To the Graduate Council:

I am submitting herewith a thesis written by Brenda F. Mazone Glasgow entitled Benefits and Weaknesses of Telecommuting. I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Arts, with a major in Political Science.

Dr. Robert Cunningham, Major Professor

We have read this thesis
and recommend its acceptance:

Dr. Pat Freeland

Dr. David Houston

Accepted for the Council:

Associate Vice Chancellor and
Dean of The Graduate School

BENEFITS AND WEAKNESSES OF TELECOMMUTING

A Thesis
Presented for the
Master of Arts
Degree
The University of Tennessee, Knoxville

Brenda F. Mazone Glasgow
December 1998

ACKNOWLEDGEMENTS

I thank the members of my thesis committee, Dr. Robert Cunningham, Dr. Pat Freeland, and Dr. David Houston for the direction they provided me during the preparation of this thesis. A special acknowledgment is extended to Dr. Cunningham for his guidance and suggestions.

A special thanks is extended to the Tennessee Valley Authority (TVA) and Wally Tanksley for supporting my educational endeavors. While many assisted me, Alice L. Greene and Elizabeth Ann Shassere were exceedingly generous.

My family and friends were my backbone. I thank my husband, Lorenza, for his belief in my abilities and his cooperation. I thank my daughters, Sabrina and Natasha for their constant encouragement. I thank their husbands, Kevin and Leonard, for their encouragement and academic support. I thank my sister, Vickie, for her prayer vigilance. I thank my many friends who wished me well and prayed for my successful completion of this program. Most of all, I thank the Lord for His blessings.

This work is being offered to the Mazone, Traylor, and Glasgow off-springs to establish a family tradition of earning advanced degrees.

TABLE OF CONTENTS

CHAPTER PAGE

1. INTRODUCTION 1

Historical Perspective 1

Goals for Telecommuting in the United States 2

2. PROBLEM STATEMENT 4

3. LITERATURE SEARCH 5

Weaknesses and Benefits of Telecommuting 5

4. METHODOLOGY 10

5. RESULTS 13

Definition of Telecommuting from Survey Respondents 13

Types of Telecommuting Identified from Respondents 13

Length of Time Telecommuting Permitted by Respondents 13

New Use of Technology by Respondents 13

Job Types for Telecommuters Identified by Respondents 14

Number of Telecommuters in Survey Population 14

Evaluation and Future of Telecommuting by Respondents 15

Respondents' Reasons for Permitting Telecommuting 15

Benefits Respondents Received from Telecommuting 16

Weaknesses of Telecommuting Identified by Respondents 17

Responses to Most Effective Question 18

Responses to Least Effective Question 19

6. DISCUSSION OF FINDINGS 21

Benefits of Telecommuting 21

Weaknesses of Telecommuting 23

Comparison of Public and Private Telecommuting 24

Comparison of Voluntary and Mandatory Telecommunting 26

Comparison of Other Research Findings 27

Theoretical implications 28

Future of Telecommuting 31

Further Research 32

BIBLIOGRAPHY 33

APPENDICES 35

Appendix A. Companies Surveyed 36

Appendix B. Cover Letter/Questionnaire 37

Appendix C. Questionnaire 38

VITA 53

LIST OF TABLES

TABLE PAGE

Table A-1. Definition of Telecommuting 39

Table A-2. Types of Telecommuting Used 40

Table A-3. Length of Time Telecommuting Permitted 41

Table A-4. New Use of Technology 42

Table A-5. Why Telecommuting was Allowed 43

Table A-6. Types of Jobs Telecommuters Performed 44

Table A-7. Number of Telecommuters 45

Table A-8. Benefits from Telecommuting 46

Table A-9. Weaknesses of Telecommuting 47

Table A-10. When Telecommuting was Most Effective 48

Table A-11. When Telecommuting was Less Effective 49

Table A-12. Was Telecommuting Successful? 50

Table A-13. Future Role for Telecommuting 51

Table A-14. States Represented by Respondents 52

1. INTRODUCTION

Telecommuting is generally defined as a nontraditional work method in which employees use telephones, computers, fax machines, and other equipment while they work at home, at an office or center (sometimes called a telecenter), and/or at other locations away from the office. Telecommuting has various names such as Flexiplace, Flexible Workplace, Teleworking, and Work-At-Home Programs. Telecommuters are allowed flexibility in their work schedules. They may begin working during the early morning or late night hours. Their work shifts may be a standard eight-hour straight shift or their work shift may be split into time segments. To help enhance communications, employers set core work hours so that telecommuters will be accessible to their supervisors by telephone during specified time periods. In some organizations, telecommuters work in the companies' offices once or twice a week, biweekly, monthly, quarterly, and sometimes not at all.

The duration of telecommuting varies. Employers permit telecommuting temporarily so that employees can complete short-term projects. Others permit telecommuting temporarily to accommodate employees who have short-term illnesses or injuries—especially workers who have claims through the Workers Compensation Act or who are recovering from childbirth. Telecommuting is used permanently too. It is routinely used to replace the traditional office environment and to provide home-based employment opportunities to accommodate employees with permanent physical disabilities.

Historical Perspective

The genesis of telecommuting occurred in the 1970s. A General Services Administration report indicates that telecommuting was implemented internationally during the 1970s. The early introduction involved the use of computers, telephones, and remote offices. The first formal telecenter emerged in Marne Valley in France in 1981. An early telecenter in the United States

was established in 1985 by Pacific-Bell. In 1986, Sweden utilized an office train to transport 20 managers who worked for half pay during the 80-minute train rides in and out of Stockholm. Also in 1986, Credit Suisse of Switzerland established telecenters to meet computer specialists shortages in Basle, Lausanne, Lugano, Winterhur, and Zug.

Japan initiated two forms of telecommuting. With funds from telecommunications firms, Japan initiated a job center for women in clerical fields in Shiki, located just outside Tokyo. Japan also created an office in Kumamoto (in southwest Japan) for employees to perform research, planning, and market analysis (General Services Administration, 1995).

While the decades of the 1970s and 1980s provided the foundation for telecommuting, the decade of the 1990s placed telecommuting within reach of many more companies and employees. During the 1990s, the footprints of the bulky computers were reduced to microcomputer sizes that require a few feet of desktop space. Along with the footprint reduction, the prices of computers were reduced making computers affordable for most businesses and many individuals.

A growth in telecommuting followed the reduced prices and improved technology. By 1990, 65 formal telecenters were operational in Scandinavia, Benin, Sri Lanka, and Brazil. Much of the telecenter development was aimed at stemming the movement from the countryside into congested urban areas (General Services Administration, 1995). In the United States, a survey conducted by Telecommute America indicates that almost 12 million workers were telecommuting in 1997 (Telecommute America, 1998).

Goals for Telecommuting in the United States

Telecommuters are employed in federal and state agencies and private businesses for a variety of reasons. In the federal sector, President Bill Clinton issued a memorandum to the heads of executive departments and agencies on June 21, 1996, which directed them to provide their employees with opportunities to telecommute from home and from satellite offices or telecenters. The President set a goal to have 60,000 telecommuters by 1998. He promoted telecommuting to

"provide civilian employees and military personnel with a work environment that is supportive of families" (Clinton, 1996).

Many federal agencies allow telecommuting for other reasons. The General Services Administration and the Department of Transportation allow telecommuting to reduce traffic and improve air quality. Moreover, the Department of Defense and the Veterans Administration allow telecommuting to accommodate physically disabled workers and reduce the number and duration of Worker Compensation Act claims (General Services Administration, 1995). An Office of Personnel Management study (Newman, 1991) indicates that its goals for implementing telecommuting are to: improve employees' quality of life, improve the agencies' ability to recruit and retain capable employees, and reduce Federal operating costs.

State government employers permit telecommuting to accomplish the same and other goals. The Minnesota Department of Transportation has an additional goal of improving the levels of service on Minnesota highways (Center for Personnel Research, 1995). The Oregon Department of Energy's goals are to obtain better job performance, improve job satisfaction, and reduce office and parking space requirements.

2. PROBLEM STATEMENT

Although telecommuting is utilized by public and private organizations as a work option for a variety of reasons, many senior executives do not support it. A survey conducted by Telecommute America reports that 45 percent of the respondents indicated that senior executives' lack of "buy-in" to telecommuting is the top barrier to implementation (Telecommute America, 1998). The reasons these senior executives do not support telecommuting were not given.

This study was designed to provide information on the strengths and weaknesses of telecommuting. The objectives of this study are to: collect data from employers of telecommuters and coordinators of telecommuting initiatives regarding their opinions of the strengths and weaknesses of telecommuting; and compile their assessment of the future of telecommuting.

The information may be helpful to Human Resources managers when telecommuting is considered as a work option. Also, researchers can use the results of this study as a basis for more in-depth research.

3. LITERATURE SEARCH

Weaknesses and Benefits of Telecommuting

Peters and Waterman pointed out in 1982 that habitual routines performed in companies may not be meaningful. Meanwhile, organizations continue to use routines that have weaknesses and strengths. It is unusual to find a routine that does not have a weakness. Telecommuting is no exception. A discussion of the weaknesses and strengths of telecommuting follows.

In 1995, Boyett reported that one weakness is that some telecommuters seem to have difficulty separating their personal and work lives. He explains that there seems to be evidence that telecommuters spend extra time working at home. Some add to their daily work schedules the amount of time they would have spent commuting to work.

A second weakness of telecommuting is that it fosters a lack of trust of telecommuters among some managers. The Department of Labor surveyed 248 of their supervisors of telecommuters in a pilot program to determine if they should permit telecommuting permanently. The above issue was one of five top responses (U.S. Department of Labor, 1996).

A third weakness is that telecommuters think their work option will negatively impact their career opportunities. Some telecommuters think they will be overlooked for responsible projects and promotional opportunities because they are absent from the worksite. In a survey of 310 telecommuters and 30 managers of telecommuters, 7 percent of the respondents felt their potential for career development was limited (McHugh, 1996).

A fourth weakness is that some telecommuters feel isolated and may cease to see themselves as part of a larger organization (Cooper & Lewis, 1994). The Council of State Governments conducted a survey of about 330 telecommuters from 17 agencies in the State of California. Respondents of that survey indicated that they felt increased feelings of "loner"

tendencies (belonging category). The idea that some workers need face-to-face contact with managers and customers was argued in an article on telecommuting by Susan Wells (Wells, 1997).

The data do not indicate the amount and level of communication telecommuters had with their companies. For that reason, I cannot conclude that regular communication did not exist.

Inequity among telecommuters and other workers is perceived as a fifth weakness. Some employers point out that agencies and companies try to accommodate those employees who are involved in "the Sandwich Generation" with telecommuting opportunities. The Sandwich Generation is composed of employees who are simultaneously caregivers for their children and their ailing parents. When telecommuting programs are set up, employees without children or families are not only excluded but usually experience negative consequences. Telecommuters are often unavailable and the task of getting the job done gets that much harder. Childless non-telecommuters fill in for telecommuters. Yet when childless non-telecommuters need time away from work, they do not receive management support. Also, childless employees are required to work weekends and holidays or to take the undesirable business trips (Boyett, 1995). A South Florida Water Management District survey of telecommuters and non-telecommuters indicated that workloads increased on Fridays because telecommuters were not working. However, empirical evidence of the magnitude of perceived inequities between employees with children and those without children is not available.

Some unions consider that telecommuting procedures are inequitable. Unions represent about 250,000 Oregon employees (20 percent of the workforce). Unions view inequitable treatment when some employees are allowed to telecommute and others are denied the opportunity (Niles, 1993). Organizations that follow Civil Service and other federal regulations for agencies in the expected service are required by law to provide equity for employees in most situations. Failure to do so breeds mistrust.

A sixth weakness is that some employers have unrealistic expectations of telecommuters. Unions anticipate that the use of telecommuting will result in a sweat shop mentality in which workers will be required to produce more products (Niles, 1993). An example of the sweat shop mentality is when telecommuters voluntarily work 10-hour days or longer, and irregular hours. The voluntary work is not covered by the Fair Labor Standards Act. Also, telecommuters are not paid overtime and shift premium pay.

Despite the fact that some of the weaknesses of telecommuting result in a lack of support for its use, others strongly argue for its adoption. The benefits of telecommuting are described in the following paragraphs.

Many companies and organizations cite higher productivity from telecommuters as one benefit of telecommuting. The Department of Labor surveyed the supervisors of telecommuters on the overall quantity, quality, and timeliness of telecommuters' work before they implemented telecommuting and while telecommuting was in use. About 29 percent of the supervisors reported an increase in the quality of telecommuters' work, about 35 percent reported an increase in the quantity of their work, and about 21 percent reported an increase in the overall timeliness of their work. The survey received 248 responses (Department of Labor, 1996).

The California Telecommuting Pilot Project evaluated telecommuters' productivity rates of their pilot program differently. Researchers compared major differences between telecommuters and a control group of non-telecommuters. When the differences in effectiveness between the two groups were measured, researchers equated it to United States dollars. Researchers concluded that increased effectiveness grew from around $2,000 a year per telecommuter to $3,200 a year per telecommuter. This amounted to $338,000 a year for the telecommuters covered by the questionnaire. The project surveyed 105 telecommuters (Price, 1991).

A second benefit is high employee morale. Reportedly, telecommuters have high morale. Statements from supervisors follow as evidence that high morale exists.

- A supervisor of the Medical Transcription Department of St. Luke Medical Center in Tucson, Arizona said that employees are apt to work around the clock to provide coverage of the work (Oregon Office of Energy, 1997).

- A Southwest Washington Medical Center permits a secretary to telecommute. Her morale has increased because she saves her computer work for her telecommuting day. She spends her day in the office answering the telephone in the Birthing Center (Oregon Office of Energy, 1997).

- The Department of Labor reports that one of six responses it received in a survey was that employee morale is positive as a result of telecommuting.

A third benefit of telecommuting is that it seems to cut business costs. In a study conducted by Olsten, 35 percent of the 294 respondents indicated that telecommuting is more cost effective than traditional work methods. The Olsten study surveyed a panel of high-ranking information system executives as well as vice presidents and directors from North American businesses (Olsten Corporation, 1997).

A fourth benefit is that telecommuting improves the ability of agencies to hire and retain its employees. The Olsten Corporation indicated that 35 percent of its respondents use telecommuting to attract qualified employees. In the California study, 10 percent of telecommuters indicated that telecommuting was the reason they stayed in their current jobs. Most of these respondents had a maximum two-hour commute to their workplaces before telecommuting was implemented (Price, 1991).

The fifth benefit is that telecommuting is a method that does not harm the environment. Numerous organizations and companies indicate that telecommuting is the environmentally responsible way to work. Oregonians are interested in cutting their gasoline consumption, air pollution, and traffic congestion. The Oregon Department of Energy conducted a survey of 32 organizations in Oregon (66 telecommuters, 68 coworkers, and 35 managers). The survey

indicated that Oregon employees who telecommute do reduce their weekday auto travel thereby reducing emissions into the atmosphere. Auto travel logs completed by a small sample of telecommuters showed an average reduction of 35.2 miles and 1.9 trips per telecommuting day (Oregon Office of Energy). The General Services Administration agrees with Oregon. It cites telecommuting as a contributor to environmental and energy conservation with less traffic congestion on area highways.

4. METHODOLOGY

The information for this study was collected using telephone interviews with a prepared questionnaire that was developed to determine the weaknesses and benefits of telecommuting. The questions were pretested with students and workers who were not telecommuters and who were not part of the survey population. An introduction and a total of 13 questions were formulated. A copy of the cover letter and questionnaire used during the telephone interviews are in Appendices B and C. Open-ended questions were used. When patterns developed from responses, the like responses were grouped together.

A cover letter and the questionnaire were mailed to 30 companies that permit telecommuting to request their participation. Follow-up telephone calls were made to them to record their responses. The goal was to interview 20-25 companies or agencies. Supervisors of telecommuters and telecommuting coordinators from 11 private and 11 public companies and agencies were interviewed. The private companies that participated in the survey represented several different kinds of businesses. The businesses included a professional recruiter, a natural gas company, a pharmaceutical supply company, a hospital, a stock brokerage company, an accounting firm, and a hospital. Two Fortune 500 companies responded to the survey, AT&T and Allied Signal. The list of companies that responded to the survey is in Appendix A.

The selection of companies and individuals was easier than one would expect. Telecommuting has gained industry status. A widespread telecommuting network is developing internationally. When researchers tap the network or literature, the list of companies and names of telecommuting coordinators is easily found. Referrals to others are generously provided. The companies selected for the survey have been cited in publications on telecommuting or have published information about their experiences. The telecommuting coordinators and supervisors of telecommuters were either identified in the literature and through referrals. The analysis in this

report was taken from the results of a telephone survey of companies identified through this network and from referrals.

Companies that promote telecommuting to gain income were eliminated from the survey. Examples of those that were eliminated are companies that charge membership fees for services to companies that permit telecommuting and independent consultants.

When asked to report the number of telecommuters in their companies, respondents gave a combination of responses. The responses indicated the number of telecommuters the respondent supervised and the estimated total number of telecommuters in the agency. I was unable to determine the total number of telecommuters in companies surveyed because of the informality of telecommuting administration. In some companies, there was no centralized management of telecommuting. Therefore, one business unit was not always aware of telecommuters in another business unit of the same company. Also, episodic telecommuting posed a challenge for data gathers. Episodic telecommuting is when employees are allowed to work away from the office to complete special, short term projects. As a result, the total number of telecommuters may be unknown.

Some questions were structured to allow respondents to give more than one response. No respondents gave more than three responses and all responses were recorded. As a result, some questions have more than 22 responses.

The data analysis includes frequencies of the total number of responses and in some cases, frequencies of responses from private companies and public agencies. From the private sector, responses were collected from respondents in nine states. From the public sector, responses were collected from respondents in six states. The state of Oregon is a leader in telecommuting because it encourages state agencies to allow employees to telecommute. Also, federal agencies in the Washington, DC area are catalysts for telecommuting in the federal sector. Therefore, 23 percent of the respondents are from the Oregon and Washington, DC areas. The distribution of respondents by all other states is listed in Table A-14 in the Appendices: California,

18 percent; and Florida, Missouri, New Jersey, New York, Oklahoma, Oregon, Pennsylvania, and Virginia, 5 percent respectively.

5. RESULTS

A brief summary of the results of the survey follow. Overall computations of all the responses are in Tables A-1 - A-13 in the Appendices. Also, some computations of frequencies of responses from private and public respondents are included.

Definition of Telecommuting from Survey Respondents

The 22 respondents used a variety of terms for telecommuting. They called it Teleworking, Flexiplace, Work-at-Home, and Episodic Telecommuting. Despite the variety of terms used, the definitions were similar. About 64 percent of the respondents defined telecommuting as a work method in which employees work at home and at the company. An additional 36 percent had the same definitions but included permitting telecommuters to work in field offices or telecenters.

Types of Telecommuting Identified from Respondents

About 41 percent of the respondents permitted part-time telecommuting, 32 percent permitted full-time telecommuting, and 18 percent permitted episodic telecommuting. About 9 percent of the respondents indicated that they permitted a combination of all three types of telecommuting.

Length of Time Telecommuting Permitted by Respondents

Respondents have permitted telecommuting for a variety of years. About 64 percent have permitted telecommuting from 1 and 5 years, 23 percent from 6 and 10 years, and 4 percent between 11 and 14 years. Nine percent did not know the answer to the question.

New Use of Technology by Respondents

The intent of the question is to determine if employees whose jobs require them to work away from the office are considered telecommuters. About 86 percent of the respondents

indicated that telecommuters use the electronic and computer technology differently from those who would be out of the office daily because of the nature of their work. About 14 percent of the respondents indicated their telecommuters were a combination of employees whose work required them to work outside the office daily and those whose work did not. Real estate appraisers, truckers, and mine inspectors work outside the office daily and use technology such as cellular telephones and computers to enhance their work.

Job Types for Telecommuters Identified by Respondents

The types of jobs telecommuters performed varied widely. Respondents identified professions such as attorneys, auditors, graphic designers, communications workers such as editors, proofreaders, and writers. Some of the technical professions such as information systems specialists, engineers, and marketers were included.

Some respondents explained that they did not base an employee's eligibility to telecommute on the employee's job title. They considered working conditions and permitted flexibility. For example, some clerks who answered telephones were allowed to telecommute part-time to complete projects and to return telephone calls.

Number of Telecommuters in Survey Population

Respondents gave a wide range of answers about the number of telecommuters in their companies or agencies. Thirty-two percent of the respondents were unaware of the total number of telecommuters. Since many companies have informal telecommuting, they did not maintain records of the exact number of telecommuters. Some employers allowed supervisors to decide if telecommuting would be permitted in their work areas. Also, since many permitted telecommuting part-time and episodically, the number of telecommuters varied weekly. The number of telecommuters ranged from 4 to 36,000.

Evaluation and Future of Telecommuting by Respondents

Respondents gave unanimous answers to two questions. All 22 respondents indicated that telecommuting was successful in their companies. Also, all respondents indicated that the use of telecommuting will increase in their companies in the future.

Respondents' Reasons for Permitting Telecommuting

About 23 percent of respondents said they allowed telecommuting to retain employees. About 19 percent of respondents indicated that they allowed telecommuting to improve employee morale. Respondents discussed quality of life issues to explain employees morale. Telecommuters had discretionary time for family relationships, to pursue personal interests, and to handle personal business that conflict with the traditional work schedules. Also, telecommuters were able to complete their work without working overtime. Some supervisors indicated that the reduction of overtime helped to improve the morale of some employees who were caregivers to their children or elderly parents.

Fifteen percent of respondents allowed telecommuting to reduce office space requirements. Respondents indicated that in metropolitan areas, office space was expensive and opportunities for expansion were limited. In Washington, DC, federal agencies indicated that assignments to expand office space in the downtown area present major challenges.

Also, about 15 percent of respondents allowed telecommuting to increase staff productivity. Respondents indicated that they permitted episodic telecommuting so that the staff could complete special projects in a timely manner. The lack of interruptions seemed to help increase productivity.

Respondents indicated a variety of reasons for permitting telecommuting. All of them are indicated in Table A-5.

Benefits Respondents Received from Telecommuting

All 22 respondents indicated at least one benefit their companies/agencies received from telecommuting; some respondents indicated more than one benefit. The majority of the respondents, 30 percent, indicated that their company/agency received increased productivity. They indicated that telecommuters worked with limited interruptions and had more flexibility to manage their time. Therefore their productivity increased.

Improved employee morale was indicated as a benefit also. Fifteen percent of the respondents indicated that improved employee morale was a benefit of telecommuting. Some respondents said that happy workers were more productive workers.

Also, 15 percent of the respondents indicated that employee retention was a benefit of telecommuting. About four respondents indicated that they permitted high-performing employees who have personal needs to telecommute in order to retain them.

Office space reduction was mentioned as a benefit by 15 percent of the respondents. Some companies and agencies needed to expand their office space to accommodate workers. In many cases, the expansion would have been expensive. Therefore respondents used telecommuting to postpone or to replace the need for expansion.

Six percent of the respondents indicated employee recruitment was a benefit. Some employees perceived that telecommuting was a perk. Six responses were indicated by three percent of the respondents. They were disaster recovery, traffic mitigation, reduced absenteeism, reduced overtime, reduced moving expenses, and reduced pollution. The disaster recovery means that company files stored in employees' homes and other work locations may be secured during natural disasters such as floods or tornadoes while office files may be destroyed. Traffic mitigation means controlling traffic by eliminating the volume of traffic.

Weaknesses of Telecommuting Identified by Respondents

The 22 respondents gave a wide range of responses to the question, "What weaknesses have your company/agency experienced from telecommuting?" All responses are listed in Table A-9. Seventeen percent of the respondents indicated that they have not experienced a weakness from telecommuting. Also, 17 percent of the respondents indicated the following two responses: a reduction in communication between telecommuter/supervisor, and inequity in the application of the telecommuting option.

The first weakness was communication. Respondents indicated that communication problems arose when supervisors did not consider telecommuters when they plan work. Supervisors conducted staff meetings, arranged for conference calls and presentations for staff onsite but failed to include telecommuters.

The second weakness was inequities in application of telecommuting options. Respondents considered employees' job performances, work ethics, and other factors; not everyone was allowed to telecommute. Many employees who were not allowed to telecommute viewed the denial as an inequity.

In the second example of inequity, respondents indicated that there were inequities in the equipment and in technical assistance companies provided for telecommuters. For example, some companies provided a luxury package for telecommuters such as computer equipment, fax machines, office furniture, reimbursements for telephone lines, insurance and home inspections. Other companies provided the equipment only and some companies provide the privilege to telecommute only.

Inequities were present within a company because supervisors determined what the company provided. Also, there was no centralized coordination and departments did not always budget for the expenses. In some cases, employees and telecommuters were aware of the differences.

A third weakness was the lack of supervisory infrastructure. Thirteen percent of the respondents indicated this was a weakness of telecommuting in their companies/agencies. Respondents defined supervisory infrastructure as consistent performance management procedures, productivity measures, and services to repair and maintain computers. One supervisor explained that he hired three people who lived in cities different from his work location. He needed their skills but was unfamiliar with their levels of productivity. In order to recruit these workers, the supervisor arranged for them to telecommute because they did not want to relocate their families. As a result, the supervisor did not have an opportunity to determine if these workers were producing at their maximum potential. He decided that he would be satisfied to receive high quality products within a reasonable amount of time.

A fourth weakness was administrative cost. About nine percent of the respondents indicated that increased administrative costs were a weakness of telecommuting. Administrative costs increased when companies provided telecommuters with office space onsite and equipment for their homes.

Responses to "Most Effective" Question

Information on when telecommuting was most effective was collected from all respondents. The responses are indicated in Table A-10. About 25 percent of the respondents indicated that telecommuting was most effective when it was used on a part-time basis. The part-time telecommuting allowed telecommuters to come into the office to work and enhanced communications.

Twenty-one percent of the respondents focused their responses on supervisor/telecommuter trust issues. They indicated that the most effective use of telecommuting occurred when there was a high level of trust between the telecommuter and the supervisor.

Thirteen percent of the respondents indicated that telecommuting was most effective when there was strong management support for it. Follow-up explanations from respondents indicated that when top executives supported telecommuting, others ensured that it was effectively managed.

Other respondents focused on the type of work telecommuters performed. Sixteen percent of the respondents indicated that telecommuting was most effective when it was used for work projects that required little communications with others. The rationale for these statements was that if the work does not require supervision and communication with others, it could be effectively performed by telecommuting. Examples of this type of work were graphic artist, writing, editing, and auditing.

Some respondents focused on telecommuters' working relationships with their clients. Thirteen percent of the respondents indicated that telecommuting was most effective when telecommuters' clients were offsite. Respondents explained that when a client office was in a different location, the telecommuters' absence was not an inconvenience to the client.

Four percent of the respondents indicated that telecommuting was most effective when used for clerical work, when used to avoid employee relocation, and when used to reduce commuting time.

Responses to "Least Effective" Question

Respondents were also asked the question, "Under what circumstances is telecommuting least effective at your company/agency?" All responses are listed in Table A-11. The majority of the 22 respondents focused on characteristics of the employee and manager. Twenty-three percent of the respondents indicated that telecommuting was least effective when the wrong employees were allowed to telecommute. Some respondents indicated that when employees who have bad work ethics and low levels of motivation were permitted to telecommute, telecommuting was the least effective. About 23 percent of the respondents focused on supervisors' management styles when they answered the question. They indicated that when managers and

supervisors preferred to watch their employees while they worked, telecommuting was the least effective at their company/agency. Nine percent of the respondents indicated that telecommuting was the least effective at their company/agency, when management did not support it.

Other respondents identified administrative reasons. Nine percent of the respondents indicated that telecommuting was least effective when it was implemented on a full-time basis. About five percent of the respondents indicated that telecommuting was least effective when formal work arrangements were not established. Also, nine percent of the respondents indicated that when communication with the telecommuter was cut-off, when teamwork was required, and when staff coverage of the office was required, respectively, telecommuting was the least effective. Finally, four percent of the respondents indicated that when telecommuting was used as a replacement for time to provide childcare or eldercare, it was least effective. The respondent indicated that when this circumstance occurred, the telecommuter was not always available for work.

In contrast to the above responses, 14 percent of the respondents indicated that they could not identify a circumstance when telecommuting was least effective at their company/agency.

6. DISCUSSION OF FINDINGS

Although evidence suggests that telecommuting can be successfully utilized, telecommuting has weaknesses and benefits. In this section, I will discuss the findings of the survey that addresses these benefits and weaknesses. I will also focus on implications of the future of telecommuting.

Benefits of Telecommuting

The findings of the survey suggest that telecommuting may be as much of a benefit for employers as it is for employees. The top benefits were increased productivity, employee retention, reduced office space, and improved employee morale. All responses are indicated in Figure 1.

Employers gain from the first three benefits. Retention of employees is an important benefit for employers. The Society of Personnel Management reported that the cost to recruit and hire a professional candidate was approximately $4,000 in 1996. Employers save money when they do not recruit employees from outside their companies.

Improved productivity is an employer's benefit as well. When an employer's productivity output exceeds the company's financial input, the difference in the cost usually places the company in a better position to earn a profit. Also, the reduction of office space represents a decrease in overhead expenses. This decrease helps to position the company for savings. An exception is when the employer is an owner/occupier of the office space and must continue to pay all the fixed expenses associated with commercial real estate. An option may be for employers to lease the extra space.

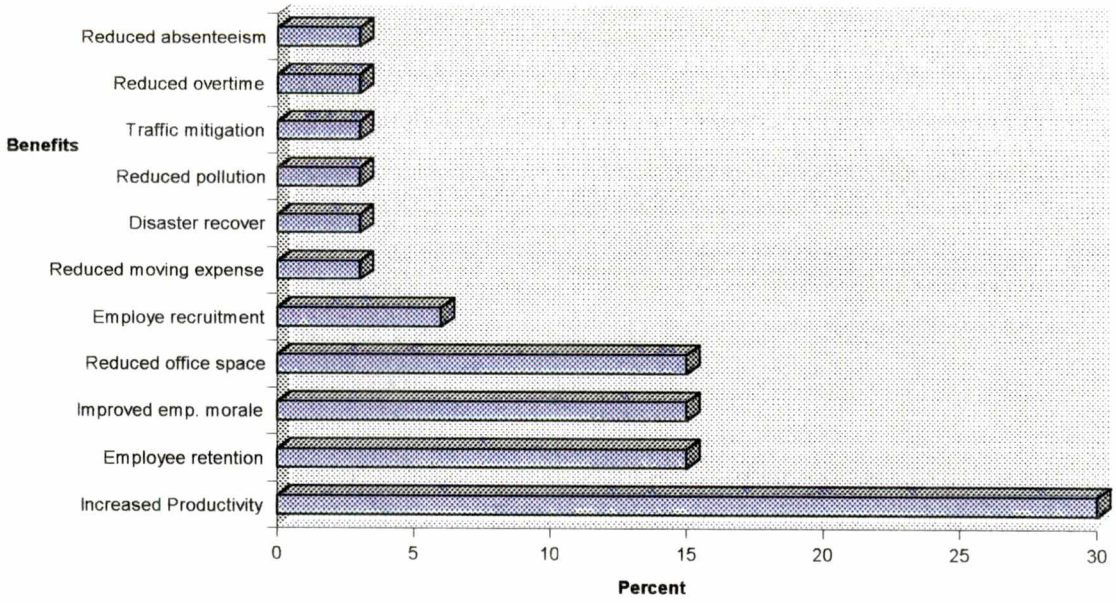


Figure 1 Benefits of Telecommuting (N=33)

One respondent indicated that disaster recovery was a benefit of telecommuting. The literature search indicated that employers sometimes fear a security breach of proprietary information or information protected by the Privacy Act. However, the unusual natural conditions in 1998 led one respondent to indicate that having official records stored offsite could provide security from floods, earthquakes, or tornadoes.

Respondents indicated that employee morale was improved. Telecommuters had discretionary time for family relationships, to pursue personal interests, and to handle personal business. Another factor was that telecommuters were able to complete more work and eliminate the need for overtime. For some caregivers, the elimination of overtime seemed to improve their morale.

Weaknesses of Telecommuting

All responses that identify weaknesses of telecommuting are listed in Figure 2. Three items received the top response as weaknesses. Seventeen percent of the overall respondents indicated no weakness, a reduction in communication, and inequity in telecommuting, respectively as the top overall responses.

The second weakness was a reduction in communication. The weakness stemmed from a lack of communication about staff changes, scheduling, and other important announcements and training opportunities. The implications are that full-time telecommuters are at a greater risk of experiencing a lack of communication because they are permanently out of the office. The problem could be compounded if telecommuters live in different cities and companies have staff turnovers. The absence from work, different area codes on telephone calls, and the loss of employees who are familiar with telecommuters could result in inefficiencies. Telephone calls may not be returned and other mistakes in business transactions could occur.

The third weakness was an inequity in applying telecommuting. Respondents indicated that inequities existed in the selection of employees to telecommute and in the equipment and services that were provided to telecommuters. Within the same company, one telecommuter would receive all necessary equipment, technical assistance, and reimbursements for telephones while another would receive only permission to telecommute.

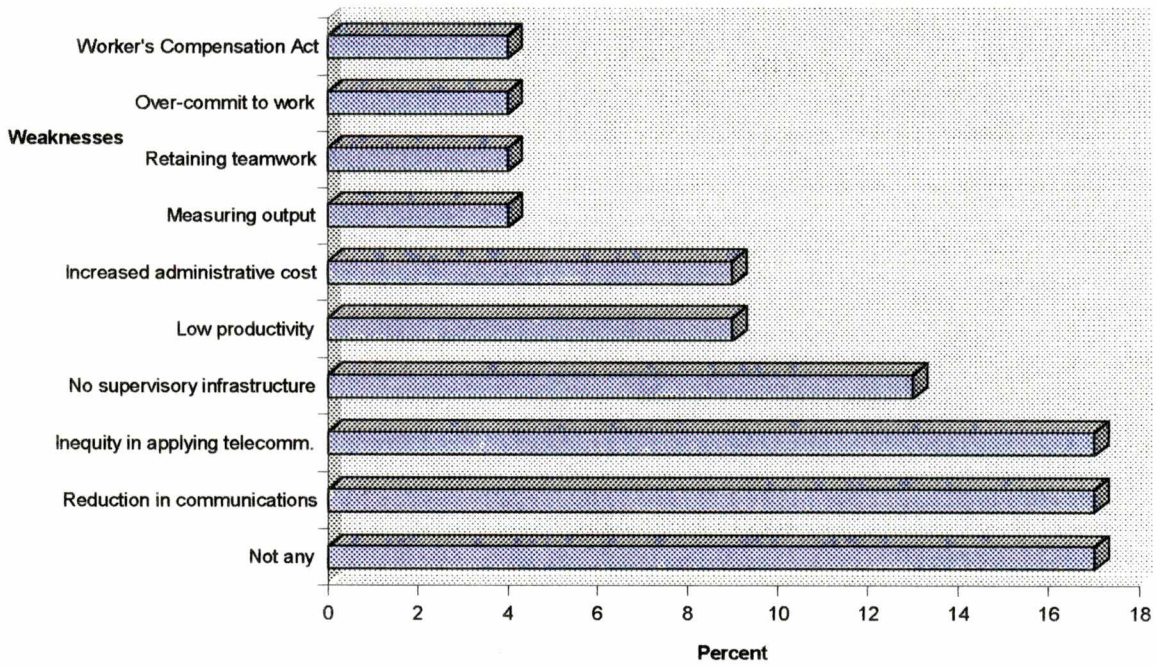


Figure 2 Weaknesses of Telecommuting (N=33)

Comparison of Public and Private Telecommuting

Eleven public organizations and 11 private organizations were surveyed. An analysis of the differences in the responses is included in the Appendices. It is noteworthy that the private and public sectors respondents' number one benefit of telecommuting was an increase in productivity. About 43 percent of the private sector and 21 percent of the public sector respondents indicated that an increase in productivity was the primary benefit.

Although both groups indicated increased productivity, the private sector indicated that they frequently measure output or conduct surveys to collect data on productivity. The public sector's approach was different. Data was collected primarily when telecommuting coordinators were involved.

The private sectors respondents' second and third choices for benefits were employee retention and employee recruitment, respectively. These could be important benefits because during the timeframe in which the survey was conducted, the U. S. unemployment rate was at a low of 4.2 percent and a high of 4.8 percent from October 1997 through October 1998, according to the Department of Labor. With unemployment levels low, the job market favors employees. Employers are interested in retaining their skilled employees and possibly recruiting others.

The public sectors respondents' second and third choices were improved employee morale and reduced office space. Morale could be of concern to employers because when there is an employee's market, the employee has more options of places to work. If the employee is unhappy with the work environment, he or she could change it more easily in an employee market. The *HR Focus* magazine points out that in today's tight job market, companies must offer more than just a good pension and health plan to get and keep the best and brightest employees. Companies are moving beyond those traditional benefits to make employees' lives less stressful. In the federal sector, employers emphasis benefits to help employees balance their work lives with their private lives.

When the survey focused on weaknesses of telecommuting, there were similarities in responses from the two groups. Eighteen percent of the public respondents and 17 percent of the private responses indicated not any weakness in telecommuting. These responses suggest that some respondents were satisfied with telecommuting.

Respondents from public agencies indicated that the inequity in applying telecommuting as a weakness more frequently than any other weakness (18 percent). Respondents from private companies indicated it as a weakness, but it received 17 percent of the responses along with two others, no supervisory infrastructure and not any weakness. The responses suggest that inequity in the application of telecommuting is a major issue in both groups. The inequity could exist because supervisors are allowed the flexibility to initiate telecommuting, to allocate resources for it, and to select participants. Each supervisor could have different priorities.

The top weakness identified by private sector respondents was a reduction in communication. Twenty-five percent of the private respondents identified it. While public respondents identified it as well, it was not among its top weakness. The difference could exist because public companies have developed management tools on planning and implementing telecommuting that is widely published on the Internet and in brochures. With a few exceptions, private respondents did not prepare such widely published tools on the subject.

A focus on when telecommuting was most effective revealed similar responses from public and private respondents. Both groups agreed that management support and trust were necessary in order for telecommuting to be effective. In fact, it was the private respondents' highest response. Thirty-three percent of the private respondents indicated that telecommuting was effective when there was a high level of trust between supervisor and telecommuter. Twenty-five percent of the public respondents indicated that there must be strong management support for telecommuting.

Communication was a major issue with both groups as well. Seventeen percent of each group indicated that telecommuting was most effective when little or no communication with others is required to complete projects. Private respondents indicated that telecommuting was effective when the clients were offsite. These responses seem to suggest that the inaccessibility of telecommuters or the odd hours telecommuters work are not conducive to teamwork.

Comparison of Voluntary and Mandatory Telecommunting

A comparison of organizations that were required or directed to permit telecommuting and those who permit it on a voluntary basis was made. All federal agencies were directed by President Clinton to permit telecommuting. The directive was considered as a mandatory requirement for purposes of this study. The state agencies in this study were also required to permit telecommuting. Their directives were made in the form of laws. The companies that had voluntary telecommuting programs were private companies. Therefore a comparison of the differences between respondents who had voluntary and mandatory telecommuting mirrors the comparison between public and private respondents.

Comparison of Other Research Findings

The literature research and findings in this survey have common themes. Three common benefits themes are increased productivity, higher employee morale, and employee retention and recruitment. Three common weaknesses themes are a lack of communication, inequities in the application of telecommuting, and the need for management support. This section will address those themes.

The first benefit theme of increased productivity was documented in the literature search by organizations and companies. Similarly, respondents to this survey indicated that telecommuting helped to increase productivity. The data suggest that telecommuters experience a high rate of productivity.

The second benefit theme of higher morale was reported in the literature and indicated in the survey results. The literature section reports on two companies and a department that experienced higher employee morale. Results of this survey replicate the findings of their research. Respondents in the literature section and in this survey indicated that higher employee morale was among the top benefits.

The third benefit theme of the ability to hire and retain employees was indicated in the findings of the Olsten Corporation and California studies. In those studies, fifteen percent of the respondents indicated that employee retention and six percent indicated employee recruitment as benefits. The similarities in responses suggest that telecommuting provides benefits of hiring and retaining employees.

Three themes that identify weaknesses of telecommuting were reported in the literature and in the findings. The themes are communication, inequities in applying telecommuting, and a lack of supervisory infrastructure.

The first weakness theme was communication. The Council of State Governments' survey indicated that telecommuters felt loner tendencies. This survey indicated that supervisors fail to

communicate with telecommuters. The responses are virtually the same. One fails to communicate and, as a result, the other develops the loner tendency.

The second weakness theme was inequity in the application of telecommuting. The literature indicated that there were inequities in the selection of employees to telecommute. This survey suggested that there were inequities in the survey population as well. Both sources identified inequities in the selection of telecommuters and the equipment provided for telecommuters.

The third weakness theme was a lack of supervisory infrastructure. A Department of Labor survey indicated that telecommuting fosters a lack of trust in telecommuters among some managers. The survey indicates that telecommuting was most effective when there was a high level of trust between supervisor and telecommuters and when there was strong management support. It indicates that telecommuting was least effective when management did not support it. The lack of trust theme was suggested in the responses to the survey as well. Respondents indicated that telecommuting was least effective when managers prefer to watch employees while they work.

The similar themes in the literature and the survey are especially noteworthy. The information in the literature was provided for earlier studies. The survey used open-ended questions which allowed respondents to respond in any manner they chose. The emergence of similar themes that were found in earlier studies indicates replication of earlier studies and provides evidence of the reliability of the survey results.

Theoretical implications

Typically when managers manage their workplace, they spend their time managing money, materials, equipment, and people. The survey results suggest that the human side of telecommuting should be reconsidered because there are people issues that are not adequately addressed to ensure success. The top three weaknesses of telecommuting in the survey were

inequities in applying telecommuting, a lack of communication, and no supervisory infrastructure. These weaknesses suggest that management styles and work cultures are important to the success of telecommuting. This section will focus on Theories X, Y, and Z that could be factors in telecommuting.

Douglas McGregor explained Theory X in *The Human Side of Enterprise* in 1959. McGregor wrote that the conventional theory is that people will resist organizational needs if they are not directed and controlled. As a result, management's task is to persuade, reward, punish, control, and direct their activities. Proponent of Theory X have other beliefs such as "workers lack ambition, dislike responsibilities, and prefer to be led." In Theory X work environments, one method for leading workers is tight control over workers' behavior.

One characteristic of a Theory X work culture that is in direct conflict with telecommuting is close supervision. Twenty-three percent of the survey respondents indicated that telecommuting is least effective when managers prefer to watch employees while they work. Close supervision is perceived as a lack of trust in workers. The response suggests that work cultures with close supervision of workers would be incompatible with a successful telecommuting program.

In contrast to Theory X, a Theory Y culture relies on employees' self control and self direction. McGregor wrote that a Theory Y culture treats employees as mature adults. Theory Y culture allows workers a degree of freedom to direct their activities, to assume responsibilities, and to satisfy their egoistic needs. McGregor wrote that the essential task of management is to arrange organizational conditions and methods of operation so that people can achieve their own goals by directing their own efforts toward organizational objectives. In summary, in a Theory Y culture, management is responsible for providing guidance, not close supervision.

Twenty-one percent of the respondents indicated that telecommuting was most effective when it received strong management support. The premise of telecommuting is that telecommuters determine their work schedules and supervisors set deadlines. Therefore when

management supports telecommuting, it allows employees to provide self-control in achieving organizational objectives.

A Theory Z culture emphasizes trust and communication. William Ouchi explains in *Theory Z* that the decision-making process is democratic and participatory. The participation provides a method of communicating with employees. Ouchi explains that a Theory Z culture encourages employees at all levels to interact with one another as complete human beings. Theory Z also promotes the concept of quality circles in which teams determine solutions to organizational problems.

The theme of the need for communication between telecommuters and supervisors was prevalent in the findings. Respondents indicated that telecommuting was least effective when communication was cut off (9 percent) and it was most effective when the work project required little or no communication with others. About four percent of respondents indicated that the lack of teamwork was a weakness of telecommuting. Theory Z posits that if workers are involved in discussions about their work, their productivy increases.

When an inequity exists in the workplace, it conflicts with Theory Z. An example of an inequity is an inconsistency in the amount of equipment provided for telecommuters. According to the theory, as long as workers have confidence that their organizations are just and equitable, the workers will function well in an uncertain environment and make personal sacrifices. Some telecommuting productivy gains resulted from employees' sacrifices. The implications are that as the inequity issue becomes widely known among telecommuters, future analysis of telecommuting benefits could indicate lower productivity.

The organizational culture is an important factor to the success of telecommuting. Organizational cultures that embody characteristics of Theories Y and Z seem to be suitable for telecommuting. However, organizations should not introduce telecommuting into nonsupportive work cultures such as one characterized by Theory X. Just as some organizations are not suitable for telecommuting, some cultures cannot be changed quickly. In many cases, the nature of the

work is a determinant of the culture. Managers should consider if the culture or the opportunity to tap the benefits of telecommuting is the most important. The culture, not the merits of telecommuting, could determine if telecommuting is successful. If the culture is unsuitable, an organization should change its culture before it introduces telecommuting in the workplace.

Future of Telecommuting

Telecommuting is poised to become an integral part of the workplace because it seems to provide employers with economic and environmental benefits. The economic benefit may be realized in increased productivity, as indicated in this report. Telecommuting is touted by elected officials in Oregon as a way to reduce emissions of toxic substances into the atmosphere. Specifically, the State of Oregon will experience growth in telecommuting as a result of its law that encourages employers to permit telecommuting. Also, the 22 respondents unanimously indicated that the use of telecommuting will increase in their companies and agencies.

The future of telecommuting could be even brighter if the weaknesses are removed. Solutions for some of the weaknesses follow. The General Services Administration could have an alternative to two weaknesses: higher administrative costs and inequities in administration. The General Services Administration manages telecenters across the country. Telecommuters who are not totally dependent on computers could work at home or in the field and use telecenters when computers are needed. This could reduce administrative costs of providing equipment and technical assistance to telecommuters. It could also help to eliminate some inequities in equipment allocations because equipment allocations to telecommuters would be reduced somewhat.

In areas not served by the General Services Administration, inequities could be eliminated and administrative costs could be lowered as well by establishing coordinators of telecommuting resources. Coordinators could budget for equipment and manage its allocation to telecommuters. Coordinators could help to address a lack of supervisory infrastructure by establishing standards and guidelines for performance measures. Guidelines could address communication issues and

training for supervisors and telecommuters. With the correct administrative approach, telecommuting could be a work method that helps the public sector gain efficiencies.

Further Research

The value of this research is twofold. First, the results resemble findings of earlier research. The resemblance is in the benefits and the weaknesses of telecommuting that were identified. The benefits of both research findings were increased productivity, higher employee morale, employee retention, and recruitment. The weaknesses of telecommuting were a lack of communication, inequities in the application of telecommuting, and the need for management support. The similarities of the findings from independent studies suggest validity for these findings. Second, this research provides a foundation upon which future researchers may build.

Further research on telecommuting using a larger population from different geographical regions could be conducted. This would allow researchers to compile information on how different regions of the United States perceive the benefits and weaknesses of telecommuting.

Further research on telecommuting in different industries could be conducted. Researchers could identify which industries receive benefits, and when weaknesses outweigh benefits. Also, the information could be used to determine the practicality of telecommuting in various industrious settings.

The suggested approaches for further research could reveal a richer understanding of the impact of telecommuting in the workplace.

BIBLIOGRAPHY

Bibliography

49th Oregon Legislative Assembly. (1997). *Senate Bill 775.*

American Psychological Association. (1995). Publication Manual of the American Psychological Association.

American Management Association International. HR Focus (1998). *Benefits Soften Up.*

Boyett, Joseph H. and Boyett, Jimmie T. (1995). *Beyond Workforce 2000-Essential Strategies for the New American Corporation.*

Cooper, Cary L. and Lewis, Suzan. (1995). *Managing the New Workforce-The Challenge of Dual Income Families.*

Fry, Brian A. (1989). *Mastering Public Administration From Max Weber to Dwight Waldo.*

Gordon, George J. and Milakovich, Michael E. (1995). *Public Administration in America.*

Gordon, Gill. (1996). *Frequently Asked Questions (FAQs) on Telecommuting/Telework and Alternative Offices.*

McGregor, Douglas M. (1959). *The Human Side of Enterprise.*

McHugh, Richard. (1996). *Teleworking During the 1996 Summer Olympics: A Preliminary Analysis.*

McHugh, Richard. (1997). *HR Atlanta.*

Niles, Jack. (1994). *City of Los Angeles Telecommuting Program-Final Report.*

Olsten Corporation (1997). *The 1998 Managing Workforce Technology.*

Ouchi, William G. (1981). *Theory Z.*

Peters, Thomas J. and Waterman, Robert H. (1982). *In Search of Excellence-Lessons from American's Best Run Companies.*

Price, Simani M. (1991). *California's Telecommuting Pilot Project.*

Telecommute America. (1995). *Report on Telecommuting.*

U.S. Department of Labor and Local 12, AFGE, AFL-CIO. (1996). *Flexiplace Pilot Program Final Survey Results.*

Wains, Jane. (1997) *The Class of 1983.*

Wells, Susan J. (1997). *Telecommuting: Mere fad or job trend?*

APPENDICES

Appendix A. Companies Surveyed

Public Organizations Surveyed

Bonneville Power Company - Portland, Oregon

California Department of Personnel Administration - Los Angeles, California

Department of Labor - Washington, DC

Department of Transportation - Washington, DC

Deschutes County Appraisers - Bend, Oregon

General Services Administration - Fairfax, Virginia

Internal Revenue Service - San Francisco, California

Office of Personnel Management - Washington, DC

Oregon Department of Energy - Salem, Oregon

Oregon State University Extension Office - Redmond, Oregon

South Florida Water Management District - West Palm Beach, Florida

Private Companies Surveyed

Allied Signal - Morristown, New Jersey

AT&T - Washington, DC

Citgo - Tulsa, Oklahoma

Deloitte Touché - Nashville, Tennessee

Interim HR Solutions - Santa Clara, California

Lockheed Martin - Philadelphia, Pennsylvania

Merrill Lynch - New York, New York

Packaging Business Service - St. Louis, Missouri

South California Gas Company - Los Angeles, California

St. Charles Medical Center - Bend, Oregon

Syncor International - Woodland Hills, California

Appendix B. Cover Letter/Questionnaire

September 20, 1998

Dear _____:

This letter is being written for several purposes. It is to introduce myself to you, to give you information about the project, and to request your assistance.

I am a graduate student at the University of Tennessee in Knoxville who is preparing a master's thesis on Telecommuting in the private and public sector. The successful completion of this thesis will result in me earning a Master's degree in Political Science. My graduate work is supported by the Tennessee Valley Authority, a federal agency that is interested in collecting data on the use of telecommuting.

You were selected to assist me because you have been identified as a supervisor of telecommuters or a coordinator of telecommuting within your company/agency. I collected information about your role from various publications such as newsletters and literature on the subject.

If you are willing, you may assist me in the following manner. I would like to conduct a brief telephone interview with you on telecommuting. A copy of the questionnaire I plan to use is enclosed for your preliminary review. I will contact you by telephone to get answers to these question during the first two weeks in October.

Thank you for considering my request for assistance. I will contact you for your response.

Sincerely,

Brenda F. Glasgow
317 Oakleaf Circle
Knoxville, Tennessee 37924
423/546-2636 Home or 423/632-8656 Work
Enclosure

Appendix C. Questionnaire

1. How do you define telecommuting?
2. What types of telecommuting are used by your company/organization?
3. How long has your company permitted telecommuting?
4. Is this a new use of the technology or telecommuting tools?
5. Why does your company/agency allow telecommuting?
6. What types of jobs do telecommuters perform in your company/organization?
7. How many telecommuters does your company/agency employ?
8. What benefits have your company received from telecommuting?
9. What weaknesses have your company experienced from telecommuting?
10. Under what circumstances are telecommuting the most effective at your agency/company?
11. Under what circumstances are telecommuting the least effective at your agency/company?
12. Overall, has telecommuting been successful in your agency/company?
13. What is the likely role for telecommuting in your company or organization in the future?

Table A-1. Definition of Telecommuting

Definitions	RESPONSES TO QUESTIONS		
	Private	Public	Frequency
			%
• Work-at-home and work periodically onsite	9	5	64
• Work in field locations, other offices (telecenters, at home)	2	6	36
TOTAL	11	11	100%

Table A-2. Types of Telecommuting Used

Uses	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Full-time	5	2	32
• Part-time	2	7	41
• Special projects (Episodic)	2	2	18
• Combination of all above	2	0	9
TOTAL	11	11	100%

Table A-3. Length of Time Telecommuting Permitted

Years	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• 1 - 5 years	9	5	64
• 6 - 10 years	2	3	23
• 11 - 14 years	-	1	4
• Not sure	0	2	9
TOTAL	11	11	100%

Table A-4. New Use of Technology

Responses	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Yes	9	10	86
• Combination	2	1	14
TOTAL	11	11	100%

Table A-5. Why Telecommuting was Allowed

Reasons	RESPONSES TO QUESTIONS Private	Public	Frequency %
• To retain employees	5*	1	23
• To improve employee moral	2*	3**	19
• To reduce office space requirements	2*	2**	15
• To increase productivity	3*	1	15
• To support US President/Governor directive	-	3**	12
• To reduce energy consumption/improve air quality	-	2**	8
• To reduce absenteeism	-	1	4
• To reduce moving expenses	1	-	4
TOTAL	13	13	100%

**Private - 38% employee retention; 23% increase productivity; 15% for office space reduction; 15% improved employee morale*

***Public - 23% improved employee morale; 23% support Pres/Gov; 15% reduced office space; 15% reduced energy consumption*

Table A-6. Types of Jobs Telecommuters Performed

Job Types	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Auditor/Accountant	2	-	5
• Clerical	1	2	8
• Marketing	2	-	5
• Sales	-	1	3
• Real estate appraiser	-	1	3
• Designer (graphic)	1	1	5
• Writer/editor/proofreader/transcriptionists	2	8	26
• EEO Investigator/Specialists/Attorneys	-	7	18
• Information/Technologists	4	3	18
• Engineer (all types)	-	1	3
• Drivers	1	-	3
• Recruiters	-	1	3
TOTAL	13	25	100%

Table A-7. Number of Telecommuters

Number	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Less than 1,000	7	4	50
• 1,000 - 9,999	2	-	9
• 10,000 - 36,000	1	2	14
• Don't Know	1	5	27
TOTAL	11	11	100%

Table A-8. Benefits from Telecommuting

Benefits	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Increased Productivity	6*	4**	30
• Employee retention	3*	2	15
• Improved employee morale	1	4**	15
• Reduced moving expenses	1	-	3
• Reduced office space requirement	1	4**	15
• Disaster recovery (flood, earthquake)	-	1	3
• Reduced pollution/air quality improvement	-	1	3
• Traffic mitigation	-	1	3
• Reduced absenteeism	-	1	3
• Reduced overtime	-	1	3
• Employee recruitment	2	-	6
TOTAL	14	19	100%***

**Private companies' benefits - 43% increased productivity; 21% employee retention; 14% employee recruitment*

***Public companies' benefits - 21% increased productivity; 21% improved employee morale; 21% reduced office space*

****Rounded*

Table A-9. Weaknesses of Telecommuting

Weaknesses	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Reduction in communication	3*	1	17
• Measuring telecommuters output	1	-	4
• Low productivity	1	1	9
• Inequity in applying telecommuting	2*	2**	17
• Retaining teamwork	-	1	4
• Over-commitment to work assignments	-	1	4
• Worker's Compensation issues	-	1	4
• No supervisory infrastructure	2*	1	13
• Increased administrative cost	1	1	9
• Not Any	2*	2**	17
TOTAL	12	11	100***

**Private companies' top weaknesses - 25% reduction in communication; 17% inequity in applying telecommuting; 17% no supervisory infrastructure; 17% not any*

***Public agencies' top weaknesses - 18% inequity in applying telecommuting; 18% not any*

****Rounded*

Table A-10. When Telecommuting was Most Effective

Definitions	RESPONSES TO QUESTIONS Private	Public	Frequency %
• When used on part-time basis	1	5**	25
• When used for projects that require no/little communication with others	2*	2**	16
• When telecommuters' clients are offsite	3*		13
• When there is high level of trust between telecommuter/supervisor	4*	1	21
• When used for clerical work	1		4
• When there is strong management support	-	3**	13
• When used to avoid relocating employees	1	-	4
• When used to reduce commuting time	-	1	4
TOTAL	12	12	100%

**Private companies' high responses: 33% when there is a high level of trust between supervisor/telecommuter; 25% when telecommuters' clients are offsite; 17% when used for projects that require no/little communication with others*

***Public companies' high responses - 42% when used on part-time basis; 25% when there is strong management support; 17% when used for projects that require no/little communication with others*

Table A-11. When Telecommuting was Less Effective

Definitions	RESPONSES TO QUESTIONS Private	Public	Frequency %
• When implemented on a full-time basis	2	-	9
• When managers prefer to see employees work	2	3	23
• When wrong employees are selected to participate	3	2	23
• No answer	2	1	14
• When management does not support telecommuting	-	2	9
• When communications is cut off	1	-	9
• When formal work arrangements are not established	1	-	4
• When supervisor must maintain staff coverage	-	1	4
• When used to replace childcare/eldercare		1	4
TOTAL	11	11	100%*

*Rounded

Table A-12. Was Telecommuting Successful?

Responses	RESPONSES TO QUESTIONS		
	Private	Public	Frequency
			%
• Yes	11	11	100
• No	0	0	0
TOTAL	11	11	100%

Table A-13. Future Role for Telecommuting

Role	RESPONSES TO QUESTIONS		
	Private	Public	Frequency %
• Increase in use	11	11	100%
• Decrease in Use	0	0	0
• Other	0	0	0
TOTAL	11	11	100%

Table A-14. States Represented by Respondents

States Represented	Public Sector Responses	Private Sector Responses	Frequencies (percent)
California	1	3	18
Florida	1	-	5
Missouri	-	1	5
New Jersey	-	1	5
New York	-	1	5
Oklahoma	-	1	5
Oregon	4	1	23
Pennsylvania	-	1	5
Virginia	1	-	5
Washington, DC	4	1	23
TOTAL	11	11	100*

*Rounded

VITA

VITA

Brenda F. Glasgow was born Brenda F. Mazone in Corpus Christi, Texas on December 5, 1948. She graduated from Solomon Coles High School in 1966. She entered Del Mar Junior College in the summer of 1966 where she began her studies in a business program.

In 1970, she began studying at the University of Tennessee on a part-time basis. She earned a Bachelor of Science degree in Communications from UT in 1978. Since then, she has worked in Communications providing public relations services, editing the *Inside TVA* newsletters, serving as a communications consultant to business units, and preparing Congressional budget requests. She has also assisted with the management of TVA's Federal Women's Program, and formulated human resources policies. She is employed by TVA.

Ms. Glasgow has been active in the Knoxville community serving as President of the Ebonettes Civic Club, a member of TVA Credit Union Board of Directors, President of Tabernacle Apartments Board of Directors, and a Loaned Executive for United Way of Greater Knoxville. She was selected as a finalist in the YWCA Tribute To Women in 1995.

She is married, has two daughters, two sons-in-law, and three grandsons.