Virtual Teaming: 10 Principles for Success

Learning how to lead and participate in virtual teams has become a fundamental imperative for surviving and succeeding in today's connected economy. To ensure that executives and knowledge workers are equipped to meet this challenge, they must focus on 10 key principles for virtual-team success.

Management Summary

Globalization and network connectivity are driving more enterprises to conduct work across time, space and cultural boundaries. This means that an increasing amount of the mission-critical work of the enterprise is being conducted in the context of the virtual team — a dispersed group of workers with shared purposes, accountabilities and work activities, who collaborate using technology-mediated communication systems and processes.

Virtual teaming is emerging as a powerful structure to leverage knowledge-based work by improving the speed, cost-effectiveness and coordination of work processes. It also helps ensure that projects are staffed with the diversity and competencies needed irrespective of geography, enhances innovation, and empowers team members with the authority and processes to work independently.

But virtual teaming is also fraught with pitfalls, which cause many enterprises' virtual-team efforts to fail. Many teams are dysfunctional and fail to achieve expectations and goals because of leadership failures, insufficient processes, mismatched tools, and risks associated with enterprise and geographical cultural barriers.

Fortunately, a set of best practices, protocols, processes and leadership techniques can be applied to overcome these challenges and ensure effective team performance. The enterprises that succeed with virtual teams are those that make explicit the team's relationships, methodologies and accountabilities. They focus on building sound methodologies and strong relationships among virtual-team constituents, recruit team members wisely, and provide tools that are well suited to the needs of the team.

Gartner has identified the following 10 principles for ensuring virtual team success:

- **Adopt virtual-team leadership best practices.** Virtual-team leaders must be deliberate, explicit and disciplined in adapting their leadership styles to the crucial differences in virtual-team interaction, and be diligent in prioritizing and executing the team startup process.

- **Establish a clear team purpose, and link it to individual tasks.** A clear purpose must be aligned with enterprise goals and translated into individual responsibilities and tasks. In the context of virtual teams, a well-articulated purpose is not only energizing but also mandatory. It bonds disparate and dispersed people and becomes the logical connective tissue in a work setting that lacks physical cues.
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- **Build and sustain a trusting environment.** Perhaps the greatest threat to virtual teaming is a breakdown in trust among team members, and between the team and the enterprise it serves. To avoid this fate, leaders must understand four pillars of trust — dependability, consistency, congruency and mutuality — and the success factors that reinforce each.

- **Implement a step-wise startup process.** It is crucial for leaders to know and follow the key steps of a successful virtual-team startup process. These include establishing a clear team purpose, recruiting with diversity and competence in mind, establishing team methodologies and protocols, and bringing the team members together initially in a face-to-face meeting.

- **Build team linkages that foster productive and enduring relationships.** Staying connected goes beyond technology; it requires proactive work on the part of both team leaders and individual members. For leaders, this means understanding the role of methodologies, learning and relationship-building in creating and sustaining team linkages. Both team leaders and members must understand the challenges they will face in staying connected, and the steps they will need to take to overcome these challenges.

- **Establish communication protocols.** The team should work together to establish a set of protocols on how to communicate under different circumstances. These protocols should embody the four principles of effective distant communication — availability, context, synchronous communication and message prioritization.

- **Codify the "rules of engagement" in a team operating agreement.** An important success factor for virtual teams is the operating agreement, which codifies and explicates team practices, protocols and "rules of engagement" with members and other constituents. This agreement should minimize, if not eliminate, ambiguity.

- **Build a team culture based on purpose, empowerment, accountability and trust.** Building a team culture poses a challenge when members are physically separated. Leaders must focus on fostering clarity of purpose, team empowerment, trust and accountability as the cultural fabric of successful virtual teams.

- **Support communities as a social context for team members.** Virtual-team members need a companion organization that can replace the social networks and informal structures that typify the traditional, face-to-face workplace. Enterprises must support the formation and sponsorship of communities to complement virtual-team structures.

- **Select tools that effectively support each of the four stages of the collaborative process.** Collaborative applications are a key enabler of effective virtual teaming. They must be selected and implemented with care, based on their role in supporting each of the four stages of the collaborative process.

This *Strategic Analysis Report* provides in-depth analysis of these success principles, and offers recommendations specific to each. It also illustrates these principles in action through case studies describing how two companies — Boeing-Rocketdyne and Royal Dutch/Shell — achieved success in high-profile projects conducted through virtual teams.

For managers and knowledge workers, learning how to lead and participate in virtual teams has become an imperative for surviving and succeeding in today's connected economy. Ensuring that they are equipped to meet this challenge means focusing on each of the 10 principles for virtual-team success.
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1.0 Introduction

Virtual teaming is rapidly becoming the fundamental work unit for knowledge-centric work in Global 2000 enterprises. Globalization and network connectivity are driving and enabling enterprises to coordinate work across time, space and cultural boundaries. By 2006, in 75 percent of enterprises, project teams will have virtual membership; in more than half of these enterprises, some project team members will be nonemployees (0.8 probability).

Organizations are revealing distinct work-style patterns governed by a collaborative culture and need for mobility (see Figure 1). Many are still fundamentally place-based and individualistic in work style. But many more are moving to a high-mobility style characteristic of field sales and service organizations. Another style is the "huddled" one, where employees work primarily in face-to-face meetings.

![Figure 1. Collaboration and Mobility Drive Virtual Teams](image)

Source: Gartner Research

**Figure 1. Collaboration and Mobility Drive Virtual Teams**

But the trend is inexorably moving toward both a highly mobile and collaborative work style, where employees, customers, suppliers and other constituents work in the context of virtual teams. This is true even for people who work primarily in traditional work settings. They are working more and more through technology-mediated communication systems.

Many virtual teams, however, fail to achieve expectations and goals due to leadership failures, insufficient processes, mismatched tools and cultural barriers — both organizational and geographical. Fortunately, a set of best practices, protocols, processes and leadership techniques can be applied to overcome these pitfalls and achieve high-caliber team performance.

The role of virtual-team leader can emerge from a number of sources — from management, from functional leaders or from the peer group of the team. Thus, for most knowledge workers, learning how to lead and participate in virtual teams is now a fundamental imperative for surviving and succeeding in the connected economy.
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**Action Items:** Most knowledge workers are likely to lead or be members of virtual teams. Be brutally honest about your virtual-teaming skills and improve them as necessary. Evaluate your work responsibilities in the context of managing them more effectively within a virtual team. Help your organization develop and learn about the principles of virtual-team success.

### 1.1 The Virtual Team Defined

A virtual team is first and foremost a team — a group of individuals with a common purpose, shared accountabilities, and interdependent work activities and deliverables. But as a virtual team, the group conducts most of its work across time and space boundaries.

This aspect of virtual collaboration is both the team's benefit and its bane. Working from a distance within technology-mediated communication systems doesn't change the fundamentals of team leadership and participation, but it profoundly changes how these fundamentals are implemented.

In a traditional, co-located work setting, many of the boundaries and cues of human interaction are both implicit and assumed:

- Individuals can often recognize roles and authority based on where people physically sit in the organization.
- People gain significant information from body language, gestures and facial expressions.
- Leaders can depend on ready access to team members for coordination, supervision and follow-up.
- Team members can check with each other at a moment’s notice for clarification or amplification of a team issue or priority.
- Trust and rapport are enhanced through day-to-day contact and an informal socialization process.
- Support services are readily at hand in a co-located mode, and collaborative support tools and infrastructure, such as conference rooms, projectors and white boards, are readily at hand.

In a virtual-team mode, however, all the components and support elements of teaming success must be rendered deliberately and explicitly. This is the essence of the success principles of effective virtual teaming — how deliberate, explicit and disciplined the team leader and members are in adopting the principles of effective teaming in the context of distant, technology-mediated collaboration.

**Action Item:** As a virtual-team leader, be explicit and deliberate in forming the team, communicating with its members, and establishing rigorous processes and protocols for virtual, collaborative interaction.

### 1.2 The Risks and Benefits of Virtual Teaming

Virtual teaming is becoming a mainstream practice, particularly for global enterprises that must collaborate across boundaries of time and space. But it is fraught with pitfalls that cannot be avoided unless fundamental principles are adopted by the team.

The benefits for many enterprises are compelling. Virtual teaming is emerging as a powerful structure to leverage knowledge-based work, for several reasons:

- It is cost-effective, because it cuts travel expense and minimizes the time and cost of arranging and supporting face-to-face meetings.
- It improves project cycle times by moving information quickly, improving coordination and accelerating work processes.
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- It facilitates recruitment, by ensuring that project-staffing efforts won't be limited by the constraints of geography.
- It enhances innovation and creativity by ensuring team diversity, and by empowering team members with the authority and processes to work independently.

But virtual teaming is fraught with challenges. The single greatest risk to virtual team success is posed by cultural barriers within the global enterprise. These barriers include differing attitudes toward power and authority; differing beliefs and customs relating to individual vs. group-related work; and variations among different societies with regard to communication styles.

In addition, risks are posed by four main categories of virtual-team failure:

- **Leadership failure** is typically the result of acts of omission rather than commission, such as failure to set a clear vision and purpose.
- **People management failures** stem from two main causes: failure to recruit team members with the right skills and propensities for the team's mission, and failure to set and communicate appropriate expectations concerning team roles, responsibilities and protocols.
- **Process failures** stem from issues of work design, including task assignments and resource allocation. Effective processes and methodologies are crucial in virtual teams, and failure to establish processes that govern communication and workflow typically erode team effectiveness.
- **Infrastructure failure** typically involves a poor match between tools and the nature of the team's mission.

**Action Item:** Recognize the conflict between virtual teams and traditional hierarchical structures. Focus on building sound methodologies and strong relationships within the virtual team, recruit team members wisely and avoid complexity in the selection of tools.

### 2.0 Ten Principles for Virtual-Team Success

**Strategic Planning Assumption:** Through 2007, virtual-team leaders who adhere to the 10 success principles of virtual teams will improve team effectiveness by 50 percent (0.8 probability)

A growing knowledge pool exists on the subject of virtual-team leadership and support. The topic has received intense scrutiny by academics and consultants, and its popularity continues to grow. In the following sections, we distill Gartner's research on virtual teaming into 10 overarching principles for success:

- Leadership imperatives
- The power of purpose
- The trust factor
- The startup process
- Team linkages
- Communication protocols
- The operational agreement
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- Team culture
- Teams and communities
- The technology factor

In our research, we discovered several nuances about virtual teaming, which include:

- The need for virtual communities as an extension to virtual teams
- The virtual-team communication dilemma, where control of the communication process shifts from the speaker to the receiver of virtual communication

In addition, it may come as no surprise to many that nine of the principles we've identified focus on people-related issues, while only one addresses technology. Collaborative technologies are crucial to effective virtual teaming and must be selected and applied wisely. However, technology cannot replace effective team leadership and processes, although it can enhance and support them.

The real secret to virtual-team success lies in developing a deep understanding of human psychology and behavior. Anyone who has led or participated in a virtual team knows that problems typically emerge — involving issues of communication, ambiguity, a loss of trust, and fears about meeting expectations and goals — when work is both interdependent and completed almost exclusively on an "out of sight" basis.

Thus, most of the success principles address issues of leadership, methodology and building an effective team culture. Virtual-team leaders and members must remember the overarching principle of virtual teaming: It's about people, not technology.

**Action Item:** As a virtual-team leader, focus on the people issues. Develop a strong sense of purpose, work diligently at building and sustaining an environment of trust, communicate consistently and often, and coach and mentor team members in strengthening their virtual-collaboration skills.

### 2.1 Leadership Imperatives

Leadership is the sine qua non of virtual teams. Paradoxically, this leadership typically shifts — and in some cases, is shared — during the life cycle of the virtual team. This is a major source of the effectiveness of virtual teams: that team members can change and share roles much like rugby players, whose roles often shift and change depending on who has the ball.

Despite the fluid nature of virtual-team leadership, those assuming the leadership role must be cognizant of two success factors: individual competencies and leadership priorities.

**Competencies:** Leading a virtual team requires a spectrum of leadership skills, perhaps the most important of which elicit positive and productive human behaviors. These include:

- Communication skills (clarifying, negotiating and persuading)
- Coaching skills (teaching and motivating team members)
- Adaptive skills (adjusting and redirecting team efforts)

Also important are process, networking, change and project management skills. In addition, because technology plays such a key role virtual communication and collaboration, IT know-how is more of a factor than it is for nonvirtual team leadership.
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Priorities: Leadership priorities focus on:

- Defining and clarifying the team's purpose
- Setting expectations for individual and team performance
- Defining roles and responsibilities
- Recruiting the diversity and depth of talent required

Other important priorities include consensus building, resource allocation, and securing executive sponsorship and support.

Many of these priorities and competencies, of course, are equally critical in traditional, nonvirtual leadership roles. What differentiates leadership in a virtual-team environment are three factors:

- The team members are typically diverse in their specialties and backgrounds, requiring a leadership focus on team-building.
- The team is dispersed, requiring that leaders serve as the "glue" between team members.
- The team is boundaryless, requiring the leader to constantly serve as the compass of the team's direction, and the pace-setter of its velocity.

Virtual-team leaders must therefore be deliberate, explicit and disciplined in adapting their leadership styles to the crucial differences in virtual-team interaction, and be diligent in prioritizing and executing the team startup process.

Action Item: Virtual team leaders must adapt their leadership and management skills for the virtual team environment. This includes:

- Being willing to shift leadership control, when advantageous, to other team members during the team life cycle.
- Buffering the inevitable conflicts between the team and other enterprise organizations.
- Nurturing team relationships, particularly with the team's executive sponsor.

2.2 The Power of Purpose

Virtual teams must define a clear purpose that is aligned with enterprise goals and translated into individual responsibilities and tasks. Purpose, when clearly expressed and reflected by strong leaders, inspires ordinary people to do extraordinary things. It resonates, drives excellence, calls to people's spirit and connects them through a common bond.

Yet team leaders undervalue not only the need for purpose, but its power as well. Some mistake it for the immediate goal of a project, or are unable to convey a purpose large enough for others to step into. Some think that purpose is synonymous with financial metrics, others fail to recognize its fragility, and still others underestimate the vigilance with which they must keep purpose alive and resonating.

In the context of virtual teams, a well-articulated purpose is not only energizing but also mandatory. It bonds disparate and dispersed people — each contributing competence, interest, commitment and learning — and becomes the logical connective tissue in a work setting that lacks physical cues such as body language, functional titles, office locations and rank. In place of the physical cues and boundaries
that serve as symbols in the traditional, nonvirtual environment, purpose brings focus and clarity to virtual team roles and serves as a compass for team direction and effort.

In other words, a well-crafted purpose helps team members understand their roles, their collective impact and how they will make a difference. It cascades down into the mission that defines team goals, which in turn devolve into the individual objectives that drive the specific, individual tasks that ultimately deliver results (see Figure 2). This is the fundamental value chain of a high-performance virtual team.

![Virtual Teaming: 10 Principles for Success](image-url)

**Figure 2. The Cascading Chain From Purpose to Results**

**Action Item**: Define a clear and compelling purpose for the team's mission. Gain team consensus on, and commitment to, this purpose, and link it to enterprise goals and to individual roles, responsibilities and tasks.

2.3 The Trust Factor

*Strategic Planning Assumption: Through 2007, virtual-team leaders who fail to build and sustain a trusting environment within the team will miss team goals by at least 50 percent (0.8 probability).*

Perhaps the greatest threat to virtual teaming is a breakdown in trust among team members, and between the team and the enterprise it serves. Although trust is built slowly over time, it can be destroyed in a matter of minutes.

For example, virtual meetings that never start on time and fail to meet objectives will undermine trust, as will team leaders whose behavior conflicts with their stated intentions. Tools and technology that fail to meet stated performance standards will also fray the fabric of trust within the team.

The nature of virtual teams poses unique challenges to building and sustaining trust. These include:

- Unlike co-located teams, virtual teams lack face-to-face interactions. Such interactions contribute to building interpersonal relationships and rapport, the first steps in building an environment of trust.
- A significant increased potential for misunderstandings and misinterpretations exists in virtual communication, which further erodes trust.
- People are naturally cautious in sharing information and making commitments in an environment of anonymity, which typifies many virtual-team communication modes.
- Gaps between perception and reality can further erode trust between virtual-team members, the team leader and the enterprise.
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It takes considerable time for people to build up a sense of trust in their colleagues and team leader. This same level of trust must be cultivated in the tools, processes and protocols that facilitate the team’s collaboration and work output.

2.3.1 The Four Pillars of Trust

Research in virtual-workplace best practices reveals that four elements, if developed by the virtual-team leader and members, will reinforce a trusting environment within the team. Gartner calls these elements the "pillars of trust" in virtual teams:

- **Dependability**: Enterprises can anticipate how individuals will perform and behave, and they are certain about people meeting deadlines and appointments.

- **Consistency**: Team members are treated with respect, processes are consistently applied, and protocols are applicable to all.

- **Congruency**: Perception and reality are matched. Things are what they seem, and team members match words to deeds.

- **Mutuality or Reciprocity**: Teams have an "all for one and one for all" attitude. Individuals succeed because the team is successful.

2.3.2 Trust Success Factors

In the context of virtual teams, four success factors exist, each of which fosters one or more of the pillars of trust identified above (see Figure 3):

- **Competence** (fosters dependability and congruency): Trust dissolves when team members lose confidence in an individual's ability to contribute and execute against assigned tasks: The team leader must ensure that each team member has the requisite skills, competencies, experience and personality to perform effectively relative to the team mission and purpose (see Section 2.4, Step 3).

- **Personal Integrity** (fosters dependability, consistency and congruency): Team leaders need to be highly vigilant relative to breaches in team integrity. Nothing will destroy the team's morale and trust more than a sense that members are abusing the system, shirking responsibilities, failing to meet commitments, or indulging in half-truths or misrepresentations. Coaching, counseling or even disciplinary action may be needed to ensure that the team functions with professionalism and integrity.

- **Transparency** (fosters dependability, consistency and congruency): The team leader and members must share information openly and consistently. There should be no hidden agendas or selective editing of information relevant to the team's purpose and performance. Team processes should be transparent, so that members can see work schedules, calendars, status updates and group work products on an open and consistent basis. Virtual-team collaborative tools should be selected that facilitate the flow and indexing of team-related information and output. Information transparency enhances members' confidence in team processes, workflow and a sense of collegiality.

- **Commitment** (fosters dependability, congruency and mutuality): Team members' commitment is a measure of their support of the team's purpose and goals. Leaders can bolster team commitment by emphasizing group success, recognizing team performance, and establishing group-based metrics and rewards that foster a sense of mutuality and shared accomplishment.
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Pillars of Trust

- **Dependability**
  - Predictability
  - Certainty
- **Consistency**
  - Fairness
  - Sense of equality
  - Objectivity
- **Congruency**
  - Fit between perception and reality
  - No hidden agendas
- **Mutuality**
  - Win-win
  - Shared benefit
  - Reciprocity

Success Factors

- **Competence**
  - Fosters dependability and congruency
- **Integrity**
  - Fosters dependability, consistency and congruency
- **Transparency**
  - Fosters dependability, consistency and congruency
- **Commitment**
  - Fosters dependability, congruency and mutuality

Source: Gartner Research

Figure 3. Building Trust in Virtual Teams: Four Pillars, Four Success Factors

These success factors represent the consensus of expert guidance on virtual-team leadership, as well as extensive interviews with virtual-team leaders. The overall goal is to ensure and reinforce a sense of confidence in team members toward each other, and toward team leadership, processes and tools.

**Action Item:** As a virtual-team leader, be explicit in building and sustaining a trusting environment in the team. Be consistent in your words and actions, and respectful of team members. Ensure that team members have the competence and discipline to deliver on their accountabilities. Insist on information transparency, and ensure that all team members have all relevant information, all the time.

2.4 The Startup Process

*Strategic Planning Assumption: Through 2007, virtual teams that effectively execute the team startup process, will improve the likelihood of team success by 30 percent (0.8 probability).*

The most important juncture for the virtual team is the initialization phase. A systematic, sequential startup process is essential for virtual team success. Whether the team is commissioned only to complete a specific assignment or to serve as an ongoing operational unit, the startup phase will set the tone, purpose and protocols that will guide the team's collaborative efforts throughout its life cycle.

Six steps lead to an effective virtual team startup process (see Figure 4).

Source: Gartner Research

Figure 4. Initiating Virtual Teams: A Six-Step Process
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- **Step 1: Identify team stakeholders.** The first step in the formation of a virtual team is to identify and communicate with the key stakeholders of the virtual team's output, and to solidify executive sponsorship and support for the virtual-team project. This begins with the identification of the executive or senior manager who will serve as the team's sponsor and executive champion. The executive sponsor plays a key role in providing executive-level support and "political air cover" as the team completes its work. Other stakeholders include the primary customers of the team's outputs — functional managers with a stake in the team's mission, who might include executives in the IS, human resources, finance or marketing organizations. Stakeholders may also include the suppliers and other service providers needed to support the team's mission.

- **Step 2: Establish team purpose.** A sense of purpose is critical to ensuring team cohesion and efficiency (see Section 2.2). The team leader and sponsor must articulate a clear statement of the team's purpose and its attendant goals. This statement should outline the skills, experiences and capabilities that team members will need. A virtual team — whose members work mostly apart — needs a strong sense of purpose that will bind the group to a committed goal. A team purpose also reduces ambiguity and empowers individual team members with a framework for decision making and prioritization. Defining the team's purpose, and then vetting the purpose and gaining "buy-in" with team stakeholders, is crucial to the startup process.

- **Step 3: Recruit team members.** Team members must be recruited with a specific emphasis on diversity, competence, and good collaborative and interpersonal skills. Team leaders should be particularly cognizant of the individual's personality and disposition for virtual collaboration. Each member should contribute skills unique to his or her role, which might be team leader, coordinator, analyst, wordsmith, technology specialist, facilitator or graphics specialist. Depending on its mission, a team's core membership may be augmented by ancillary members who contribute to the team's work at specific points in its life cycle.

- **Step 4: Set up team infrastructure and resources.** For co-located teams, infrastructure and support services are not typically major issues, since the teams can utilize those provided on the company premises. However, because virtual teams work across geographic and — in some cases — enterprise boundaries, explicit steps must be taken to set up the team's communication infrastructure and support services. These include ensuring that the team has e-mail and voice mail capabilities, support services, and a collaborative application that can serve as the virtual meeting place and repository of team interactions. We also strongly encourage the appointment of a team administrator — with responsibilities distinct from those of the team leader — to manage the team's logistics and schedule, record team meetings, develop and administer team budgets, and provide a single point of coordination for the team's activities.

- **Step 5. Socialize the team.** The team members should convene in a face-to-face introductory session to develop a personal rapport that will establish the basis of trust as the team begins its work. The agenda for the team kick-off meeting should include establishing team goals, setting milestones, clarifying individual roles, developing meeting schedules, and setting norms and standards for team communications. Beyond the initial meeting, experience has demonstrated that virtual teams benefit from reconvening periodically (at least every six months) to sustain critical levels of trust and rapport.

- **Step 6. Establish team protocols and processes.** In this final step, the team hammers out the protocols, roles, responsibilities and processes that will govern virtual team interaction and workflow though the course of the team's life cycle. These are essential to minimize ambiguity and time-wasting debate on how to reach consensus, or to resolve disputes and disagreements. These include
communication processes (see Section 2.6), work procedures, roles and assignments, and key processes related to planning, budgeting, documentation and training. This work can be best accomplished when the team assembles for the kickoff face-to-face team meeting to gain consensus and buy-in, but should be refined during the launch phase of the team.

**Action Item:** As a virtual-team leader, institute a formal team startup process similar to the one described above. Establish a clear team purpose, recruit with diversity and competence in mind, establish team methodologies and protocols, and bring the team members together in an initial, face-to-face meeting.

### 2.5 Team Linkages: Staying Connected

Virtual teaming is 90 percent about people, and 10 percent about technology. Software and network connectivity may provide the basic links among team members, but staying connected goes far beyond technology. It takes people — both team leaders and members — to provide the methodologies and sustain the relationships that connect the virtual team.

For leaders, this means understanding and focusing on team methodologies, learning and relationship building as high-order elements in building team linkages. Team members, for their part, must understand the challenges they will face in staying connected, and the proactive steps needed to overcome them.

#### 2.5.1 From Linkages to Relationships

In their book, "Virtual Teams: Reaching Across Space, Time, and Organizations With Technology," Jessica Lipnack and Jeffrey Stamps argue that the essence of virtual teams rests on three fundamentals: people, purpose and linkages. We have addressed the people and purpose factors earlier, but the concept of linkages is an important one for virtual-team leaders and participants to understand.

Linkages start with basic connectivity infrastructure and applications. Most virtual collaboration occurs through technology-enabled media such as e-mail, audioconferences and videoconferences, and through collaborative applications that provide knowledge repositories, work scheduling and task assignments (see Figure 5).

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**Figure 5. Team Linkages — From Media to Relationships**

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Source: "Virtual Teams: Reaching Across Space, Time and Organizations With Technology," J. Lipnack and J. Stamps
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But linkages should be considered in a broader context that moves from media, through various processes and learned behaviors such as team building, brainstorming and issue resolution, to the ultimate state of linkages: enduring relationships grounded in a sense of trust, commitment and accountability among team members. The success of a virtual team is ultimately measured by how well it builds relationships, both within the team and with other constituencies.

Lipnack and Stamps sum up linkages this way: "Links are physical media that enable interactions that spawn and maintain relationships." It is ultimately the quality of the relationships that are built within the team that will ensure its ability to meet or exceed its goals. High-performance virtual teams focus on methodologies and protocols that minimize ambiguity and enhance trust, resulting in highly effective and enduring relationships.

**Action Item:** Team leaders should not depend on software applications and connectivity alone to ensure adequate team connections. Leaders must also focus on team methodologies, learning and relationship building as crucial elements in building effective team linkages.

### 2.5.2 Helping Virtual Workers Stay Connected

Perhaps the greatest downside to a virtual work style is the problem of employee feelings of isolation and disconnection. When working remotely, even the most skilled and self-confident employees can experience a sense of organizational isolation and estrangement from the social fabric of the workgroup. They may feel "out of the loop," and vulnerable to missed opportunities to work on important assignments or to be eligible for promotion. They may also struggle to maintain the informal social networks that are so important in a knowledge-based organization.

Gartner has identified six steps that leaders and team members can take to address these challenges:

- **Match communication styles with individual preferences.** People differ on their needs for feeling connected. The team leader needs to understand what individuals want and need, and play somewhat to their styles. Some people will contact you if they feel disconnected — encourage it. Some will never contact you — go to them. Learn their styles and do what is needed to communicate effectively with them. Ask for preferences and balance those with your own and the team's needs.

- **Establish communication protocols.** Leaders should ensure that explicit communication protocols (see Section 2.6) are implemented to institutionalize periodic communication between remote workers and their colleagues. These may include a weekly phone meeting with team members, a monthly update call with the employee's manager, and quarterly face-to-face meetings with teleworkers and their teammates. In addition, a calendar of company social events by location should be maintained on the enterprise's intranet to encourage virtual-worker visits and interactions with colleagues.

- **Create an intranet site where workers can exchange ideas and establish a sense of community.** Intranets with community support offer an ideal environment for communities to form, and for remote workers to exchange ideas and create an informal sense of community — a kind of "virtual water cooler." Ground rules and expectations should be set for appropriate use of the Web site as a place for idea exchange and community-building, and for non-work-related interest communities. In addition, communities based on professional or technical interests can also serve as virtual destinations for all employees (see Section 2.9).

- **Provide training resources for the virtual workers, team leaders and managers.** Training is essential for employees, team leaders and managers who work in virtual teams. This training should focus on communication protocols and other processes developed as part of the enterprise's virtual
work program. Managers must be trained on how to supervise employees who are physically isolated from the company premises. We also recommend that employees who work on-site receive a brief orientation on the enterprise’s virtual work program, its rationale and their role in the program.

- **Create a Web-based application for locating enterprise resources and employees.** An increasingly popular application in distributed workplaces offers a visual map of enterprise resources, floor layouts and employee locations. Such an application can provide several functions, such as enabling remote or visiting employees to reserve cubicles or conference rooms as needed. It can also pinpoint employee locations in the enterprise to facilitate meeting planning.

- **Redesign company premises to increase social spaces for group interaction, collaboration and socialization.** Individual spaces should be reduced in size and number, with a corresponding increase in conference rooms, huddle rooms, team rooms and other social spaces that foster employee interaction. Some companies believe that the workplace should be more informal, relaxed and fun. Such work settings invite employee interaction rather than convey the sense of command and control fostered by a "cubicle farm" environment. Distributed employees working on virtual teams will be attracted to locations that enhance team-based work.

### 2.6 Communication Protocols

Effective and explicit communication protocols are the bedrock of high-performance virtual teams. Team leaders must ensure that the principles of effective distant communication are embedded in the team’s communication process, including availability, context (synchronous, when possible) and sender prioritization.

Distant communication poses distinct challenges compared to face-to-face interaction. The latter is always synchronous, and those transmitting the communication control the exchange. The context of the communication is rich and explicit, and gesture and body language greatly amplify meaning, tone and intent. Distant communication, by contrast, is often asynchronous, and the receiver controls the exchange relative to when and where the communication is received. Context must always be re-established because gesture, tone and body language is lost.

How to overcome these challenges? Organization consultant Martha Haywood sets forth four rules for effective distant communication. These rules should be considered in the many communication modes that will be adopted by the team.

- Team members must identify when they are available for receiving and responding to communication beyond normal business hours, and these rules must be respected by team members.

- Team members must explicitly replenish context in their communication relative to intent, relevance, situation and purpose.

- Team members should meet regularly on a synchronous basis to maintain rapport and continuity.

- Senders must take responsibility for prioritizing communications as urgent, important, routine or merely informational.

These rules should be put into the context of team expectations about individual accountability, personal communication styles and flexibility.

Particular protocols should be established for online team meetings, such as the meeting schedule, participants, agenda, and the capture and indexing of meeting minutes. Other protocols will need to be
established, such as the use of e-mail vs. instant messaging, rules governing confidentiality, processes for review and critique, and processes for dispute resolution.

**Action Item:** Virtual-team leaders should establish explicit communication protocols that embody the four principles of effective distant communication — availability, context, synchronous communications (whenever possible) and the prioritization of messages.

### 2.7 The Operating Agreement

**Strategic Planning Assumption:** Through 2007, virtual-team leaders who codify practices and protocols in a team operating agreement will improve likelihood of team success by 20 percent (0.7 probability).

An important success factor in virtual teaming is the development of an operating agreement that codifies and explicates team practices, protocols, and "rules of engagement" with team members and other team constituents. The agreement should attempt to minimize, if not eliminate, ambiguity. The operating agreement is primarily useful for project teams, particularly those involving team members that are nonemployees such as consultants and suppliers. For many virtual teams, standard administrative procedures will cover many of these points.

Key elements of the operating agreement include

- **Resource Allocation:** How will individual team members account for their time and expenses, and how will this be allocated in the team budget?
- **Confidentiality:** How will confidential information be handled?
- **Conflict Resolution:** How will disputes and other conflicts be mediated or resolved?
- **Communication Protocols:** How will the team communicate? (See Section 2.6.)
- **Reimbursements:** How will the team member's organization be reimbursed for expenses and time commitments?
- **Accountabilities:** What are the roles and responsibilities of individual team members?
- **Methodologies:** How will key team processes be implemented, such as training, research, work deliverable production, review and approval processes, knowledge management, and meeting procedures?

In some cases the operating agreement is forged before a virtual team is constituted and launched, as was the case for the Boeing-Rocketdyne team (see Section 3.1). Typically, however, the operating agreement is created by the team members themselves, and represents the team's consensus on how it will operate throughout its life cycle.

**Action Item:** Virtual-team leaders should complete a team operating agreement that makes explicit how the team will operate through the course of its life cycle, how it will communicate, the roles and responsibilities of its members, and its relationships with key constituents.

### 2.8 Team Culture

**Strategic Planning Assumption:** Through 2007, a primary indicator of virtual team success will be its ability to create and sustain a team culture that reflects a strong sense of purpose, trust, empowerment and accountability (0.8 probability).
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Creating a virtual-team culture is like weaving a tapestry. Individual threads combine to create an overall cultural fabric, which guides and orients team members as they work together in cyberspace. Earlier, we focused on two of these key cultural threads:

- The need for a strong team *purpose*, which is translated into team objectives and individual tasks (see Section 2.2).
- A strong environment of *trust* grounded in principles of fairness, consistency, honesty, reliability and matching words with deeds (see Section 2.3).

In addition to purpose and trust, two other threads must be woven into the team cultural fabric:

- **Empowerment**: A virtual team must be empowered by management to plan and execute the fundamentals of the team mission. This includes having pre-established levels of authority and responsibility so that most decisions relating to team processes, resource allocation and scheduling reside within the boundaries of the team. Nothing destroys a virtual team's morale more quickly than a requirement to constantly check with higher authorities on day-to-day operational decisions. Virtual teaming hates hierarchy and bureaucracy.

- **Accountability**: Virtual-team members must commit to the team's purpose and follow through on their respective accountabilities to fulfill the team's mission. Team members will be more collaborative, participatory, and willing to contribute knowledge, time and attention to the team's purpose if they trust in the measurement and reward process. Stack-ranking team members and emphasizing individual performance will de-motivate contributors and create an attitude of distrust among team members.

**Action Item**: Virtual-team leaders must focus on clarity of purpose, insist on team empowerment, be explicit in building trust, and foster team member commitment and accountability as the cultural fabric of successful virtual teams. They must constantly emphasize and reinforce these values throughout the team life cycle.

2.9 Teams and Communities

*Strategic Planning Assumption: Through 2007, global enterprises will explicitly adopt communities as a natural extension to virtual teams (0.7 probability).*

Virtual team members need a companion organization that can replace the social networks and informal structures that typify the traditional face-to-face workplace. As virtual teaming increases as the primary "production zone" in the enterprise (see Figure 6), the "social zone" will shift to communities (see "Communities: Sociology Meets Technology," AV-13-8988, and "Communities: Broad-Reaching Business Value," COM-13-9032).
Community participants may be people, enterprises or agents. Each derives its power from mutuality of goals, ongoing interaction and communication, and the permanence of the relationships among the participants.

Community dynamics are driven primarily by the human need to be connected, and the desire to achieve goals greater than our own reach. In any community, three characteristics are present:

- **Vision-focused interaction**: Members or participants may work on individual tasks, but all tasks are completed within the context of an overall vision for the community.
- **Mutuality of goals**: The activities of the community are mutually beneficial, in that all participants benefit from their own and other's participation.
- **Endurance of community values**: The community is essentially permanent, and connections among participants exist for a higher purpose or higher values. Membership may change frequently, but the values and purpose endure.

Communities can form organically or they can be explicitly engineered to serve a particular business need. For example, Gartner sponsors research communities that develop research agendas, develop topics for special reports and exchange knowledge with other communities in the research organization. Work projects, such as special reports, are executed by virtual research teams, which include analysts, editors and Web technicians.

**Action Item**: Provide the infrastructure support for interest communities, as well as work communities to function in conjunction with virtual teams.

### 2.10 Tools and Technologies

None of today's or tomorrow's software solutions will reduce the need for effective leadership and processes, although promising trends exist in technologies that support and enable virtual teams and their
leaders to conduct their work more effectively. During the next two years, Gartner believes the difficulty of choosing between bundled suites, portal frameworks and point solutions will be reduced as collaboration support functions are eventually componentized and delivered as Web services.

Today’s collaborative applications, however, are a key enabler of effective virtual teaming. When their use is combined with effective leadership and processes, these applications provide crucial support for today’s increasingly distributed and virtual enterprises. They must be selected and applied wisely, however, within the context of the four basic stages of the collaborative process.

2.10.1 The Four Stages of the Collaborative Process

Collaboration focused on a specific goal, like all interactions, follows a predictable process. Understanding this process can provide insight into the types of environments, contexts and tools needed during various stages of collaboration. This is particularly true for large, complex project collaboration.

The collaborative process can be divided into four stages (see Figure 7).

- **The planning or design stage:** In this stage, the collaborative process begins, its protocols are established, its purpose and goals are defined and agreed on, and the collaborative effort is designed. In the words of the industrial psychologists, this is the “forming” stage of collaboration.

- **The information or data-gathering stage:** Typically, a necessary stage in collaboration is obtaining, organizing and validating information. This is also known as the "storming" stage, when participants are developing rapport, assigning roles, codifying leadership and negotiating commitments.

- **The analytical or processing stage:** Here, data and information are analyzed and processed into action-oriented terms that define the output of the collaboration. Again, in the parlance of the industrial psychologists, this is the "norming" stage of collaboration.

- **The execution or implementation stage.** Here, the results of the previous stages are set in motion. This is the "performing stage" of the collaborative process.

**Figure 7. Collaboration Process Stages and Tools Required**

- **The planning or design stage:** Design
  - **Problem Analysis**
  - **Planning**
  - **Process Design**
  - **Discussion**

- **The information or data-gathering stage:** Data Collection
  - **Databases**
  - **Data Warehouse**
  - **ERP Systems**
  - **Documents**
  - **Focus Groups**
  - **Surveys**
  - **Discussion**

- **The analytical or processing stage:** Processing
  - **Queries**
  - **Reports**
  - **Analytical Tools**
  - **Decision Support**
  - **Discussion**

- **The execution or implementation stage:** Action
  - **Project Mgt.**
  - **Deliverables**
  - **Discussion**

**Source:** Gartner Research
2.10.2 Matching Applications to Collaborative-Process Stages

Various types of collaborative tools provide valuable support for each of the four stages of the collaborative processes.

- **Forming Stage (Planning):** Consider applications that support brainstorming, idea generation and task lists, as well as media that encourage the free flow of ideas and concepts (see "Team Collaboration Support: What Does It Take?" M-15-7979). Examples include:
  - eRoom Technology's eRoom
  - Groove Networks' collaborative software
  - Instant-messaging tools like Lotus Sametime
  - Integrated Development Enterprise's (IDE's) IDweb
  - True Source's Practicity
  - Lotus QuickPlace

- **Storming Stage (Data Gathering):** This is the stage when the collaborative process is in a search mode, gathering information and sifting through alternatives, as well as debating and contesting alternative approaches and ideas. Applications best suited for this stage include document management tools, search engines, data retrieval applications and other tools that search out and organize information (see "Integrated Document Management Software: Perspective," DPRO-90373). Examples include:
  - Matrix One's eMatrix
  - IDE's IDweb
  - iManage WorkSite
  - Lotus Domino.Doc
  - Open Text's Livelink
  - PTC's Windchill

- **Norming Stage (Analysis):** In this stage, the collaborative process enters its analytical phase. Here, applications should support online discussion, analysis, decision making and consensus building. Several Web-based meeting applications support these needs (see "When Travel Is Grounded, Web Conferencing Takes Off," T-14-7325). Examples include:
  - Microsoft's NetMeeting
  - PlaceWare Conference Center
  - Visualization tools, such as EDS' e-Vis
  - WebEx Meeting Center

- **Performing Stage (Execution):** Here, collaboration moves into action — devising schedules and executing against the information gathering and analysis of the previous stages. Project management applications may come into play (see "2002 Project/Resource Management Magic Quadrant," M-16-8074). Examples include:
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- Microsoft Project Professional
- Artemis
- PlanView
- Niku
- Primavera TeamPlay
- Business Engine

Many applications primarily associated one stage of the collaborative process can also support, to varying degrees, additional phases.

**Action Item:** Select applications based on their support for each of the four stages of the collaborative process.

### 2.10.3 The Collaborative Application Market

Different teams have different work patterns and support needs. Although the vendors represented in Gartner's Collaborative Application Magic Quadrant (see Figure 8) have products that are broadly similar in scope, they differ significantly in the details (see "Magic Quadrant: Team Collaboration Support," M-16-7340). Thus, all vendors included are worthy of consideration, and vendors in the "Leaders" quadrant are not necessarily the best fit for all requirements.

![Collaborative Application Magic Quadrant](image)

**Figure 8. Collaborative Application Magic Quadrant**

- **Leaders:** These vendors have all shown staying power in the market for products that support team collaboration, and demonstrated a track record of following the evolutionary forces of the market. Only eRoom and Inraspect are "pure play" vendors in this space. Open Text still has difficulty shaking off its document management heritage but has recently addressed both business-to-business and real-
time collaboration needs. IBM/Lotus remains the pre-eminent vendor, with the strengths (product range and experience) and the weaknesses (legacy image, difficulty in coordination and speed to market) that go with this history.

- **Challengers:** Microsoft is positioned as a challenger, albeit a strong one, because of its lack of clear focus and strategy to address this market. SharePoint Portal Server addressed some of the deficiencies, but the combination of a portal framework, search functionality and document management does not target team support needs directly. Hummingbird has a portfolio of acquired products that enables it to address the needs of this segment. It only recently brought these together to create a consolidated platform for collaboration.

- **Visionaries:** Collaboration has always been an attractive target for computer science experimentation, and this has allowed for many players to arise as visionaries. SiteScape's product is a long-time player in this market: It started within Digital Equipment, was spun off by Compaq Computer from AltaVista, and was finally purchased by SiteScape. It has suffered from this checkered history in not gaining as much visibility and credibility as its peers, notably eRoom and Intraspect.

- **Niche Players:** This Magic Quadrant is notable for having relatively few vendors in the Niche Players quadrant, which reflects the difficulty in addressing this market — many niche vendors do not survive for long.

### 3.0 Virtual-Team Principles in Action: Two Case Studies

To illustrate how many of the 10 principles discussed in this report have contributed to the success of real-world projects, the following sections provide case studies of two successful virtual-team initiatives.

- **Boeing-Rocketdyne:** The first case study — details of which were published in a recent paper by Arvind Malhotra, Ann Majchrzak, Robert Carman and Vern Lott (see Appendix A) — describes how Boeing-Rocketdyne used a virtual team to develop a new thrust chamber for a liquid-fuel rocket engine. The case study exemplifies many of the key principles of virtual-team leadership and methodology, including:
  - Developing an operational agreement
  - Using an effective startup process
  - Implementing a customized, collaborative application
  - Using systematic communication protocols

- **Royal Dutch/Shell:** The second case study — the facts of which were provided by Tom Kunz, an executive at Shell's Chemicals Division — describes Royal Dutch/Shell's launch of a virtual-team project in 2001 to develop a comprehensive value-based management system for its Chemicals Division. The case study illustrates the effective application of several virtual-team success principles, such as:
  - Building and sustaining a trusting culture
  - Developing a clear and compelling team purpose
  - Using standardized communication and meeting protocols
  - Effective use of technology to facilitate virtual-team collaboration
3.1 Boeing-Rocketdyne

The Project — Design a New and Better Rocket Engine: Boeing-Rocketdyne, a Boeing subsidiary, formed a virtual team in the mid-1990s to develop a new thrust chamber for a liquid-fuel rocket engine. The team included eight members, two of which were sourced from two Rocketdyne supplier companies, Raytheon and MacNeal-Schwendler. The team called itself "SLICE" for "simple, low-cost, innovative concepts engine." The team’s membership included the following roles:

- Project leader
- Concept designer
- Lead engineer
- Combustion analyst
- Thermal analyst
- Process engineer
- Computer-aided-design specialist
- Stress analyst

Approach: The team worked over a 10-month period, with each member devoting 15 percent of his or her time to the project. In its approach, the team embraced several of the 10 virtual-team success principles, including:

- Establishing an operating agreement — First, the team’s participating companies developed an umbrella operating agreement, which delineated how resources would be allocated, how confidential information would be treated, how project responsibilities would be handled, and how each company would contribute resources, knowledge and skills.

- Following a systematic startup process — The team followed a systematic, step-based startup process, which included an initial face-to-face meeting.

- Building and sustaining trust — Several of the team’s practices built and sustained trust, such as the rule that all information would be shared with all team members, all the time.

- Followed systematic communication protocols — The team agreed on and followed a systematic set of communication protocols governing items such as team-meeting agendas, template use and the posting of one-on-one conversations to the team’s collaborative application, which the team called its "engineering notebook."

- Using collaborative technologies — A customized application was developed, which combined both collaborative and knowledge management capability.

Results: The project results were unprecedented. The team developed a design that:

- Reduced components from 1,200 to six moving parts
- Reduced production costs from $7 million to $500,000
- Increased quality to the nine-sigma level, as compared to the six-sigma industry standard
- Reduced engineering time by 50 percent
3.2 Royal Dutch/Shell

The Project — Develop a Value-Based Management System: The Chemicals Division of Royal Dutch/Shell launched a virtual-team project in 2001 to develop a comprehensive value-based management system for the division. The team was sourced globally from a diverse group of 12 volunteers, including:

- Three finance executives
- An IT specialist
- Two business unit executives
- A strategy analyst
- A change management expert
- An expert on entrepreneurism
- A plant manager
- Two external consultants, one of which was a virtual-team expert and coach

Approach: The team followed several best practices in developing and supporting the virtual team. The team leader described five of these best practices as critical success factors for the team's accomplishments:

- **Built relationships and trust virtually** — The team leader focused on building a sense of trust in the team by personalizing team profiles, meeting face-to-face with team members, posing “check-in” questions each meeting to help members to get acquainted (for example, "Who was your most influential teacher and why?"), and being extremely vigilant in ensuring information transparency.

- **Developed a clear purpose that attracted volunteers** — The team leader developed a clear team purpose, which was directly linked to individual goals and tasks.

- **Established a standardized meeting agenda format** — The team adopted a standardized communication protocol and agenda for weekly team meetings.

- **Included a virtual-team expert/coach as a member of the team** — The team invited an expert in virtual teaming to participate in team activities, coach members and advise on processes.

- **Developed a customized, collaborative application** — The team developed a unique collaborative application, which became a prototype for Open Text's Livelink virtual-team application.

Results: The team's accomplishments exceeded its original goals. These accomplishments included the following:

- The team developed a successful, comprehensive value-based management program for the Chemicals Division, including metrics and a methodology.

- It devised a change management strategy and gained top-level support for the program through a series of management meetings with 30 top executives throughout the division.

- It successfully piloted its customized, collaborative application, which has been adopted throughout the division (with 10,000 installed seats).
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4.0 Summary and Recommendations

A major business trend is the inexorable move toward a highly mobile and collaborative work style, where employees, customers, suppliers and other constituents work in the context of virtual teams. Gartner expects that these teams will become the fundamental organizational structure for knowledge-focused work within the next four years.

For most managers and professionals, learning how to lead and participate in virtual teams is now a fundamental imperative for surviving and thriving in the connected economy. To succeed, leaders must make explicit the relationships, methodologies and accountabilities of their virtual teams. Gartner recommends that enterprise managers and virtual-team leaders focus on the following imperatives, which correspond to each of Gartner's 10 principles for virtual team success:

- Be disciplined, explicit and deliberate in adapting your leadership style to the crucial differences in virtual team interaction.
- Establish a clear team purpose, and link it to individual tasks.
- Build and sustain a trusting environment based on the four pillars of trust.
- Implement a systematic startup process, including a face-to-face meeting at the outset of the team's activities.
- Build team linkages that foster productive and enduring relationships.
- Establish protocols based on the four rules of virtual communication.
- Codify the "rules of engagement" in a team operating agreement.
- Build a team culture based on purpose, empowerment, accountability and trust.
- Support communities of practice as a social context for team members.
- Select tools that effectively support each of the four stages of the collaborative process.
Appendix A: Recommended Reading on Virtual Teams


- **Managing Virtual Teams: Practical Techniques for High-Technology Project Managers** by Martha Haywood (Artech House, 1998)


- "Radical Innovation Without Collocation: A Case Study at Boeing-Rocketdyne" by Arvind Malhotra, Ann Majchrzak, Robert Carman and Vern Lott (MIS Quarterly, 2001)

- **Virtual Leadership: Secrets From the Round Table for the Multi-Site Manager** by Jaclyn Kostner (Warner Books, 1996)

- **Virtual Teams: People Working Across Boundaries With Technology** by Jessica Lipnack and Jeffrey Stamps (John Wiley & Sons, 2000)