

THE POLICY AND SOCIAL IMPLICATIONS FOR TELECOMMUTING IN JAPAN AND THE UNITED STATES⁽¹⁾

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ABSTRACT : Active experimentation with telecommuting in both Japan and the United States is among the most extensive in the world. However, policy and social distinctions result in some important differences in the way telecommuting is adopted by each country. This paper presents a comparison of the policy and social implications for telecommuting in Japan and the United States. An overview of various types of telecommuting and remote office arrangements is provided, illustrating the diversity of Japanese experimentation with the remote work concept. Reasons for interest in telecommuting are compared, including commute stress, urban growth management, air quality/energy concerns, employee recruitment and retention, savings on office space costs, and disaster response. Social

(1) The research for this paper was conducted partly with the financial support of the Institute of Regional Information Systems in Yokohama and the City of Zushi. The author also has benefitted from the opportunity to attend the annual conference of the American Society for the Public Administration in San Francisco in July, 1993, which was mainly funded by the Faculty of Economics, Kanagawa University. An earlier text of this paper was developed jointly with Professor Patricia L. Mokhtarian of the University of California at Davis for the 1994 Fall/Winter issue of "Social Science Computer Review" published by the Duke University Press.

barriers to the adoption of telecommuting in Japan are discussed, including the lack of formal job definition, preference for face-to-face communication, the importance of the group, limitations of home-based telecommuting, and others.

1. INTRODUCTION

For the purposes of this paper, the author defines telecommuting to be an employee working from home, or from a location closer to home than the primary office, during regular work hours, instead of commuting to the primary office but with real-time communications linkages to the primary office. It can be full time, but is more often part time, and may or may not require computers or sophisticated technology. A number of researchers (Kraut, 1988; Mokhtarian, 1991b; Salomon, 1990) have pointed out the difficulties in defining telecommuting, and neither the above definition nor any other appears to satisfy everyone. However, in this paper, the author does not consider self-employed, "moonlighting" (holding a second job), or overtime home workers to be telecommuters, although they have some characteristics in common with telecommuters.

The emphasis in my definition is on commute travel reduction, remote supervision, and telecommunications support (if only the telephone). Working at home in the forms listed above (and in the form of a home-based craft worker who is a company employee) is obviously not new. But telecommuting, in the sense of a substitution of telecommunications for commute travel, has come on the scene as computer and communication technologies have increasingly facilitated that substitution, and as a number of factors have increasingly made that substitution more desirable.

Thus, the concept of telecommuting has received a great deal of international attention in recent years, because it can be motivated by a

variety of issues : travel reduction ; energy conservation ; air quality improvement ; balancing the demands of job and family ; reduction of health care costs through reduction of stress and sick leave utilization ; broadening employment opportunities for mobility-limited sectors of society (including the disabled, elderly, and homemakers) ; competitive recruitment and retention of the best workers ; improved productivity and customer service (such as through extended hours of availability) ; improving the balance between jobs and housing, including supporting regional economic development by bringing the work to the workers in underdeveloped regions ; and emergency preparedness/disaster response.

The issues are important to individual employees, to employers, and to society collectively. While obviously no single approach can offer a complete panacea for all (or even any one) of these concerns, telecommuting has indisputably earned a place on the public policy agenda (Mokhtarian, 1991a) . Most of the issues described above are shared by Japan and the United States. Thus, active experimentation with telecommuting in both countries is among the most extensive in the world. While U. S. experiments have probably been more visible in the past than their Japanese counterparts, efforts such as the English-language newsletter produced by the Tokyo-based International Flexwork Forum are raising international awareness of the high level of telecommuting activity in Japan.

However, social, cultural and institutional distinctions result in some important differences in the way telecommuting is incorporated into public policy and adopted by organizations in each country. Exploring these differences will lead to an increased understanding of the impact of technology on diverse cultures, foster an increased exchange of experiences and add meaning to that exchange, and support informed decision-making as to which elements of one country's experience are likely to

be transferable to another country.

Thus, this paper presents a comparison of the policy and social implications for telecommuting in Japan and the United States. Section 2 presents an overview of various types of telecommuting and remote office arrangements. Policy reasons for interest in telecommuting are compared in Section 3. Section 4 discusses social and cultural barriers to the adoption of telecommuting, especially in Japan. Operational issues inhibiting the adoption of telecommuting are described in Section 5, while Section 6 is a summary and discussion of future research directions. In addition, an outline of survey on Zushi residents' attitudes to satellite offices is provided in Annex.

2. TYPES OF TELECOMMUTING AND REMOTE OFFICE ARRANGEMENTS

Telecommuting can be either home-based or non-home-based. In the U. S., nearly all telecommuting is currently done from home. For the employer, home-based telecommuting has the advantages of being easier to organize and more inexpensive than center-based telecommuting. Many U. S. employees are believed to prefer home-based telecommuting because it allows them maximum comfort, control over their work environment, and flexibility (Mokhtarian, et al., 1993; Bagley, et al., 1994). Despite the barriers noted in Section 4, some home-based telecommuting also exists in Japan. However, it is believed to be comparatively rare, limited primarily to affluent professionals with adequate space at home and relative autonomy from supervision.

Thus, most telecommuting in Japan is probably non-home-based. Conventionally (see, e.g., Nilles, 1988), this form of telecommuting has been further divided into single-employer satellite work centers (SWCs) and multiple-employer neighborhood work centers (NWCs). Both NWCs and

SWCs are often generically referred to as "satellite offices"; in Japan, the term "community office" is also sometimes used. Telecommuting centers are distinguished from traditional branch offices or decentralization of business functions, such as data processing (Mokhtarian, 1991b). Employees work at telecommuting centers because those centers are closer to home than the primary office, regardless of where the supervisor of their particular job function or other members of their work unit are physically located.

There are examples of both types of telecommuting centers in both countries. Pacific Bell in California, and Nippon Telephone and Telegraph (NTT) in Japan, each operate several single-employer SWCs. Multi-employer NWCs have been established on an experimental basis in Hawaii, Washington State, and California in the U. S., and in Shiki in Japan (Bagley, et al., 1994; Spinks, 1991; Shibutani and Hasegawa, 1993).

Telecommuting centers are a relatively new concept in both Japan and the U.S. However, experimentation in Japan has already gone well past the simple single-employer /multi-employer dichotomy described above, to embrace a variety of related remote office arrangements. These include resort offices, creative offices, and multiple-user facilities. Not all uses of these arrangements constitute telecommuting in the strict sense defined in the Introduction. However, all of them, in the long term at least, increase the detachment of work from a specific place, and therefore reduce the need for a congested commute to be at that specific place.

Resort offices are a distinctively Japanese experiment with remote work. As the name suggests, they are facilities established in scenic, remote resort areas, including Azumino and Yatsugatake (Spinks, 1991). The idea is that the pleasant change in surroundings will allow the worker to relax while at the same time stimulating creative activity. Stays at the

existing resort offices range from a few days to several weeks, and workers may come alone, with their families, and/or with a team of people working together on a project.

The Shonan Creative Office embodies another approach to remote work. Established in the upscale Sagami Bay community of Hayama (comparable to Carmel or Santa Monica in California), the creative office may best be described as a new business incubator. Rather than a facility to which an employer would send workers, the creative office is used primarily by individuals for personal goals. For example, an employee nearing retirement might rent space at the creative office from which to begin an entrepreneurial second career in his free time. Organizers of the office speak eloquently of preventing “wasted human resources”. In keeping with its self-empowerment orientation, it is perhaps not surprising that the Shonan facility is predominantly funded by individual rather than corporate investors.

Finally, the Creative Satellite Office was a hybrid, multiple-user facility located within the large Kanagawa Science Park (KSP) complex (Sato, 1994). During its two-year demonstration period (1991-93), the Creative Satellite Office offered a conventional telecommuting option as well as space for the self-employed. It catered to group conferences and team work as well as to individual work. Space and services could be rented on an ad hoc or long-term basis.

3. COMPARISON OF REASONS FOR INTEREST IN TELECOMMUTING

As indicated in the Introduction, telecommuting addresses a number of issues shared by Japan and the U. S.. Some of these issues have been briefly described in the Japanese context by others (e. g., Nakamura, et al., 1992; Spinks, 1991). Several of the more important reasons for interest in

telecommuting are compared below. While some of them are more directly private-sector than public-sector issues (such as employee recruitment/retention and savings on office space costs), they all have public policy implications.

3. 1 Commute Stress

To reduce the stress of commuting is one of the most-frequently discussed reasons for promoting telecommuting (see, e. g., Mokhtarian, 1991 a). Some employers recognize that arriving at work after an hour-and-a-half of driving in stop-and-go traffic, or standing in an overcrowded train, takes a toll on productivity, health (Novaco, et al., 1990, 1991), quality of life (the *karoshi* issue in Japan) and morale—in short, on the bottom line. Workers in both countries speak poignantly of the ability of telecommuting to improve their quality of life by giving them more time for themselves and their families.

Dependent care for two-career families is a major issue in both Japan and the U. S.. Elder care is an especial concern in Japan, as cultural expectations that elder parents will be directly cared for by their adult children (usually a daughter or daughter-in-law) collide with the rise in the aging population, the increase in two-worker households, and the widespread change of household structures from multi-generational to nuclear families.

While metropolitan congestion is a critical problem in both countries, the modal distribution of travel is very different between the two. In the United States, 87% of the work trips (Pisarski, 1992, Table 1) and 94% of all trips (Hu and Young, 1992, Table 16 and Figure 14) are auto-based (drive alone or shared ride). Thus, it is not surprising that the U.S. discussion of telecommuting as a transportation strategy centers around easing highway

congestion.

In Tokyo, by contrast, the auto share of all trips is 16% (Tokyo Metropolitan Government, 1984, Table VII-9). Automobile traffic is by no means unimportant in Japan, however, as considered further in Section 3.3. And the crowded mass transit vehicles that characterize the Japanese commute profile are indisputably stressful and unpleasant for their passengers.

3.2 Urban Growth Management

Metropolitan congestion, with the attendant commute stress, is largely a consequence of unbalanced urban growth. Within a metropolitan region, telecommuting can help restore job-housing balance, by bringing the work wherever the worker is rather than forcing the worker to travel to where the work is. On a broader geographic scale, telecommuting can be used to slow growth in major metropolitan areas by providing job opportunities in more remote areas. A thriving but crowded metropolitan area can form an economic bridge to an underdeveloped area by transferring or linking some economic activity to it via telecommunications technology, thereby benefiting both areas.

For both countries, congestion is a significant problem, and a reason for policies supportive of telecommuting. However, the extreme concentration of economic, political, and social activity in one metropolitan area, Tokyo, is distinctive to Japan. Hence, Japanese policy related to telecommuting tends to focus on decentralization of economic activity to other regions of the country, including the regions adjoining Tokyo.

For example, the important Regional Hub Law, backed by six major national government agencies (including the National Land Planning Agency, the Ministry of International Trade and Industry, and the Ministry of Post and

Telecommunications), was passed in 1992. It identifies outlying regional centers in each prefecture and provides them financial support (e. g., for improving infrastructure, providing tax incentives) in attracting office employment (Ohnishi, 1992b). At the prefectural and local levels (with some support by the national Ministry of Labor) , outlying regions have established offices in Tokyo and adjacent areas to help match people interested in returning to their more remote hometowns (called "U-turners") or in moving to another outlying area ("I-" or "J-turners") with jobs in those regions (Spinks, 1991).

The United States, on the other hand, tends to promote commute reduction within a given metropolitan region. However, rural economic development is also a focus of some telecommuting activity in the U. S., as shown by the proposed rural telecommuting centers in Kentucky, Colorado, and Washington State (Bagley, et al., 1994).

3. 3 Air Quality/Energy Concerns

In both countries, automobile travel substantially contributes to poor air quality, and is a key sector of energy consumption. Telecommuting is being seriously considered as one among many strategies to improve air quality and conserve energy by reducing travel. In the U. S., telecommuting received a major push when air quality regulations included it on a menu of strategies that employers could use to reduce peak period drive alone commuting. For example, Rule 1501 (formerly known as Regulation 15) of the South Coast Air Quality Management District requires Los Angeles-area employers with more than 100 workers at a single site to prepare an annual plan for achieving target vehicle occupancy ratios (defined as the number of people reporting to the site between 6:00 and 10:00 a. m., divided by the number of vehicles entering the site during those hours).

Telecommuters are considered to report to the site without using a vehicle to access it, and so increase the vehicle occupancy ratio. Fines of \$25,000 per day can be levied for failure to comply with Rule 1501 (South Coast AQMD, 1993). While the effectiveness of Rule 1501 is under debate (Giuliano, et al., 1993), it and similar regulations have succeeded in focusing attention on telecommuting, raising general awareness of the transportation and other benefits of telecommuting, and increasing trial and adoption of the concept. Similar regulations have been enacted in most metropolitan areas of the State of California, and elsewhere across the nation.

The Commute Trip Reduction ordinance of the State of Washington offers an incentive for companies to introduce work-at-home telecommuting: each commute trip eliminated by a work-at-home program counts as 1.2 trips reduced rather than just 1 trip (State of Washington, 1991). As an energy conservation strategy, the State of Oregon provides a 35% state tax credit to employers buying hardware for telecommuting programs (Oregon Department of Energy, 1992).

In Japan, no national or prefectural legislation yet explicitly endorses telecommuting as a transportation solution. However, several transportation demand management approaches complementary to telecommuting are being supported. For example, the Ministry of Transportation recently began an "off-peak commuting" program designed to shift traffic out of the most congested morning peak hours (Ministry of Transportation, 1993). And the 1992 Automobile Nox Reduction Law contains various strategies for improving air quality, including the statement that "in addition to realizing the construction of facilities for walking and riding bicycles, self-restraint among people in the use of personal passenger vehicles, which are neither necessary nor essential, shall be promoted" (Environment Agency, 1993).

Telecommunications technology is increasingly widely discussed in Japan as a useful tool for benefiting the environment (e. g., Ishiguro, 1993), especially by the Ministry of Post and Telecommunications (position paper by Tetsuo Yamakawa, Director of the Environmental Planning Office in the MPT Secretariat, cited in Gordon 1993a ; also see Gordon 1993b).

3. 4 Employee Recruitment and Retention

The ability of telecommuting to provide employment opportunities for the mobility-limited and other underemployed population segments is broadly acknowledged, if not yet fully exploited (see, e.g., Schiff, 1983). Proponents in both countries deplore the “wasted human resources” comprising senior citizens, women, the disabled, and others. The potential of telecommuting for reducing that waste is not likely to be attained in the near term. In the current recessionary economy, businesses are more concerned with restructuring—usually involving downsizing—than with tapping unutilized labor markets.

In the long term, however, this issue will become especially acute for Japan, with its low birth rates and restrictive immigration policies. The total fertility rate in Japan has dropped continuously over the past 20 years, from about 2.10 in 1974 to 1.50 in 1992 and 1.46 in 1993, according to figures published by the Ministry of Health and Welfare in 1993 and 1994. Current Ministry of Labor (1993) projections show the number of Japanese workers between ages 15 and 64 declining in absolute terms after around 1997.

Telecommuting is often cited as a way to retain valuable workers whose circumstances would otherwise require them to resign or take an extended leave of absence (see, e. g., Newman, 1989). Such circumstances might include maternity leave, or a job change for a spouse involving

residential relocation. In Japan, where historically (a) two-career households had been much less common, (b) women had most often quit working after marrying and starting a family, and (c) lifetime employment (for males) with a single company had been the norm, such concerns may appear to be less relevant.

However, the three factors listed above are already changing dramatically, meaning that the role of telecommuting in recruiting and retaining skilled workers may increase in significance. In a recent survey of residents of the affluent bedroom suburb of Zushi (the first such household survey on telecommuting in Japan), "promoting job opportunities for elders" and "raising the number of working women" were rated the top advantages of satellite office telecommuting (cited by 36.0 and 35.8% of the respondents, respectively ; Sato, 1993 ; See Annex).

3. 5 Savings on Office Space Costs

When enough people at one facility telecommute often enough, it may be possible to reduce or eliminate the space they occupy in the primary office, and replace it with space at home or in an outlying center (Young, 1991). When that happens, significant savings on office space costs can be achieved. To date, this has not been a major reason for implementing telecommuting, since it requires developing a critical mass of telecommuters and, often, institutionally and physically restructuring the way existing space is used. However, recent trends toward the increased use of non-territorial offices for the purpose of reducing facilities costs exemplify a form of telecommuting that is likely to become much more common in the future (Gordon, 1993c ; Pacelle, 1993).

Currently, though, office space cost savings are perhaps more likely to occur when a growing company can absorb new workers in remote

facilities, rather than expanding existing facilities. The U.S. retail firm JC Penney, for example, currently has more than 250 home-based catalog order-takers; the company cites the cost of placing those 250 employees into a conventional office as one important reason for its telecommuting program (another important reason is "just-in-time" staffing flexibility for unexpected calling peaks; Gordon, 1987).

When it is feasible to do so, employers in both countries could certainly benefit by replacing some expensive central business district (CBD) space with cheaper space on the metropolitan fringe. This is by no means intended to suggest that CBDs are no longer necessary. It is to suggest that it is more efficient to maximize the use of existing commercial CBD space by workers for whom frequent face-to-face interaction with colleagues is important, and minimize the occupancy of commercial CBD space by employees for whom such interaction is not important.

In the short term, however, metropolitan areas in both countries are generally facing a glut of downtown office space (Long Term Credit Bank Research Institute, 1992). Vacancy rates in central Tokyo rose from nearly 3% at the beginning of 1992 to nearly 9% at the end of 1993 (Nihon Keizai Shinbun, 1994), and vacancy rates in Class A office buildings in the central business districts of the ten largest metropolitan areas in the U. S. ranged from 14.0 to 27.5% in 1992 (U. S. Bureau of the Census, 1993, Table 1250). This oversupply will depress prices, making downtown space relatively more attractive, and thus may inhibit the development of telecommuting centers on the urban periphery.

3. 6 Emergency Preparedness/Disaster Response

Telecommuting can be an extremely important strategy for quick recovery from a disaster affecting the transportation network and/or the

workplace itself (Pratt, 1991a). Whether a localized emergency such as the 1993 bomb explosion in the New York World Trade Center, or an area-wide incident such as the 1992 flood in the Chicago Loop, the 1989 Loma Prieta (San Francisco Bay Area) earthquake (Pratt, 1991b), or the 1994 Northridge (Los Angeles area) earthquake (Schrage, 1994; Kotkin, 1994), the practiced ability to work from remote locations can minimize the loss in productivity caused by such events.

This advantage of telecommuting is, again, often mentioned by its U. S. advocates, albeit not widely implemented for that reason (except hastily after the fact). It is seldom even mentioned in Japan. Yet earthquakes and tsunamis are certainly endemic to the area. An earthquake of magnitude 8 or higher on the Richterscale is likely to strike the Tokyo-Yokohama area within the next 10 to 15 years. Such a quake historically occurs on about a 72-year cycle, and with the Great Kanto Earthquake (magnitude 7.9, causing more than 140,000 deaths) having occurred in 1923, the end of that period is imminent.

Telecommuting could play a useful role in preparing for the inevitable disaster in Japan. However, unless there is a change in the prevailing attitude that "Water and safety are free", the requisite planning may not occur or may take longer than necessary.

4. SOCIAL AND CULTURAL BARRIERS TO ADOPTION IN JAPAN

As discussed in Section 3, there are a number of compelling reasons for public policy-makers, employers, and workers to support telecommuting. However, in both countries, telecommuting is still the exception rather than the rule, even for workers whose jobs are well-suited for it. In the U. S., the biggest barrier to increased telecommuting is considered to be management uncertainty that the remote employee will actually work

productively (Olson, 1989). In Japan, where telecommuting is probably so far proportionally less common than in the U. S., there are a number of additional cultural norms that inhibit the adoption of telecommuting.

4. 1 Lack of Formal Job Definition, Performance Feedback

In Japan, written job descriptions are rare; the job is whatever the supervisor asks one to do. Similarly, formal performance appraisals are exceptional. Consequently, there is often uncertainty about how well one is measuring up to expectations. It is easy to see how telecommuting could exacerbate that insecurity, unless specific performance standards can be established and monitored. The potential of losing one's visibility to management has been cited as a disadvantage of telecommuting, but that perception is likely to be stronger in Japan than in the United States.

There are, of course, advantages to distance from supervision: the evaluation of the NTT Satellite Office at Kamakura included workers' comments that they were more productive because their work was not interrupted as often. However, their security mentioned above was also in evidence (Shibutani, 1992). One could also expect some resentment from non-telecommuting co-workers, who presumably had to interrupt their work more often. Both factors could act to limit telecommuting adoption.

4. 2 Preference for Face-to-Face and Real-Time Communication

Japanese culture values face-to-face interaction more highly than written or electronic means of communication. Making a two-hour trip to conduct 15 minutes' worth of business is not uncommon. Barring a face-to-face meeting, synchronous or real-time communication is preferable to asynchronous forms such as voice mail or electronic mail. For example, an analysis of communication flows among software developers found that

when a phone call was placed and the called party was not available, in 80% of the cases the call was redialed or a message simply to return the call was left.

“This means that, in many cases, a function for recording a message is less important (for facilitating communication among teleworkers) than an indication that the called party should dial the caller” (Nakamura, et al., 1992). With these ingrained communication propensities, the substitution of face-to-face interaction by telephone calls, faxes, and electronic mail that telecommuting requires does not come naturally.

4. 3 Importance of the Group

Independence and initiative are characteristics often associated with American workers, and these two traits are intrinsically complementary to telecommuting. On the other hand, a long-standing feature of Japanese culture is the precedence of the interests of the group over those of the individual. One extremely important entity is the work group, and the desire to improve one's own quality of life by reducing the commute may be viewed as placing individual interests above those of the work group.

Further, in a system of lifetime employment with the same firm, group involvement—both at work and after work—is seen as critical to advancement. Bonds are formed, introductions are made, favors are done, and information is passed along, on the basis of membership in various groups such as the alumni of a given university or the set of workers who joined the company at a given time. This vital face-to-face interaction is conducted not only on the job, but at the legendary after-hours drinking sessions as well.

Telecommuting at least partially detaches the worker from this web of group involvement. Thus, the sense of isolation that is a potential side

effect of telecommuting can be particularly acute among Japanese employees. As an experiment to help reduce that sense of isolation, the NTT Satellite Office at Kamakura installed a "Tele-Eye". The Tele-Eye consists of a camera placed in the main office, linked to a computer screen in the satellite office by an Integrated Services Digital Network (ISDN) line. The camera position can be controlled from the satellite office, and freeze-frame video images of activity in the main office are transmitted to telecommuters at the satellite.

The significance of such an experimental technology should not be overstated; the Tele-Eye is likely to be, at best, a weak fulfillment of the desire for face-to-face interaction described in Section 4.2. However, its existence does throw into sharp relief a contrast between Japanese and American workers: in the U. S., it is much more likely to be the manager desiring the "eye" into the remote worksite, and the employee wanting to avoid close supervision.

4. 4 Limitations of Home-Based Telecommuting

As mentioned in Section 2, most current telecommuting in the U.S. is home-based. Although numerous telecommuting center experiments are underway (Bagley, et al., 1994), home-based telecommuters are expected to outnumber center-based telecommuters for some time to come. This is unlikely to be the case in Japan, for two reasons. First, homes are generally smaller in Japan than in the U. S. Thus, it is more difficult for the Japanese telecommuter to set aside space for a home office, especially space that can be kept relatively free from distractions. Second, in traditional Japanese marriages, the home is the customary domain of the wife; she may feel her territory being threatened by having a working husband at home during the day. Incidentally, the same is probably true for "traditional" American

marriages: as the (unattributed) saying goes, "I married him for better or worse, but not for lunch".

However, the traditional (male breadwinner, female homemaker) marriage is now far less common in the U. S. than it used to be, as evidenced by statistics such as (a) the rise in the labor force participation rate of married women from 30.5% in 1960 to 59.3% in 1992; (b) the rise of single parent households from 7.5% of all households in 1980 to 8.7% in 1992; (c) the increase in one-person households from 17% of the total in 1970 to 25% in 1992; and (d) the declining average household size from 3.20 in 1970 to 2.63 in 1990 (U. S. Bureau of the Census, 1993, Tables 633, 70, 67, and 69, respectively). "Traditional" marriages are certainly far less common in the U. S. than in Japan (although as noted earlier, that is changing).

In Japan, even satellite office telecommuting may be too close for comfort, as women are accustomed to having their entire communities virtually to themselves during the day (Matsuoka, 1991). One of the concerns noted by residents of Zushi, which is currently conducting a telecommuting program, was that there would be too many men around if the targeted levels of telecommuting were achieved (Tomino, 1992). However, Zushi residents responding to the survey mentioned in Section 3.4 expressed general support for the satellite office concept (Sato, 1993; See Annex).

4. 5 Work Rules

Various work rules can act to inhibit telecommuting. The rules are often inflexible and not easily changed. For example, many companies prohibit their employees from driving to work, because in Japan Worker's Compensation coverage starts when one leaves the home. Yet satellite and resort offices may not be very accessible to mass transit, which is oriented

toward the major home-to-work commute routes.

5. OPERATIONAL ISSUES

Aside from social and cultural considerations, the way telecommuting is implemented can also inhibit or facilitate its adoption. Several observations regarding these operational issues may be made, based on the experience to date.

5.1 Technology

Much telecommuting in the U. S. has been “low-tech”, often not even involving a computer, although computer use for telecommuters and for workers in general is tending to increase over time. In contrast, most or all of the telecommuting demonstrations in Japan have been showcases for state-of-the-art technology, as well as testbeds for new technologies and services.

Neither extreme is necessarily desirable. Some people in the U. S. have been precluded from telecommuting because the technology needed was too expensive or simply unavailable. On the other hand, it is possible to overemphasize the supply-side issues of technology, while disregarding the human and social factors on the demand side. The evaluation of NTT’s satellite offices, for example, found that workers freely used the familiar phone and fax technologies, but that the more experimental technologies such as the Tele-Eye were not heavily used (Shibutani and Hasegawa, 1993).

The barriers to telecommuting in both countries are far more institutional and psycho-social than technological. A philosophy that “if you build it, they will come” is not likely to prove fruitful.

5. 2 Marketing

Both Japan and the U.S. are struggling with how best to market specific telecommuting programs and centers. In some cases, for example with the KSP Creative Satellite Office, the marketing consisted primarily of word-of-mouth among contacts of the project sponsors. In other cases, for example with the Shiki Satellite Office in Japan and the Washington State Telework Center in Seattle, conventional marketing methods were used but did not succeed in keeping the projects open past the demonstration period.

It is reasonable to expect that the "right" marketing approach will immediately overcome the novelty of the telecommuting and telecenter concepts, and the barriers already discussed. Rather, it can be hoped that increasing familiarity with the concepts and lowering of the barriers, together with the continued experimentation with marketing techniques that is ongoing in both countries, will in time lead to higher adoption levels.

5. 3 Training

Telecommuting proponents stress the importance of training both supervisors and employees in techniques for managing and conducting remote work. Such training typically addresses the need for explicit goal-setting, frequent feedback, efforts to keep telecommuters informed of office activities, policies to minimize adverse impacts on non-telecommuting co-workers, and so on. As is commonly noted, many of these principles are relevant to work done in the main office as well—but observing them is essential for remote work.

It is the author's observation that little such training occurs in Japanese telecommuting experiments, and that some newer programs in the U.

S. (especially multiple-employer telecommuting center programs) are also paying little attention to training. It may be in the U. S. that the principles mentioned above are increasingly taken for granted (whether rightly so or not), that widely available printed materials are substituting for group training sessions (whether effectively so or not), and/or that the managers who are first to adopt telecommuting are those who are already comfortable with remote management skills. However, it is likely that more emphasis should be placed on this aspect of implementing a telecommuting program. It is probably critical for both countries, but seemingly especially so for Japan, in view of the social and cultural barriers to telecommuting discussed in Section 4.

6. SUMMARY AND FUTURE RESEARCH DIRECTIONS

This paper presents a comparison between Japan and the United States of the policy and social implications for telecommuting. Such comparative studies will help illuminate and inform the policy-making process in each country (and elsewhere), and improve the understanding of our respective societies. We have identified a number of shared reasons for supporting telecommuting, although with some variations in detail between the two countries. Although there are compelling reasons to support telecommuting, there are also, especially in Japan, some deeply entrenched cultural norms that are inimical to telecommuting.

These social and cultural barriers are so strong that it is perhaps surprising that the concept ever took hold. The fact that it has taken hold is probably due to a small but articulate and well-connected group of people with a vision for improving the quality of life for Japanese workers. Once the first satellite office opened, other companies followed suit with additional experiments, at least partly from a desire not to be left out. The

formation of organizations such as the Satellite Office Association of Japan and the Tokyo-based International Flexwork Forum has both capitalized on, and continued to generate, an increasing momentum in support of telecommuting.

Currently in Japan, the private sector is taking the lead in implementing telecommuting programs (sometimes with public sector partners), whereas in the U. S., the reverse is true. In both countries, corporate interest in telecommuting is often just as much external as internal—that is, based not just on a localized concern for one's own employees, but on the perception of a business opportunity for the firm (typically in industries such as computers, telecommunications, office furniture, real estate, and construction). However, the U. S. appears at the present time to have more examples of firms supporting telecommuting for purely internal reasons.

As with any innovation, it will take time for telecommuting to reach equilibrium status in both countries. Thus, it will be important to assess its effectiveness in the long term, and not just focus on short term experience. The current recession, for example, has doubtless hampered the development of telecommuting in both countries and elsewhere. But Japanese industry is noted for its emphasis on the long-term payoff over quick profits, and Japanese public policy is shaped more by career bureaucrats than by politicians subject to electoral whims.

While this paper has provided an overview of broad-based policy, social, and cultural issues, it would be highly informative to compare the two countries in terms of the individual-level adoption and impacts of telecommuting. For example, studies in the U. S. and the United Kingdom (see, e.g., Bailyn, 1989; Olson, 1989; Pratt, 1984) have identified two different telecommuter segments: clerical workers (predominantly women) and professional/technical/managerial workers (both women and men). Workers in

these two segments often differ in their motivation to telecommute, the impacts of telecommuting on them and their families, and the types of telecommuting and the conditions under which telecommuting is offered to them. One relatively new finding, for example, is that virtually all users of the U.S. telecommuting centers studied to date are professional workers (Bagley, et al., 1994).

Mokhtarian and Salomon (1994) have developed a conceptual model of the individual decision to telecommute. They postulate that telecommuting is chosen in the presence of one or more drives (e. g. to get more work done, to avoid an onerous commute, to spend more time with family) and in the absence of any binding constraints (e. g. employer prohibitions, cost, job unsuitability). They are currently testing that model with U. S. data. It would offer a great deal of insight to collect a similar set of data in Japan and compare the two countries in terms of the relative importance of reasons to telecommute (by gender/life-style stage and occupation), the relative roles of various constraints, and the relative preferences for home-based versus center-based forms of telecommuting.

As with other ideas, Japan has adopted telecommuting, an idea that surfaced in the U.S. academic community in the 1960s (Memmott, 1963), and has given the concept its own unique twist. It will continue to experiment with and refine the idea over time. Each country will certainly have much to learn from the other, and an ongoing information exchange among policymakers, practitioners, and academics can only benefit both sides (Sato, 1992 ; Ohnishi, 1992a).

ANNEX : AN OUTLINE OF ZUSHI'S SURVEY ON RESIDENTS' ATTITUDES TO SATELLITE OFFICES

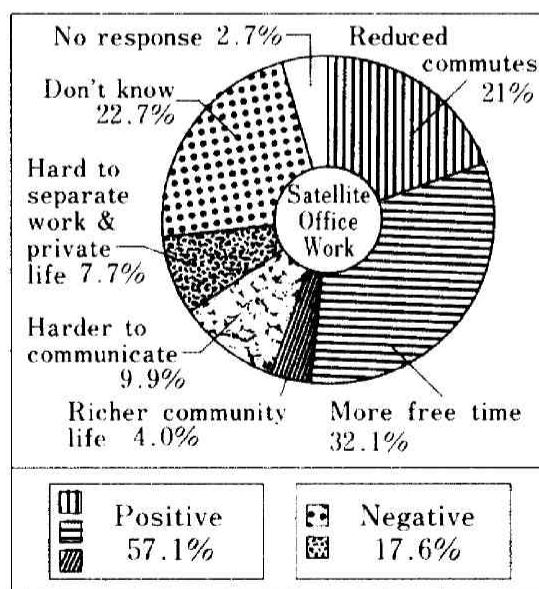
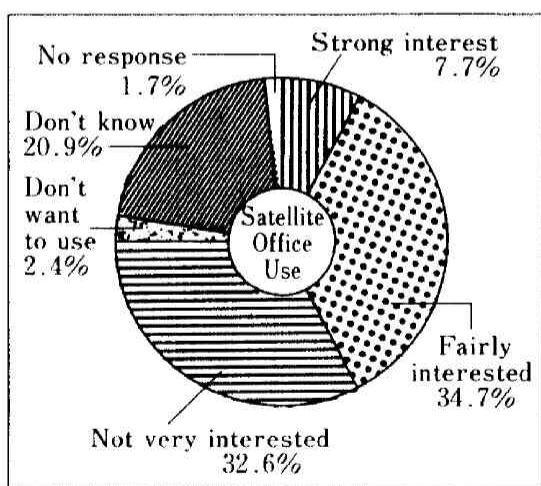
The City of Zushi in Kanagawa Prefecture set up a research group on satellite offices in early 1991 in order to examine the feasibility of es-

tablishing a satellite office there. As part of their research, a survey on residents' attitudes was conducted in August of that year (3,000 people surveyed, 48.8% response rate). The following looks at some of the results of that survey.

1. Interest in Using Satellite Offices

The survey showed that 7.7% had a strong interest in using satellite offices, 34.7% were fairly interested, 2.4% did not want to use satellite offices, and 20.9% did not know. The combined total of favorable responses was 42.4% (Chart 1). In terms of occupations, those most in favor of using satellite offices were professionals/engineers (57.6%); clerical workers (50.7%); business/shop owners (50.6%); and managers/supervisors (50.1%). The older the respondent, the less in favor they were. Elsewhere, the longer the commute, the more respondents were in favor.

Chart 1. Interest in Using Satellite Offices **Chart 2. Attitudes to Satellite Office Working**



2. Attitudes to Working at a Satellite Office

Regarding the expected benefits of working at a satellite office, "more

free time" generated the greatest response, accounting for 32.1%, followed by "reduced commutes and more effective workstyles" (21.0%), "harder for employees to communicate" (9.9%), "hard to separate work and private life" (7.7%), and "richer community life" (4.0%). "don't know" accounted for 22.7%. The two favorable responses of reduced commutes and more free time together totalled 57.1%, indicating a strong interest in escaping longcommutes and working in a more agreeable environment (Chart 2).

Favorable responses far outweighed the average in the following occupations: business/shop owners (72.3%); clerical workers (69.0%); and professionals/engineers (68.1%). In contrast, those in blue-collar workers, family businesses, the self-employed and housewives were below the average. The younger the respondent, the more in favor of satellite office working, especially those in their twenties (71.6%) and thirties (77.6%). With the exception of those with commutes under 30 minutes, who showed a less than average favorable disposition, more than 60% of all other commute time groups held favorable attitudes to working at a satellite office.

3. The Effectiveness of Satellite Offices

Concerning how effective satellite offices can be for the individual, companies and society as a whole, 36.0% thought it would "promote job opportunities for elders", followed closely by 35.8% for "raise the number of working women". Elsewhere, 30.8% thought it would "make the active pursuit of hobbies possible"; 28.9% "create more active community" life; 25.0% "facilitate family communication"; 24.4% "help alleviate stress"; 19.5% "make greater involvement in local affairs possible"; and 13.7% "facilitate self-expression and selfdevelopment" (Chart 3).

Chart 3. Areas Where Satellite Offices Can Play An Effective Role

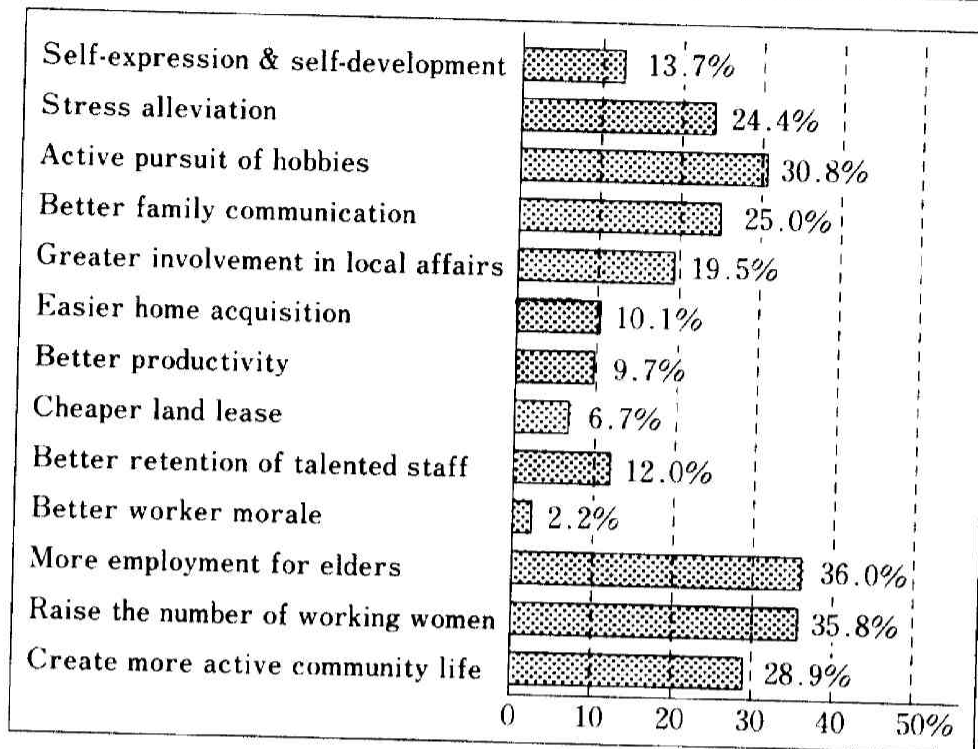
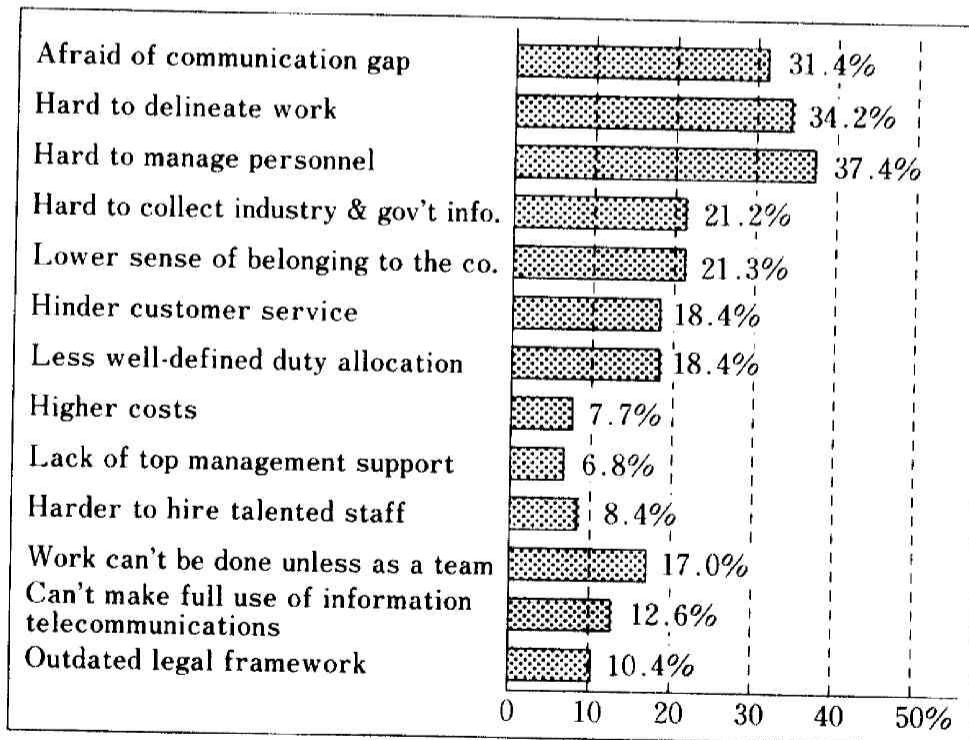


Chart 4. Constraining Factors on Office Decentralization



There was no great gender differences in the responses, but 20.0% more women than men thought satellite offices would raise the number of working women, while more men cited self-expression and self-development. In terms of age, many respondents aged 50 and over cited job opportunities for elders. Respondents in their thirties and forties commonly cited employment for women, with 46.6% of those in their forties citing this factor.

4. Constraints on Office Decentralization

The most commonly cited constraint on the decentralization of offices was the difficulty involved in personnel management (37.4%), followed by "hard to delineate work" (34.2%), "fear of a communication gap" (31.4%). Further down the scale came "lesser sense of belonging to the company" (21.3%), "hard to collect information from other companies and government institutions" (21.2%), "hinder customer service" and "less well-defined duty allocation" (both 18.4%), and "work can't be done unless as a team" (17.0%).

Only a small proportion of the respondents cited such external factors as "can't make full use of information telecommunications" or "outdated legal framework" as an obstacle to satellite office usage, but personnel and relationship-related factors were frequently cited as constraints on office decentralization (Chart 4).

A breakdown of occupation reveals that 47.9% of management/professionals, 44.7% of freelancers, and 44.6% of salespersons thought personnel management would be difficult. 53.2% of freelancers, 41.7% of blue-collar workers/technicians, and 41.5% of self-employed /family business employees thought it would be difficult to delineate work. On the other hand, 45.1% of managers/professionals, and 43.5% of specialists/

engineers cited fear of a communication gap, well above other occupational groups.

5. Preferred Work Locations

In regard to preferred work locations, 24.4% of respondents chose splitting their time between a satellite office and head/branch offices, 11.1% between head/branch offices, satellite offices and home offices, 10.6% full-time work-at-home, 10.2% a split between satellite offices and home offices, 9.0% head/branch offices only, 7.3% satellite offices only, and 7.2% other. Less than 10% wanted to work at such conventional locations as head or branch offices.

6. Preferred Hours of Work

Those correspondents wanting to work under a flextime regime totalled 28.7%, followed 20.0% in favor of fixed starting and finishing times, 13.9% in favor of weekly affixed work hours, 13.4% no time supervision and 4.7% other. As can be seen, only 1 in 5 were in favor of conventional fixed hours. In terms of occupation, 50.7% of clerical workers, 40.3% of specialists/engineers, 38.9% of management/supervisors expressed a preference for flextime, while 44.4% of labor administrators/technicians, and 41.0% of salespersons preferred fixed working hours.

7. Government Measures to Support New Female Entrepreneurs

46.3% of the married women not working outside the home who answered the survey thought government measures to support married women starting up businesses were necessary, while 31.1% were unsure, and a further 10.6% thought such measures were unnecessary. Close to half of these married women, then, were in favor of government subsidies

(Chart 5). Looking at these responses in terms of age groups, those in their thirties were most convinced of the need for subsidies (73.2%), followed by those in their twenties (60.0%) and those in their forties (53.1%).

8. Participation in Businesses Created by Government Measures

In response to questions about how interested they would be in participating in new businesses established by women if the government was to implement such measures, "depending on the circumstances" was the highest response accounting for 37.8%, followed by "no desire to join" 17.3%, "don't know" 16.2%, "no interest" 10.4%, and "strong interest" 5.3%. Combined, the two favorable responses of "depending on the circumstances" and "strong interest" accounted for 43.1% (Chart 6). In terms of age groups, 57.8% of those in their forties answered "depending on the circumstances", 53.6% of those in their thirties and 53.3% of those in their twenties. Elsewhere, 13.3% of those in their twenties and 12.5% of those

Chart 5. The Need for Subsidies for Female Entrepreneurs (Married Women* Responses)

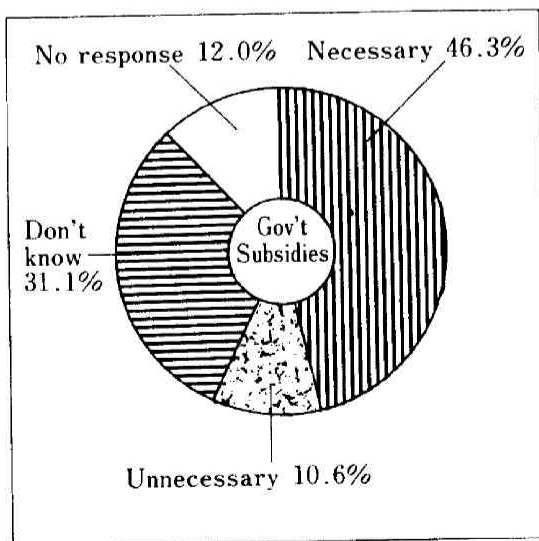
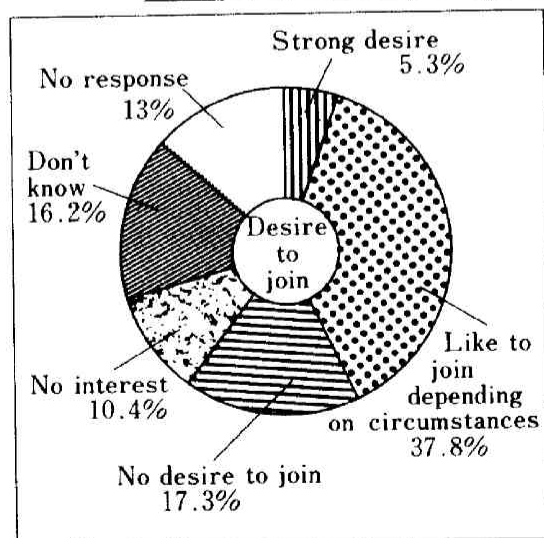


Chart 6. Desire to Participate in New Businesses Created by Government Measures to Support New Entrepreneurs



*Not in Paid employment

in their thirties answered "strong interest", with almost 70% of women in those age groups expressing some sort of interest in participating in businesses started by female entrepreneurs.

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