The Effectiveness of Telecommuting
for the Employee, Employer, and Society

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Abstract

Telecommuting is one of the fastest growing trends in the world of business. However, in spite of its popularity, some businesses are still reluctant to offer this option to their workforce. The findings of this investigation, which include data collected from cross-sectional surveys of telecommuters and their managers, provides strong evidence that the benefits of telecommuting outweigh the costs. Tangible or quantifiable benefits include increased productivity, financial savings from reductions in real estate, facility and overhead costs, and environmental improvements from reductions in automobile emissions. Intangible benefits include a better quality of work life, an improved working environment, greater flexibility, and less stress for workers. However, telecommuting is not for every individual or job task. The key obstacles to telecommuting are technological problems, loss of personal interaction with coworkers, and legal issues pertinent to labor laws. In spite of these drawbacks, the findings suggest that most telecommuters have a high level of job satisfaction and view the telecommuting arrangement as a positive force in their careers. The critical issues in implementing effective telecommuting programs are top management support, careful selection of the telecommuting candidates, employee training, and formal policies and procedures detailing performance standards and measures.

Introduction

In American corporations, telecommuting is moving beyond the pilot stage into more formalized programs. Approximately 42 percent of all American enterprises have a telecommuting program, according to a 1996 poll by Olsten Corporation, a placement company for temporary workers (Girard, 1997a). Telecommuting moves the work to the worker, rather than the worker to the work, according to Jack Nilles (June 1990), who is known as the father of telecommuting and telework. Better, less expensive technologies fuel the growth of telecommuting, making it easier for employees to be productive and to stay connected to their employers. Indeed, a successful telecommuting program depends as much on support from the company's information technology (IT) department, as it does on support from high level executives.

A 1997 American Internet User Survey, commissioned by FIND/SVP, a New York based market research and advisory company, shows a significant increase in the number of telecommuters during the 1990's (Telecommuting Facts, 1997). Eleven million U.S. workers now telecommute compared to four million in 1990. The main reasons for this growth are greater company and employee awareness of the benefits of telecommuting, a robust U.S. economy, and increased, more efficient uses of technology, particularly the Internet. Telecommuters frequently only work part of the time at home. A 1995 study of telework arrangements (Telecommuting Facts, 1997) found that corporate telecommuters work an average of 19.3 hours per week at home. Telecommuters in that study earned an average annual income of $51,000 and were 40.2 years old. Seventy-six percent were married, and 46 percent had children at home. That study suggested that bout 40 percent of today's workers could be telecommuting part of the time, but only 10 percent are doing so The benefits of telecommuting range from an improved quality of work life and increased productivity to a reduction in traffic congestion and pollution.

Perhaps the more interesting question is why the remaining 58 percent of American businesses do not have telecommuting programs? Is it because they are unaware of its possible benefits? The purpose of this study is to present information that will help corporate managers make educated decisions about whether telecommuting should be an option for their workers. The study looks at the major issues in telecommuting work arrangements, and identifies the advantages and disadvantages of telecommuting for the employee, employer and society as a whole.

Background

A number of important issues affect the outcome of telecommuting efforts at several levels of analysis: individual, corporate, and societal.

Telecommuting Issues

Successful implementation of a telecommuting program depends on a few essential preconditions. According to the California Telecommuting Pilot Project conducted by JALA Associates, Inc., the key preconditions are top management support, employee and employer willingness to participate in a telecommuting project, and training. Support from top executives is a given for the success of any innovative program in a large organization. Telework requires some basic changes to the employee-supervisor relationship that may not succeed without pressure from above.

Management of the teleworker is one of the critical issues that determine the success of any telecommuting effort. Many managers avoid telecommuting programs because they are concerned about being held accountable for employees they cannot see. An effective manager of teleworkers needs to understand the individual employee's work tasks, competencies, and degree of need for direct supervision. Based on that understanding, the manager designs accountability structures to maximize the employee's performance. A manager of teleworkers has to learn how to select individuals who can handle this alternative work arrangement.

Training is required for the telecommuter and the manager who both need the skills and understanding necessary to implement a successful program. Investments in the human side of telework help employees maximize their personal resources, balance their work and home lives, maintain a level of motivation and productive, rewarding relationships with the corporation. The balance of work and home life is central to sustained satisfaction, motivation, and high performance. Telecommuters need to designate an area at home specifically for work, organize their workdays, develop stress management techniques, and regularly evaluate the effectiveness of the telecommuting arrangements.

If telecommuting is properly managed, it improves employee efficiency. The key to success is a clear understanding by both workers and managers of their respective roles as well as clear expectations about work deadlines. To be effective, employees need to communicate and meet regularly with their supervisors. To maintain social networks at work, teleworkers also need to attend regular group meetings at the central office, and take time to maintain ties with nontelecommuting coworkers.

It may be that successful telecommuting programs work best when participation of both employee and supervisor is completely voluntary (Boyd, 1996). Moreover, not all jobs or individuals are well suited for telework. A screening process should establish which jobs and individuals meet the criteria to become telecommuters. Finally, telecommuting specific training is key for both telecommuters and their managers.

Major capital investments in telecommuting programs are usually not necessary because the prospective telecommuters already have a computer system suitable for telework. Telecommuting more than pays for itself after startup costs are covered. In fact, benefit to cost ratios could reach more than 20:1 (Niles, 1990).

In summary, the literature on telecommuting programs suggest that the main issues for telecommuting programs include:

- Providing training on telecommuting requirements and expectations for both employees and supervisors.

- Selecting appropriate job functions and individuals for telework.

- Developing performance measures and an accountability structure for telework arrangements.

- Balancing work and home life for teleworkers.

- Addressing communication concerns.

Benefits of Telecommuting

The benefits of telecommuting may accrue not only at the individual, but at the organizational as well and societal levels. Recent trends in improving quality of work life, enhancing worker productivity, conserving energy, and reducing pollution, have challenged the idea of accomplishing tasks from traditional offices located on the employer's premises.

Wide-scale pilot projects already have proven successful. JALA Associates, Inc. conducted the California Telecommuting Pilot Project commencing in 1985 and completing January 1990. Several State agencies provided a variety of jobs to 150 telecommuting participants. Participants included accountants, researchers, administrative law judges, lawyers, clerical workers, managers, policy analysts and appraisers. The average telecommuter was 41 years old and had worked for the state for 14 years. Sixty-four percent were male. Project goals and work effectiveness met or exceeded expectations. Telecommuting enhanced the quality of work life for telecommuters, including employees who were disabled. Results-oriented management techniques proved an effective tool. Techniques used for selection, training and evaluating were successful. Significant societal benefits emerged, including reductions in traffic congestion, air pollution and energy use.

Employee Benefits

There are several key advantages of telecommuting for teleworkers (Johnson, 1994). Teleworkers can achieve closer proximity to and involvement with their families. They have more control over the working environments. They may experience improved health because they have less stress, spend less time commuting and can develop a life that is more balanced between family and work. These advantages help the employee achieve a sense of control that in turn leads to higher job satisfaction and employee morale.

An AT&T National Survey of Teleworker Attitudes and Work Styles found that more than 60 percent of U.S. teleworkers are baby boomers between the ages of 33 and 51 (PR Newswire, 1997a). This survey conducted in May 1997 by FIND/SVP and Joanne H. Pratt Associates, was commissioned by AT&T to research the social and career aspects of

telework. The methodology used was a random digit dialed telephone survey of 11,997 U.S. households, screening interviews with 500 teleworkers, and in-depth interviews with 400 teleworkers. More than 60 percent of the survey respondents experienced telecommuting as a positive career move, because they gained greater responsibility and recognition for their work. Seventy-one percent were more satisfied with their jobs after they started working at home, because they were able to accomplish more work with less stress, which meant that their performance gains could be sustained over time. Overall, telework employees were happier individuals. They felt valued as employees who performed their work in less time. Thus, they believed their quality of work life was improved as the result of telework arrangements. Although teleworkers are found in every business or industry classification, the most prevalent occupations include salespersons (13 percent), managers (8 percent), and business professionals, technician and computer programmers and teachers (each 6 percent) (PR, Newswire, 1997a).

Employer Benefits

Employers benefit from improved teleworker productivity. They also are able to attract and retain good employees who have higher morale, effects that enhance the competitive status of the organization. Of course they save money on real estate, facilities and overhead costs because they do not have to provide office space for their teleworkers for some or all of the work week.

Telecommuting has a potential to grow as a management strategy to facilitate productivity improvements, to attract prospective employees, to retain competent staff and to limit overhead expenses (Boyd, 1996). For example, since 1991, AT&T has freed up $550 million in cash flow by eliminating offices and reducing related overhead costs (Apar, 1998). Furthermore, telework improves employee productivity because saved commute times may increase work production (Johnson, 1994; Boyd, 1996), and improved employee morale has positive effects on productivity. Finally, telecommuting may reduce "job hopping" and training costs because loyal, productive teleworkers stay with their employers.

Societal Benefits

The major societal benefits of telecommuting are the conservation of energy, preservation of the environment through reduced carbon dioxide emissions, and reduction in traffic congestion and traffic related hazards (Johnson, 1994). The Massachusetts Telecommuting Initiative was a yearlong project undertaken by the Massachusetts Division of Energy Resources and the Massachusetts Highway Department to study the impacts of telecommuting on the Commonwealth. Research consisted of several surveys, travel logs and individual interviews. The research findings suggest that telecommuting reduces vehicle miles traveled and, thus, provides benefits in terms of reduced energy consumption, vehicle emissions, and highway congestion (Boyd, 1996).

In another example, Boeing Commercial Airplane Group, (BCAG), conducted a Virtual Workplace Pilot Program. As part of the program, they did surveys at 3-, 6-, and 12-month intervals. The surveys were conducted via the Intranet, and sent to the 123 participants, 54 managers, and 285 coworkers. The one year survey received a total of 322 responses, with 98 percent response rate from the participants, 44 percent from the managers, and 62 percent from the coworkers, (Reeves, 97). Results posted June 26, 1997 indicated positive attitudes towards telecommuting from all respondents. Overall benefits outweighed costs. Key benefits were good workgroup morale, ability to retain good employees, availability of new talent pools, managerial support for telecommuting, and recommendations to provide telecommuting as an option for more employees. The 107 participants indicated that they avoided 2,006 trips to

the office, totaling 40,516 miles in a six-month period from January to June 1997. This suggests telework arrangements may have major societal impacts.

Disadvantages of Telecommuting

Of course there are negative aspects and costs to telecommuting. Probably the greatest obstacles are the organizational, operational and attitudinal barriers against it. Employers worry that employees who are not visible will not be working. There are also security issues because companies need to be sure they preserve corporate information that is disbursed and is traveling over unsecured telecommunications lines. There may be significant costs to set up and maintain teleworkers with the technologies they need for their work. There may be union opposition or contract problems for some teleworkers, especially those who are not exempt from the labor laws. Teleworkers may feel isolated and without support, and may overwork. There also may disrupt established rideshare groups (Stanek, 1995).

Telecommuting makes it more difficult for employers to comply with labor and employment laws. One potentially problematic area concerns wages and overtime. To comply with the Fair Labor Standards Act, employers must ensure that nonexempt telecommuters work only during their scheduled work hours, and that they keep accurate records of their time. Other laws that need special consideration as they apply to telecommuting programs are the Americans with Disabilities Act, workers compensation, Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act and the National Labor Relations Act, (Norris, 1997).

The benefits of telecommuting that some network managers and IT personnel advocate cannot be applied to every employee and every job. Loss of daily physical contact between employees and their headquarters can have negative effects (Lewis, 1997). Isolation intrinsic to the role of telecommuter is not necessarily conducive to promotion within an organization. Important personnel changes that subtly affect office dynamics can be completely missed by those working from home. Productivity levels with some jobs may require a certain amount of interplay or collaboration between colleagues, and this is more difficult for telecommuters to ensure. Telecommuting can have an alienating effect on some employees, and may eventually precipitate their exit from the company.

Technology plays a very key role in keeping connected to the home office. Slow access times, downed servers, and bad connections are the major contributors to lost time and data. Market analysts at Infonetics Research project that "downtime" by remote users will amount to nearly $4 million in lost productivity this year (Johnson, 1997). Downtime occurs both in the office and at home. Managers need to respect a telecommuter's working hours, and keep them supplied with office products (Louderback, 1997).

In summary, the telecommuting and telework research literature provides a positive view of telecommuting and what it has to offer the employee, employer and society. Most notable benefits are improved quality of work life, increased job satisfaction, increased productivity, reduced costs, and a less polluted environment. Top management support, volunteer participation, careful selection of telecommuting personnel, use of technology and relevant training are key preconditions in making telecommuting a viable work alternative.

Methods

This study investigated the issues, benefits and disadvantages of telework arrangements as viewed by people involved in telecommuting programs in Southern California. Specifically, it explores telecommuting as it affects the employee, employer and society. Data from a cross-

sectional survey looks at the viability of telecommuting work arrangements. The survey was an appropriate research strategy because the purpose of the study was to describe the incidence of the phenomenon under investigation.

The survey questionnaire contained several types of questions for respondents to answer. Some questions were open ended, which allowed the respondents to write in their own answers. Other questions allowed respondents to note their answers on a scale of one to five, with the ranges varying from negative to positive, and disagree to agree. A few of the questions asked respondents to check appropriate responses. Survey questions utilized information drawn from previous surveys. It was mailed out to twenty-five corporations throughout Southern California, selected from industries ranging from aerospace to invest-ment services. The mailing had a 54 percent response rate (108 returned out of 200 surveys mailed), most notably from the aerospace and defense, computer hardware, and insurance (property and casualty) companies. The survey was coded so that it was possible to determine employee type (management, telecommuter, and coworker of telecommuter), and the company of employment.

Survey respondents were grouped into three categories: telecommuting employees, coworkers of telecommuting employee (who did not telecommute themselves), and manag-ers of telecommuting employees. Several types of analysis are performed on the data, depending on the question types. Responses to the Likert scale questions were averaged for each category of respondent. Open-ended responses were rank-ordered by frequency of response. Quantifiable costs and benefits were compared.

Findings

Of the 108 respondents, 26 percent were telecommuters, 61 percent were coworkers of telecommuters, and 13 percent were managers of telecommuters. The job titles or classifica-tions of the respondents included professional people with a wide variety of job functions and several layers of management. While 38 percent of the respondents were female, 86 percent of the telecommuters were female. Distribution across all age groups was fairly uniform (in the 21 to 24 percent range) except for the 35- to 40-year-old age bracket, which was the age range of 34 percent of the respondents. All of the telecommuters were between the ages of 35 and 49 years (57 percent were between 35-40 years and 43 percent were between 41 and 49 years of age).

The majority of the respondents (72 percent) were married, and most had dependents (62 percent) whether they were children (54 percent) or elderly parents (8 percent). A much higher percentage of the telecommuters had children (70 percent), of which 30 percent had children under 5 years, and 40 percent had children between 5 and 12 years of age. Eighty-three percent of the respondents indicated that their companies had some form of telecommuting program, but most were pilot programs (53 percent). Furthermore, the attractiveness of telecommuting was evident in responses from the coworkers and managers of telecommuters: 100 percent of the managers and 76 percent of the coworkers indicated a desire to join the telecommuting ranks.

All of the telecommuters had a designated workspace at home and 75 percent had direct telecommunications link to their offices. Almost all of the costs were fully (43 percent) or partially (43 percent) reimbursed by the employer. Unanimously the respondents felt more productive when telecommuting and an overwhelming majority (86 percent) felt more satisfied with their jobs. Most felt telecommuting had a minor (43 percent) or positive (43 percent) effect on their careers. The other 14 percent did not know what effect telecommuting had on their careers.

Of the 28 telecommuters in the study, the most common frequency was one to two days per week. The average commute for telecommuters was 42.3 miles, and time to commute averaged 75 minutes roundtrip. Telecommuters saved an average of 2.2 trips to work a week, which amounts to 2.75 hours per week on average. This time savings may contribute to the increased productivity that telecommuters reported.

The types of jobs that respondents felt would fit a telecommuting program centered around those that use a computer as the main tool to create and complete work tasks. Most frequently mentioned were jobs in the information technology category. Several technical and skilled jobs also were noted as candidates for telecommuting (e.g., engineer, business analyst, salesman, human resource advisor, and payroll). The respondents also felt that some management jobs could be accomplished utilizing this type of work arrangement.

Reasons people would like to telecommute included greater flexibility, reduction of a long commute, fewer distractions, more productivity, convenience, and reduction in the need to call in sick. On the reverse side, a prevalent reason people did not want to telecommute was that they felt they would miss the personal interaction at the traditional office required to perform their jobs or fulfill their social needs. It should be noted that the number of reasons to telecommute far outnumbered the reasons not to telecommute.

The findings on the effects of telecommuting on work group and the telecommuter suggest that some interesting differences between the responses of telecommuters and their coworkers and managers. On a scale of 1 to 5 (1 negative, 5 positive), telecommuters had an average of 3.3 for "ability to team with coworkers", which was higher than their coworkers (average of 3.0) and much higher than their managers (average 2.3) were. Telecommuters and coworkers both indicated an average of 3.8 on the issue of "work group morale" while managers had an average of 2.7. On the issue of communications between telecommuters and customers, coworkers, and managers, telecommuters averaged 3.3, while their coworkers averaged 3.6 and their managers 2.8. This would seem to indicate that telecommuters and their coworkers hold a better impression of their ability to work on teams than their managers do.

On the other hand, managers had an average score that was higher than the telecommuters on items such as "quality of work" (managers 4.3, telecommuters 4.1), "increased focus on deliverables" (managers 4.7, telecommuters 4.1), and "ability to complete work on time" (managers 4.5, telecommuters 4.1). This would seem to indicate that managers of telecommuters are positively impressed with the performance of telecommuters. They appear to focus more on the results of their work (i.e., the deliverables) and may be less aware of problems that the telecommuters have while preparing that work. These problems would be more visible to the manager if the employee were working in closer proximity.

The findings on the telecommuting issues suggest that technological support and access to data are critical for effective telecommuting. Many of the articles advocating telecommuting suggest that valued employees may leave companies if telecommuting is not an option or is removed as an option. Telecommuters were fairly neutral on this item (average 3.3) while their coworkers and manager who did not telecommute tended to disagree (averages 1.9 and 1.5). All groups agreed, however, that they would like to see telecommuting become an option for more employees (4.6 for telecommuters, 4.4 for their coworkers, and 4.3 for their managers).

Furthermore, the supervisor and telecommuter need to have agreements worked out before telecommuting begins, and technological support was critical for telecommuting success. However dial-in access for telecommuters was evidently not adequate for all telecommuters (telecommuters scored an average of 2.9, managers 2.8, and coworkers 3.4

on this issue). The tendency of managers of telecommuters to focus on deliverables was also evident in this set of questions. All three groups agreed that this was the preferred way to measure the performance of telecommuters.

Some of the key comments indicated that telecommuting should be offered, but on a selective basis. Not all employees want to telecommute. Employees who telecommute need to be self-motivated, and able to balance the demands of home and work. Technology and support are key factors to the success of any telecommuting program. Management needs to accept the value that telecommuting can bring to their companies, and adapt styles and policies conducive to stimulating this type of work effort. The most significant comment is the intangible benefit of being at home with one's child.

Table 1 highlights the benefits and disadvantages to telecommuting that respondents offered in answer to open-ended questions. Overall, the respondents felt the benefits outweighed the costs, and were extremely beneficial.

Table 1. Benefits and Disadvantages of Telecommuting

Benefits	Disadvantages
◆ Flexible schedules ◆ Less distractions ◆ Increased productivity, more efficient ◆ Helps the environment ◆ Less stress ◆ Improved quality of life ◆ Good working conditions ◆ Reduced facility costs ◆ Retain valuable employees	◆ Not available for meetings or when problems arise ◆ Feel isolated ◆ Lack of access to data and files ◆ Communications ◆ May breed resentment from coworkers ◆ Hardware costs, personal expenses

Finally, telecommuters experienced a $225 to $1,035 savings per month for childcare, clothing, car expenses, lunches, and miscellaneous items. Additional costs incurred ran from negligible increase to $725 for telephone, utilities, and ISDN charges. Most costs are reimbursed by the employer, and more specifically the high dollar items ($600 for ISDN charges) were fully reimbursed by the company.

Discussion

Overall, the survey results corroborate the results of earlier research. The findings provide answers in three areas to the research questions on the major issues, benefits and disadvantages of telecommuting.

What are the issues involved with telecommuting for the employee and the employer? Issues deal with employees' and employers' attitudes, styles and preferences, company policies, and technological support and access. People need to be willing to telecommute. Not all jobs or people are conducive to this type of working environment. Employees need to be self-motivated, high performers, and require minimal interaction with others in order to complete their tasks. They need to balance work and home life to satisfy the needs and commitments both areas demand.

In fact, the telecommuters in our study consisted primarily of women (86 percent), between the ages of 35 and 49 (100 percent), who had children under the age of 12 (70 percent). The majority were married (71 percent) and were college graduates (86 percent). These telecommuters saved an average of 2.75 hours commuting time per week. It is little wonder that these employees experienced less stress, more job satisfaction and were more productive when they were telecommuting.

Managers need to be able to manage based on performance measures correlating to the outcome of work, rather than on seeing the employee perform that work. In fact, the results of our survey indicate that managers were much more focused on the work deliverables and scored telecommuters higher on their ability to complete work on time and please their customers than the telecommuters scored themselves. Our findings suggest that managers need to be supportive and adaptable to the changes associated with this type of work arrangement, and that top-down support is a vital ingredient to success. Having a champion in the management arena will help ensure the proper commitment to a successful telecommuting program.

Company policies and practices need to be formalized and in place prior to starting a telecommuting program, a finding with which our study agrees. These need to be fully understood by both the employee and the supervisor prior to implementation. Training for both employee and management is critical to the success of any type of alternative work arrangement. Knowing what to expect and how to deal with the changes can help smooth the transition from the traditional work location.

Technological support during implementation, and access to IT's help if a problem arises from the remote location are critical factors for success. The ability to link to the company's databases and files is also crucial. Investment in hardware and software to provide accessibility as necessary will be dollars well spent. Our study showed that technological support is critical but that dial-in access for telecommuters was not always adequate.

What are the benefits of telecommuting for the employee and the employer? Are the benefits quantifiable and tangible? This study showed that telecommuting provides tangible and intangible benefits to both the employee and employer. Tangible or quantifiable benefits include increased productivity, more work being accomplished, cost savings accredited to reduction in real estate, facility and associated overhead costs, and reduction in environmental emissions. Intangible benefits are greater flexibility, better quality of life and working environment, increased satisfaction, and less stress. All of these lead to healthier employees, improved morale, and the ability of the organization to attract and retain high potential employees. Other issues that are difficulty to put a price are more quality time with family, and reduction in traffic related accidents, injuries, and deaths.

What are the disadvantages or obstacles to telecommuting? Along with the benefits there are also disadvantages. Telecommuting is not feasible for everyone or every job classification. There are concerns over whether labor laws are being violated in relation to wages, overtime, and workers compensation. Other legal issues involve the company's liability to the employee who works at home. Technological problems could arise with connection and support of the remote user. The employee may not always be available for meetings if scheduling conflicts arise. They may feel a loss of personal interaction, and coworkers and management may harbor some resentment toward this "privileged" employee.

The vast majority of employees would telecommute if given the option. Our study indicated that 76 percent of the coworkers (currently non-telecommuters) and 100 percent of the managers surveyed would like to telecommute if given the option. Both primary and

secondary research revealed that 53-54 percent respectively of their companies had informal programs, and 20-22 percent had formal telecommuting programs.

Conclusion

Telecommuting can benefit the employee, the employer, and the greater society. This study presented data to substantiate that claim provided the program is initiated correctly. We believe telecommuting will be a strong and valuable tool that management can use to attract and retain good employees. By retaining a workforce that has high future potential, a company may gain the competitive advantage it needs to compete in the global marketplace. With increasing focus on quality family time and environmental concerns, telecommuting provides employers an option on how to successfully deal with these issues. Management in any company should seriously consider this alternative work arrangement when it creates a strategy for success.

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