While an organization’s founders and other top executives define the organization’s vision, strategies, and policies, it is the responsibility of managers and supervisors to interpret the vision as well as to implement and to execute these strategies and policies (Agarwal & Ferratt, 2002b). IT professionals are able to function best when they understand the mission, vision, and values of their organization; clearly understand their role in the organization; recognize technology’s part in fulfilling the organization’s goals; and feel that the values of the organization are consistently upheld by leaders (Glen, 2003). IT supervisors have the ability and responsibility to emphasize and heighten awareness of these issues among their subordinates.

IT workers experience numerous sources of stress that are universal across occupations and work environments. Research shows that, similar to other professions, stress in IT results from intensive work demands, complex relationships with others, career concerns, systems maintenance, role ambiguity, and tedious administrative tasks (Lim & Teo, 1999), as well as fear of obsolescence, team and client interactions, role overload, work culture issues, technical constraints, and competing work and family demands (Rajeswari & Anantharaman, 2003). Effective IT leadership provided by immediate supervisors has the capacity to alleviate...
stress, while poor supervision creates stress of its own and exacerbates other stressors (Lim & Teo, 1999). Supervisors of IT professionals must harmonize the unique needs of IT professionals with the organization’s goals and culture and the technical aspects of the work itself (Glen, 2003).

Our focus is on identifying best practices for supervising IT personnel. Best practices were derived from qualitative data supplied in ten structured interviews with high-performing supervisors of IT employees and supplemented with data from 28 focus groups conducted with IT professionals. See Table I for interview topics. The objective of these interviews was to identify the strategies used by high-performing supervisors to meet the challenges faced by the IT workforce. Best practices derived from the data were consistent with classic leadership theory. We use the interview and focus-group data to describe how supervisors can apply these practices to meet the needs of the IT workforce. Research methodology and procedures for identifying best practices are summarized in the Appendix.

Application of Best Supervisory Practices to IT Challenges

Challenges Due to Complexities of IT Work

One set of challenges concerns the nature of IT work, which requires a high degree of flexibility and adaptability on the part of IT personnel. IT work may be performed alone in isolation or in teams that may be colocated or virtual. IT work can be distributed and interdependent, often requiring coordination among multiple experts. Workloads may be punctuated by intense bursts of activity. The work must be performed unceasingly without error (high machine uptime, bug-free code) despite frequent changes brought on by a variety of factors, including technological innovation and customer demands.

The best supervisors address this set of challenges through boundary spanning, effective performance management practices, and employee involvement. Boundary spanning can be useful in anticipating and managing work demands from IT clients. Performance management is essential for ensuring that IT workers understand their work priorities and have the tools to address these priorities. Through employee involvement, the IT supervisor gives employees the opportunity to have a voice and to develop personal investment in completing work tasks.

Managing distributed interdependent work that requires multiple experts is further accomplished through attention to training and development as well as good relationship-building practices. The IT supervisor must attend to stress management and work-family balance due to the following unique elements of IT work: its 24-hour nature, the need to respond to emergent issues and unplanned requests, and sporadic periods of intense work activity. In addition, the supervisor’s investment in relationship building and trust helps ensure that IT professionals willingly put forth extra effort as required because they know the supervisor will reciprocate (e.g., with time off) during periods of lower demand. One supervisor stated, “A lot of things happen overnight during off-hours. Recognition [that I provide] increases awareness that people are here overnight. The recognition is important to these people.” Another stated, “We’re on call 24/7. They may have to come back in. I recognize that they work more hours than the hours that they are here.” These examples illustrate attention to individual needs, the 24/7 nature of IT work with its unexpected demands and
potential intrusion into family life, and the need to be flexible and accommodating.

### Challenges Due to IT Skill Requirements

A second set of challenges concerns IT skill requirements. IT professionals must engage in continuous learning to prevent technical obsolescence (Rajeswari & Anantharaman, 2003). It is not unusual for IT workers to have greater technical knowledge than those who supervise them. The high-performing IT supervisor generally manages the need for skill development through performance management practices, training and development, and mentoring. The need for continuous technical skill updating also is addressed experientially through employee involvement.

IT workers also must be able to work well with supervisors and others throughout the organization who do not share their technical training and background. They must be flexible and capable of adapting to organizational needs. This need for adaptability and coordination requires IT workers to simultaneously update their interpersonal skills along with their technical skills. Thus, relationship building is essential, and high-performing IT supervisors demonstrate effective interpersonal skills in their own relationships with IT subordinates. One supervisor stated, “I’m very personable with folks. I call it being fully engaged.” Another stated, “I create an environment where they feel appreciated and engaged. I stay in touch with folks. I ‘show up.’” Yet another stated, “I identify personal goals and see what training they need to enhance their goals.” These examples show that effective IT supervisors emphasize relationships, often through modeling good relationship behavior. As mentors, they assess individual development needs and provide the resources to meet these needs.

### Challenges Due to Role of IT in Organization

A final set of IT challenges concerns IT’s role in the organization. As a support function, IT often is unappreciated by other departments. Nonetheless, IT often is responsible for integrating all other organizational functions. High-performing IT supervisors meet both of these challenges through employee involvement practices within the IT function, by building and sustaining effective relationships with their own personnel, and by managing the associated stressors. In addition, IT professionals are prepared for their boundary-spanning roles through effective performance management practices as well as training and development. One supervisor described meeting this challenge in this way, “When people come up with good ideas, I let them run with it; come up with a proposal and give the presentation to the business unit. They can see the response. They get a percentage if we use the project. They get tied in with the business unit. They feel their input is heard when they present it themselves.” This supervisor empowers and motivates IT professionals to integrate closely with the business units they serve.

### Issues Related to Applying Best Practices

Some of the practices might present special challenges for IT supervisors. For example, supervisors who help employees balance work and family demands by providing accommodations on a case-by-case basis need to ensure that perceptions of unfairness and favoritism do not develop among employees. This type of breach of trust would have negative implications for relationship building. In addition, it is not feasible for a supervisor to simultaneously employ all the best practices. High-performing supervisors are skilled at assessing situations and at bringing the appropriate practices to bear.

It is noteworthy that each IT challenge is addressed through a combination, rather than just one, of these practices. Moreover,
meeting most of these IT challenges requires some combination of both task-focused and relationship-focused practices. Although the list of applications is not exhaustive, Table II illustrates how supervisory best practices consistent with classic leadership theory apply to IT supervision.

**Supervisors’ Best Practices for Managing IT Employees**

Our best practices for managing IT professionals share some common elements and emphases with other models of human resource management and IT. For example, like Agarwal and Ferratt (1999), our model includes leadership practices, such as focus on structure and relationships, and human resource practices, such as performance measurement and flexible scheduling. However, the categories derived from our interview and focus-group data generally represent task-focused practices (i.e., initiating structure) and person-focused practices (i.e., consideration), consistent with the classic Ohio State leadership studies (Fleishman & Harris,

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**TABLE II**  
Supervisor Best Practices with Applications to IT Challenges

<table>
<thead>
<tr>
<th>Task-Focused Best Practices</th>
<th>Person-Focused Best Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boundary Spanning</strong></td>
<td><strong>Relationship Building</strong></td>
</tr>
<tr>
<td>• Monitor environment for IT performance demands</td>
<td>• Open communication and emphasis on face-to-face interaction</td>
</tr>
<tr>
<td>• Improve client awareness of organizationwide</td>
<td>• Emphasis on self-direction of team members</td>
</tr>
<tr>
<td>• IT goals</td>
<td>• Demonstrate interest in employees as individuals</td>
</tr>
<tr>
<td>• Market IT workgroup expertise to customers</td>
<td>• Socialize newcomers</td>
</tr>
<tr>
<td></td>
<td>• Build trust</td>
</tr>
<tr>
<td><strong>Performance Management</strong></td>
<td><strong>Mentoring</strong></td>
</tr>
<tr>
<td>• Clarify expectations and roles</td>
<td>• Provide career development support</td>
</tr>
<tr>
<td>• Engage in collaborative goal setting</td>
<td>• Offer psychosocial support</td>
</tr>
<tr>
<td>• Use performance appraisal</td>
<td>• Facilitate peer mentoring</td>
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<tr>
<td>• Link to organizational mission</td>
<td></td>
</tr>
<tr>
<td>• Provide recognition, reward, and acknowledgement</td>
<td><strong>Stress Management</strong></td>
</tr>
<tr>
<td>• Encourage learning from mistakes</td>
<td>• Directly address stressors in environment</td>
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<td></td>
<td>• Monitor stress levels and make work adjustments</td>
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<tr>
<td></td>
<td>• Engage work team in nonwork social activities</td>
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<td></td>
<td>• Facilitate use of company-sponsored programs (e.g., vacation time)</td>
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<td></td>
<td>• Have fun on the job and use humor</td>
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<td></td>
<td>• Encourage coworker support</td>
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<td></td>
<td>• Give employees time off</td>
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<tr>
<td><strong>Employee Involvement</strong></td>
<td><strong>Work-Family Balance</strong></td>
</tr>
<tr>
<td>• Use a collaborative approach to decisions whenever possible</td>
<td>• Encourage use of organizational policies and programs (e.g., leave taking)</td>
</tr>
<tr>
<td>• Create an environment in which employees can give and receive feedback</td>
<td>• Offer flexible hours and flexible scheduling</td>
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<tr>
<td>• Use teams for problem solving and knowledge sharing</td>
<td>• Provide telework opportunities</td>
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<tr>
<td>• Encourage IT personnel to engage in upward influence with senior managers</td>
<td>• Have a flexible orientation and accommodate individuals on a case-by-case basis</td>
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<tr>
<td>• Solicit employee input and implement their ideas</td>
<td>• Include family in workplace social events</td>
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<tr>
<td>• Allow employees to disagree with supervisor</td>
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<tr>
<td><strong>Training and Development</strong></td>
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<tr>
<td>• Use project assignments to foster growth</td>
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<tr>
<td>• Offer on-the-job training</td>
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<tr>
<td>• Provide resources and motivation for formal training and networking with other professionals</td>
<td></td>
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<tr>
<td>• Use teams to encourage peer learning</td>
<td></td>
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<tr>
<td>• Engage in continuous needs assessment</td>
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</tbody>
</table>

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The practices in these categories mutually support one another and jointly influence satisfaction, motivation, job performance, and the effectiveness of both the group and the organization (Judge, Piccolo & Ilies, 2004). The task-focused practices deal more directly with getting work done effectively, while person-focused practices center on meeting individuals’ social needs and maintaining high-quality relationships. Table II includes examples of best practices in each category and their application to supervision in IT.

**Task-Focused Practices**

**Boundary Spanning**

The IT function spans departmental boundaries within organizations and, given the nature of IT work, often spans organizational boundaries as well. As a support function, IT laterally integrates the organization in essential ways. A major challenge for IT, then, is to maintain a holistic and integrative perspective of the organization while attempting to meet the demands of other functions that are often focused myopically on their own particular needs. IT departments in our sample routinely dealt with clients who lacked a clear understanding of their own requirements and who failed to appreciate the consequences of their requests, resulting in unrealistic deadlines, inadequate resources, and interdepartmental conflicts. The most effective IT supervisors took the boundary spanner role seriously and monitored the environment in an effort to prevent such situations. One supervisor stated, “I mean, with an IT department, no one knows you exist until something is broken. So, I think it is so important to have personal contact with consumers, customers, and clients whenever possible.” They often educated key clients by providing an integrated perspective of the clients’ needs in the context of overarching organizational goals. Effective IT supervisors also marketed IT’s capabilities to customers, both internal and external to the organization, in order to increase the likelihood that IT would be included in the planning and development stages of initiatives likely to have IT implications.

**Performance Management**

Performance management refers to fostering better links between individual behavior and organizational strategies and goals using techniques such as role clarification, goal setting, performance appraisal, and rewards tied to performance (Banks & May, 1999). Moreover, performance management practices often are used to enhance motivation, for example, by employing performance-based pay (Heneman & Gresham, 1998) and increasing perceptions of organizational fairness (Gilliland & Langdon, 1998). The best supervisors in our sample managed performance by establishing clear role expectations, setting clear goals and deadlines, and monitoring work progress. In addition, they involved employees in role clarification and goal setting. High expectations regarding performance and norms for hard work were conveyed. One supervisor said, “I give them expectations, but I don’t tell them how to do their jobs. I get frequent updates from staff. I hold them accountable for doing their jobs.”

Supervisors commented on the need to stay focused on the “big picture” and to share organizational goals with IT employees. In organizations where IT was a support function, providing IT employees with a sense of their roles in the organization’s overall mission was a common theme. However, supervisors in our sample acknowledged that it could be a challenge to link individual and team goals to their firm’s frequently changing strategic goals. IT employees in one of our focus groups complained about the frequent shift of focus that occurred in their firm. “They [senior leaders] constantly change their business decisions. Change is rapid and often. Buzzwords
change with retreats. The company’s focus and direction changes the projects we’re working on.” Often, the IT supervisor made a point to reinforce the value of IT work, especially in situations where organizational recognition was not apparent. In one health care organization, for instance, IT supervisors stressed the relevance and criticality of IT to patient care. In focus groups, IT employees emphasized the meaningfulness of their work, noting that in the health care context, IT could have “life-and-death” consequences.

Performance management was facilitated with frequent, scheduled opportunities to discuss performance. One supervisor from a publishing firm holds weekly meetings with the workgroup that reports to him and biweekly meetings with each individual member of the group. Meetings were used to monitor goal achievement, assign new tasks, and surface important emerging concerns.

A global manufacturing firm in our sample that was implementing a Six Sigma program to improve quality illustrates a comprehensive approach to managing performance. As part of this process, IT supervisors involved subordinates in clarifying roles and setting goals, establishing deadlines, and monitoring performance that was linked to company strategic objectives. Senior managers were consulted to define key roles and identify core IT competencies (e.g., quality assurance, business leads). Goal trees were used to identify interlinked goals and means-ends relationships connected to goal achievement, especially for team performance in project management. Quarterly reviews were used to report goal achievement and to recalibrate expectations as necessary. Performance management was used to foster employee development and training in the Six Sigma process.

High-performing supervisors in our sample publicly acknowledged achievements and celebrated successes through publishing articles in company newsletters and hosting employee luncheons and dinners. One supervisor from the IT unit of a regional health care organization celebrates major upgrades to the computer system. When senior managers failed to pay much attention to such achievements, the supervisor let everyone leave work early to attend a lobster and champagne party at an employee’s home. This same supervisor sponsors happy hours, bagel breakfasts, and pot luck lunches to recognize achievements and to foster motivation and team building.

Many supervisors in our sample emphasized learning as part of an effort to create a learning organization (Senge, 1990). Performance mistakes were not punished but were viewed as opportunities for learning and development. Such an emphasis is common in organizations that create environments that foster learning and adaptation (Tannenbaum, 1997).

High-performing supervisors recognized the link between performance and motivation. Like recent integrative models of motivation (Mitchell & Daniels, 2003), they recognized that individual differences in knowledge, skills, and dispositions combine with features of the IT work environment, such as norms for hard work, positive expectations, and elements of task design to enhance motivation (e.g., challenge and autonomy). They identified important positive outcomes and delivered these to employees in exchange for good performance.

Employee Involvement

High-performing work systems share information, involve employees in decision making, and emphasize employee feedback about quality and business processes (Becker & Huselid, 1998; Huselid, 1995; Lawler, Mohrman, & Benson, 2001). High-performing supervisors in our sample emphasized employee involvement in problem solving and decision making and made efforts to create an environment that supported feedback. They did this in two ways: with one-on-one consultation involving supervisor and subordinate and through collaboration with coworkers in teams.
consultation involving supervisor and subordinate and through collaboration with coworkers in teams.

Teams also were used to enhance knowledge sharing and learning. In both one-on-one and team approaches to employee involvement, employees were encouraged to share ideas and provide alternatives. Consistent with participative approaches to leadership (Vroom & Jago, 1988), sometimes supervisors employed consultation before making decisions themselves; other times, employees were encouraged to make decisions. Supervisors also emphasized the importance of implementing employee suggestions; that is, they made an effort to take action on feedback provided by employees. This emphasis distinguishes participation from influence (Major, Davis, Sanchez-Huclés, Germano, & Mann, 2006; Major & Germano, 2006). Participation must lead to influence to achieve its potential motivational effect.

Rather than being authoritarian or directive, supervisors discussed the need to “sell” their ideas to IT employees who could provide a range of technical and practical experience. Supervisors recognized that an idea that could not be sold was probably a bad one. This respect for subordinate input is due, in part, to the fact that supervisors may be less technically skilled than their subordinates. One supervisor stated, “I always solicit it [input], partly because I don’t have the background and expertise that they have. I consult people on the team for their opinion to see what projects we should pursue.”

High-performing supervisors encouraged their employees to participate in meetings and to make presentations to senior managers in the IT function. Employees with good ideas were provided the opportunity to present their ideas to the relevant business unit. As one supervisor stated, “I rarely make decisions without staff input. Those who are involved in projects are included in the whole process. The staff has the sense that their input matters. They know that I learn from them. They see in meetings that I repeat something they told me. When I meet with the big honchos, when appropriate, I bring my staff along.” This was done to enhance visibility for the employee and as a means for rewarding good performance. A global IT services firm in our sample schedules regular breakfasts with employees and the CEO to provide opportunities for providing upward feedback.

Supervisors fostered employee involvement as a way to push decision making downward. Supervisors discussed the need to ask employees to suggest their own solutions to problems rather than have supervisors immediately solve the problem for them. This strategy is important in the IT workplace context to develop employees, to prepare them for future responsibilities, and to foster collaboration among multiple experts in teams. This emphasis on initiative and self-reliance also addressed the fact that the location and timing of IT work often made direct supervision difficult. Importantly, employees were encouraged to engage in healthy disagreement with their supervisor and with each other. In an effort to achieve the best decisions, supervisors acknowledged that it was important for all team members to share their relevant IT expertise. This is related to efforts to foster learning and development, described below, as well as encouragement for experimentation as a strategy in performance management, described above.

Training and Development

High-performing organizations emphasize knowledge and skill development for team and managerial skills as well as technical skills (Lawler et al., 2001). High-performing supervisors in our IT sample similarly encouraged employee training and development in technical, management, and team
skills. The rapidity with which IT skills can become obsolete makes continuous technical skill updating essential. Interpersonally oriented managerial and team skills also are essential for ensuring effective workgroups and maintaining a strong customer service orientation.

High-performing organizations used many training techniques. These organizations commonly provided challenging job assignments to enhance skills, along with on-the-job training. Employees were encouraged to take classes and to do so during work time. Several companies paid tuition for IT classes at local community colleges and universities. A privately held publishing firm paid for non-IT classes if they were required as part of a degree program. Employees were encouraged to participate on computer list servers and to attend vendor presentations and lunches with subject matter experts to improve technical skills.

Some companies used intranets to share technical knowledge throughout the company. One global IT services firm delivered guided educational modules via the Internet with learning contests; individuals and workgroups that completed the most training modules won rewards. In other firms in our sample, employees were provided training in leadership skills and opportunities to develop leadership through participation on company committees and in professional organizations. Several supervisors emphasized peer training in workgroups because they believed that workgroups facilitated teaching, learning, and sharing among employees.

Individual training needs were considered and assessed regularly as part of performance appraisal and coaching activities. High-performing supervisors spoke about the need to discuss training and development requirements with employees and to match training to individual needs in order to thwart obsolescence of IT skills. Effective supervisors linked training back to individual performance goals. One supervisor stated, “I identify personal goals and see what training they need to enhance their goals.” Another stated, “I make sure that I know their goals for the next 3–5 years and identify training needs.”

In addition to tying goals to personal development, supervisors also increased motivation for training through encouragement and training competitions. Attention to individual differences in training needs, motivation, and training choices reflects current beliefs about the requirements of effective training (Colquitt, LePine, & Noe, 2000; Kraiger, 2003). Effective supervisors were able to customize training and development opportunities and to distribute them using procedurally fair processes. Avoiding perceptions of favoritism was essential to ensuring the success of individualized training and development plans.

One supervisor from a health care organization described how her team was known as a “black hole” within the IT function because team members’ skill levels were not up-to-date. Upon assuming leadership of this team, she involved team members in identifying training needs. She then developed a training program for applications, programming skills (e.g., Oracle), time management skills, and knowledge of the IT system. She developed a training schedule for each team member. She also ensured that all team members received training in communication and leadership skills three to four times per year. Everyone on the team reached the required skill level within two years of her assuming leadership.

High-performing supervisors in our IT sample recognized the importance of continuous training and development, acknowledged that training needs and motivation varied across individuals, used a variety of individual and team training methods, integrated training into performance management and career development, and provided time and money to make training and development possible.
Person-Focused Practices

Relationship Building

High-performing IT supervisors realized the value of building effective relationships with and among their employees. Open communication was acknowledged as an essential element in relationship building. Supervisors referred to having “an open door policy” with those they managed. Open communication was seen as essential to managing the commonplace tight deadlines and shifting customer demands. IT employees expressed a clear preference for supervisors willing to share and explain the rationale behind decisions. Even when decisions were beyond the control of the IT function, sharing information so that IT employees could understand how the situation emerged (for better or worse) helped to motivate them to meet customer demands.

In addition to commenting on the openness and frequency of communication with their IT employees, supervisors also discussed preferred communication media. Though they acknowledged using multiple media (e.g., memos, e-mail, phone conferences), high-performing supervisors stressed the superiority and necessity of face-to-face communication. IT employees also expressed a preference for face-to-face interaction, most often noting that it seemed more “personal.” Occasional face-to-face communication is particularly important for IT professionals who must work at a distance, for example, at client sites or in virtual teams (Davis & Bryant, 2003). One supervisor stated, “I promote communication with my employees. I think that a personal call or face-to-face meeting is much more effective than e-mail. It adds a personal touch that is so important.”

Given that participants in our research reported that most IT work was accomplished by groups or project teams, teamwork was another important aspect of relationship building. Contrary to popular myths of the IT professional working in isolation (King, 1998), we found that it was quite unusual for IT employees to work alone on a regular basis. Thus, effective relationships facilitated task work. Moreover, most supervisors were unable to provide direct supervision to all employees on a continuous basis. In some cases, supervisors were not collocated with their entire staff. In other instances, the supervisor had a very large span of control. In addition, even among the most technically competent supervisors, most did not have skills that were completely redundant with every IT team member. Thus, for a variety of reasons, supervisors relied a great deal on the mutual respect, trust, and loyalty indicative of high-quality relationships (e.g., Liden & Maslyn, 1998), rather than direct supervision, to get work accomplished.

Such emphases are most important when IT employees work at a distance and are not collocated, as in virtual teams (Davis & Bryant, 2003). Finally, IT workers routinely were subjected to a number of stressors (e.g., customer demands, tight deadlines, on-call duty, understaffing); effective working relationships with one’s supervisor and coworkers seemed to serve as an anchor. The importance of interpersonal relationships in the IT environment cannot be overemphasized. When asked, “Why do you work here?” the overwhelming response from focus-group participants in every IT department was “because of the people I work with.”

Supervisors reported that developing trust was an essential component of the relationship-building process. Consistent with extant research (e.g., Korsgaard, Brodt, & Whitener, 2002), supervisors stressed open communication, honesty, and follow-through as key ingredients of trust building. As noted previously, most IT work is accomplished in teams, and trust is a key component in team effectiveness (Costa, 2003). Moreover, trust is critical to the success of distributed work in virtual teams (Davis & Bryant, 2003; Jarvenpaa, Shaw, & Staples, 2004) and telework (Vandever & Davis, 2004), forms of work design common in IT.
Another key aspect of relationship building was socialization or “onboarding” of new IT employees. Supervisors expressed a preference for the serial socialization tactic (Van Maanen & Schein, 1979), in which new hires could be paired for a period of time with employees they would be replacing. High-performing supervisors showed sensitivity to the needs of these new hires. For instance, they helped them navigate the more practical side of becoming a team member (e.g., completing paperwork for human resources, understanding policies and practices, familiarizing them with organizational and departmental resources). They also made sure that all new hires were introduced to other team members and often allowed a period of more lenient project deadlines while newcomers were adjusting. Although none of these practices may seem extraordinary, they need to be considered in light of the all-too-commonplace alternative. Some supervisors viewed socialization as strictly a human resources department function. As a result, new hires might go to an organizational orientation session but would receive little instruction or information specific to the IT department. In more than one focus group, employees complained that new hires were not even introduced to their coworkers. One recent hire in a government agency described how he sat alone, working at his desk in his cubicle for nearly a week before a coworker introduced herself and asked if he was a new member of the department.

Good IT supervisors realize that taking a personal interest in employees is an essential part of building relationships. During focus groups, IT employees expressed appreciation for supervisors who knew enough about their personal lives to ask about specific events (e.g., a child’s soccer game or play) and to acknowledge personal milestones (e.g., birthdays, anniversaries). One supervisor said, “I talk to everyone each day and know what’s going on in their personal lives.” These supervisors invested time in getting to know their employees as people. One of the ways they accomplished this was by providing formal and informal opportunities for social interaction during both work and nonwork hours. For instance, one supervisor at a publishing company organized a weekly “breakfast club.” Every Friday, employees came in early to share breakfast before the workday began. Team members, who all took turns cooking, reported enjoying sharing their best family dishes or surprising their colleagues with interesting concoctions. Some employees reported that preparing breakfast had provided an opportunity to share their cultural heritage through food.

Several employees commented on having supervisors with exceptional technical skills but no interpersonal skills. As an example, one government employee described how her supervisor would walk by her each day without saying “good morning,” and then once in his office, he would send her an e-mail. Although IT employees valued technically competent supervisors, they had deep appreciation for those who possessed both technical and “people” skills. In these high-tech environments, the desire for making a personal human connection was great, making such connections a supervisory best practice.

**Mentoring**

In several respects, mentoring also played a key role in supervisors’ relationship-building activities. High-performing supervisors often served as mentors by providing both career-related and psychosocial support as well as serving as role models (Scandura, 1992; Scandura & Ragins, 1993). A great deal of supervisory mentoring focused on employees’ growth as IT professionals. Supervisors helped employees map out professional de-
velopment goals and were instrumental in securing assignments and projects that would stretch employees. Some supervisors also facilitated subordinates’ career development by providing technical mentoring. Although not all high-performing supervisors possessed superior technical skills, those who did made it a priority to share their knowledge with their employees.

The supervisor’s role in providing psychosocial support also was evident. Given the stresses of IT work, high-performing supervisors often served as a buffer between their employees and the demands of the environment. Supervisors advocated for employees by working to secure reasonable expectations and deadlines for IT work. In some cases, supervisors offered psychosocial support in the form of empathy by acknowledging heavy workloads and other stresses.

As described below, highly effective supervisors also provided IT employees with assistance in managing stress and maintaining work-family balance. Additionally, supervisors encouraged their employees to participate in organizationally sponsored mentoring programs. Research shows that mentoring is positively related to commitment and negatively related to turnover; supervisory mentoring in particular is more strongly associated with affective commitment than other sources of mentoring (Payne & Huffman, 2005).

Research suggests that supervisors and coworkers may be effective mentors, especially compared to assigned formal mentors (Raabe & Beehr, 2003). Supervisors in our study strongly encouraged peer mentoring. Junior team members were frequently paired with senior team members. One supervisor said, “The less experienced workers work with the more experienced. I have them work with someone else, give them a small project, and tell them who to go to for help. I give them longer deadlines and fit the person to the project.” Effective supervisors created environments in which peers freely shared knowledge and expertise and assisted each other with tasks. In our focus groups, IT employees expressed a strong preference for this type of environment, although not all were working in one. Supervisors who were viewed as less effective by employees tended to promote a competitive climate in which individuals felt penalized for sharing their knowledge and skills with others. Productivity suffered in departments run by such supervisors.

### Stress Management

The stressfulness of the IT work environment was a persistent theme. Ineffective supervision appeared to be among the most prominent stressors. However, even those IT workgroups with high-performing supervisors reported stress stemming from high customer service demands, on-call duty, tight and changing project deadlines, high environmental uncertainty, and understaffing.

The best supervisors took steps to mitigate these stressors directly (e.g., requesting additional staff, advocating with organizational decision makers for realistic project deadlines, monitoring the environment to anticipate IT needs). They tried to keep pressure manageable by maintaining an awareness of stressors and openly discussing them with IT staff. Other supervisors reframed issues: “I call it frustration, not stress. Reframe the issue and prioritize. Family comes first. Try to accommodate what does cause the stress.” Effective supervisors also made sure that work-task priorities were clear; employees typically had more work than they could handle, so the most pressing and important tasks had to be identified. In addition, supervisors monitored individual workloads to ensure that work demands were distributed fairly. Research shows that job stress is diminished when employees have good working relationships with their supervisors (Bernas & Major, 2000).

In addition to confronting sources of stress, supervisors reported using a number of techniques to buffer the effects of stress.
Despite heavy workloads, effective IT supervisors encouraged their employees to take time off. Informally, some supervisors were able to give individuals comp time at the conclusion of projects that had demanded long hours. In addition, the best supervisors encouraged their staff to use their vacation time. In some of the least effective IT departments, supervisors often prevented employees from using vacation time, even though it was “on the books.”

High-performing IT supervisors unanimously recognized the need to “blow off steam” and “take some down time” in order to maintain peak performance. Sometimes this was accomplished through time off, but supervisors also used humor and tried to instill a sense of fun in the workplace in order to reduce the effects of stressors. In one workgroup in an IT consulting firm, the supervisor and coworkers took turns giving each other the “Bonehead Award” as a way to relieve stress and keep mistakes in perspective. Helping employees to keep work in perspective was a best practice commonly reported by supervisors.

High-performing supervisors considered supportive coworker relationships a key to stress management and took steps to foster supportive employee relationships. Supervisors noted that although they gave coworkers autonomy to work out issues themselves, they were prepared to intervene as necessary to end interpersonal conflicts before they escalated to serious levels. By organizing employees into workgroups and project teams, supervisors created a system for sharing resources that facilitated task completion and reduced individual pressures.

Finally, engaging in non-work-related social activities was a popular technique for managing stress. Supervisors reported that group lunches and dinners, sports events, and parties for their IT team provided the opportunities to “vent,” “cut loose,” and “blow off steam.” These events also were instrumental in helping the supervisor and coworkers get to know one another better as individuals.

Work-Family Balance

Research consistently shows that supervisor support reduces work-family conflict (e.g., Thomas & Ganster, 1995; Thompson & Protzas, 2006). In our research, high-performing supervisors recognized the importance of their employees’ personal and family lives. Many espoused a personal “family first” philosophy and expressed strong support for employees who also prioritized family. One said, “Home life is more important than work life . . . . Family stress affects you at work.” Supervisors we interviewed had an appreciation for the influence of family on their employees’ work lives. Thus, being invested in family was not viewed as a liability by these supervisors. Instead, they acknowledged that employees’ work performance could be adversely affected by neglecting family, and they facilitated and supported employees’ efforts to address family needs.

IT supervisors encouraged their employees to take advantage of organizational policies and practices in order to better balance work and family. For instance, supervisors supported IT employees in taking parental leave. They also recommended that employees participate in their organizations’ flexible and alternate scheduling programs (e.g., 4/40 and flextime). Research suggests that although the majority of employees appreciate family-friendly benefits, many do not use them out of concern for the career repercussions (Grover & Crooker, 1995). The best IT supervisors not only allowed but actually encouraged their employees to take part in such organization-sponsored programs. One supervisor said, “Be as flexible as we can be. Look at policies. Encourage managers to be generous, go beyond the law.” As research shows, family-friendly benefits are more likely to be used when employees perceive the work environment as supportive in this...
manner (Allen, 2001; Thompson, Beauvais, & Lyness, 1999).

In organizations that offered formal flexible scheduling programs, the IT supervisors we interviewed supported their use. However, it was much more frequently the case that no organizational policy existed and that scheduling flexibility and family accommodations were handled on an individual, informal basis by the supervisor. Supervisors stressed the need for a flexible orientation when helping their employees manage work and family needs, given the nature of IT work. Supervisors recognized that IT work is demanding in terms of the need for 24-hour IT support, on-call requirements, frequent periods of intense work activity, and the need to respond to emergent issues and unplanned requests. On a case-by-case basis, all the supervisors we interviewed offered flexible work hours, flexible scheduling, and telework opportunities, even when no formal organizational policy existed for these practices. Supervisors noted that rather than treating all of their employees exactly the same, they instead tried to meet each employee’s individual needs.

Finally, effective IT supervisors included family in workplace social events. Some used this as an opportunity to thank spouses for their support of the IT employee’s work. All felt that hosting social events for employees and their families increased good will. Conversely, excluding family from workplace social events negatively affected morale. One organization that had historically included employees’ families in its annual Christmas party decided to limit the event to employees only as a cost-savings measure. Although the practice had been in place for over two years at the time of our focus groups, employees still commented on how insulted they felt by this change.

Summary and Conclusion

Based on content analyses of interviews with IT supervisors empirically identified as high-performing, supervisory best practices were derived. Practices fell into two categories, task-focused and person-focused, demonstrating the relevance of classic leadership theory for supervising IT professionals. Task-focused and person-focused leadership categories were further developed into eight groups of best practices. Task-focused practices included boundary spanning, performance management, employee involvement, and training and development. Person-focused practices included relationship building, mentoring, stress management, and work-family balance. Although they are distinguishable, the best practices are also interrelated and interactive. Some best practices serve multiple purposes. For example, giving employees time off alleviates stress and enhances work-family balance. Likewise, working in teams provides training and development opportunities and fosters relationship building. Further, some of the best practices are reciprocally related. For instance, effective relationship building paves the way for employee involvement, while employee involvement also contributes to relationship building.

At first glance, it may appear that our research verifies the obvious, that sound leadership practices result in effective IT supervision. In contrast, we think that this is a strength of our study. We demonstrate that, despite the unique characteristics and demands seen in IT work, IT professionals benefit from the same practices shown to be important among other technical professions (Ferratt & Short, 1988). Another strength of our work is the empirical grounding of our recommended practices among highly effective first-line supervisors. Our results complement and extend previous research that focused on higher-level managers (e.g., Agarwal & Ferratt, 1999, 2002a, 2002b). Our practices distinguish empirically between more and less effective IT supervisors and are
consistent with other supervisory recommendations in the literature (e.g., Rau, 2004). Moreover, the supervisory best practices derived from our research address some of the most common challenges in the IT work environment, and these are indeed new. Finally, the current research takes a step beyond detailing the uniqueness of the IT workplace and identifies how best to handle the supervision implications of these unique features.

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Research Project Overview
Supervisor best practices for managing IT employees were identified as part of a multiyear project designed to investigate characteristics of the IT workplace that foster inclusion and equal opportunity for all employees. During the first phase, ten organizations with IT departments of varying sizes and demographic compositions were recruited to participate in the project. The organizations represented various industries, including health care, education, local government, consumer and industrial products, publishing, business and IT consulting, chemical manufacturing, and waste management. Web-based survey data were collected from 914 IT employees.

The second phase of the project consisted of a survey feedback intervention. Feedback reports summarizing the survey data collected during the first phase were distributed to each participating organization. Data from the entire sample were used to benchmark performance for each organization and to identify strengths and low-performing areas that could serve as a focus for change. Workgroup-level feedback was also provided in each organization.

After the reports were disseminated to the leadership at each company, feedback meetings with company executives were conducted and feedback presentations were given to IT employees. In addition, we invited IT employees to participate in focus groups. The aim of the focus-group discussions was to obtain qualitative data to aid in interpretation of the survey results. Based on the survey findings and focus-group feedback, we worked with management to develop action plans that capitalized on their strengths and addressed their weaknesses.

In order to identify supervisory best practices for IT personnel management, ten high-performing supervisors participated in structured interviews. Supervisors responded to questions about (a) working relationships with their employees, (b) how they help employees develop professionally, (c) efforts made to encourage mentoring, (d) managing stress and balancing work and family demands, and (e) their value for diversity. Data from workgroup reports in combination with data from focus-group discussions and executive nominations led to the identification and selection of ten high-performing supervisors for participation in the structured interviews from six of the ten partner organizations. These six organizations represented the health care, education, publishing, business and IT consulting, chemical manufacturing, and waste management industries. The type of IT employees supervised varied (e.g., software developers, system maintainers, IT consultants, and programmers). In four of the organizations, none of the IT supervisors were identified as high-performing. The structured interviews were designed to assess the supervisory role, support for diversity issues, decision making, mentoring, and work-family balance. Each interview lasted approximately 30–60 minutes.

Interview Content Coding
First, the field notes from the ten supervisor interviews were transcribed and entered into a database for coding. Each practice was treated as the unit to be coded. A total of 339 practices were coded. In an effort to create a list of categories grounded in theory, five members of the research team individually generated lists of content categories based on reviews of the literature. Combining the five lists of content categories and eliminating redundant categories resulted in 13 categories. During the second round of coding, four raters used the 13 categories to code the 339 practices. One category was deleted because it did not reflect supervisor best practices for managing IT personnel, and the behaviors were unrelated to the remaining 12 categories. The “recruitment and selection” category also was eliminated because so few supervisors reported having control over these processes. The “socialization” and “open communication” categories were collapsed into the “relationship building” category. The “valuing diversity” category, which seemed to reflect organizational climate rather than supervisory practices, is not discussed here. The remaining eight categories are presented in Table II.