

An Analysis of the MLIT Survey 2002: The Japanese Telework Population

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ABSTRACT

Over the past decade, several telework population surveys have been conducted in Japan, although their focus has usually been confined to salaried workers, thereby providing only a partial picture of the Japanese adoption of telework. This paper uses data from the recently completed population survey conducted by the Japanese Ministry of Land, Infrastructure and Transport in November 2002. The data set is unique in several ways. It is the first survey to encompass both self-employed teleworkers and salaried teleworkers as well as to use a random sample of workers over 15 years of age nationwide. Secondly, it is the first survey to use telephone interviews as the survey methodology rather than written surveys. Thirdly, the survey used a two-step approach: the initial survey capturing the size of the telework population; and the follow-up survey capturing more qualitative aspects of the respondents' actual experience of telework.

The first half of the paper builds on the work presented at the 7th International Telework Workshop, which outlined a series of recommendations for developing a robust tool for tracking changes in the number of Japanese teleworkers. It discusses the actual survey design process, citing specific considerations in the creation of an operational definition, maintaining integrity with major labour force instruments, and a discussion of concrete protocol items. The discussion also explores the instrument's limitations, especially the degree to which the survey captures the actual prevalence of flexible work styles.

The second half of the paper presents findings from the main survey, highlighting both within and cross-group differences. While in-depth analysis has yet to be conducted, these initial findings point to the strong base for telework that currently exists in Japan, but also raise questions concerning the "quality" of the telework experience in Japan.

Keywords: telework, population survey design, Japan, SOHO

1 INTRODUCTION

The first half of this paper outlines the survey design and the definitions adopted in the telework population survey implemented as part of the Study Survey on Comprehensive Support Measures for Regional Revitalization through the Promotion of Telework and SOHOs, coordinated by the Japanese Ministry of Land, Infrastructure and Transport in 2002 (hereafter, "MLIT Survey 2002") in conjunction with three other ministries. It examines the actual design of the survey, including operational definitions, and then discusses some of the issues that remain to be resolved for better capturing the state of telework in Japan. The latter half of the paper discusses the initial results from the population survey, documenting the characteristics and work patterns identified therein.

2 OVERVIEW OF THE SURVEY DESIGN

Designing a telework population survey is an exacting task requiring enough conceptual flexibility to encompass highly diverse ways of working but, at the same time, adequate conceptual consistency to permit cross-survey comparison. To date, both telework definitions and population survey methods have been the object of considerable debate. The Japan Telework Society's Population Study Group, in particular, has been very active in this area, publishing several papers [1][2][3][4]. In designing the latest population instrument, the MLIT Survey 2002 adhered wherever possible to these proposals, but the actual design process for an operational instrument required several modifications and/or further clarifications to be made. The following discussion will point out where modifications

were made and why, and how they differ from the Population Study Group's proposals and EU (ECaTT) survey practice [5].

The survey itself used three instruments: Main Survey 1, Follow-up Survey 2 (salaried teleworkers), and Follow-up Survey 3 (self-employed teleworkers). Since the telework population figures were derived from Main Survey 1, the discussion below will focus on the design of the principle instrument.

2.1 Survey Population and Sampling Methods

The survey population consisted of all workers in Japan aged 15 years and over. The sampling process consisted of the following two steps.

Step 1: Household Telephone Number Sampling

Random Digit Dialling was used to generate a random sample of telephone numbers. Since RDD does not distinguish between private numbers, business numbers and numbers no longer in use, private home numbers had to be selected from the list.

Step 2: Selecting 1 Worker from the Household

Calls were placed to the households and the number of workers 15 years and over ascertained. If there were two or more such workers in the household, only one was selected using a random digit table.

In contrast to other population surveys previously implemented in Japan, which were conducted via enterprises, the MLIT Survey 2002 is unique in that its sampling was randomly derived from all Japanese households. Moreover, it did not predetermine the range of telework at the sampling stage.

The reason for defining the population as workers of 15 years and over was to maintain integrity with the Employment Status Survey, implemented once every 5 years by the Japanese Statistics Bureau (hereafter, "Status Survey") [6]. It should be noted that ECaTT surveys targeted workers 18 years and over, so any attempt to make a direct comparison between European and Japanese results would require the Japanese figures to be recompiled to exclude those under 18 years of age.

2.2 Survey Methodology and Response Rates

The survey was implemented using Computer Assisted Telephone Interviews (CATI), where operators conduct interviews via the telephone, inputting responses simultaneously into a computer database. This methodology allows an immediate check of response errors and the use of complicated questions flows. The ECaTT survey applied the same methodology.

The survey was conducted from October 25 to November 10, 2002, with cooperation from 4,125 respondents (59.8% cooperation rate). Adjusting for individual sampling probability within households resulted in a response sample of 6,783.

2.3 Survey Content

Through the use of objective teleworker screening items and categories, care was taken to avoid respondent subjectivity regarding the definition of telework and telework sub-groups. Major types of teleworkers include salaried teleworkers, home-based workers and SOHO workers, but a precise definitional consensus for each group has yet to be achieved. The survey, therefore, intentionally excluded items such as "People who work in such-and-such a way are called teleworkers" or "Are you a teleworker?". The same effort for objectivity was made concerning flexibility of work location and work hours. Here, survey items focussed on capturing actual work conditions, not respondents' subjective perceptions thereof.

By including as many key items as possible regarding definitions and sub-groupings, the survey design allows for a wide range of variable analysis according to individual areas of research interest. Items regarding work status and individual demographics mirror to a large extent those used in the Status Survey.

2.4 Teleworker Screening Items

The following Conditions A, B, C, and D were used to screen for teleworking status.

A: Normally engaged in paid work

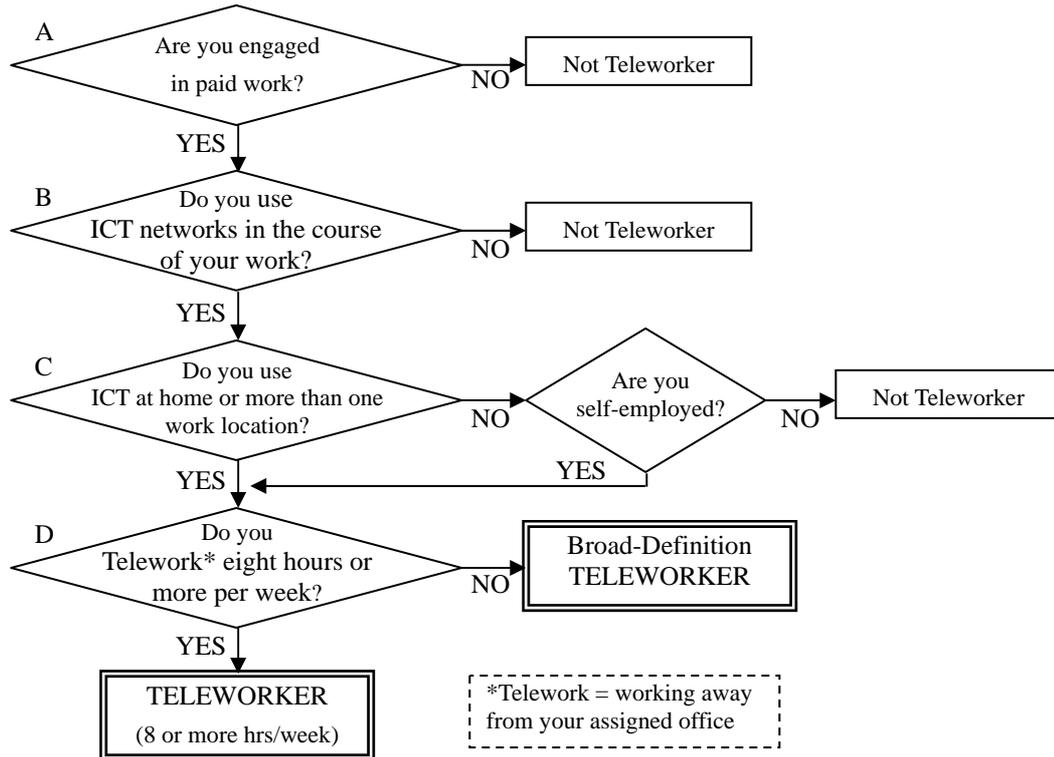
B: Use ICT networks in the course of work, including e-mail, etc.

C: Use ICT networks in more than one location, or if only in one location, that location is different to the respondent's administratively assigned work location (normal office)

D: Work more than 8 hours per week in a different location to the respondent's administratively assigned work location

Respondents who met all four conditions were defined as "teleworkers". In addition, salaried workers who satisfied Conditions A, B & C, and self-employed workers who satisfied Conditions A & B, were defined as "broad-definition teleworkers". Figure 1 illustrates the screening flow. Each individual screening item is discussed below.

Figure 1 Teleworker Screening Flow



2.4.1 Paid Work

Screening Item A is concerned with work activity. Whether a respondent was a worker or not was determined by the question, “Are you normally engaged in work that provides some form of income?”, irrespective of income amount or work content. As a result, a person involved in unpaid volunteer work, for example, would not be classified as a worker, but an unpaid family business helper would.

A further point is that the presence/absence of work was not determined using the Labour Force Survey (LFS) reference week method, that is work activity in the last week of the month, but by the “Work Activity Method”, that is capturing the worker’s usual status (Table 1). This was necessary because it is this latter method that is applied in the Status Survey, which was used for the initial determination of the telework survey population. In keeping with this, questions regarding ICT usage and work location not only focussed on the previous week’s activity, but also asked what the normal status was.

Table 1 Difference Between the Work Activity Method and LFS Method [7]

Work Activity Method	Used by Status Survey to ascertain if a person is normally engaged in work
	Advantage: avoids incidental bias from the survey period. Disadvantage: definitional ambiguity; vulnerability to respondent perceptions.
LFS Method	Used by the monthly Labour Force Survey to ascertain if a person is engaged in work in the last week of the survey month
	Advantage: definitional rigour. (Used for ILO employment/unemployment statistics). Disadvantage: open to incidental bias during the reference week.

2.4.2 ICT Network Usage

Screening Item B captures use/non-use of ICT networks. The actual variables used are provided in Table 2. Based on the work of the Population Study Group, screening considers the combined use of ICT equipment (hard) and network applications (soft). An affirmative answer to any square in the resulting tool/network matrix is sufficient to clear Screening Item B.

Since the survey protocol makes it possible to identify specific soft/hard combinations, varying screening conditions is an option. Depending on research interest, data can be retabulated to exclude, for example, people who only use electronic mail on their mobile phones.

Table 2 ICT Equipment/Network Configurations

		A. ICT Equipment			
		PC	PDA	Mobile Phone	Dedicated Terminal
B. Network Applications	E-mail				
	Internet (browsing/search)				
	Data transmission/Server Access				

2.4.3 Work Location

Screening Item C is concerned with work location. This is the most central variable for determining telework status and was the most problematic in terms of survey design. While there would be little contention that the flexible use of work location is a condition of telework, creating an operational definition of exactly what “flexible use” covers required much careful probing and thought.

The specific response categories are provided in Table 3. They focus on two major aspects: is ICT used in more than one location; or, in the case of a single work location, is that location different to the administratively assigned work location? The first aspect, that is the existence of more than one work location, was treated as an indicator of individual discretion over work location (=spatial discretion). The second aspect, use of a different location to that administratively assigned, was treated as an indicator of potential work hour discretion (=time discretion).

Table 3 Work Location Response Categories (M.A.)

1.	Assigned work location (office, shop, factory, facility, etc)
2.	Other in-house facility
3.	Client premises (office, R&D facilities, etc.)
4.	Own residence
5.	In-house satellite office/telework centre
6.	Third party telework centre/rental desk
7.	Mobile (including business trips)
8.	Other

N.B. Response Categories 2 and 5 omitted from self-employed protocol

The actual wording of the question was, “Where do you normally use e-mail, access the internet/intranets, or send data for work purposes?” In other words, respondents were not merely asked where they worked, but in which locations they used ICT. This approach was adopted due to the conviction that, for example, mere use of the home but not ICT did not constitute telework. On reflection, however, a more detailed picture of actual telework location would be achieved by asking where the usual work location was as well as where ICT was used for work purposes.

2.4.4 Telework Frequency

The issue of telework frequency was relegated to a secondary screening level by the Population Study Group, but in the MLIT Survey 2002, using some frequency screening was deemed to be crucial in order to filter out, for example, people who sporadically checked their business e-mail from home at night. As a result, a fourth Screening Item, D, was adopted to capture the incidence of telework. In keeping with the Population Study Group recommendation, frequency was ascertained in terms of hours per week, rather than days per week. Respondents were asked how many hours they worked away from their administratively assigned work location, the cut off point for “teleworkers” being set at eight or more hours per week. Apropos, the ECaTT survey defines salaried workers who spend more than 1 whole day working at home as “regular workers”. (As will be reported in the results section, those teleworking less than eight hours were deemed to be “broad-definition teleworkers”.)

2.5 Other Survey Items

2.5.1 Employed/Self-Employed Classification

The response categories provided in Table 4 were used to distinguish between employed/self-employed work status. The Status Survey combines Responses 2 and 3 into a single group, “company executives”, but the MLIT Survey 2002 felt it more appropriate to separate owner-managers from salaried executives. As a result, Response Categories 1 and 2 were deemed to be employees, and 3-7 self-employed. For reference purposes, a table has been included outlining the differences in EU and Japanese telework definitions (Table5).

Table 4 Employment Response Categories

1.	Work for company/organization	} Employee
2.	Executive at company/organization	
3.	Company owner-manager	} Self-employed
4.	Self-employed, with employees	
5.	Self-employed/Freelance, no employees	
6.	Work for family business	
7.	Home piece-worker	

Table 5 Definition of teleworkers in EU and Japan

EU			JAPAN		
	Regular Teleworkers	Supplementary Teleworkers		Teleworkers	Broad-Definition Teleworkers
Home-based teleworkers	<ul style="list-style-type: none"> are either in salaried employment or self-employed in which cases their main working places on the contractor's premises use a personal computer in the course of their work use telecommunications links (phone/ fax/ e-mail) to communicate with their colleagues/ supervisor during work at home 	<ul style="list-style-type: none"> spend less than 1 full working day teleworking from home per week 	Employed teleworkers	<ul style="list-style-type: none"> employed use ICT networks in the course of their work use ICT at home or more than 1 work location 	<ul style="list-style-type: none"> work away from their assigned office less than 8 hours per week
	<ul style="list-style-type: none"> work from home (instead of commuting) for at least 1 full working day 			<ul style="list-style-type: none"> work away from their assigned office 8 hours or more per week 	
Mobile teleworkers	<ul style="list-style-type: none"> work at least 10 hours per week away from main place of work use online computer connections when doing so 	-			
Self-employed teleworkers in SOHO	<ul style="list-style-type: none"> who are self employed or effectively self-employed use advanced ISTs for communicating with clients and/or (other) business partners main place of work is at home or claim not to have a main place of work 	-	Self-employed teleworkers	<ul style="list-style-type: none"> self-employed use ICT networks in the course of work 	<ul style="list-style-type: none"> use ICT only at their assigned office
				<ul style="list-style-type: none"> use ICT at home or more than 1 work location work away from their assigned office 8 hours or more per week 	

Source: ECaTT Final Report -Benchmarking Progress on New Ways of Working and New Forms of Business Across Europe-, ECaTT, 2000

2.5.2 Type of Industry and Occupation

The Population Study Group saw teleworkers as corresponding to white-collar, office workers and sales staff, omitting workers whose main duties consisted of direct participation in the manufacture of goods in production facilities and customer service in retail outlets. In contrast, the MLIT Survey 2002 adopted the approach that telework did not refer to a specific work style, but to the application of ICT in all aspects of labour, especially as a change agent for the use of time and space. Accordingly, no limitations were placed on the occupation or the industry to which respondents' belonged. As will be seen in the section on survey findings, this approach brought to light the use of telework in diverse occupations and industries.

Regarding the specific question methods, free response items were used for both industrial and occupational affiliations, which were then coded by the interview operators. Industrial classification used the Japan Standard Industrial Classification (Level 2), while occupation classification used the Japan Standard Occupation Classification (Level 2).

2.5.3 Incidence of Side-Business Telework

The various combinations of main-business, side-business counted as telework are provided in Table 6. In order to ascertain the extent of side-business telework, those respondents engaged in side-businesses were asked to respond to virtually a second set of survey items (employment status, type of business, ICT use, location). Since the number of respondents engaged in side-businesses was only small, naturally the number of side-business teleworkers was even smaller. Moreover, as it is possible to ascertain the incidence of side-business in the workforce at large from the Status Survey, including another set of items on side-business is arguably not the best use of survey resources.

Table 6 Main/Side-Business Telework Combinations

Side \ Main	Telework	Non-Telework
Telework	Teleworker	Teleworker
Non-telework	Teleworker	X

2.5.4 Teleworker Categorization

Regarding the classification of teleworkers, every effort was made to avoid preconception bias from the survey implementers and respondent subjectivity from creeping in. The specific factors used for grouping teleworkers are provided in Table 7. To date, many suggestions have been advanced regarding the classification of self-employed (SOHO) workers. A key demarcation has typically been between professional business entrepreneurs and more peripheral home-based workers [8] [9]. The MLIT Survey 2002 tackled this issue by applying the Status Survey's main/sub work division (mainly engaged in work, or mainly engaged in family/study commitments).

It is often suggested that income stratification be used to classify self-employed teleworkers, but this approach was decided against given that even "serious" entrepreneurs may have only low income in the early start-up stages of their business. As such, "income" does not seem too reliable a proxy variable.

Table 7 Teleworker Grouping Item Examples

Keyword Classifiers	Classifier Item Examples
Employed/Self-employed	Work status
Professional/Peripheral	Main/Sub work division
Piece-Work	Work status
Side-Business	Presence/absence of side-business
Home-based Work	Work location
Venture Business	Years from start-up, work status, industry, organizational form, etc
Micro Business	Industry, occupation, work status, firm size, organizational form, etc
SOHO	Firm size, industry, occupation, work status, commute time, etc
Voluntary/Compulsory	Presence/absence of formal programs, etc

2.6 Future Issues

A major feature of the MLIT Survey 2002 is its use of an objective definition of telework. This enabled the survey to clearly demonstrate not only the number of teleworkers, but their major characteristics (see next section for a detailed discussion of the findings). Nevertheless, the survey was unable to provide an explicit answer to the crucial question: to what extent do flexible work styles, free from both work-hour and workplace constraints, actually prevail in Japan. Further work also remains to be done regarding how telework differs essentially from existing work styles. The following sub-sections explore possible related improvements to the survey instrument.

2.6.1 Salaried Teleworkers

In order to fully understand the status of corporate telework implementation, it is important to ascertain the presence/absence of formal home-based work and other discretionary work programs, the respondent's eligibility for such telework programs, the respondent's actual use of such telework programs, and the use of out-of-hours telework (so-called take-home telework).

The MLIT Survey 2002 captured much of this information in its Follow-Up Survey 2, but in order to clarify the relationship between the existence of telework programs, the day-to-day management thereof, and take-home telework, a follow-up survey of non-teleworkers would seem desirable.

2.6.2 Self-Employed Teleworkers

As already mentioned, the MLIT Survey 2002 adopted the approach that telework did not refer to a specific work style, but to the application of ICT in all aspects of labour, especially as a change agent for the use of time and space. With regard to the self-employed, however, they already enjoy discretion over where and when they work. If the use of ICT has changed how the self-employed work, it is probably by creating occupations where "ICT allows most of the work to be done remotely". For the self-employed sample, then, it is not the use of hours and work location, but rather a detailed examination of industry and occupation, as well as the extent of ICT usage that would most likely uncover changes in work style. Future surveys, therefore, need to probe deeper to uncover new occupations that have been made possible by the use of ICT as well as how the use of ICT has changed existing occupations.

2.6.3 The Survey Population

The MLIT Survey 2002 limited its sample to workers. As a result, it was unable to shed light on differences in work practices by out-of-work ICT users and non-users. Including the out-of-work in the population would

necessitate the use of a far larger sample, but should nevertheless be considered in future survey design.

3 SURVEY FINDINGS

This section outlines the major findings from the MLIT Survey, its primary focus being on the Main Survey 1. It will first look at overall trends, then describe in detail major characteristics of the teleworker sample.

3.1 Telework Population

According to the MLIT Survey 2002, the number of regular (more than 8 hours/week) salaried teleworkers in Japan as of 2002 was 3.11 million, or 5.7% of all employed workers, and regular self-employed teleworkers 0.97 million, or 8.2% of all self-employed workers. Accordingly, total regular teleworkers in Japan, excluding those not classified as either employed or self-employed, as of 2002 was 4.08 million, or 6.1% of all workers (Table 8). Table 7 also provides results for occasional teleworkers (or “broad-definition teleworkers”), but the following discussion will be mainly confined to the regular subset. While an exact comparison is not possible, the divergence in broad trends between Europe (ECaTT figures) and Japan should be noted. In other words, while regular telework outnumbers supplementary telework in Europe, the reverse is true in Japan (Table 9).

Table 8 Japanese Telework Population

Regular Salaried Teleworkers	3.11 million (5.7%)
Regular Self-employed Teleworkers	0.97 million (8.2%)
SUB-TOTAL	4.08 million (6.2%)
Occasional Salaried Teleworkers	4.43 million (8.0%)
Occasional Self-employed Teleworkers	1.91 million (16.0%)
SUB-TOTAL	6.34 million (9.5%)
TOTAL	10.42 million (15.6%)

N.B. Regular = 8 or more hours/week; Occasional = Less than 8 hours/week

Total excludes respondents not classified as employed or self-employed.

Table 9 Comparison of European (2000) and Japanese (2002) Telework Populations

(as % share of total labour force)

	Regular TW*	Supplementary TW*	TOTAL
Finland	10.8	6.0	16.8
Sweden	8.0	7.2	15.2
Netherlands	8.3	6.3	14.6
Denmark	6.6	3.9	10.5
UK	4.8	2.8	7.6
Germany	4.4	1.6	6.0
Ireland	1.9	2.6	4.5
Italy	2.9	0.7	3.6
France	2.3	0.6	2.9
Spain	2.0	0.8	2.8
10-EU Average	4.1	2.0	6.1
JAPAN	5.8 [#] (6.1)	9.1 (9.5)	14.9 (15.6)

* Regular telework = more than 1 day/week; Supplementary telework = less than 1 day/week

Japanese results recalculated as percentage of total labour force (original results in parentheses)

N.B. Compiled by Japan Telework Association and NLI Research Institute

Another interesting trend is that, of the 4.08 million regular teleworkers, 3.13 million were from the three major urban centres of Greater Tokyo, Greater Nagoya and Greater Osaka, Tokyo accounting for almost two thirds (1.95 million). Bearing in mind that salaried teleworkers accounted for 7.6% of all employees in Greater Tokyo and 15.3% of all self-employed workers in Greater Tokyo, it seems clear that Japanese teleworkers are concentrated in major urban areas rather than spread evenly throughout the archipelago.

3.2 Gender Breakdown

Men accounted for the majority of both salaried and self-employed teleworkers (77.7% and 64.0% respectively), although women represented a higher share of self-employed than salaried teleworkers (36.0% versus 22.3%).

3.3 Work Status and Income Distribution

Work was the main occupation for 88.9% of salaried teleworkers (males 96.2%; females 31.7%), and 72.7% for self-employed teleworkers (males 97.0%; females 29.7%). while 64.9% of self-employed females cited home

obligations as their main occupation. To date, the popular image of self-employed teleworkers has been females squeezing work in between family and child-care obligations. The results of the MLIT Survey 2002 clearly show, however, that work is the main occupation for almost 30% of self-employed female teleworkers. This suggests that classifying workers by main/sub occupation is more appropriate than by gender.

An analysis of income also suggests that self-employed teleworkers fall into two distinct groups. Whereas salaried teleworker income distribution more or less traces a bell curve peaking at ¥5-7 million, the income distribution for self-employed teleworkers was bi-polar, concentrated around the ¥0.5-1 million and ¥3-4 million marks.

3.4 Age

The average age of salaried teleworkers was 39.2 years as opposed to 47.5 for self-employed teleworkers. Bearing in mind the data on length of career, it seems likely that self-employed workers are adopting ICT for existing businesses rather than ICT triggering a flurry of venture start-ups by older workers.

3.5 Industry & Occupation

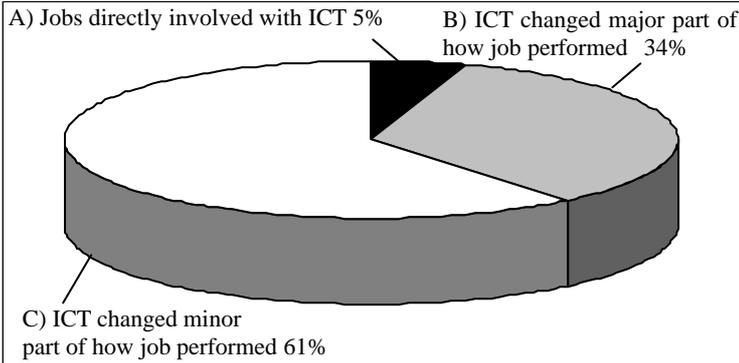
The top three industrial affiliations for salaried teleworkers were manufacturing (19.7%), services (18.6%) and wholesale/retail (12.4%). The corresponding figures for the self-employed were services (27.6%), education (13.5%), and manufacturing (11.6%). While sales and office work were the most frequently cited occupations for salaried teleworkers (20.8% and 19.7% respectively), professionals/specialists (28.9%) and engineers (18.7%) topped the list for the self-employed, with primary industry occupations accounting surprising around 10%.

In the Follow-up Survey 3 (self-employed teleworkers), the occupations cited by respondents (free response) were grouped into three categories according to their degree of ICT dependence (Table 10). It is clear that approximately 60% of self-employed teleworkers fell into Group C, which is a direct result of the survey design, that is unlike previous population surveys, the MLIT Survey 2002 did not screen out certain industries or occupations a priori. To date, the prevailing image of so-called SOHO workers was of home-based workers who fell into Groups A and B, but the MLIT Survey 2002 indicates that these are, in fact, in the minority (Figure 2). Naturally, this finding has considerable implications in policy terms.

Table 10 Job Groups by Degree of Work ICT Dependence (Self-Employed Teleworkers)

[A]	Jobs predicated on the diffusion and use of ICT (Jobs directly involved with ICT, e.g. website design, programming, etc.)
[B]	Jobs where the diffusion of ICT has changed a major part of how that job is performed (Formerly paper-based jobs, e.g. design, finance etc.)
[C]	Jobs where the diffusion of ICT has changed a minor part of how that job is performed (Jobs directly handling physical goods or dealing directly with clients, e.g. agriculture, transportation, retail sales, etc.)

Figure 2 Respective Share of Job Groups by Degree of Work ICT Dependence (Self-Employed Teleworkers; n=85)



N.B. Broad-definition self-employed teleworkers

3.6 Work Hours & Telework Hours

This section considers just how flexible teleworker work styles are in terms of how long and when they work. The first significant finding here is that the average hours worked per week by salaried teleworkers (50.9 hours) outnumbers that of self-employed teleworkers (42.7 hours), as well as that of all workers in general (43.6 hours). Additionally, the most frequently cited time of day for telework by salaried teleworkers was between 21:00 and 24:00. Moreover, just under 70% also reported that they teleworked out of normal business hours. For self-employed teleworkers, time zones were spread more evenly throughout the day, concentrated in the three time slots of

09:00-12:00, 12:00-15:00, and 15:00-18:00..

Including broad-definition teleworkers in the hours teleworked analysis, the number of salaried respondents teleworking less than eight hours per week totalled just under 70% and just under 60% for the self-employed. Bearing in mind work location, which will be discussed in the next section, it seems likely that the rapid diffusion of ICT does not mean that Japanese salaried teleworkers are working at home for one full day a week, but are engaged in take-home telework.

3.7 Work Location

Regarding where salaried workers use ICT in the course of their work (multiple response), 60% cited a combination of “administratively assigned work location” and “home”, with “mobile” and “client premises” accounting for just under 30%. When working at home, the most popular location was the “living room”, followed by “own room (including one-room apartments)”, “dedicated study”, “bedroom” and “family room”. It is clear from these responses that Japanese teleworkers telework even if no separate space is available to them. Regarding evaluations of work locations, fully 74.0% found their available space “satisfactory” with only just over 20% responding “small”.

Over 80% of self-employed teleworkers, on the other hand, cited the home as the main place of telework with just under 30% citing “administratively assigned work unit location”. While just over half (51.5%) found their available space “satisfactory”, 42.7% thought it “small”. The ideal work location for self-employed teleworkers was “home” (46.6%), followed by “outside rental office” (27.4%), which suggests the existence of two groups: those who prefer working at home and those who want to separate home and work life.

This discrepancy between salaried and self-employed teleworkers’ satisfaction with their work spaces is most likely closely linked to the actual length of time teleworked, the shorter the time teleworked, the less proclivity there is to dissatisfaction and vice versa.

4 TELEWORKER ISSUES

4.1 Salaried Teleworkers

Approximately 60% of salaried teleworkers answered that they teleworked “at their own discretion” with only just over 30% citing the existence of a formal, in-house telework program. Looking at career seniority, line officers accounted for some 30%, as did the combined total of “executives”, “middle managers” and “junior managers”. It is evident, therefore, that even in the absence of formal telework programs, a broad range of workers telework.

Regarding why they started teleworking, the most frequently cited reason was “in order to cut travel time and become more time efficient”, followed by “it is easier to maintain a more regular diet and I get less tired if I do my overtime work at home instead of the office”, “I was ordered to” and “in order to place more importance on home life and communication with my family”.

When queried about their employer, more than 60% said their companies were “pursuing work efficiency and cost-cutting measures”, followed by “reviewing existing businesses” and “hiring/retaining excellent staff”.

The top advantages (effects) of telework were cited as “greater productivity/work effectiveness”, “less physical and mental fatigue”, and “less stress and pressure”. Other relatively new factors cited included the establishment of ICT-enabled communication and information sharing rules, as well as smoother communication (Table11).

Table 11 Top Five Advantages (Effects) for Salaried Teleworkers (n=91)

RANK	ITEM	(%)
1	Greater productivity/work effectiveness	45.4
2	Less physical and mental fatigue	34.7
3	Less stress and pressure	21.5
4	Easier family communication	20.0
5	ICT-related rules put in place, making work smoother	20.0

The most frequently cited challenge when teleworking was “hard to keep work and non-work hours separate”, followed by “easy to overwork” (Table 12).

Table12 Main Challenges for Salaried Teleworkers (n=91)

RANK	ITEM	(%)
1	Hard to keep work and non-work hours separate	49.3
2	Easy to overwork	31.4
3	Lack of right housing and community infrastructure	23.2
4	Family distractions	22.8
5	Hard to evaluate work results	18.7

From the above, it is clear that Japanese companies are using ICT to improve cost efficiency and business response speed, and in this context, a number of workers are choosing more temporally and spatially flexible work

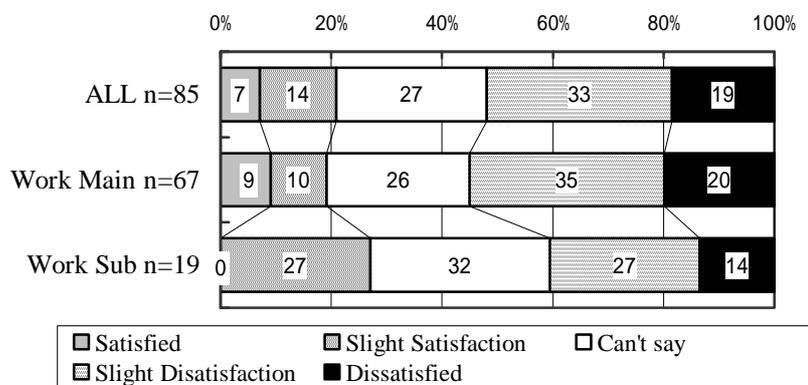
styles of their own accord. On the other hand, the survey results show a high level of satisfaction with job content and job worth. Based on this situation of highly committed workers across a broad spectrum of job ranks engaged in telework, it would seem advisable that telework be clearly positioned as part of corporate management systems and a “qualitative improvement” be made in the telework implementation environment. Key points here would be ensuring that senior management is aware of the use of telework up to and including middle-management levels as well as incorporating telework as a formal in-house program.

4.2 Self-Employed Teleworkers

Previous work experience explains many of the individual reasons for choosing an independent, self-employed or freelance style of work among self-employed teleworkers. While those who claimed work as their main occupation cited a number of positive, work-centred reasons including “I wanted to work at my own discretion” and “I had a specific goal”, those for whom work was their secondary occupation focussed more on daily life and work flexibility, including “I wanted to have control over the hours I worked” and “I wanted to work at home”.

Results from the MLIT Survey 2002 show self-employed teleworkers to be concerned over income and work stability. For those who claimed work as their main occupation, “slight dissatisfaction” was the single highest cited income response, with the combined total of “slight dissatisfaction” and “dissatisfied” accounting for more than half (Figure 3).

Figure 3 Income Satisfaction (Self-Employed Teleworkers)



The overall level of satisfaction with work stability was low for both the work as main occupation and secondary occupation subsets. Regarding the latter group, responses were split evenly between “Can’t say” and “Dissatisfied” with virtually no-one citing satisfaction (Figure 4).

Figure 4 Work Stability Satisfaction (Self-Employed Teleworkers)



The top incidents of trouble experienced by self-employed teleworkers were “forced to cut rates”, “work cancelled unilaterally” and “work unpaid due to client bankruptcy”. These would indicate the need for support in the areas of business promotion, client cultivation, standard contract rates and fair transaction practices.

The top advantages of using ICT for all independent, self-employed or freelance workers were “low commute burden” and “more free time for hobbies and leisure” (Table 13). Differences were discernible, however, between the work-as-main/secondary occupation subsets. For those who claimed work as their main occupation, the top advantage was “more free time for hobbies and leisure”, followed by “easier family communication” and “greater productivity/work effectiveness”.

Table 13 Main Advantages for Self-Employed Teleworkers (n=85)

RANK	ITEM	
1	Less commute-related physical and mental fatigue	60%
2	Easier family communication	55%
3	More free time for hobbies and leisure	53%
4	Less stress and pressure	31%
5	More time-management awareness	13%

As was the case with salaried teleworkers, the most frequently cited challenge when teleworking was “hard to keep work and non-work hours separate”, but the emphasis on “operating ICT equipment” as a source of trouble was unique to this group (Table 14). Once again, differences were identified between the work-as-main/secondary occupation subsets. For those who claimed work as their main occupation, more than 40% cited “easy to overwork”, whereas only 5% of the work-as-secondary-occupation group did so. Other issues cited by the work-as-main occupation group included “unable to use ICT equipment well” (just under 60%) and “daily-life routines interrupt work” (approximately 40%).

Table 14 Main Challenges for Self-Employed Teleworkers (n=85)

RANK	ITEM	
1	Hard to keep work and non-work hours separate	58%
2	Easy to overwork	33%
3	Operating ICT equipment	30%
4	Family distractions	23%
5	Inadequate social welfare	20%

4.3 Future Issues

While a broad consensus undoubtedly exists concerning the advantages telework offers in a climate of rapid ICT diffusion, there is a dearth of information available on the impact of telework on management and “tele-managers”. A more qualitative approach to ascertaining telework’s management effects, including career development and information security, would also be useful.

In the domain of self-employed telework, the MLIT Survey 2002 has gone some way in clarifying the reasons for and advantages/challenges of teleworking. More specific examination on industrial, occupational, and business-stage differences would be a welcome addition to the extant body of knowledge.

A final but somewhat disappointing aside is that the Main Survey 1 asked respondents about the familiarity of related terminology, including “telework”, “telecommuting”, “home-based work” and “SOHOs”. Unfortunately, respondents were the least familiar with the term “telework”, only around 30% of those actually teleworking being familiar with the term.

5 FINAL COMMENTS

As has been outlined above, the MLIT Survey 2002 made a conscious effort to create a rigorous survey instrument, building on the work of the Japan Telework Society’s Population Study Group and advice from the expert panel convened under the auspices of the Study Survey on Comprehensive Support Measures for Regional Revitalization through the Promotion of Telework and SOHOs. Not only is it unique in that it tapped a national sample, it has the potential of acting as a standard survey model for future population surveys in Japan. This should facilitate longevity analyses and cross-survey comparisons, thereby adding to the body of extant telework knowledge. As traditional forms of employment erode, it will be increasingly important to focus on the size of non-salaried teleworkers. Any population survey, therefore, needs to incorporate diverse worker statuses in its design, and the MLIT Survey 2002 is the first rigorous Japanese attempt to do so.

The results of the survey have also cleared up several long-standing misconceptions, not the least of which being that women form the majority of self-employed teleworkers, and that salaried telework is confined to a select group of workers, mainly in R&D and sales. It has also shown that while there is a strong base for telework in Japan, the incidence of regular telework is still low compared to that of Europe, for example, and much takes place out of regular work hours. Future research and public policy efforts would, therefore, best be directed at improving the overall “quality” of Japanese telework. Key topics in this relation are most certainly stemming the growing corporate use of telework as extra “take-home” work and providing greater support for self-employed teleworkers in terms of fair business practise as well as health and skill management.

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