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Telecommuting: A new business work style

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ABSTRACT

Advances in computer and networking technologies now permit organizations to allow employees to work from home and thus relieve them of the daily commute. This new work style is known as telecommuting. This paper introduces the concept of telecommuting, and discusses its advantages and disadvantages to both employees and organizations. We finally suggest methods by which an employer can develop and manage a successful telecommuting program.

INTRODUCTION

Most organizations treat employment as a situation in which the employer controls the location, hours and tools by which a job is performed (Pilot, 1991). Advances in computers and telecommunications, however, have the potential to drastically change this established view of employment. The resulting new work style is referred to as *telecommuting*. The term telecommuting generally includes any work involving remote data access using a computer and communication channels. An employee of a company working at home using a modem and a computer to communicate with the main office; a consultant communicating with his clients from his home office; a travelling salesman communicating with his office using a laptop computer and a cellular modem, are all examples of telecommuters.

Telecommuting offers advantages to both employees and employers. While employees are better able to manage their time and schedules, employers of telecommuters benefit by the increased productivity of employees and cost savings on items such as office space, parking space, and utility bills. In addition, employers also realize more flexibility in recruiting and retaining employees. The rapid advancement of communication and computer technology, along with decreasing costs, is now presenting employers with the option of allowing workers, who traditionally work in an office, to work as efficiently in a remote location such as the employee's home.

In addition to being beneficial to organizations, telecommuting also addresses some environmental and sociological issues. The reduced need for commuting to work leads to a cleaner and healthier environment as it results in less gas consumption, less pollution, and less destruction of natural landscapes to accommodate more buildings, parking spaces and roads. Other

indirect benefits include less wear and tear on vehicles (so they would last longer, and generate less waste), less need for expensive "office" attire, less eating in restaurants and so on. Telecommuting also has the potential to solve some sociological problems as it permits employees to spend more time with family members at home.

The purpose of this paper is to describe the vast potential of telecommuting to organizations if it is well implemented. We discuss the major advantages and disadvantages of telecommuting to both employees and employers, and finally suggest methods to develop and manage a successful telecommuting program. As we shall see, many of the disadvantages of telecommuting are the result of current management practices, and can be averted by modifying them. The paper is organized as follows. Section 2 presents a brief history of telecommuting. In Sections 3 and 4, we describe the advantages and disadvantages of telecommuting to employees and employers respectively. Section 5 describes ways to develop and manage a successful telecommuting program. Finally, in Section 6, we summarize and conclude the paper.

HISTORY OF TELECOMMUTING

Telecommuting is a result of various social, economic, technological, and environmental factors. The first signs of interest in working at home rather than in a conventional office were a result of the oil crisis of the early 1970s. People were more motivated by the desire to save money on energy costs than to improve the quality of work and home life (Huws, 1984). Nilles (1976), who coined the term "telecommuting," produced detailed estimates of the number of barrels of oil that could be saved every year for each percent of the American workforce working from home. More recently, increasing concerns about environmental protection have encouraged exploring ways of cutting down pollution, and telecommuting has emerged as a potentially significant solution. In a joint Arizona state-AT&T program in Phoenix, Arizona, 134 workers were allowed to telecommute at least once a week, and in the first six months alone, workers drove about 100,000 fewer miles. AT&T estimated that, if just 1 percent of the county companies did the same, air pollutants could be cut by 185 tons yearly, and gasoline consumption, by 463,000 gallons (Hayes, 1992).

Most of the existing telecommuting programs were started to accommodate the "special" needs, such as illness, relocation, and pregnancy, of some employees. By allowing telecommuting the organization could retain the expertise of these employees. Success with such "special cases" along with the rapidly falling prices of communications and computer hardware are now making telecommuting more feasible for a wider variety of jobs and employees (Ford, 1991). The minimum equipment needed for telecommuting includes a personal computer, a modem, and a phone line. A fax machine is useful if exchange of real images is necessary. Those who work while traveling also need access to cellular phone services and a laptop computer.

ADVANTAGES AND DISADVANTAGES TO EMPLOYEES

Telecommuters gain certain advantages over traditional office workers as they are able to work from a remote location, but they also have to deal with some potential disadvantages. We first describe the advantages. The first major advantage is the relative privacy the worker gets when not working in a traditional office (Currid, 1992). The absence of co-workers and other office activities results in fewer work interruptions, so a worker can better concentrate on his work and reduce wastage of time. The absence of distractions and interruptions is especially helpful when the worker is performing a job that demands concentration.

A second advantage of working at home is the potential of being able to work for more than one employer, and therefore increase personal income. A telecommuter also has the opportunity to work on a contractual basis for many firms while still working for one primary employer. Similarly, a worker who is an expert in a particular field can also run a consultancy business from home. The time a telecommuter saves by not having to commute is a third major advantage. The time savings are especially significant for residents of large cities where a four-hour daily commute is not uncommon. The time saved can be spent more usefully on work and family matters. In addition to time, the telecommuter is also spared the stress and exhaustion caused by driving long distances. Urban expansion is leaving America's workers chronically exhausted from commuting (Zelenko, 1992).

A fourth advantage to telecommuters is a flexible work schedule (Ford, 1991). Unlike traditional office employees, who have to maintain a regular work schedule, telecommuters are not bounded by any such schedule. For example, a worker can choose to complete a task by working continuously for 20 hours, and then not working for the next three days. The added work flexibility is especially useful for working parents and single-parents who wish to adjust their schedules so that they can spend more time with their family.

A fifth major advantage is the reduction of office related expenses (Goodrich, 1990). Besides the obvious decreased costs of commuting such as gas expenses and vehicle wear-and-tear, other savings result due to reduced expenditures on office attire, meals in restaurants, and child-care expenses. Finally, for individuals who are unable to commute easily to work due to old age, injury or disabilities, telecommuting may be the only way they could be gainfully employed.

Given the *current* practice of management, an employee who chooses to telecommute could potentially face some severe disadvantages as well. First, the employee loses the vital element of workplace visibility, and hence compromises his or her chance for career advancement (Challenger, 1992; Ford, 1991). The saying "out of sight, out of mind" might be especially important when selecting employees for promotion. As the telecommuter is primarily outside the office premises, he is often left out of many special organizational events and informal gatherings. The telecommuter is unable to develop a personal relationship with superiors and co-workers, and employees who do form such personal contacts are much more likely to be targeted for promotions (Challenger, 1992). Another possible disadvantage is that the employer

may designate a lower status to telecommuting employees than "regular" employees, thereby denying or reducing employee salary and benefits. In Conte (1992), it is reported that the Communications Workers of America union is resisting telecommuting for this reason.

Another potential disadvantage to the telecommuter is isolation from co-workers. Staying at home most of the time with no regular work schedule and little physical interaction with others may leave the employee feeling alienated from one's co-workers and organization (Ford, 1991). This is, however, less a problem if the telecommuter is a self-motivated individual who needs little social interaction. A final possible disadvantage to an employee who chooses to work away from the usual office set-up is the lack of proper equipment and inadequate reference materials (Roderick, 1991). Tables 1 and 2 show some of the perceived *advantages* and *disadvantages* of telecommuting to employees in rank order (Roderick, 1991). As the study was conducted for companies located in the Austin-San Antonio (Texas) area, the ranking may not be generalizable for all companies.

Table 1. Perceived Advantages to Employees (in Rank Order)

Flexible Scheduling	Additional Leisure Time
Decreased Commuting Costs	More Relaxed Environment
No Commuting Time	Decreased Clothing Costs
Additional Family Time	Money Saved on Meals
Fewer Interruptions	Environmental Concerns
Money Saved on Child Care	

Table 2. Perceived Disadvantages to Employees (in Rank Order)

Lack of Equipment	More Interruptions
Lack of Reference Materials	Lower Salaries
Isolation from Co-workers	Job Downgrading
No Managerial Guidance	Decreased Job Security
Improper Office Set-up	More Stressful
Lack of Structure	

ADVANTAGES AND DISADVANTAGES TO EMPLOYERS

Many of telecommuting advantages to employees are also advantages to employers. First, the significant increase in employee productivity (15% to 30%) (Goodrich, 1990) and morale is an obvious and significant advantage to the employer. Second, telecommuting presents the employer with a larger pool of skilled employees (Goodrich, 1990) as it breaks down the geographic barrier to employment, thus giving the employer more choice in selecting employees. Potential employees could be located far away and be unwilling to relocate or commute to work, or they could be disabled individuals who are otherwise highly skilled. A related advantage to employers is improved employee retention (Goodrich, 1990), which translates to savings in hiring/training costs. For instance, telecommuting could help retain skilled, trained employees who are reluctant to relocate; or it could help an organization to continue to benefit from key employees who cannot or do not want to commute due to pregnancy, disability or old age (Ford, 1991).

A third significant advantage of telecommuting is the cost savings due to reduced office space costs, less parking lots, and decreased utility bills. Some employers have reported that telecommuting helps save on reduced office space costs by \$1,500 to \$6,000 per person per year (Romei, 1992). By encouraging telecommuting, employers who own their office building can lease any extra office space to increase revenues. Rapidly growing companies, on the other hand, can hire several new telecommuting employees without having to increase office space. Seasonal businesses can also hire part-time telecommuters to handle the greater volume of business without additional space. Telecommuting thus leads to increased flexibility and reduced office space cost (Ford, 1991).

A final advantage to employers is that they may choose to classify some or all of their telecommuting personnel as part-time or temporary workers, and thus save on personnel costs (reduced benefits and wages). While this is clearly an employer advantage, it is disadvantageous to the employee, and may not be perceived as a "politically correct" reason for adopting telecommuting. In the long run, this "advantage" may even backfire due to disgruntled telecommuters.

While employers could gain several advantages by using telecommuting, they too have to deal with certain disadvantages. First, the supervisor has to change his current management style if telecommuting is to succeed in the organization. In the traditional office setting, it is easier to coordinate the work of several employees as the supervisor is able to "see" that the employees are performing some task and is able to provide frequent feedback. The problem becomes more complex when dealing with employees who are not "seen" frequently (i.e., telecommuters). In the absence of frequent feedback, the chances of "misdirected work, unnecessary errors, and work duplication" increase (Ford, 1991). The supervisor, therefore, has to ensure that jobs performed by telecommuters are well defined by clearly stating the nature of the job, the time limits, the quality constraints, and so forth (Goodrich, 1990). Although some employers might resist changes in their current management practices, we believe that they are necessary for a successful telecommuting program, which would eventually reward the employer.

Second, many employers (Ford, 1991) perceive a loss of managerial control because telecommuters, who work and communicate electronically, do not have much *physical* interaction with co-workers and supervisors. In the traditional office, employers feel that they have control over their employees as they can directly instruct employees and "see" that they are working. These physical cues are absent in telecommuting. A related problem is that employers fear that telecommuters might lose a sense of identity with the organization and co-workers, which might lead to a lack of team spirit. This could be detrimental as there is some evidence that organizational identity is beneficial to the long-term health of the organization (Ford, 1991).

A third disadvantage of telecommuting is the additional cost of acquiring, repairing and maintaining the computer and communications equipment at the employee's premises in addition to those associated with long distance data transmission (Ford, 1991). Over and above the capital expenditures and operating expenses, there are other costs of telecommuting as well. For example, when an equipment at home fails, the employer might still have to compensate the worker during equipment "down time." Employers must also pay for any training costs associated with using the equipment. An additional cost could be the misuse of office equipment by the employee (such as for other part-time jobs) or his/her family members for personal gains. It is estimated that annual costs of equipment/telecommunication vary between \$2,000 to \$10,000 per employee (Ford, 1991).

A fourth potential disadvantage to employers is the additional computer and network security risk that is inherent when several people are working from remote sites. For example, an employee can "contract-out" a job to someone else, and that person could use the access to the company's network to get hold of privileged information. Another possibility is the accidental corruption of employer data by the employee's family members or friends. Utilizing good network and computer security features such as encryption, dial-back features, and passwords could reduce security risks. Tables 3 and 4 show some of the perceived *advantages* and *disadvantages* (in rank order) of telecommuting to employers in the Austin/San Antonio area (Roderick, 1991).

Table 3. Perceived Advantages to Employers (in Rank Order)

Reduced Office Space
 Increased Employee Productivity
 Increased Employee Morale
 Reduced Employee Sick Leave
 Less Employee Turnover
 Reduced Energy Consumption
 Increased Labor Pool
 Decreased Office Staff

Table 4. Perceived Disadvantages to Employers (in Rank Order)

Lack of Daily Interaction
Loss of Face-to-Face Communication
Loss of Managerial Control
Hardware/Software Costs
Increased Network Security Risk
Increased Telephone Bills
Increased Training Costs

DEVELOPMENT AND MANAGEMENT OF TELECOMMUTING

A study involving midlevel managers in the San Francisco area concluded that the biggest threat to telecommuting was the attitude of "reluctant senior managers" who perceived telecommuting as incompatible with their organizational culture (Pilot, 1991). With increasing global competition, organizations should focus more on improving productivity than on preserving traditional concepts of work. A critical factor for telecommuting success, therefore, is support from the upper management (Nilles, 1990). Top management must be convinced of the desirability of telecommuting, and be willing to formulate new policies and change existing policies to foster it.

When an organization decides to develop a successful telecommuting program, it has to actively change some of its management policies. Many of an organization's current culture and practices have evolved in an environment where the employer is able to physically ensure that the employee is working for a certain number of hours a day. Unlearning many of these past practices and learning new ones would necessarily take considerable time and effort. Table 5 suggests some methods which can help an organization succeed in telecommuting.

Table 5. Methods to Succeed in Telecommuting

METHOD	BENEFITS OF METHOD
Commitment from upper management	Ensures support for Telecommuting
Objective employee evaluation	Telecommuters stay productive and satisfied over the long run
Regular feedback to telecommuters	Supervisors do not perceive a "loss of control"
"Fair" reward system for all employees	Telecommuters stay productive and satisfied over the long run
Provide telecommuters with adequate equipment	
Mail telecommuters all office memos and newsletters	Keeps telecommuters in touch with organizational happenings
Require telecommuters to attend staff meetings	Build organizational identity among telecommuters
Encourage telecommuters to visit the office when possible	
Select suitable jobs telecommuting	Facilitates the success of the program
Select suitable employees	
Use good computer network security mechanisms	Minimizes risk of computer and network fraud
Develop a telework center	A compromise between a traditional office and a home office

Once upper management is committed, the next step is to assign supervisors who are willing to devote the time and effort required to start and maintain a telecommuting program (Nilles, 1990). The supervisors would play an important part in setting and enforcing new policies to minimize the disadvantages and maximize the advantages of telecommuting. As supervisors have to manage from a distance, they have to develop objective mechanisms for monitoring, evaluating, and rewarding telecommuter job performance. An employee should be evaluated only on the *results* of his activity, and not on how long it took him, or where he did the job. Management must, therefore, change its perception of control, from "observing activity" to "managing results." Supervisors have traditionally relied heavily on "visibility" as it indicates that the employee is busy "doing things," and that he is interested in the organization. As gaining "visibility" is not possible for telecommuters, supervisors should implement reward mechanisms that are tied to the actual *quality* of the job and not to "visibility." Similarly, supervisors should strive to maintain equitable employee benefits and career advancement opportunities for both telecommuters and regular employees (Nilles, 1990). Finally, although it is impossible to "duplicate" an office at every employee's home, every effort should be made to provide telecommuters with appropriate equipment.

As mentioned earlier, it is possible that telecommuters may not identify themselves with the organization and may, therefore, lack team-spirit. To help retain a sense of organizational identity, supervisors should ensure that telecommuters get all office memorandums, newsletters, etc. and encourage them to participate in all social gatherings. Supervisors should also provide prompt feedback on all work by maintaining regular contact via telephone, mail or e-mail. Although non-face-to-face feedback is not perceived as being "personal," they often serve the same function as giving face-to-face feedback. If the supervisor, however, does feel that a situation warrants a face-to-face meeting, he should call for one. Supervisors should also require telecommuters to attend all staff meetings (Nilles, 1990), and encourage them to occasionally come to the office and "chat." By keeping the employee informed about organizational matters, and providing regular feedback, the employee is less isolated from the organization, and hence is more likely to possess an organizational identity.

As not every job is suitable for telecommuting, the employer has to decide on appropriate jobs. Research (Ford, 1991) has shown that jobs that (i) require an individual to concentrate for extended periods, and are largely autonomous or (ii) are easily measured and involve interaction with a computer terminal, are well suited to telecommuting. Jobs in the first category include computer programmers, consultants, design engineers, and writers, while jobs in the second category include data entry staff, telephone sales marketers, travel agents and hotel reservation clerks.

In addition to selecting suitable jobs, the employer also has to select employees who would perform well as telecommuters. Studies (Ford, 1991; Nilles, 1990; Goodrich, 1990) have shown that successful telecommuters are organized self-starters who are comfortable working alone. They are "independent, persistent, and are able to assess their own performance well" (Bush, 1990). They are, therefore, able to work without constant supervision, manage their time, and plan out their work effectively. On the other hand, the worst telecommuters (Bush, 1990) are socially active, gregarious, and dependent individuals who view their jobs as another opportunity for social interaction (which is very fulfilling to them).

Finally, if an organization is not comfortable with "pure" telecommuting, it can set up remote office facilities, known as telework centers, near residential communities (Betts, 1991). A telework center provides the employee with an office-like environment near home, and yet offers many of the benefits of at-home telecommuting. Telework centers are being tried out by the state of California, the Washington State Energy Office, the Department of Transportation at Hawaii, and several companies in Japan (Betts, 1991).

SUMMARY AND CONCLUSIONS

The recent turmoil caused by the earthquake in the areas near Los Angeles (California), demonstrated our dependence on physically commuting from home to office in order to work. With widespread adoption of telecommuting, this dependency will significantly decrease. After the Bay area earthquake on October 17, 1989, the governor of California requested employers to adopt and promote telecommuting (Romei, 1992). In general, the attitude of state and other regulatory agencies towards telecommuting has been fairly positive due to the many potential benefits such as increased profitability and productivity of businesses, large savings on oil consumption, reduced traffic congestion, reduced pollution, and reduced wear and tear of transportation infrastructure.

Many large companies are beginning to appreciate the benefits of telecommuting. Some well known companies that have successful telecommuting programs are IBM, Xerox, American Express, Du Pont, Mountain Bell, Manufacturers Hanover Trust, Pacific Bell, Blue Cross & Blue Shield, J C Penney, Apple Computer, The Travelers Insurance Company, and Beneficial Finance Corporation (Goodrich, 1990). In Japan, companies like Fujitsu Ltd. and Sumitomo Trust & Banking Co. have formed the Satellite Office Association of Japan (Betts, 1991).

Many employers hesitate to adopt telecommuting because the physical proximity in existing offices support the necessary communication that underlies much group work (Kraut, 1989). In a traditional office, people communicate not only via speech, but also by their body language, facial expressions, tone of speech, spontaneous reactions, and by their conduct when not speaking. With the current state of technology, much of this information is lost during electronic communication when telecommuting. The development of new computer technology and standards in networking such as Asynchronous Transfer Mode (ATM) should soon alleviate this problem by supporting multimedia communication. These new technologies would allow telecommuters to electronically transmit and receive full-motion video images, graphics, audio and text data, which would then allow them to use applications such as desktop video conferencing.

In this paper, we have described the phenomenon of telecommuting, analyzed the advantages and disadvantages to both telecommuters and their employers, and then discussed some ways to manage telecommuting in order to maximize its chances of success. Telecommuting is still a recent phenomenon, and much research is needed to study its full implications on organizations and societies. As more companies adopt telecommuting, we can learn additional ways

to make it successful. Further research in this area is needed, with a focus on how best to use telecommuting to solve existing problems and improve productivity without creating new problems. Telecommuting, if implemented correctly, would make the *what* of work, instead of the *where* and *how*, paramount (Pilot, 1991). Telecommuting is already creating multimillion-dollar companies with no brick or mortar, known as "virtual offices," that just comprise of phone numbers, computers, and other techno-gadgets (Fowler, 1994).

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