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There are four breaks from the traditional 9-to-5 routine of employees who share a work location and see each other on a daily basis. Each of these offers challenges for companies and their managers but also opportunities. We can also expect telework to look very different in the next few years.

Telework:

The Advantages and Challenges of Working Here, There, Anywhere, and Anytime

NANCY B. KURLAND DIANE E. BAILEY

Twenty-five years ago, Jack Nilles coined the term "telecommuting" while stuck in traffic in Los Angeles. It is not surprising then that initial interest in telecommuting was driven by concerns about traffic congestion and pollution in densely populated areas such as southern California. In the 1980s, as companies focused increasingly on cutting costs, they pointed to telecommuting as a means to reduce the expense of maintaining office space. More recently, organizations have begun to view telecommuting as a tool to attract and retain top personnel in fields with short labor supplies. Over the years, the substitution of computer-based technology for physical travel has led to a number of alternative work forms beyond home-based telecommuting, including satellite centers, neighborhood work centers, and mobile working. Together, these forms constitute "teleworking." What they have in common is a transition from in-person supervision to remote managing, from face-to-face communication to telecommunications-mediated

communication, from on-site working to off-site or multiple-site working, and, in the case of groups, from side-by-side collaboration to virtual teamwork.

Estimates of the number of telecommuters in the U.S. vary, but most figures range between three and nine million people (three to eight percent of the workforce). These figures include people who work from home at least several days per month of their normal work schedule. Many forecasters predict these numbers will continue to rise, but forecasts for the U.S. in the year 2000 vary considerably: from 15 million workers to 44 million workers or 57% of the workforce. Further evidence of telecommuting's growing popularity is found in the creation in 1993 of a national trade organization, the International Telecommuting Advisory Council (ITAC), dedicated to promoting telework and telecommuting. Recently, ITAC published the premier issue of *Telecommute*, a monthly magazine devoted to "today's flexible workplace."

One troubling element of this trend in new work forms is that many companies are



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allowing employees to telework without adequately informing employees and managers about the benefits and challenges. In this article, we differentiate among the previously mentioned alternative work forms of teleworking, describe advantages and challenges of each form, and provide recommendations to address these challenges. We base our insights on previous research, as well as on conversations Kurland had with 54 traditional on-site and remote supervisors and the teleworkers and non-teleworkers they manage in two high technology firms.

DEFINING TYPES OF TELEWORK

To begin the discussion, we define the four types of telework: home-based telecommuting, satellite offices, neighborhood work centers, and mobile working.

Home-based telecommuting refers to employees who work at home on a regular basis, though not necessarily (and, in fact, rarely) every day. For example, employees at Hewlett-Packard can opt to telecommute several hours to several days each week. (We do not consider as telecommuters the home-based workers who are self-employed or who otherwise have no connection to a central workplace.) A person can be said to be a telecommuter if her telecommunications link to the office is as simple as a telephone; however, telecommuters often use other communications media such as electronic mail, personal computer links to office servers, and fax machines. Either the firm or the employee purchases the home-based equipment. Hewlett-Packard covers most expenses for employees when they telecommute, including installing ISDN lines in employees' homes. In 1993, 100 American Express travel agents in 15 locations telecommuted. The company connected these employees' homes to American Express' phone and data lines for a modest one-time expense of \$1300 each, including hardware.

In *satellite offices*, employees work both outside the home and away from the conventional workplace in a location convenient to the employees and/or customers. A satellite office

houses only employees from a single firm; it is in some sense a branch office whose purpose is to alleviate employees' commute. The satellite office is equipped with office furniture and equipment provided by the firm; in addition, administrative help may be available there. Fuji Xerox has a satellite office near Shin-Yurigaoka Station on the Odakuy Line in a suburb of Tokyo. It has PCs, teleconferencing, and other equipment so employees can work there without having to go to the headquarters office in the city. The people who work there belong to different departments within the firm so no whole unit is present at the satellite center.

A *neighborhood work center* is essentially identical to a satellite office with one major difference: the neighborhood work center houses more than one company's employees. In other words, several companies may share the lease on an office building and maintain separate office areas within the building for employees of each company. Office suites may be furnished by the site owner or by each renting firm. Satellite and neighborhood work centers are alternatives to home-based telecommuting; the employee avoids a long commute to the conventional workplace but remains in an office rather than a home setting. For example, Southern California has numerous telecenters in which employees from different companies can rent space monthly. These centers sport conveniences such as private office spaces, cubicles, fax machines, data hookups, teleconferencing, and videoconferencing technology.

In contrast to telecommuters who work from one designated location outside the main office and who communicate with the office using electronic communication, *mobile workers* are frequently on the road, using communications technology to work from home, from a car, from a plane, or from a hotel—communicating with the office as necessary from each location. Mobile workers thus are accustomed to working in an assortment of locales. In an airport waiting lounge, one author recently overheard a woman ask a mobile worker, working on his laptop, where his office was. "Actually," he responded, "you're sitting in it." Most companies have employees who are intimately familiar with



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TABLE 1: ORGANIZATIONAL ADVANTAGES AND CHALLENGES OF TELEWORKING

	Advantages	Challenges	
Home-Based Telecommuting	<ul style="list-style-type: none"> ● Greater productivity ● Lower absenteeism ● Better morale ● Greater openness ● Fewer interruptions at office ● Reduced overhead ● Wider talent pool ● Lower turnover ● Regulation compliance 	<ul style="list-style-type: none"> ● Performance monitoring ● Performance measurement ● Managerial control ● Mentoring ● Jealous colleagues ● Synergy ● Informal interaction ● Organization culture ● Virtual culture 	<ul style="list-style-type: none"> ● Organization loyalty ● Interpersonal skills ● Availability ● Schedule maintenance ● Work coordination ● Internal customers ● Communication ● Guidelines (e.g. expenses) ● Technology
Satellite Office	<ul style="list-style-type: none"> ● Greater productivity ● Better morale ● Wider talent pool ● Lower turnover ● Customer proximity ● Regulation compliance ● Corporate culture intact 	<ul style="list-style-type: none"> ● Performance monitoring ● Performance measurement ● Managerial control 	<ul style="list-style-type: none"> ● Jealous colleagues ● Virtual culture ● Internal customers
Neighborhood Work Center	<ul style="list-style-type: none"> ● Greater productivity ● Better morale ● Wider talent pool ● Lower turnover ● Customer proximity ● Regulation compliance 	<ul style="list-style-type: none"> ● Performance monitoring ● Performance measurement ● Managerial control ● Mentoring ● Jealous colleagues ● Synergy 	<ul style="list-style-type: none"> ● Informal interaction ● Organization culture ● Virtual culture ● Organization loyalty ● Schedule maintenance ● Work coordination ● Internal customers
Mobile Work	<ul style="list-style-type: none"> ● Greater productivity ● Lower absenteeism ● Customer proximity 	<ul style="list-style-type: none"> ● Performance monitoring ● Performance measurement ● Managerial control ● Synergy ● Informal interaction ● Organization culture ● Virtual culture 	<ul style="list-style-type: none"> ● Organization loyalty ● Availability ● Schedule maintenance ● Work coordination ● Communication ● Guidelines (e.g. expenses) ● Technology

mobile work, like marketing managers, salespersons, investment bankers, investigative reporters, and any other personnel who need to be on the move to get their jobs done.

Telework, in any form, has ramifications beyond simply changing the way or place in which an individual employee performs work: It can extend to remote managing and virtual teams.

Remote managing occurs when managers are physically separated from their direct reports because the manager and/or the employee teleworks, and thus manages these employees remotely. For example, a manager in Irvine, California at Fujitsu Business Systems supervises two employees, one based in Boston and the other in Dallas. Both employees

telecommute full-time from home and the manager telecommutes part-time. Remote managing is characterized by this inability of a manager to observe her employees' work processes.

Virtual teams consist of team members who are geographically dispersed and who come together by way of telecommunications technology (e.g., video conferencing). Each team member may be located in a traditional office setting, but the offices are not proximate to one another. Additionally, virtual team members may telework, such as a telecommuter who is a member of a multiple-site team. A project manager at Hewlett-Packard sits in Northern California, while his team members abide in Southern California, Florida, and Brussels.

Thus, telework may have additional

TABLE 2: INDIVIDUAL ADVANTAGES AND CHALLENGES OF TELEWORKING

	Advantages	Challenges	
Home-Based Telecommuting	<ul style="list-style-type: none"> ● Less time commuting ● Cost savings ● Less stress ● No need for relocation ● More autonomy ● Schedule flexibility ● Comfortable work environment ● Fewer distractions ● Absence of office politics ● Work/family balance ● Workplace fairness ● More job satisfaction 	<ul style="list-style-type: none"> ● Social isolation ● Professional isolation ● Organization culture ● Reduced office influence ● Work/family balance ● Informal interaction 	<ul style="list-style-type: none"> ● Conducive home environment ● Focusing on work ● Longer hours ● Access to resources ● Technical savvy
Satellite Office	<ul style="list-style-type: none"> ● Less time commuting ● Cost savings ● Less stress ● No need for relocation ● Work/family balance ● More job satisfaction 	<ul style="list-style-type: none"> ● Professional isolation ● Reduced office influence 	<ul style="list-style-type: none"> ● Access to resources
Neighborhood Work Center	<ul style="list-style-type: none"> ● Less time commuting ● Cost savings ● Less stress ● No need for relocation ● More autonomy ● Absence of office politics ● Work/family balance ● More job satisfaction 	<ul style="list-style-type: none"> ● Social isolation ● Professional isolation ● Organization culture 	<ul style="list-style-type: none"> ● Reduced office influence ● Access to resources
Mobile Work	<ul style="list-style-type: none"> ● More autonomy ● Schedule flexibility ● Absence of office politics 	<ul style="list-style-type: none"> ● Social isolation ● Professional isolation ● Organization culture ● Reduced office influence 	<ul style="list-style-type: none"> ● Longer hours ● Access to resources ● Technical savvy

advantages and challenges that emerge when consideration extends beyond the isolated teleworker—both up (to managers) and across (to teammates) the traditional organization.

IDENTIFYING ADVANTAGES AND CHALLENGES OF TELEWORK

These alternative work forms bring both benefits and challenges to organizations, individuals, and society. Many of the advantages and challenges we discuss (see Tables 1 through 3) assume that the teleworker is away from the office a significant percentage of working time. The impact of each advantage and challenge may diminish for individuals who telework a

small fraction of their working time.

HOME-BASED TELECOMMUTING

Organizational level. From the organization's perspective, home-based telecommuting provides an opportunity to improve workplace productivity. Because telecommuting employees experience greater schedule flexibility, they can work when they prefer, and thereby improve their productivity.

Also, popular press accounts of successful telecommuting programs often report that telecommuters take fewer sick days, are absent less, have higher job satisfaction, and have higher work performance ratings. These factors

TABLE 3: SOCIETAL ADVANTAGES AND CHALLENGES OF TELEWORKING

	Advantages	Challenges
Home-Based Telecommuting	<ul style="list-style-type: none"> ●Less traffic congestion ●Less pollution ●Less neighborhood crime ●Greater community involvement 	<ul style="list-style-type: none"> ●Telework culture ●Loss of ability to interact with others
Satellite Office	<ul style="list-style-type: none"> ●Less traffic congestion ●Less pollution ●Greater community involvement 	
Neighborhood Work Center	<ul style="list-style-type: none"> ●Less traffic congestion ●Less pollution ●Greater community involvement 	
Mobile Work		<ul style="list-style-type: none"> ●Telework culture

may positively affect productivity. A prime example of such success can be found at Tele-Service Resources, which was founded in 1984 as a unit of American Airlines Reservations to handle the growing demand for call marketing services. In response to growing concerns over Texas state commuter legislative restrictions, as well as employee retention and alternative capacity solutions, TSR began a pilot project to allow their telephone agents to work from home. Over 25 agents now work from home, using state-of-the-art call center technology, providing a seamless connection with TSR's Dallas-Ft. Worth call center. TSR management believes the teleworkers have been more productive, and that they are more satisfied with their jobs compared to their office-based counterparts.

Furthermore, telecommuting provides employees with a relatively distraction-free environment, as noted by one on-site manager, "[F]rom time to time [I telecommute] just to get away from here, so that [when] I have specific things I want to get done, then I can get away from the phones and the people walking in." Also, because telecommuters have relatively distraction-free environments, they are more open to receiving interruptions while at the traditional office. For example, one telecommuter commented, "Before I started telecommuting, [if] somebody would come along and interrupt me it would irritate me. So today... certainly I

have days when I am annoyed by interruptions but they're fewer because I think, 'Okay, I'm not going to worry about it because I'm going to focus on this when I get home.'" Together, these factors, relating to the location of work, the timing of work, and the quality of work life, can increase productivity.

Home-based telecommuting benefits organizations in ways beyond productivity. It enables them to cut costs related to office space, as well as to address space constraints. For example, IBM recently reported a \$75 million annual savings in real estate expenses as a result of telecommuting. In 1994, AT&T saved \$80 million in real-estate and office overhead costs from having employees telecommute. And more modestly, the Energy Usage Analysis Service for the General Services Administration in Ft. Worth, Texas saved \$30,000 a year in office space costs when a group leader convinced his management to let a seven-member staff, slated to move to another office space, telecommute from home full-time instead.

Another reason to implement telecommuting is that it widens the talent pool available to the organization. It also may stem turnover by providing workers with flexibility that allows them to keep their jobs in the face of external demands or desires. As one on-site manager commented about his telecommuting employee: "I think that one very good [advantage] is the fact that we have

her here... [I]f we do not have this flexibility, I think that we might lose her to some other department here or to another organization."

Finally, telecommuting programs enable firms to comply with regulations such as the Clean Air Act and the Americans with Disabilities Act. The City of San Diego boasts an extensive telecommuting program that it implemented in response to the federal and state mandates to clean up the air. Telecommuting gets people off the freeways and provides opportunities to people who stay at home or who might otherwise have difficulty traveling to a workplace. The organizational advantages of telecommuting thus cover a wide spectrum, including behavioral outcomes, productivity, and legal issues.

On the other hand, several challenges may hamper an organization's willingness to integrate telecommuting into the traditional office environment. A major challenge for managers is their inability to physically observe their employees' performance. They question, "How do you measure productivity, build trust, and manage people who are physically out of sight?" If a manager can't see her subordinates in action, then she can't note where the employee is struggling and where he is strong, and may not be able to provide reliable and constructive performance feedback. Some managers can just focus on outcome, rather than process, assuming that these outcomes are easy to measure and monitor. Salespeople, for example, are prime contenders for telecommuting, and may be one reason both IBM and Merrill Lynch are staunch supporters of telecommuting. But for many other types of employees, monitoring and measuring their performance remain problematic and a source of concern. One manager in our research complained, "At this point, I don't have any measure at all, none whatsoever, and that's one of the pieces of this that bothers me about the telecommuter; there needs to be a better way to measure productivity."

Further, telecommuting can negatively affect the social network in the workplace, and thereby pose other challenges for managers. For example, telecommuting may neg-

atively impact those who remain in the workplace (i.e., non-telecommuters) by (1) disrupting teamwork, (2) fragmenting the local social network [of those left behind], and (3) creating possible resentment among employees NOT chosen to telecommute. For example, in one case, a telecommuter complained that because he lived next to a golf course, his colleagues teased that when he worked at home, he had gone "tele-golfing."

Other entities may also face challenges in dealing with telecommuting. Unions, for example, fear that telecommuting may adversely affect worker solidarity because telecommuters are more physically dispersed and less able to organize collectively.

Additionally, managers may find it difficult to create team synergy and to overcome the absence of informal, interactive learning—learning that takes place by the water cooler, over lunch, or in the hallways. On the challenge to synergy, one manager commented, "Productivity gains are measured when you put people into an office environment and a lot of synergy's created...When you telecommute...there's a lack of energy that I notice in the office..." On the challenge to informal, interactive learning, another manager commented: "It's much more difficult to communicate with [the telecommuter]. [M]ost communication here tends to be informal communication, not meetings, not memos, or things like that. We find that he is probably the least in touch with the general things that are going on in the division in terms of product ideas, concepts. I mean he can make it for a formal presentation but those don't happen very often compared to work getting done as people just run into folks, have lunch with folks, and that kind of thing."

This manager affirmed that participating in formal, scheduled meetings is not enough. When employees work off-site, they miss the learning that occurs, informally, spontaneously—learning that cannot be scheduled, and is sometimes known as "in place career development."

Other issues concern developing and transmitting organization culture. First, organizations may find it difficult to transmit their

cultures to individuals who often are physically remote. How can organizations communicate and instill values to and in these employees? How can organizations develop and express norms? Will telecommuters be less loyal to a company than non-telecommuters? Will telecommuters fail to develop interpersonal skills, some of them firm-specific, that help people communicate and cooperate in the workplace?

A second concern is the issue of creating a virtual culture: How does an organization make telecommuting acceptable among telecommuters and non-telecommuters, among subordinates and managers, and among employees and customers? For example, some non-telecommuters may believe that teleworkers are not working when they are not regularly seen in the traditional office, as with the so-called tele-golfing employee mentioned above. Others may be reluctant to phone telecommuters for fear of interrupting them at their homes. Clearly, cultural concerns, both of conveying a corporate culture to the individual telecommuter and of expanding the corporate culture to include virtual etiquette and understanding, pose tremendous challenges to the organization. Merrill Lynch may have one solution. It has over 130 employees working from home an average of three days per week. In its formalized program, Merrill Lynch provides training and equipment along with the same software that exists in its office. It has also created a "telecommuting simulation lab" where prospective telecommuters are required to train for two weeks prior to working from home. However, to fully develop a virtual culture, Merrill Lynch will need to expand its labs to include interactions with office-based colleagues.

Other challenges relate to coordinating and organizing work. One challenge has to do with the telecommuter's availability. When telecommuters take advantage of flexibility in scheduling their work, they may be unavailable to work peers and clients who maintain traditional office hours. Another challenge relates to how organizations distribute tasks between telecommuters and office workers. Who should handle what? How should hand-offs be carried

out? Should work-related items (e.g., files, contacts, physical objects) be transferred from office to home and back? Still other difficulties spring from arranging linkages between telecommuters and internal customers if the latter are unaware that the telecommuters work at home. Lastly, despite advances in communications technology, communicating with a remote employee teleworker can still pose challenges, such as conveying non-verbal messages. As such, there is a greater need to establish contingency plans in the event that the telecommuter cannot be reached by, or cannot reach, an office counterpart.

Finally, telecommuting challenges organizations to establish clear telecommuting policy guidelines. Some telecommuters are concerned with how to handle expenses. For example, if the firm has supplied the printer, can the telecommuter also use it for personal purposes? If so, how should subsequent costs (e.g., toner and paper) be expensed? Others worry about their telecommuting colleagues' technological competence. One telecommuter complained that he works with other telecommuters who cannot send e-mail, who cannot use basic software such as PowerPoint[®], and who are unable to transfer files electronically. He loses his own time (and patience) when forced to help them. Although not as frequent a concern, determining employees' eligibility for workers' compensation is also difficult, largely because no one is around to witness accidents in the home. Establishing guidelines and requirements for telecommuting may be an easier challenge to overcome. The state of Oregon provides a very detailed, easy-to-follow workbook to help a company devise its own guidelines, as do other sources available through the Internet.

Individual level. From the individual's perspective, telecommuting offers a number of advantages. The most obvious benefit is that it eliminates (for full-time telecommuters) or reduces (for partial-week telecommuters) commute time. Reduced commute time saves gas and car maintenance, as well as lessens traffic-related stress. Moreover, for workers whose long commutes may cause them to consider relocating (either to a new firm or to a new

neighborhood), telecommuting saves them the expense and upheaval of such major change. Telecommuting further provides employees with more autonomy and control over their work lives via schedule flexibility and an invisibility from managers and co-workers. They can work in comfortable and familiar environments with fewer distractions. Since few people see them, they have no need to dress up, and thus they save money on dry cleaning and dress clothes. Moreover, their at-home situation allows them to avoid office politics. For many employees, telecommuting provides an even greater advantage: It permits a more effective balance of work demands with responsibilities at home—a major reason Hewlett-Packard strongly supports telecommuting. Telecommuting also allows for workplace fairness by enhancing employment opportunities for disabled individuals. Hence, because telecommuting can improve individuals' overall work-life quality, telecommuters may be more satisfied with their jobs.

By comparison, probably the most commonly expressed challenge of telecommuting is overcoming the isolation caused by the separation of the telecommuter from the social network in the traditional work space. Ursula Huws referred to this isolation as a "trapped housewife syndrome." While isolation can lead to social frustration that arises from a lack of interaction with work peers, it can also lead to feelings of professional isolation. Telecommuters may fear that when they're out of sight, they're out of mind for promotions and other rewards. Because telecommuting encourages autonomy rather than solidarity, still other telecommuters report that their commitment or loyalty to the organization diminishes because they're not "around" the traditional workplace often enough. Isolation may inhibit an individual's ability to learn the corporation's culture and may also serve to reduce the telecommuter's influence within the firm.

Another challenge commonly voiced about telecommuting relates to its perceived role as a panacea for employees, especially women, who face family obligations. Telecommuters may have difficulty establishing a home environment that is conducive to

work. Children and spouses alike may not respect the sanctity and privacy of a home office. Children, especially, may have a tough time learning not to interrupt their working parent. Indeed, telecommuting may hinder employees' productivity if they are expected to simultaneously raise children who may need constant attention, "trapping" women in the dual roles of caretaker and employee while working at home. Conversely, with work located right in the home, and thus so much more accessible, telecommuters may find themselves working longer hours, further straining family relationships.

Another issue in work and family balance centers on the function of the commute. Employees may need the transition time between home and work to refocus themselves from home challenges to work challenges and vice versa. In other words, the daily commute may serve as a "warm-up" period in the morning and a "cool-down" in the evening. Thus, telecommuting, by placing workers in the home and eliminating the commute to work, serves to blur distinctions between family life and work life. Quite possibly, this blurring is a disadvantage for the individual.

Two other challenges should be noted. Telecommuters must overcome the challenge of maintaining access to resources at work, as failure to do so could lead to performance losses. Telecommuters may need to be more technically savvy than their office peers, since support services are not accessible on-site.

Societal level. Telecommuting provides societal benefits as well. It can decrease traffic congestion on strained highways and reduce automobile-related air pollution—although its impact may be negligible if only a few people telecommute. By working at home, telecommuters discourage community crime that might otherwise occur in bedroom communities. Further, because telecommuters have more flexible schedules and gain time by not commuting to work, they can spend more time building community ties.

However, telecommuting does pose challenges to society. Society as a whole needs to come to terms with telecommuting; it needs to develop a culture of telework. One issue that

this culture must resolve is zoning regulations that forbid business parcel delivery within residential neighborhoods. Another is the assumption (by friends, relatives, neighbors, etc.) that anyone at home during the day is free to chat, to watch a child, or to run an errand. A greater, but we suspect much less likely, concern that has been put forward is that, by transforming work from a sensual activity to an abstract, computer-mediated one, telecommuting may cause a gradual degradation of a person's ability to interact with other people in a personal, intimate, and human manner. Over time, and with enough people involved, this degradation could change the nature of social intercourse in disturbing and undesirable ways.

SATELLITE OFFICES AND NEIGHBORHOOD WORK CENTERS

Telework, via satellite offices or neighborhood work centers, shares many of the organizational, individual, and societal benefits and challenges associated with home-based telecommuting. For example, consistent with telecommuting advantages, satellite office and neighborhood work center employees will spend less time commuting, will be better able to balance work demands with family demands, and can be located closer to external customers. A shared disadvantage is that being off-site invites managerial concerns about measuring employee productivity.

Nevertheless, several differences exist. On the plus side, employees who work in satellite offices may experience less professional and social isolation than do home-based telecommuters. Because the satellite office houses only employees of a single firm, much of the corporate culture may be replicated in the satellite site. Informal interactions are more likely; thus, mentoring and informal learning may again take place, reducing professional isolation. Likewise, in contrast to home-based workers, satellite office and neighborhood work center employees should feel less socially isolated because other people are present in their work environments. However, neighborhood work

center employees may continue to feel professionally isolated. Because the neighborhood center services a community rather than an organization, it most likely will not house sufficient numbers of employees from any single firm to provide a firm-specific learning environment. Hence, impediments to productivity, such as those related to a lack of informal interaction and remoteness in relation to internal customers, may persist in neighborhood work centers.

MOBILE WORKING

The implications of mobile working stand in contrast to those of home-based telecommuting, satellite offices, and neighborhood work centers. Whereas telecommuting brings the employee home, mobile work sends the employee away. Extant technology enables employees to work anywhere and anytime. Employees are further freed from physical office constraints. Organizations benefit as employees work more closely with customers and other stakeholders, which is one reason that Fujitsu Business Communications encourages its account executives to telecommute mobilely.

However, advantages associated with telecommuting for the individual prove to be absent in the mobile work environment. Mobile workers find it more difficult to balance work demands with home demands. They are often away from home for days and weeks, and may spend a considerable amount of time in hotels—all of which may chip away at the mobile worker's morale. Two mobile workers discussed the disadvantages of this work form:

"[When I was mobile, I was] always away from my family. Lots of travel. I put on 20,000 miles on my car [in less than one year]. Just trying to communicate with...many people is very difficult. Just the fact that I was always traveling I think was frustrating...being away from my family, [and always] in hotels."

"Well, I don't know that I personally derive any benefit. I gain freeway time. I gain less face time with individuals. My travel time

goes up. I have the ability to access information anywhere I'm at. Personally the only way that it affects me is that I have to spend more time driving and I have less time to see people face to face."

Mobile working has few societal benefits except that it promotes frequent interaction among people outside the organization. It thus enables mobile workers to build and refine their interpersonal skills and in turn to contribute to a milieu of healthy, human social interaction. However, a more likely result for society is that mobile workers merely add to air pollution and traffic congestion.

FURTHER RAMIFICATIONS: REMOTE MANAGING AND VIRTUAL TEAMS

Remote Managing. When employees telework, managers necessarily manage them remotely. Most often, managers do so only part-time and from short distances, since employees usually telecommute or work on the road for only part of each week. During the remainder of the week, these employees come to the main office; managers can interact with them face-to-face. In such scenarios, managers have ample opportunity to observe, counsel, and mentor subordinates. In addition, teleworking employees are able to associate with their peers both formally and informally. Through this collegial interaction, organizations can foster shared values and norms between on-site workers and frequently remote employees.

The situation becomes complicated, however, when teleworkers "hotel." Hoteling refers to the process by which companies assign office space to employees on an as-needed, temporary basis. In a hoteling environment, employees have no permanent office or desk; rather, they may be in a different space each time they go to the office. For example, Cisco Systems converted to hoteling in its Fremont, California office. At the time, the Fremont office served 33 employees (account managers, systems engineers, and support staff). After converting to a hoteling environment, these employees shared four private phone booths,

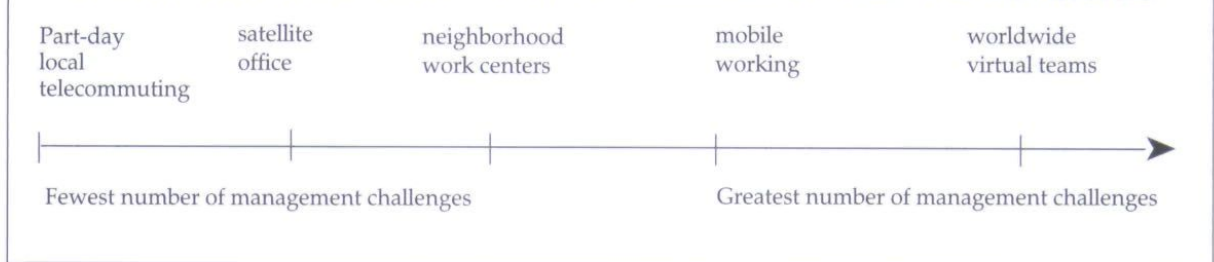
six cubicles, one team cube, four carrels, and a lab for the systems engineers. Such arrangements can cut costs tremendously. But companies need to be wary that under a hoteling arrangement, teleworkers don't often find that each time they visit the main office, they are located at some distance from their work groups, and thus they miss out on some of the interactions these employees expect and need to participate in when at the office.

Remotely managing employees full-time and from great distances is difficult and of greater concern. Although truly remote managing has undeniable benefits (e.g., it enlarges the pool from which to choose talented workers and may place the remote employee closer to external customers), it constrains managers' ability to communicate across time zones and to mentor teleworkers. As one remote mobile manager remarked:

"In our business and in a lot of other people's business, the coaching and counseling that you do with people is really, really critical. And it's a constant process as a manager. So that's one of the challenges: How do you develop your people? How do you have enough face-to-face [time], or enough time in a professional environment with them to be able to see the things they need to improve on and to be able then to spend that coaching and counseling time with them? If you do everything remotely, at the end of the quarter, at the end of the half, how do you do somebody's review? How do you assess their performance? It's easy to identify their performance based upon activity and, you know, the results. But how about those personal development or skills development issues that you really need to focus on?"

Virtual teams. Virtual teams consist of members who are separated organizationally or geographically, sometimes by continents. The number of virtual teams is growing as more people work across internal functional boundaries and across external boundaries with vendors, customers, complementary enterprises, and direct competitors. More so than other forms of telework, virtual teams depend on e-mail, video-conferencing, audio-conferencing, and the like to meet, collabo-

FIGURE 1: A CONTINUUM OF THE CHALLENGE OF REMOTE MANAGING



rate, and share ideas. Virtual teams benefit from their diverse memberships, cross-cultural links, access to wider talent pools, and broader ranges of customer service.

However, virtual teams face a number of challenges. One engineer we interviewed spoke of problems he faces on a virtual team spread out among two California locations and a European one. The team must overcome considerable cultural barriers. For example, the Europeans on the team prefer formal modes of communication, while the Americans prefer more informal ones. Reliance on e-mails and telephone calls (which must be coordinated across time zones) complicated processes of informal communication, which frustrated the American side of the team. Team members must also strive to create synergy and shared values; their attempts in these domains is made more difficult by their remote locations. This problem is likely to exist even for teams whose teleworking members are located in the same city, as lack of face-to-face time severely hampers the development of a team's sense of itself. All of these factors may delay decision time in the team and, ultimately, may negatively affect its performance.

A continuum of remote managing. We summarize the discussion of remote managing and virtual teams by building a continuum showing the degree of difficulty, in terms of coordination, observation, and so on, involved in various remote managing situations. In Figure 1, the employee's work arrangement is located along the continuum; we assume for purposes of argument that the manager is located at the main office. Local, part-time telecommuting represents the least challenging remote managing situation for the manager based at the main office. Remote

managing becomes more challenging the further the subordinate is from the office (in terms of physical distance for satellite offices, in terms of both distance and association for neighborhood work centers), with virtual teams presenting the most difficult situation.

PREPARING FOR AND MANAGING TELEWORK ENVIRONMENTS

Managers can address many of the teleworking challenges described in this article through careful preparation and on-going involvement. We provide recommendations to aid this process.

Guidelines. Organizations need to prepare themselves and their employees for telework. Guidelines can prepare teleworkers and managers by covering topics such as scheduling, communication expectations, telecommuting eligibility, performance expectations, expense policies, and how to maintain healthy collegial relationships.

The State of California Telework Program, a collaborative effort undertaken by the Department of Personnel Administration (DPA) and the Department of General Services (DGS), provides extensive information regarding its policies and procedures online at <http://www.dpa.ca.gov/jobsnpay/telework/telemain.htm>.

Infrastructure. Managers need to guarantee that prospective teleworkers have basic technical tools, such as e-mail access and responsive communication links (e.g., ISDN lines) to ensure successful off-site work. Further, managers should help teleworkers address work-family issues, including the design of conducive home

environments for work. For example, one manager we spoke with is himself a full-time, home-based telecommuter who manages full-time, home-based telecommuters. He personally visits his telecommuting employees' home work spaces early in the process, advising improvements as necessary.

Availability. Many firms require teleworkers to maintain working schedules consistent with the office schedule (e.g., 8 to 5 schedule, with lunch at noon) to facilitate coordination with work peers. We caution, however, that such a practice may reduce productivity gains associated with telework. Whether a company requires a fixed schedule will obviously vary by the type of job; for example, it may be more essential for customer service representatives than for design engineers. Managers may choose instead to negotiate a certain number of hours during which the teleworker will be available. Teleworkers may enhance their availability by carrying a pager or by proactively contacting the main office by e-mail or phone.

Communication. Another element of preparation should address communication needs. To solve many communications problems, off-site workers can let a centralized communications center know where they are working. If the teleworking employee services internal customers, then these customers must be alerted to the employee's remote days. Some customers may find contacting the employee at home an inconvenience, while others will continue to demand face-to-face interaction. These specific concerns can be handled on a case-by-case basis.

Training may need to focus on time zone and cross-cultural communication barriers, especially for virtual teams. Often several time zones separate supervisors from their employees, thus allowing only a few hours during which their work schedules overlap. Issues that could otherwise be handled through face-to-face communication any time in a work day may go unaddressed unless individuals make a conscious effort to set aside time. It is critical that both supervisors and employees feel they can share their concerns, and that they are capable of communicating their concerns

cogently. Managers and employees may need to improve their ability to communicate effectively with electronic media.

Task scheduling. Part-time telecommuters can learn to reserve certain work for their telecommute days—work that does not require access to on-site resources or that does demand hours of uninterrupted quiet time.

Meeting scheduling. Organizations periodically should bring on site non-located individuals whose work is interdependent to enable them to get to know one another. Establishing initial bases of trust and familiarity through face-to-face interaction strengthens subsequent virtual communication. The process is particularly important for virtual teams. In addition, supervisors may wish to schedule regular meetings, "peacock sessions," either face-to-face or electronically mediated, in which employees share their accomplishments and "strut their stuff." Such meetings counter the view that when workers are out of sight, they must not be working.

Trips to the main office. Organizations may require employees to be on site at regular intervals to help enmesh them in the organization's culture. Some other firms require teleworkers to work in the main office for a given amount of time prior to teleworking to allow the company's culture to sink in. Subsequent office visits and interactive idea-sharing forums, visits, including time set aside by managers for employees to voice concerns, allow employees to develop social and professional ties. These ties foster teleworkers' beliefs that they actively participate in the processes that govern them, and subsequently combat professional isolation. Also, frequent e-mail may increase off-site employees' commitment to the organization, although it may reduce solidarity in existing social groups.

Performance measurement. Supervisors can begin to manage teleworkers by outputs rather than inputs. However, for managers who want to actively mentor their employees or for employees whose work is not easily quantifiable, a focus on outputs may be limiting. Organizations can supplement an output focus with frequent communication. Computer technology further alleviates the prob-

lem of in-person observation for many other types of workers. Teleworkers can electronically submit observable, quantifiable outputs such as reports, files, graphs, and other work-specific data. For example, one manager we spoke with monitors his telecommuters' performance daily using computerized statistics of product orders, number of buys, and the like.

Non-teleworker buy-in. Managers should cultivate non-teleworker buy-in as part of the preparation process. On-site employees may find that their workload increases and disruptions multiply if they become the resource for questions while the teleworker works away from the main office. Thus, managers must estimate the impact of teleworking on non-teleworkers and devise appropriate business procedures to limit this impact as much as possible. Moreover, organizations should discourage the perspective that teleworkers do not work, or that they do not work as hard as office employees.

In sum, effective preparation and subsequent managing can foster a healthy and productive telework culture. Clearly, current and expected advances in telecommunications technology will facilitate a growing number of teleworkers. Thus, creating a positive culture now for remote workers will reap numerous future benefits for individuals, organizations, and society alike.

THE FUTURE OF TELEWORK

Many forecasters predict a steady and considerable increase in the number of teleworkers in the years to come. The increase, they claim, will be precipitated by tremendous advances in telecommunications and multimedia technology that will make communication between a remote site and a main office even smoother and easier than it is today. The technological advances will come at a time when the U.S. economy will experience continued growth in service industries. When no physical product is associated with work, as in the service industries, teleworking becomes a more viable option. Even in some industries where there is a physical product, its creation

may not require hands-on attention in a central site. For example, the growth of the software industry provides a large pool of programmers who quite easily can contribute to the creation of an application program from the comfort of a home office. Thus, we expect that teleworking in the future—even in the next few years—will look very different than it does today.

One short-term change, already evident in some locales, is that new homes will be designed with a home office as a standard feature, and housing developments will include ISDN lines as commonly as they do telephone and sewer lines. Already in the Silicon Valley one sees newspaper advertisements for apartments with ISDN lines.

Some small firms may go completely virtual. For example, Janet Caswell describes how a small accounting firm established all its employees in home offices, gave up the lease on a main office, and placed the remaining office supplies in storage, with plans to go completely paperless in the near future. Other firms will sport main offices that are less crowded than before. Already in universities, empty hallways are common, as professors opt to work at home, using computers to communicate with students and colleagues. Efforts in distance learning (where the students, the professor, or both, are located away from the traditional classroom) suggest a possible decline in an on-campus presence. In the corporate world, being in the main office soon could be minimally effective in increasing one's visibility should telecommuting become increasingly popular, as there may be no one else there to do the seeing.

Teleworking may fulfill the desire of many workers to leave large urban areas behind them. Currently, the Sierra Nevada mountains in California are becoming much more populated as workers take to the hills, computers in tow. The surge in population in previously remote areas will grow dramatically, and in many cases there will be unfavorable effects on the rural environment and on local economies. Meanwhile, back in the cities, we might expect to see fewer large office parks and ultimately less congestion. Teleworking may conceivably spark a long-

term spreading out of the U.S. population that will alter, among other things, tax bases and transportation needs.

Also, we are beginning to see telecities or villages in which "information technologies are used for mobility, economic growth, and other long-term public interests, as well as the short-term private interests usually satisfied by competitive markets." The Blue Line Televillage in Compton, California, is comprised of four different levels of structure (from largest to smallest): central tele-district centers, sub-regional centers, televillage centers and neighborhood communication centers. The telecity Blue Line architects wanted to spatially redesign urban areas, making everything (all services, public and private) available within walking distance or a short public shuttle ride from each home. The Blue Line Televillage includes a small telework center, a computer center, videoconference center, meeting rooms and information kiosks. Many services are available there, including ATM machines, distance education classes, computer and internet classes, and public access computers. Future televillages might also have connections to government offices, retailers, and medical clinics.

The long-term ramifications of teleworking on a global scale may include a lessening of immigration to the U.S. and the diminishment of U.S. engineering and business schools as premier degree-granting institutions. For example, as communication technology allows software development to spread to India, fewer Indian engineers will seek higher degrees—and ultimately employment—in the U.S. Domestic high-technology firms will find it more difficult to attract talent, but they also may have less need for it. U.S. workers may face lower wages and fewer opportunities if positions in service industries, like those in manufacturing industries before them, move overseas. The technology that will enable U.S. workers to work at home, similarly, will allow

foreign workers to remain in their home country. The result may at once bring both benefits and hardships to U.S. workers.

Finally, telework might open up new market opportunities for innovative companies. Already, companies such as Cisco Systems, Fujitsu Business Communications, KPMG Peat Marwick LLP, Flextime Corporation, and Synergy Planning are marketing products and advice designed to address teleworkers' unique needs.

We have listed here a few of the expected impacts associated with a predicted rise in teleworking. We add the caveat that the forecasts of large numbers of future telecommuters are simply that—forecasts. Quite possibly, individual workers and managers may determine the challenges of telework outweigh the advantages, and thus decline to set up teleworking arrangements. Or, more likely, individuals may telecommute on a part-time basis, thereby muting the impact caused by a large teleworking population. Nonetheless, in the face of this phenomenon, small businesses, large corporations, local, state, and federal government agencies, and the public at large do well to begin to develop public policies to address the needs, challenges, and ramifications associated with telework. Rural towns should plan for new development. For example, towns and cities should revisit zoning codes, managers should design methods for mentoring and evaluating remote employees, and teleworkers should seek ways to ensure their employment while allowing themselves to benefit from telework. Although some outcomes are unavoidable, careful planning may serve to make the transition to the new future world of work easier for all.



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