
<td>Ask participants to volunteer for follow up, such as distributing minutes and reviewing results with local management Set follow-up date</td>
<td>Use audio/visual link Use e-mail for follow-up</td>
<td>Increase motivation and “buy in” to results</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
these factors. If there is a large amount of information to cover, have databases or other supporting information available on-line to enhance recall. Use anonymity features when trying to encourage generation of new ideas and risky thinking or when social pressure might be an issue. Use anonymous voting to obtain views about a topic or idea, to discover how comfortable people are with a plan, and redirect the agenda. Increase people’s motivation by using tools, such as group document editors, that allow everyone to participate in a timely manner and, if possible, according to their own schedules.

Table 8.4 offers suggestions for leveraging technology to facilitate recall, contribution, and motivation and to reduce social pressure.

**Use a Series of Topics and Subtopics in the Agenda to Manage Interaction**

This not only fosters meeting organization but promotes the opportunity to contribute. It allows participants to choose the topic or subtopic they are working on as their focus. They also can choose to arrive at the meeting space at the time that their topic is being considered. In this way, they can see the work completed so far and then add their own contributions.

For each meeting topic, determine the outcomes and decide how long the topic will be under consideration and the process that will be used to manage the agenda item. For example, if you are using an EMS, this may include open discussion, side discussion, voting, idea generation, and research into an existing database.

**Balance the Agenda with Formality and Informality**

Formal, preset agendas have been found to inhibit the free flow of information and collaboration, especially in regularly scheduled meetings. Others recommend that agendas be structured tightly. This presents the facilitator with a dilemma: how to foster informality and, at the same time, to ensure productivity and a sense of accomplishment.

Especially with a new team or one that is working on a short-term project, prior to the meeting, encourage informal interaction by asking that participants interact together on a task. Assign people to work with one another to develop a portion of the agenda or a product to present during the meeting. Taking their cultural biases into account, have them exchange photographs, biographies, or work histories that can become the basis for small talk during the meeting.

Build some informality or fun into the agenda. Discuss the weather. Play a word game at the beginning of the meeting. Develop ways to nurture the feeling of social presence and inclusion or a sense of “being there.” Invent new meth-
TABLE 8.4. FACILITATION TIPS TO INCREASE RECALL OF INFORMATION, OPPORTUNITY TO INPUT, AND MOTIVATION, AND TO REDUCE SOCIAL PRESSURE.

<table>
<thead>
<tr>
<th>Focal Area</th>
<th>Facilitation Tips</th>
</tr>
</thead>
</table>
| Help people to find and remember information | • Provide an agenda well in advance.  
• Ask participants, prior to the meeting, to think about specific questions or issues.  
• Provide a format with which to respond to questions or collect thoughts that relate to meeting objectives.  
• Provide information about where to find information, e.g., databases, documents, search engines.  
• Use on-line documents during the meeting.  
• Have results of past decisions available.  
• Provide “think breaks,” especially if there are non-native speakers present. |
| Provide the opportunity for people to contribute | • Use anonymity features for brainstorming.  
• Use anonymity features for voting and reaching consensus.  
• Structure the agenda so that people can work in subteams.  
• Have people send in opinions prior to the meeting to avoid spending unnecessary time during the meeting and to increase the probability of divergent input.  
• Allow ample time; schedule two sessions if necessary.  
• Use communication technologies that provide enough interaction. If there is a need for extensive give-and-take, do not use technologies that allow only typing as input. |
| Increase motivation to participate       | • Structure the agenda so that everyone has the opportunity to contribute. Go “around the room” virtually. In an audio conference or video conference, ask each person for his or her opinion; vote using EMS.  
• Use technology, such as group editing and collaborative writing, to obtain “buy in” on final product from everyone.  
• Structure the agenda so that people can come in and out of meetings according to their needs for information and input. |
| Reduce social pressure that limits participation | • Use anonymity features for voting, brainstorming, and reaching consensus.  
• Use data-only technology to gather input from team members from high-power-distance cultures.  
• Collect divergent views prior to the meeting. |

ods and channels for sharing communication clues and use them. This is especially necessary when using chat rooms and other electronic technologies with which there are no verbal or visual clues. With the team’s input, develop ways to
signal emotions. For example, many virtual team members use signals such as all caps for feeling strongly about an item, “IMHO” for “in my humble opinion,” and “BTW” for “by the way.” These create a sense of familiarity in communication.38 Encourage the members to make up signals that are unique to the team. Also encourage the team members to write more informally. Formal writing takes a long time and limits the number of ideas.

Alternate Styles of Interaction

Repeating the same type of activity often can have a limiting effect on even the most creative thinkers.39 Mix electronic and verbal interaction modes during the meeting if you are working with a system in which both are possible. Use various ways to generate ideas. For example, use the nominal group technique40,41 in one activity and the Delphi technique42 in another. Have members anonymously vote to demonstrate their confidence in an idea rather than asking people to say that they agree or disagree with it. Many groupware products and electronic meeting systems are very capable and allow great flexibility in skilled hands.

Another option is to occasionally mix the mode of interaction from meeting to meeting. If you have held audio conferences for a while, switch to a video format or use a whiteboard or editor for group authoring. Also mix ways for team members to work with one another. For large tasks, divide the work among subgroups and vary, within their expertise, who works together.

Actively Facilitate the Meeting

There are general facilitation techniques that are useful in any meeting. Some of them are as follows:

• Check frequently that the team is staying with the agenda and actually making progress. It may be necessary to say that time is running out for discussion of a specific topic. Guide the discussion toward resolution or postponement. Let the team members decide if they want to keep discussing an item after its allocated time but be certain that it is a group decision.
• Notice if some team members have not spoken and ask if they have anything to contribute before the discussion of each item is closed. Think of new ways to use technology to draw them out.
• If the meeting is conducted in a language that is not the native language of several team members, provide them with “think breaks” to get their thoughts together. Often, it is more difficult to keep up with a discussion if it is not in your first language.
• Pay attention to the team’s process—how the members interact during the meeting—and raise relevant issues at an appropriate time. Are some members dominating the discussion? Are cliques forming? Is the group avoiding a controversial topic? Are members nitpicking or getting bogged down in details? As a process observer, you can help the group to improve its meeting effectiveness by calling attention to such process issues.
• At the end of the meeting, summarize the discussion and make sure that any decisions, recommendations, and actions are recorded. Obtain commitment on who will do what by when.
• Try to have the minutes of the meeting available within one or two days. Be sure that you know how to get the minutes to each participant. Take particular care to ensure that the minutes are correct. In a virtual setting, it is easier to take liberties with interpretation of other people’s input.

**Adopt Best Practices for Meetings Using Different Technologies**

There are “best practices” that can make audio conferences, video conferences, chat rooms, and other meeting techniques more effective. Checklist 8.1 presents meeting-management and facilitation tips for using different technologies. Some of the tips may appear to be common sense, but they often are forgotten or overlooked in actual meetings.

**Points to Remember**

1. Facilitating a virtual meeting includes managing the agenda, the participants, and the technology.
2. Select the technology that is appropriate for the outcome of the meeting. Match the use of technology to specific agenda items.
3. Leverage the agenda and the use of technology to maximize recall, the opportunity to contribute, and motivation, and to reduce social pressure.
4. Make use of social protocols and best practices for using the selected technology.
5. Make certain that logistics cover issues such as compatibility of technology, training in using new systems, and backup plans.
CHECKLIST 8.1. FACILITATION TIPS FOR DIFFERENT TECHNOLOGIES.

**Voice Mail**

1. State your name and telephone number at the beginning and end of the message. 

2. Keep the message short and to the point; make your request clearly and limit it to one or two items. 

3. Be clear about what you need, when you need it, and how you want to receive it. 

4. State whether the person should respond to you. 

5. If you are sending a broadcast message, think carefully about who may receive it accidentally. 

**Audio Conference**

1. Define a specific purpose and time. 

2. Limit participation to no more than seven or eight active participants. More can listen in. 

3. Distribute the agenda and any prework prior to the session (allowing enough time for participants to complete any prework) and draw attention to important pages. 

4. Gather opinions about more mundane items before the meeting so that people will not need to take time to discuss unimportant topics. 

5. During the meeting, tell people who (the team leader or the facilitator) will be in charge of the process. 

6. Ask who is on-line at the beginning of the session and ask everyone to introduce himself or herself. 

7. Request that mute buttons be used when people are not speaking. 

8. If someone has to leave, ask him or her to tell the group beforehand. 

9. At the end, summarize the conversation and distribute the minutes within two days. 

**Video Conference**

Use the guidelines for audio conferences. In addition,

1. Make certain that everyone has access to the equipment and test it beforehand. 

2. Ensure that everyone has access to a database or hard copy of the meeting materials. 

3. If you are using the Internet or desktop conferencing, consider whether bandwidth problems are going to be too annoying. Sometimes an audio conference works just as well. 

4. Note that people’s display monitors might be different. Try to reconcile this prior to the meeting. 

(continued)
CHECKLIST 8.1. (CONTINUED).

**Chat Room**

1. Be clear about the purpose of the chat room. Limit it to a few topics or questions.
2. Let participants know the level of output and detail that you want. Conversations can become lengthy and stray from the point.
3. Let people know who will have access to the information.
4. Decide whether you want anonymous input.
5. Summarize the meeting (sort topics into themes) and send copies to the participants. Scrolling through discussion items is difficult and time consuming.

**E-Mail**

1. Be specific about what you want from people, a return e-mail, a phone call, review of a document, and so on.
2. Send messages only to people who need to be included. Don’t overload the system.
3. Use urgent and important tags only for those items that really are.
4. Ask for confirmation of receipt of messages and documents.
5. If possible, ask for confirmation receipt of the file on important items (some e-mail systems have this).
6. Ask for confirmation that the person has actually read the information.
7. Note how you would like each participant to annotate a document (using underline, color, and other techniques).
8. Note who has what privileges to review or change a document.
9. Tell participants how to get the document back to you (by e-mail, fax, or other means).
10. Ask the IS department to set up a system that provides returned mail for “bad addresses,” preferably with the correct addresses.
11. If you are using the system for workflow, get training and support for team members.

**Electronic Meeting System**

1. Ensure that the system works appropriately and is compatible with everyone’s equipment.
2. If necessary, move applications as well as files to users prior to the meeting.
3. Make certain prior to the meeting that everyone can access the software as well as the shared files that may be needed.
4. Develop the agenda with a skilled facilitator, especially for the first few meetings.
5. Subdivide the agenda into parts and link each section to how you will use the technology (for example, for voting).
6. Decide when input will be anonymous and when it will not be.

(continued)
CHECKLIST 8.1. (CONTINUED).

7. Rotate activities, such as sorting information and voting, to avoid boredom. ________

Collaborative Authoring

1. Decide what type of authoring is best: sequential (output is passed from one person to another), parallel (the work is divided so that collaborators work on different parts of the document at the same time), or reciprocal (people work on the same document at the same time, adjusting their activities to take into account one another's input). ________

2. For sequential authoring, e-mail or other forms of document exchange can be used. For parallel or reciprocal authoring, use collaborative writing tools. These, at this point in time, will most likely require other modes of interaction in addition to the collaborative writing tools. ________

3. When the writing task gets in the way of progress, assign people to a subteam to work on the document and let the rest of the group move forward. ________

4. Tell the participants not to spend time formatting the document; have them use the time to focus on content. ________

5. Much of collaborative writing to date has been done using sequential methods or face-to-face collaborative methods. Little is really known about collaborative writing in a synchronous, distributed environment. ________
This chapter describes how the dynamics of a virtual team are likely to manifest over the team’s life cycle. It addresses the factors that influence and are affected by team dynamics in a virtual setting. It also provides strategies and tools that facilitate assessment of team dynamics in a virtual environment, in order to recognize whether they are healthy and to provide a basis for intervention if they are not.

Technical and Adaptive Environments

Virtual teams can exist in technical or adaptive environments. In a technical context, work usually is planned and executed according to a timetable, with schedules and project plans. The knowledge necessary to solve a problem usually exists and may even be legitimized in policies, processes, or procedures. In this situation, the team simply obtains the knowledge and applies it to the team’s task.

In an adaptive environment, situations are new and do not have defined solutions. Quinn defines these as problems for which no routine solutions have been developed. The challenge is to create a solution to a problem or to create a strategy that does not yet exist. Along the way, team members and organizational stakeholders may need to make painful adjustments in their attitudes and expectations. The specific character of a team’s dynamics depends, in part, on
whether the team’s task environment is more technical or more adaptive. Clearly, this is a continuum; most tasks include problems for which partial solutions already exist. However, most virtual teams face situations that require behaviors on the adaptive end of the continuum.

**Traditional Models of Team Development**

Tuckman’s model of team development, the most widely quoted one, incorporates the stages of forming, storming, norming, performing, and adjourning. The model explains that most teams go through a series of stages and that there may be conflict and interpersonal issues along the way. The assumption is that the team progresses over time toward better communication, maturity in relationships, and better performance. This model has proven quite useful to many practitioners and team leaders in traditional settings, in which team members are co-located and engaged in predefined work tasks. However, this model, and others like it, are not as useful in describing what happens in teams that are virtual, exist in adaptive environments, or involve multicultural complexities.

Although models of team development that describe predetermined growth processes are useful, virtual teams require a new model that accounts for the complexities of their work environments. Virtual team leaders and members who are skilled in using such a model will be better equipped to influence the performance of their teams and make informed choices about when, how, and how often they should intervene.

**A New Model of Team Development**

A series of stages can be used to describe the dynamics associated with a team’s task, especially a team that uses technology to communicate and collaborate. There is a parallel series of stages related to the team’s social dynamics—how team members interact, resolve differences, and make decisions. Team leaders and members must navigate the task dynamics and social dynamics to ensure good performance and feelings of being part of the team.

Productivity is important in all teams that are formed to produce a result. The goal of well-managed task dynamics is productivity.

The goal of well-managed social dynamics is a feeling of team unity. This feeling, although not always a prerequisite for high performance, helps team members to maintain motivation, perceptions of trust, and the quality of interaction. It also contributes to positive attitudes toward future participation. Because face-
to-face contact is not part of everyday life in virtual teams, unity may be more difficult to attain and manage.

It is possible to be productive without having the feeling of being a team, and it is possible to feel a sense of unity without being productive. In the long run, many of our most satisfying experiences are in teams that balance task performance and social dynamics. The dynamics work together to create the team experience. Both are necessary for effectiveness.

The virtual environment does not contain many of the traditional means of managing the task and social aspects of team dynamics. Virtual team members and leaders, as a result, need to be more cognizant of how they develop and implement strategies to manage them. They need to understand the stages of each type of dynamics. Table 9.1 lists task and social stages and the dynamics associated with each.6

<table>
<thead>
<tr>
<th>Stage</th>
<th>Task Dynamics</th>
<th>Social Dynamics</th>
</tr>
</thead>
</table>
| 1     | Inception     | Interaction/inclusion | Ensure team member inclusion  
|       | Select goals  | Ensure opportunity for participation  
|       | Generate preliminary plans | Define initial roles  
|       | Generate ideas |  |
| 2     | Problem solving | Position status/role definition | Address status of team members  
|       | Select technical problems to be resolved | Clarify and refine roles and expertise  
|       | Solve problems with correct, known answers |  
|       | Solve ambiguous problems |  |
| 3     | Conflict resolution | Resolve conflicts about different points of view | Address power differences between team members  
|       | Resolve conflicts stemming from different interests | Address interpersonal relationships  
|       | | Address how different solutions affect power allocation to different functions, regions, and/or countries  
| 4     | Execution | Interaction Participation | Ensure equal participation  
|       | Perform tasks Address organizational barriers to performance | Ensure effective interaction and communication  

**TABLE 9.1. TASK AND SOCIAL STAGES OF VIRTUAL TEAMS.**
Task Dynamics

The four stages associated with task dynamics are as follows:

*Stage 1: Inception.* This stage involves the generation of ideas related to defining the goals of the team, how the goals might be accomplished, and overall plans to achieve them.

*Stage 2: Problem solving.* This stage involves choosing the correct means by which to address issues and solve technical problems. Issues and problems can have knowable and “correct” answers or can be unique, with no existing answers.

*Stage 3: Conflict resolution.* This stage involves the resolution of conflicts that emerge from different points of view. Team members may have different approaches to technical problems. Conflicts also can be the results of different cultural, functional, and organizational perspectives.

*Stage 4: Execution.* This stage involves performing the team’s work and overcoming organizational barriers that inhibit performance. Barriers include power struggles between functions, issues of ownership over the final product, and conflict over allocation of resources.

**FIGURE 9.1. TECHNICAL PATHWAY A: INCEPTION TO EXECUTION.**

Virtual teams that are addressing simple, repeatable, prescriptive tasks may be able to move from stage 1, inception, to stage 4, execution, after a minimal planning period, as shown in Figure 9.1.

Stages 2 and 3 may or may not be required, depending on the circumstances. For example, teams that are working on tasks that have been successfully completed before may move directly to the execution stage. Service, work, and production teams that are involved in routine activities probably can skip stage 2, selecting the means to solve problems, because there already are known solutions. Stage 3 also may not be required, because conflicts stemming from different points of view and different interests have been settled in the past. On the other hand, teams that are addressing problems that are new or unique, or that involve the potential redistribution of power or resources between functions or organizations, might have to devote much more time to stages 2 and 3, as shown in Figures 9.2 and 9.3.

Complicated patterns are more likely to occur in teams that have complex tasks in adaptive environments or in teams that have a number of team members or stakeholders with polarized functional, organizational, or cultural interests.

FIGURE 9.2. TECHNICAL PATHWAY B: INCEPTION TO PROBLEM SOLVING TO EXECUTION.

Social Dynamics

The social dynamics of virtual teams parallel the task dynamics and include four stages.

Stage 1: Interaction and inclusion. In the first stage, team members define their individual contributions to the team and begin to interact as a group to develop the team’s charter and work plans.

Stage 2: Position status and role definition. In the second stage, team members interact to define or redefine their roles and status in relation to one another. The focus may be on their roles as experts or as organizational representatives. It may be on their personal or expert status in relation to other members, particularly in determining the solutions to problems.

Stage 3: Allocation of resources and power. In the third stage, the team addresses issues regarding the allocation of resources and power that result from the team’s activities or from particular approaches to problems. This stage can be contentious if the team contains members from many different stakeholder groups.

**Stage 4: Interaction and participation.** This stage involves participation and interaction among team members in performing work and in overcoming barriers that inhibit team productivity.

The team may move through these stages in the same manner as it moves through the task stages. Some virtual teams move directly from stage 1, inclusion and interaction, to stage 4, interaction and participation.

A second path may include involvement in stage 2, status and role definition, prior to moving into stage 4, as team members determine who has expert status.

A third path involves more complicated movement back and forth through the stages as team members address the issues of power, role definition, status, and allocation of resources.

Teams that are addressing solvable problems or repeating production work are likely to have fewer issues regarding team-member role definitions and status because of templates provided from previous work cycles. Workflow processes often define roles and accountabilities for these types of tasks. Teams that are working on more unique and adaptive tasks for which the outcomes may change the power distribution among functions, organizations, or partners...
often have to deal with more complex social dynamics related to power and status.

### Three Factors That Affect Virtual Team Dynamics

In a virtual environment, team leaders may have less access to the traditional clues that indicate how the team is progressing through the stages. Team dynamics are determined by complicated variables that relate to three factors: time, team environment, and team composition. The leader of a virtual team must exercise diligence to determine whether or not the team’s dynamics are healthy and whether intervention is necessary.

#### Time

Team dynamics are affected by the passage of time, especially in parallel, project, and action teams. Gersick, in her work with task and project teams, found that
FIGURE 9.6. SOCIAL PATHWAY C: INTERACTION AND INCLUSION TO POSITION STATUS AND ROLE DEFINITION TO POWER AND RESOURCE ALLOCATION TO POSITION STATUS AND ROLE DEFINITION TO INTERACTION AND PARTICIPATION.


FIGURE 9.7. THREE FACTORS THAT AFFECT TEAM DYNAMICS.
most teams undergo major transitions about halfway through their life cycles, no matter how much time the teams have allotted for their tasks or how many times they have met. The transitions take many forms, such as adopting new perspectives regarding technical problems; reengaging with top management, outside stakeholders, and other organizational functions; redirecting plans; and dropping old patterns of behavior. Many teams create new approaches to their tasks and execute new plans at this transition point. Just prior to the transition, teams typically experience conflict, changing alliances, role confusion, and debate about technical approaches and/or solutions to problems. During the transition, old approaches and viewpoints are cast aside as new ones take their places. It is almost as if teams “punctuate their equilibrium” and, after a period of stability, progress through a more revolutionary period of change.

All teams need to understand the midpoint dynamic and be able to identify the characteristics associated with the transition. There are four events that the virtual team leader should look for that signal the transition to execution:

1. Abandonment of much of the team’s early work, including plans and agendas;
2. A feeling of urgency to finish on time;
3. Renewed contact between the team and its organizational environment, most often the sponsor or a member of senior management; and
4. Specific new agreements on the ultimate direction the team should take.

**FIGURE 9.8. THE TRANSITION TO EXECUTION.**
Teams that have experienced conflict prior to the midpoint often find that they transition to collaboration and participation. For teams that start fast and develop solid plans, the transition may be a time to pause, analyze current work, have active debate, and then make improvements. For teams that start more slowly and are addressing disagreements, power struggles, and other uncertainties, the transition may signal a period of pulling together and focusing on execution.

Teams that do not make the transition to collaboration may find that the team leader or the sponsor unilaterally determines an answer and executes the work.

Virtual team members and leaders need to be aware of and anticipate these time dynamics. They should not be alarmed if the team exhibits sudden changes in direction or a preoccupation with time pressure midway through its life. A virtual team may want to facilitate this by scheduling a face-to-face session toward the middle of the team’s life cycle. Checklist 9.1 can serve as a guide in diagnosing whether or not events signal a healthy transition.

Environmental Influences

The second factor that influences team dynamics is the environment. One variable that has been associated with performance is how “embedded” or rooted the team is in the organizational setting—the extent to which the team affects and is

**CHECKLIST 9.1. TRANSITION-POINT HEALTH CHECK.**

*Instructions:* Indicate the response that best represents the team’s transition behavior.

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the team drop the established agenda or plan?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the completion date drive the team to change approaches or plans?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Do team members feel that they need to review contracts with sponsors?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Are some team members becoming revitalized?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is this period accompanied by renewed energy and creativity?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Are new contracts shared with important stakeholders and customers?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Is the team aware that it is experiencing a transition?</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

**Total yes:** ____  **Total no:** ____

Two or more of your responses should be yes during your team’s midpoint transition.
affected by the organization’s structure and processes and by other teams in the organization and in partner organizations. The second variable is the nature of the team’s assignment or task. The third is the impact of technology.

**Embeddedness.** Teams can be described as being embedded in the organization when the organization’s structure, processes, communication channels, management, and reward structure support and nurture the team’s activities. Teams can also be described as highly embedded if the work they are doing has high impact in one area or many areas of the organization.

A team that is not highly embedded in its organization often has difficulty obtaining access to information, scheduling time with management, and obtaining support from other functions. A team that is highly embedded in its organization has appropriate top-management support and attention, access to resources, a well-defined task, and rewards for team members for their performance in their local organizations. In addition, the team’s outcome often affects the ways in which people do their work in many different places in the organization and may even affect suppliers and vendors.

The degree of embeddedness of a virtual team affects the team’s dynamics. Because virtual teams do not have physical boundaries, those that are not at least moderately embedded in their organizations in other ways (such as through linkage to strategy or the management structure) may experience confusion regarding their purposes, how their work fits with other efforts, and the overall value of their contributions. As a result, such teams may spend more time in the task and social dynamics stages 2 and 3, dealing with issues related to problem solving, roles, status, and conflict.

Of course, there is the danger of being too embedded. Too much attention can result in micromanagement. Overly embedded teams also may lose the independence and freedom necessary to innovate.

**Nature of the Task.** The more complex the team’s task, the greater the chance of conflict and disagreement about roles, approaches to problems, and definition of outcomes. Teams that exist in adaptive environments are more likely to dwell on resolving power differences, status differences, and conflicts about technical approaches and allocation of resources. Repeatable and simple tasks, for most virtual teams, equate to less time spent in activities such as conflict resolution, role definition, and authority relationships in the group.

**The Impact of Technology.** Because virtual teams interact by using electronic communication and collaboration technology, it is important to anticipate its effect on team dynamics. (Information about the effect of technology on team meetings is covered in Chapter Eight.)
The use of some technology (for example, group-decision support systems) can increase the team’s depth of analysis and clarify vague and ambiguous problems. If used effectively, technology can, at times, decrease the period of time it takes a team to move to stage 4, execution. Using EMS technology that includes idea-generation capabilities, for example, can increase a team’s ability to generate plans quickly. EMS also can be used to avoid unproductive personal conflict about different approaches to problems by employing anonymity features for voting and polling. The use of shared databases, whiteboards, and other presentation software can facilitate the exchange of documents and ideas between team members. The effective storage of information and the use of distributed databases can help teams to resolve conflicts and select technical approaches using best practices and lessons learned from other teams. This enhances task-oriented communication, the quality of information available for analysis and, as a result, may facilitate movement to stage 4.

There may be some negative aspects of technology for task-related team dynamics. The combination of the lack of normal conversational give-and-take and the drama of using technology to generate a large quantity of ideas or to quickly exchange documents sometimes may suboptimize the quality of solutions. Some adaptive tasks require deep thought and debate that require time, face-to-face contact, and productive conflict. More than one team has been happy with the quantity of ideas and plans it has generated using technology, only to discover later that there should have been deeper thought about the quality of the ideas. Having more information, or information overload, also can slow down a team’s decision-making process.

Technology also can affect social dynamics. The impact of social pressure on participation often is reduced by using technology such as chat rooms, EMS, and distributed databases. The implication is that using technology may foster equal participation and inclusion. It also may reduce conflict over roles and status, because everyone has a chance to contribute anonymously. Using e-mail and other methods to distribute information to everyone at the same time also may facilitate inclusion.

Technology also can have a negative affect on social dynamics. Most technology, because it does not provide the metaverbal clues of face-to-face communication, may get in the way of building trust and resolving interpersonal conflicts. The lack of such clues may lead to bad feelings that fester until they are not resolvable, even face to face. For example, one member of a parallel virtual team voiced a negative opinion of the team’s work during every audio conference. He also sent “sharp” e-mail messages to team members and to managers. This slowed the team down and made the people who were doing most of the work feel as if they were doing their jobs badly. Soon, most team members ignored what he said, and the team leader started to schedule meetings when he could not attend. The
lack of attention to the conflict was fostered, in part, by the lack of give-and-take in audio conferences and the difficulty of confronting him over the telephone.

Virtual teams need to continually pay attention to these environmental factors in order to be able to predict the probability of negative team dynamics, such as conflict, role confusion, and lack of team unity, that keep teams in stages 2 and 3.

Team Composition

The third factor that affects team dynamics is the composition of the team.\textsuperscript{12} People from very different backgrounds and experiences bring different behaviors, routines, and assumptions about work and the world to the virtual team. People develop routines and assumptions so that it is easy to predict, to some extent, what others will do. They also make coordinated action possible, as people from similar backgrounds normally do not have to talk about these routines and assumptions, which saves time and energy. However, this is not often the case in virtual teams, with their varied membership.

Although routines can facilitate quick and coordinated action, once they become habitual, they are very difficult to change. In fact, under pressure, most of us unconsciously resort to our old habits. Assumptions, behaviors, and routines that served as shortcuts before joining the team may be disruptive to the team and lead to conflict between team members. Those that stem from the cultural and functional backgrounds of team members can have negative effects on team dynamics.

\textbf{Cultural Differences.} The team members’ cultural backgrounds include differences that can affect team dynamics. As is mentioned in Chapter Three, the cultural assumptions and perspectives embedded in team members’ behaviors can be much harder to discuss and change than those associated with functional backgrounds and organizational cultures. This is especially true for individuals who do not have a great deal of cross-cultural experience or for those who do not have strong technical backgrounds that can help to mitigate cultural behaviors. Cultural dimensions that appear to have the greatest potential to affect virtual team dynamics are individualism–collectivism, power distance, and uncertainty avoidance.

\textit{Individualism–Collectivism.} Team members who are from individualistic cultures, such as the United States and Great Britain, may be much more assertive about performing independent work and desire less interaction and participation than team members who are from more collective cultures. It is important that virtual team members define the degree of interaction and participation that is appropriate for each task. This will help members from both individualistic and collective cultures
to know what is expected of them. The definition should include the amount and type of interactive behavior, such as the frequency of team interactions and the amount of participation that team members should expect from one another. Focusing on these factors early in the team’s life contributes to healthy social dynamics of interaction, inclusion, and participation. It can help to move the team members through the stage 1 dynamics, in which different expectations about the amount and type of interaction among team members may be influenced by culture.

*Power Distance.* Cultural differences regarding power distance also can affect a virtual team’s dynamics. The risk of disruption is higher if team members come from different levels in the organizations. Team members who come from lower-power-distance cultures, such as Canada, the United States, and Great Britain, may be much more assertive about stating their opinions and disagreeing with other team members from higher organizational levels than are team members from lower-power-distance cultures, such as China and Thailand. Differences in power distance can affect the team’s social dynamics of interaction, participation, and inclusion. One result may be that team members from low-power-distance cultures assume that they are moving out of stage 2 or 3 because there is no conflict when in fact team members from high-power-distance cultures have different ideas about approaches to problems but have failed to mention them.

The use of technology can assist with differences in power distance. Although people from high-power-distance cultures may be less apt to speak up in a group when people of higher status are present, they will use e-mail and other “less aggressive” means to state their opinions. Technology has the potential to increase the focus on ideas and decreases the focus on culture, personalities, and titles. Many virtual team leaders use computer technologies to poll team members about their opinions and perspectives, sometimes anonymously, before making decisions. The use of collaborative software that allows team members to contribute to or comment on a document is also a good way to obtain team members’ opinions about other people’s work, especially if the higher-status members of the team produced the work. Technology also helps to avoid the perception of criticism as a personal attack by members of certain high-power-distance cultures, for which personal integrity and credibility are based on maintaining a positive public “face.”

Some virtual team leaders have used the power hierarchy in these cultures to help their members disagree with higher-status individuals. A person who is working with a team member who is having difficulty saying no directly or disagreeing with other team members can contact that individual’s local manager to elicit the manager’s help in encouraging the team member to speak up or say no. Because
the encouragement is coming from a direct superior, it may override typical power-distance behaviors.

**Uncertainty Avoidance.** Uncertainty avoidance is a third cultural dimension that frequently affects team dynamics. People who are from cultures with high uncertainty avoidance feel more comfortable operating with defined plans and roles than people who are from cultures with low uncertainty avoidance. These cultural preferences may cause conflict about planning activities in the team-initiation stages, including how well the team members’ roles need to be defined, the level of technical plans required, and the rigor of processes and documentation. The virtual team should balance the preference for more certainty with the demands of the task. This balancing process may require teams to occasionally allow more discussion of plans than the task deserves, in order to meet the needs of members from cultures with high uncertainty avoidance.

Handling team conflict is one area in which the impact of culture is evident. Many people who are from high-power-distance and collective cultures see open conflict as a loss of face or an affront to their group. The North American strategy of getting the entire team together to work openly on a conflict may be perceived as very inappropriate and threatening by people from high-power-distance cultures. In addition, team members from some cultures send more information during times of conflict than members from other cultures. This leaves the team leader with less formal information to use in managing the conflict.

**Differences in Functional Background.** As is discussed in Chapter Three, a person’s functional background can greatly affect his or her behavior. For example, cross-functional product-development teams that have members from engineering, marketing, finance, and manufacturing functions usually agree that using a standard product-development process is a good business practice. They disagree, however, about the importance of each stage of the process. The stages of the process that are marketing oriented, such as conducting customer focus groups early in the project, are much more important to team members from the marketing function than they are to engineers. Although both recognize the importance of focus groups, they may disagree on their emphasis. This can result in conflict regarding allocation of resources and the relative importance of different team members’ roles in stages 2 and 3.

In addition, team members from high-context functions, such as human resources and marketing, may need more background information than team members from low-context functions, such as engineering and finance. This may promote misunderstandings about problem definition, technical approaches, and the amount and type of information that team members need in order to move
forward. In short, differences in functional backgrounds, assumptions, and routines may cause the team to have task and social dynamics that keep it in the stages of problem solving and conflict resolution.

**Team Size.** The number and composition of team members also affects a team’s dynamics. Clearly the team needs to be large enough to have the skills and expertise to get the job done. In addition, the heterogeneity of the team needs to be appropriate for the task. If the task requires a large amount of input from local regions, team members must have sufficient diversity to fulfill this requirement. Whenever there are more than two team members, coalitions and subgroups will begin to form. These may be based on location, function, and/or cultural background. People who are from the same country or who work in similar functions often form subgroups. Although this is normal and facilitates a sense of belonging for some team members, if the subgroups are allowed to polarize too much along functional or cultural lines, they can disrupt healthy team interactions.

Team size also affects the use of technology and vice versa. Technologies such as EMS actually increase performance in idea generation and other tasks with groups of over twelve people.\textsuperscript{15,16} With smaller groups, technology does not help as much. With larger groups, it seems as if technology makes it easier for people to build on one another’s ideas, to feel less inhibited about offering new thoughts and opinions, and to offer suggestions at any time. This has implications for using technology to maximize inclusion for large virtual teams and for generating ideas in order to solve problems and generate new approaches.

Checklist 9.2 provides a quick check of team composition in areas that may affect team dynamics.

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**Measuring Team Performance**

In traditional teams whose members see one another every day, it is easier to perceive problems with team dynamics that are affecting performance. Bickering over status or resources and conflict over roles or technical approaches can be observed in meetings and in hallways. Leaders of virtual teams, however, report that recognizing conflict and performance problems is one of their most difficult management tasks. Many times, inexperienced virtual teams do not know that they have problems until extremely dysfunctional team dynamics occur, task output is affected, or members leave the teams. By that time, it may be too late.

Although the checklists provided earlier in this chapter can alert a virtual team to potential problems, the team leader and its members should regularly assess the team’s interaction processes and level of effectiveness. Hackman suggests three
areas that are important: (1) signs of problems or unexploited opportunities, (2) criteria of intermediate effectiveness, and (3) final criteria for effectiveness.17

Signs of Problems or Unexploited Opportunities

It is important to assess the degree to which the team experiences problems in collaborating or in developing strategies for task execution and the extent to which team members appear to be exploiting or not exploiting opportunities for synergy, collaboration, and the sharing of expertise.

General trends to look for include evidence of collaboration, such as team members reporting that they have checked with one another before finalizing a product or making a decision, and other evidence that technical expertise on the team is being utilized.

These are some of the symptoms of problems:

1. The use of air time: Do some team members dominate most of the conversation time during audio conferences, data conferences, video conferences, or face-to-face sessions? Do some team members take a disproportionate amount of the team leader’s time?
2. Group pressure: Do some team members appear to “give in” to the larger group or to aggressive or higher-status team members? This may be a sign that the team has not addressed issues involving roles or status or it may be an indication of cultural differences in the team.

CHECKLIST 9.2. TEAM-COMPOSITION QUICK CHECK.

Instructions: Assess the characteristics of your virtual team by responding to the questions below.

1. Are more than two different national cultures represented in your team? Yes No
2. Do the majority of team members have little or no experience working cross-culturally? Yes No
3. Are more than two functions or organizations represented in your team? Yes No
4. Does your core team have more than twelve members? Yes No
5. Are all team members located in different places? Yes No

Total yes: ____ Total no: ____

If you have more than two yes answers, your team’s dynamics may be affected by the team’s composition. Note the areas where you checked yes, and make plans to carefully observe your team in areas that may become problematic.
3. Free riding: Do some team members appear to be doing most of the work?
4. Incomplete use of information: Do some team members appear not to be using information that has been disseminated to them? Indications of this include not remembering that they received documents or e-mail messages and not reviewing them in sufficient detail prior to meetings.

Criteria of Intermediate Effectiveness

There are two types of effectiveness criteria: intermediate and final. Intermediate criteria refer to the degree to which team members apply sufficient time and effort to task completion and use strategies that appear to be appropriate for the task.

When some team members seem to be doing all the work, participating the most in audio conferences, or making most of the comments, the leader may question whether other team members are expending sufficient effort on the task.

Late deliverables or missed milestones further confirm that there may be problems. Experienced virtual teams keep a very close watch on deliverables and other milestone schedules. When a pattern begins to develop, they intervene immediately.

It is more difficult to assess whether the team is applying task-appropriate strategies. Although they do not want to micromanage their team members, effective leaders understand how the members are approaching their jobs. One team was shocked to discover that one member was using an external vendor with a vested interest in the outcome of the team’s work to help gather information critical to the team’s recommendation on a new training curriculum. The vendor had a lot to lose from any change and, therefore, an incentive to slant the results. The team member should have been doing the analysis without outside assistance.

Final Criteria for Effectiveness

Final criteria assess both task and social dynamics. First, they help to assess whether the team’s output or service meets the requirements of those who review or receive it, such as the client or top management. Second, they determine whether the work satisfies the team members’ personal-growth objectives and the team members’ and team leader’s perceptions that working on the team was a positive experience.

Virtual Interventions

Using these criteria is more difficult for a virtual team. The use of on-line questionnaires for team members and of observation guides for audio conferences and video conferences can be useful in assessing social dynamics. It also is useful to
have a professional observer from outside the team use guides or protocols during audio conferences or video conferences to examine the team’s processes and dynamics. This provides an impartial perspective and allows the team members to concentrate on the demands of the task. The observer can feed back his or her observations to the team leader and the team. The team then can plan interventions based on the results.

Checklist 9.3 presents process-observation guides for audio conferences and video conferences that allow a team member, team leader, or other observer to assess signs of unexploited opportunities, intermediate effectiveness, and potential problems with team dynamics. It includes observation, over the time frame of a meeting, of factors such as whether or not one person is dominating the discussion, whether or not there is healthy debate, and whether there is too much agreement. Teams should feel free to insert factors that are important to them. The virtual team leader or member needs to intervene if team dynamics are not healthy.

Negative results from a process observation, team assessment, or on-line questionnaire may indicate problems with team dynamics. These can be separated into four general categories:

1. Indications that the team is “stuck” in one of the first three stages and is not moving into task stage 4, execution, in a timely manner. For example, conflict about technical approaches or about which member has expert status that arises well past the team’s scheduled midpoint transition is an indication of problems.
2. Signs of unexploited opportunities, such as underused expertise of team members, conflict between team members from different functions or cultures, “free riding,” team members taking up too much air time, and incomplete or inadequate use of information.
3. Intermediate effectiveness criteria not being met. Examples are missing interim deliverables and using inappropriate task strategies.
4. Final effectiveness criteria not being met. Examples are poor reviews of the team’s deliverables by senior management and negative perceptions of the team experience gathered from team members by formal or informal means.

Checklist 9.4 outlines interventions that a team leader can use in a virtual environment.

Conflict Management

There are a few things that team leaders can remember and do that will help to mitigate conflict in their teams. The following list contains tips for conflict management in a virtual team.
1. Conflict is hard to spot and may “simmer” for a long time before you notice it. Keep your eyes and ears open.

2. If you observe nonproductive conflict, check your perception with others (such as your team’s facilitator) before you take action.

**CHECKLIST 9.3. PROCESS OBSERVATION.**

*Instructions:* Have a professional facilitator use this observation form during an audio conference or video conference. Add behaviors that are appropriate for your team. Note how often the targeted behaviors occur during the session.

Then have the observer review the results with the team leader and then with the team during the next status-review session. Examine the patterns and determine whether they are healthy, given the task, your expectations of the team members, and the point in the team’s life cycle. Compare these observations with your own and with those of other team members to validate “hunches” and personal opinions. It is important to have more than one source of data when working in a virtual environment.

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less than two times</td>
</tr>
<tr>
<td>1. The team leader dominates the conversation.</td>
<td></td>
</tr>
<tr>
<td>2. One or two team members dominate the conversation.</td>
<td></td>
</tr>
<tr>
<td>3. One or two team members appear to negatively criticize the work of others.</td>
<td></td>
</tr>
<tr>
<td>4. Debate appears to be excessively negative.</td>
<td></td>
</tr>
<tr>
<td>5. Some team members appear to agree with everyone.</td>
<td></td>
</tr>
<tr>
<td>6. Some team members appear to be left out of the conversation.</td>
<td></td>
</tr>
<tr>
<td>7. Some team members appear to be lost or not in touch with the team and its agenda.</td>
<td></td>
</tr>
<tr>
<td>8. Some team members appear to be confused about information they should have received.</td>
<td></td>
</tr>
</tbody>
</table>
## CHECKLIST 9.4. TEAM INTERVENTIONS.

<table>
<thead>
<tr>
<th>Symptom of Team Problem</th>
<th>Possible Interventions by the Team Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>The team cannot get out of the inception and inclusion stage.</td>
<td>Teams that get stuck in the first stage have larger underlying issues. Review the team’s composition and the team’s charter. Ensure that the right people are on the team and that they understand the charter. The inception phase requires creativity and less control. Be sure that you are modeling creativity and not overcontrolling the members. If possible, bring in a member from the organization who is innovative to challenge and spark the team.</td>
</tr>
<tr>
<td>The team appears to be stuck and is not moving toward execution.</td>
<td>Assess the team in terms of task and social dynamics. Discuss the problem with the team. Look at environmental factors that may be causing the team to slow down. Also look at the team’s work practices and determine if the members need help in establishing priorities or a reasonable work schedule. Hold a session to review expectations. Map the team’s progress and problems to see if any patterns appear that need to be changed in order to allow the team to move forward.</td>
</tr>
<tr>
<td>A few team members seem to be doing all the work.</td>
<td>Talk to the working and nonworking members separately to determine the reasons for the differences. Are tasks allocated appropriately? Are the working members creating an exclusive environment, because of national or functional cultures, that is keeping the others out? Do the nonworkers feel that there is something wrong with the team or its leadership?</td>
</tr>
<tr>
<td>Team members do not appear to be applying sufficient effort to the team’s task.</td>
<td>Address this problem quickly. First, talk to the team members who are not applying the required effort and determine whether the problem lies with them or with another factor, such as unrealistic expectations. If the problem is the individuals, find out why they are not putting forth the effort. If the problem stems from lack of skills or resources, get them the training or resources they need. If it stems from attitudes, talk to them about it. Do they feel the work is meaningful? Are they receiving timely feedback on their work? Are the results of their work recognized?</td>
</tr>
<tr>
<td>The team misses or almost misses a deadline for deliverables.</td>
<td>If the team is likely to miss a deadline, find out the reason. Put the mechanisms in place to fix the problem. Communicate to your sponsor that you have corrected the problem. During the next cycle, stay close to the team. It is better to be accused of micromanaging than to miss a deadline (continued)</td>
</tr>
</tbody>
</table>
3. Discuss your observations either face to face or over the telephone with each person individually to get his or her opinion. Do not use fax, e-mail, or voice mail for this.

4. If an intervention is necessary, conduct it face to face or, at a minimum, over the telephone with the participants, not with the entire team. Set strict ground rules beforehand and send each person an agenda. Use a facilitator if you can. Jointly solve problems and set specific expectations for each person. Follow up with each person by telephone after the session.

5. Be aware of the need to “save face” in some cultures. Do not address conflict in public with persons from such cultures.

6. Be aware that people from some cultures have different perceptions regarding the importance of deadlines. If any team members are from such cultures, clarify goals and objectives specifically.

### Checklist 9.4. (Continued)

<table>
<thead>
<tr>
<th>Symptom of Team Problem</th>
<th>Possible Interventions by the Team Leader</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conflict arises that derails the team’s progress.</td>
<td>Discover the reason for the conflict. If it is task related, review the work plan and seek input on how to improve the problem. If it is social in nature, determine the cause and determine if differences in culture are indicated. If it is between two individuals, speak with both of them individually. If the conflict involves you, ask an outside facilitator to help to resolve the problem.</td>
</tr>
<tr>
<td>Team members who are not co-located seem to be fading into obscurity.</td>
<td>Virtual team members can fall into obscurity quickly. Keep a record of when you have contact with members. Set up a schedule and be sure to talk with or meet with each team member regularly through e-mail, telephone calls, visits, etc. Go to where the members are sometimes; don’t always ask them to come to you. If some members are not in the team on a full-time basis, their other priorities may be taking them away from the team. Talk to their supervisors and review the agreements that you made before they were assigned to your team. Sometimes it is necessary to ask team members who are located together to meet informally to keep up morale.</td>
</tr>
</tbody>
</table>
Adjournment Dynamics

Many teams have defined end points. The adjournment of a team deserves and requires its own ritual. Bridges, in his work on transitions, discusses the need to allow people time to celebrate accomplishments, mourn loss, and move on. Virtual team members, although they may never have met, also need this time. There is nothing as demotivating as teams that just fade away after months of hard work.

Teamwork can be all-encompassing and energy draining. At the end, there may be a feeling of loss or disillusionment that affects team members’ perceptions of the experience of working in the team and also affects the amount of energy they have to focus on new assignments. Virtual team leaders should adopt proactive strategies to address this effect. The team leader can put aside money in the team’s budget for all team members to meet and celebrate. Some teams have remote parties over video links. Many team members take the time to call one another to offer their thanks and best wishes. Some team leaders contact local managers to express their gratitude for their team members’ participation. Some write formal thank-you notes to all team members and copy individual managers and the team’s sponsor. Most make sure that team members have the opportunity to discuss everyone’s new assignment and to make plans to keep in touch.

Points to Remember

1. Virtual teams pass through sequential stages of task dynamics and social dynamics. They do not have to pass through all the stages all the time.
2. Virtual team dynamics are affected by time, the team’s environment, and the team’s composition.
3. Teams should watch for midpoint transitions.
4. Teams should maximize the use of technology to help with inclusion, participation, and decision making.
5. Team performance can be measured by problems and unexploited opportunities, criteria for intermediate effectiveness, and criteria for final effectiveness.
Adaptive Work

Most virtual teams exist in adaptive environments. Their work is always changing, there are always new problems on the horizon, and the solutions to problems are often one-of-a-kind. When Einstein said that we cannot solve the problems we have created with the same type of thinking that created them, he was referring to the adaptive world.

To understand adaptive environments, it is useful to contrast them to technical environments. Technical environments have structures and known rules. Teams can address work in such environments with tested methods. Variables are contained, surprises are minimized, and planning and controlling are paramount. It is a world of process mapping, predictability, and repetition.

Adaptive environments do not follow rational, structured rules. Adaptive work consists of situations in which teams have not yet developed satisfactory responses to the problem they face. They may not even know what questions to ask. There is no specific plan of action or tool of logic that can solve a particular problem.

Many workers prefer technical environments; they are more comfortable because they tend to include answers. Adaptive environments are riskier, require more effort, and generate uncertainty and discomfort. It takes a measure of courage to work in an adaptive environment. Many virtual teams work in adaptive environments or face adaptive situations.
Eight Principles of Working in an Adaptive Environment

Helping virtual teams to face adaptive situations is a process of mobilizing and enabling, rather than one of planning and controlling. Traditional styles of leadership do not serve well in adaptive situations. According to Heifetz and Laurie, adaptive environments require leading and working “from a different place,” which means

1. Working outside one’s comfort zone
2. Identifying the adaptive challenge
3. Maintaining healthy levels of stress
4. Focusing and creating a sense of urgency
5. Not feeling compelled to come to the rescue and provide all the answers
6. Staying the course through leadership

Adaptive environments do not dismiss accountability; they require different strategies.

The seventh way to mobilize people in an adaptive environment, communicating, is the currency of virtual teams in adaptive worlds.

The eighth, creating a learning obligation, is essential, because teams in adaptive environments epitomize learning organizations.

Table 10.1 summarizes the actions required by team leaders in adaptive environments in each of the eight areas. They are discussed in detail below.

Get on the Balcony

Virtual team leaders and members must move back and forth between the content of their work and the overarching plan. This is like moving between the field of action and a balcony from which the whole field can be seen. It is important to become skilled in discerning patterns from the balcony, seeing the overall context. Patterns that can be seen from the balcony can be translated into strategies of action and decisions. Leaders in adaptive environments may fail if they spend all their time in the trenches and don’t view the action from high enough to see the overall pictures.

Leading-edge product developers base their new products on broad trends and patterns that they perceive as unfolding in the market. Adapting personal-communication devices so that telephone calls can follow people on their cell phones, desk phones, home phones, pagers, or the Internet is one example of how product developers noticed a consumer need. Many people now can be reached at any time and any place with one telephone number. Like smart product
### TABLE 10.1. ADAPTIVE LEADER ACTIONS.

<table>
<thead>
<tr>
<th>Principles</th>
<th>Virtual Team-Leader Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get on the balcony</td>
<td>Don’t stay in the trenches. Move between the balcony and the field of action. Look at what is happening from an overall point of view. Look for larger patterns. Give the team a background sense of history and values.</td>
</tr>
<tr>
<td>Identify the adaptive challenge</td>
<td>Determine whether there is a precedent for the problem. Talk to as many people as possible about the challenge, especially people outside normal networks and comfort zones. Assess the roles of team members from high-uncertainty-avoidance cultures to minimize the adaptive content. Assess the roles of team members from low-uncertainty-avoidance cultures to maximize the adaptive content. Determine the degree of adaptive change required of each team member. Discuss and negotiate appropriate boundaries for work and tasks.</td>
</tr>
<tr>
<td>Regulate distress</td>
<td>Determine the distress capability of each team member and a method for handling it. Let the team feel the external pressure within a range it can tolerate. Maintain healthy levels of stress. Develop behaviors that help to suspend decisions while looking for unprecedented solutions. Define communication strategies to aid team members who are experiencing stress. Arrange face-to-face meetings with team members and stakeholders who are undergoing the greatest degree of adaptive change.</td>
</tr>
<tr>
<td>Maintain disciplined attention</td>
<td>Develop communication strategies and technologies suitable for regular discussions to keep the work focused. Frame the key issues and continually ask questions about them. Focus and create a sense of urgency. Ensure that communication technologies can communicate focus and sense of urgency. Develop strategies to deal quickly with distractive behaviors from outside and inside the team.</td>
</tr>
<tr>
<td>Rely on distributed intelligence</td>
<td>Get team members into the habit of talking about their findings, even if they think they are not relevant. Encourage team members to network outside of comfort zones and conventional areas. When discussing a problem, ask every team member for information that is relevant. Admit that the leader does not have all the answers. Create an environment of developing solutions as a team.</td>
</tr>
</tbody>
</table>

(continued)
developers, virtual teams can transform what appears to be chaos and confusion into useable patterns.

**Identify the Adaptive Challenge**

Determining whether a problem is technical or adaptive is central to a virtual team’s success. Teams can address many problems using technical solutions but may miss the potential to catapult the team to higher levels of success. Often, the mere existence of the virtual team indicates that the task requires far-flung answers and expertise. If the problem were purely technical, the organization would probably solve it within one specific region, time zone, or location. The challenge is to resist the temptation to provide quick answers—only partially because there are none—while leading the team to look for opportunities and possibilities.

The authors recently worked with the new president of a major firm in creating a new business strategy. The thesis for the new strategy was that the company’s business leaders, operating in a mature market for over a decade, had not...
made strategic choices. As a consequence, the business was not growing. The president introduced the mandate for change and asked his leadership team to help to generate the range of choices that they, as the business leaders, should consider. This confused the team members, who were used to strong leadership. They expected the president to present them with choices, but even he was not sure what the choices were. His acknowledgment of this made the team members even more uncomfortable. They worked through the problem by realizing that their business environment was complex and adaptive and that no one person could have all the answers. They needed to look for openings, not closure. They realized that they would have to learn the answers as they went along. Once they came to this realization, they became more comfortable with not being given the answers by the president.

Virtual teams can learn from this example by accepting that the continual search for answers is part of working adaptively.

**Regulate Distress**

Adaptive situations generate for all team members a range of personal stresses that affect how rapidly they can discard old information and attitudes and assimilate new information, attitudes, and responsibilities. The natural tendency is to avoid distress, moving as quickly as possible into the safer realm of the known, but virtual team leaders and team members need to be able to operate for prolonged periods within a productive range of distress. This is the zone in which optimal learning and performance occurs. A certain level of stress actually stimulates learning and the integration of new information and skills. Operating in this zone requires that the team keep uncertainty alive for longer than is typically comfortable. The task is to become comfortable with uncertainty and to use it to generate the motivation for learning and performance.

The executive committee of Whirlpool Corporation recently created a new corporate vision. The process of creating a vision statement entailed a large amount of uncertainty and a lot of faith. But vision statements, by their very nature, are adaptive. If they are well-conceived, no one, even the CEO, knows how to accomplish them. The executive committee created a “BHAG” (big hairy audacious goal). When the members finally said the goal out loud, they became distressed. It seemed safer to strive for a more easily achievable goal, but the CEO, Dave Whitwam, was sure that the more ambitious vision was exactly what the company needed. He helped the committee members to become comfortable with what they had generated. He first asked them if it was too big. They discussed it. Then Whitwam stated that he thought it had to be big enough to create energy—a call to arms. After a great deal of conversation, the executive committee affirmed
the vision. The boldness of the vision became a rallying cry for the organization to do the impossible. This team, like many others in adaptive environments, used uncertainty and personal discomfort as clues that it was on the right track to a transformation solution appropriate in an adaptive world.

Maintain Disciplined Attention

A virtual team needs to guard against distractions that can multiply with diverse members, priorities, and distance. It is important to develop strategies to minimize distractions. Staying focused on the work is aided by communication and technology strategies. For example, framing key issues as questions so that other members can pose solutions often helps to maintain a work focus and is likely to generate creative responses.

It is critical that virtual team leaders maintain a sense of urgency. Team members find it difficult to stray into side considerations when an urgent solution is needed. This must be balanced with enabling the team members to wonder in order to generate creative solutions.

A key principle of working in adaptive environments is to guide the flow of dialogue and interaction. Working and leading in an adaptive world requires acting much like a good host, tapping into commonalities between guests and starting the right conversations between them. Maintaining disciplined attention entails getting teams past hurdles and onto discussing the right things with the right people, often from unexpected places.

Distractions that a team can create for itself include denying problems, passing the buck, and changing the subject to technical details and solutions that keep the team suspended in an unceasing technical state. Other distractions may emerge from the organization. These distractions include the traditional technical organization trying to rein in virtual teams through hierarchy, overly structured processes, and other mechanisms that neutralize creativity and innovation.

Rely on Distributed Intelligence

A good metaphor for virtual teams is a puzzle. The pieces are scattered over time and space. Everyone in the team has a piece of information that, when joined with other pieces, creates a complete understanding. The complexities of tasks in virtual teams warrant utilizing all members to understand the whole. This is not true of technical tasks, for which each person has a specialty and body of knowledge that applies solely to his or her part of the work. Technical tasks are strung together like a chain, sequential and linear, with outputs passed down the chain to
become inputs. In contrast, virtual teams in adaptive work environments search for puzzle pieces and try them out until they fit. Each team member has knowledge that affects the whole, not just a part.

In order to optimize distributed intelligence, team members should get into the habit of talking about their findings, even the ones they feel are not relevant. When discussing problems, all team members should be encouraged to add information, even if it seems tangential. Team members need to work outside their routine networks. This opens up areas of discussion and problem solving that may be unavailable to the team unless members get outside their comfort zones. Team leaders need to become comfortable in admitting that they do not have all the answers, thereby creating environments in which solutions are generated by their teams.

**Encourage Leadership by All Members**

Because teams in adaptive environments rely on distributed intelligence, each member of the virtual team must adopt a leadership perspective when working through adaptive challenges. There are intervals in which the leadership shifts, given the specifics of the task, to a team member who has certain expertise or access to a unique body of knowledge, or who is closest to the action. Leadership emerges and is redistributed as expertise becomes relevant and as problems arise and shift. The team’s leader facilitates these shifts, like a choreographer, as the situation dictates. Of course, the team leader always is accountable for the work of the team.

**Encourage Robust Communication**

When every team member has a piece of the puzzle, robust communication pulls the pieces together and plays a key part in solving problems. Communication is paramount in an adaptive world and is essential to collaboration. Communication includes the exchange of information in both the task and interpersonal realms. In adaptive environments, team members use and rely on varied and robust communication.

Communicating failures as well as successes is essential to success in adaptive environments. Other team members can learn from mistakes that their colleagues have experienced. Often, failures are not discussed or are hidden. When in doubt, it is better to overcommunicate. In adaptive environments, one member’s failure may solve a problem that another member is facing.

Leaders can encourage robust communication by creating richly connected networks of mutually involved people. Team leaders can connect people who can
help one another. Leaders also can encourage the use of emerging technologies to help the team members communicate.

Create a Learning Obligation

Adaptive problems rarely repeat themselves. Creating an obligation to learn is essential to solving one-of-a-kind problems. Teams should make learning an obligation from the beginning. The learning from each problem rests in the higher-level patterns used to solve the problem, not in the discrete steps.

Teams should create mechanisms to capture their learnings. It should be routine that they use the learnings to apply new insights to problems they are facing.

One virtual team leader chartered a team with members throughout Europe to create a leadership course for entrepreneurs in Eastern Europe. His manager, a short-sighted technical manager, told him that there were no funds available in the organization’s training budget to create the course. The adaptive leader, undaunted, started turning over rocks and looking for unconventional places to find the funds. He talked to everyone he could about the problem, looking for pieces of information that he could string together for a solution. The solution came from an unconventional place. He went through the firm’s philanthropic foundation to get the funds, altering the output to help both the organization and a not-for-profit agency that the foundation was sponsoring. Going to the firm’s philanthropic foundation was an unorthodox and creative solution.

What is important about this example is not the solution but how the leader solved the problem and the learning that occurred. This leader accepted an impossible challenge. He talked to everyone he could find about the problem, including people outside his normal network. He used novel approaches to gain information. He went to an unconventional source and found a solution that solved his problem. He learned as he went along. Great, adaptive leaders and members thrive on doing the impossible and the untried, using unconventional means.

The Tent Exercise

The experience of leading a team through an adaptive problem the first time is a character-building experience. In the right environment, the eight principles are applied to create a unique and rewarding event. The following describes a face-to-face exercise that simulates working in an adaptive environment. It can be used in face-to-face team-orientation sessions to demonstrate the principles of adaptive work. With some cleverness and skill, it also can be adapted to a distributed graphics package.
Sara attended a workshop on leading in adaptive environments. The instructor asked her and the other participants to look around the room and memorize its configuration and then divided them into teams and asked them to put on blindfolds. The instructor said that the team members had a task to perform while blindfolded: they had sixty minutes in which to properly assemble an unknown object that awaited them down the hallway in an adjacent room. In the adjacent room, each team had its own ten-by-ten-foot workstation, roped off to ensure that separate teams did not collide. During the sixty minutes, Sara’s team members could talk to one another and move around but they could not remove their blindfolds. The instructor assigned three roles: nine team members, two safety assistants, and one leader. Sara was asked to be the leader. The instructor told them to start. After a few moments, the team members began to move toward a common spot. Sara was very unsure about what they were doing. She had the added pressure of being the team’s leader, a ridiculous concept given that she could not see and did not know what her team would be building.

After a comical journey to the next room, the team found its workstation. Individuals began to feel around to see what was there. Sara heard someone say that he had found something on the floor. The team members began to move closer to his voice. Sara moved there, too, shuffling so that she would not stumble. She bent down and began feeling around the floor. She felt an object. It was a smooth, flexible, metal tube, about one inch in diameter. She could not tell how long it was. She described the tube to her team members. Others described the objects they found. As she listened, it occurred to Sara that they would have to describe, in painful detail, everything they found. Communication was critical to the team’s success and had to be even more robust than usual, because the members could not see and did not know what they were building.

Sara said, in her best leadership voice, “I have a suggestion. We all are finding different items. As we find them, we need to take turns saying out loud what we have found and what we think they are. If we do not communicate like this, we will never build this thing.”

The members agreed and started announcing what they found as they felt around their space. It was unnerving not to know whether or not they had all the pieces and when they could stop looking and start building.

The team members all started going in different directions, some building with the pieces they had, others walking around to see how far their boundaries went. Some chatted on the sidelines.

They heard the members of another team cheering. Had they finished? Even though the instructor did not say so, Sara’s team members felt as if they were competing and now were behind. Sara had to get them focused and pull them together.

She started by getting the team to determine if it had found all the pieces. She said, “Let’s take five minutes and sweep our space. As you reach what you think is a boundary, call it out. Along the way, pick up anything you find and bring it here, to the center.” In this way, the team gathered all the pieces.
After a few minutes, one member announced, “I think this is some sort of tent.” “Yes,” another member said, “I have a large piece of fabric.”

Sara thought about what was happening. “Has anyone here ever put this kind of tent together?” she asked.

One member said that it appeared to be an igloo-shaped tent, and that she had put one up in the past. Sara asked her to explain how to put it together. No one paid attention. Everyone scattered and started doing different things. Finally, Sara asked the team members to stop what they were doing and to listen.

The experienced tent builder explained, “The trick is to take these long poles and find the sleeve that they fit in. The fabric sleeve is shorter than the pole, forcing it to arch over the tent. There are four poles that meet at the north pole of the tent. You have to feed them through these sleeves and insert the top end of the pole into the round sturdy plastic piece that stays on the tent’s north pole, the epicenter of the tent. Then it is important to put the other end of the pole into the flap at the base. This flap secures it so the pole bends up over the tent and does not slip out. The four poles cross over the top, causing it to develop the shape of the tent.”

The team members all said that they understood. They experienced a burst of creativity.

Sara recommended that one person perform the role of builder. The builder would describe what they were doing as they put the pieces together, so the whole team could follow and help, where required. Sara selected the builder. He took his position and began assembling the tent, with the help of the other team members. They had little success and became distressed. The tent did not seem to be going together. Sara sensed the members’ frustration. She suggested that each of the people that had one of the four poles try to insert it in the sleeve. When one was successful, he or she could tell the others how to do it. They all tried. Finally, one person was successful and explained it to the others. She was careful to communicate not only the steps that she took that succeeded but also the ones that failed.

Miraculously, the team members erected the tent. When they had finished, the instructor told them to return to the original room. Only then could they take their blindfolds off. They quickly made it back. The instructor then allowed the teams to go look at their tents. The teams felt very proud of what they had accomplished.

Sara started to think about what she had learned from the experience that she could apply in real life.

The tent exercise is an adaptive learning exercise developed in part by Robert E. Quinn at the University of Michigan. The authors have conducted the exercise with hundreds of team members from many nationalities and all kinds of teams.

When conducting the exercise, it is essential to designate two members of each team as safety assistants. Their role is to ensure that no one is hurt. However, when the safety assistants see how pathetic their blindfolded colleagues look trying to erect
the tent, they become sympathetic and want to help. The safety assistants must be told explicitly that they cannot help their team members to complete the task.

A valuable part of the exercise is asking the teams to get to their workstations while blindfolded. As the teams plan their treks, a lot of adaptive learning occurs. Some teams never make it to their work spaces. One team designated two team members to be human bread crumbs. They positioned them at intervals along the path so that when the team was ready to return, the two members could call out to the others. Another team got to a large architectural column in the room and proceeded to circle it several times before the members realized what they were doing. They quickly appointed a new leader.

In completing this exercise, functions follow stereotypes. Manufacturing groups approach erecting the tent very technically. A marketing group from emerging economies finished in record time; working adaptively had become second nature to the members. Sales groups have the most rework. They change direction continually to the detriment of creating any synergy that could lead to a breakthrough.

Part of the value of the exercise is that people can have fun while learning how to work in adaptive environments. Amazingly, most teams learn to erect their tents. You can videotape the teams and play the tape for them as a learning technique or just to have some fun.

The story of Sara and the tent exercise is a good illustration of working with the eight adaptive principles. Sara had to first get up on the balcony to understand the adaptive problem. Sara’s blindfold made it easier for her to adopt a new point of view. She could not see the details unfolding and had to visualize the whole picture in her head.

Sara identified the adaptive challenge early in the process. She used a technical approach by asking whether anyone had ever erected a tent before. Once she did that, she realized that the rest of the exercise was adaptive and directed it in that way. She did not force a linear model of reasoning on the team. She allowed it to generate the answers and to experiment with ideas.

Sara had to regulate distress. First, she had to regulate her own distress. She believed that leaders should know where they are going and have all the answers. She learned that, in adaptive environments, this is not the case. Once she managed her own distress, she turned to the teams’. She knew that she had to let the members explore their boundaries and experiment before they could be productive. She listened, and when things became too distressful, she intervened.

When another team started cheering, Sara had to maintain disciplined attention with her team. Even though the facilitator did not set it up as a
competition, to the members it felt competitive. She had to bring them back together and refocus them.

This exercise clearly shows how distributed intelligence comes together to solve adaptive problems. At the beginning, each member felt around on the floor and found one or two pieces of the tent. They had to bring the pieces together to build the tent.

The role of leadership changed in this exercise. Sara had to encourage others to take leadership roles at different times: the person experienced in building a tent and the person designated as the builder. However, Sara remained the overall leader. She enabled the team to succeed. She defined and redefined boundaries. She helped the team understand why it was important for every member to describe exactly what he or she had found. Virtual teams go through the same realization. They have to adopt new communication techniques and understand how to use them in the most efficient and productive manner.

Finally, Sara helped her team to create a learning obligation. The team accepted that no one person had the answer. When some of the team members had successes, they shared them. They were also careful to share failures. In the tent exercise, as in adaptive virtual environments, communicating failures is as important as communicating successes.

Adaptive worlds are acausal worlds:

In this acausal world, scientists are helpless. Their predictions become postdictions. Their equations become justifications, their logic, illogic. Scientists turn reckless and mutter like gamblers who cannot stop betting. Scientists are buffoons, not because they are rational, but because the cosmos is irrational. Or perhaps it is not because the cosmos is irrational but because they are rational. Who can say which, in an acausal world? In this world, artists are joyous. Unpredictability is the life of their paintings, their music, their novels. They delight in events not forecasted, happenings without explanation, retrospective."9

Understanding adaptive environments is counterintuitive for most people. A causal, linear world changes to an acausal, chaotic one. Most people are not comfortable in this environment. But is it the environment of the future. As the time available to complete projects decreases, as complexity increases, and as environmental factors force teams into virtual space, both the art and science of work become important. People who succeed in virtual teams will be people who can span both worlds.
Points to Remember

In adaptive work, you must

1. Get on the balcony
2. Identify the adaptive challenge
3. Regulate distress
4. Maintain disciplined attention
5. Rely on distributed intelligence
6. Encourage leadership by all members
7. Encourage robust communication
8. Create a learning obligation
NOTES

Chapter One

3. Ibid.
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7. The International Space University is located in France and holds ten-week summer sessions every year, enabling people from around the world to learn about the space industry. Representatives from more than twenty-five different countries attend.
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6. Note that we have combined well-being and support into social dynamics from McGrath’s original concept.


11. Ibid.


Chapter Ten


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System Requirements

Windows PC

• 486 or Pentium processor-based personal computer
• Microsoft Windows 95 or Windows NT 3.51 or later
• Minimum RAM: 8 MB for Windows 95 and NT
• Available space on hard disk: 8 MB Windows 95 and NT
• 2X speed CD-ROM drive or faster
• Netscape 3.0 or higher browser or MS Internet Explorer 3.0 or higher

Macintosh

• Macintosh with a 68020 or higher processor or Power Macintosh
• Apple OS version 7.0 or later
• Minimum RAM: 12 MB for Macintosh
• Available space on hard disk: 6MB Macintosh
• 2X speed CD-ROM drive or faster
• Netscape 3.0 or higher browser or MS Internet Explorer 3.0 or higher

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If you experience difficulty using the Mastering Virtual Teams CD-ROM, please follow these steps:

1. Make sure your hardware and systems configurations conform to the systems requirements noted under “Systems Requirements” above.
2. Review the installation procedure for your type of hardware and operating system. It is possible to reinstall the software if necessary.

Please have the following information available:

- Type of computer and operating system
- Version of Windows or Mac OS being used
- Any error messages displayed
- Complete description of the problem.

(It is best if you are sitting at your computer when making the call.)