

Practicing Mobile Professional Work: Tales of Locational, Operational, and Interactional Mobility

Masao Kakihara

School of Business Administration
Kwansei Gakuin University
Hyogo, Japan

Email: kakihara@kwansei.ac.jp

Carsten Sørensen

Department of Information Systems
London School of Economics and Political Science
London, United Kingdom

Email: c.sorensen@lse.ac.uk

Abstract: Fuelled by strong market forces as well as by increasingly ubiquitous and pervasive mobile technologies, the end of the previous and the beginning of this century has seen shifts in working practices and the application of mobile technologies. One such change concerns the work of professionals. This paper aims to discuss the emergence of the mobile professional, through a field study of more than sixty professional workers in Tokyo during 2002. The paper concludes that we must broaden our conception of mobility and conceptualise mobile professional work in terms of locational, operational, and interactional mobility. Furthermore, some implications for a new design of mobile professional work and technology use are drawn from the analysis of the field study: ICT as mobility-booster; maintaining multiple on-going interactions; the importance of personal networks; and places as material foundations for interaction.

Keywords: Mobility, Professional Work, Technology use, Japan

This paper is a draft of the paper published at *INFO – The Journal of Policy, Regulation and Strategy for Telecommunications*, Vol.6 No.3. pp. 180-186 (September 2004). Do not cite or refer this version.

1. Introduction

The last two decades have seen rapid adoption and intense use of various information and communication technologies (ICTs) as an essential foundation for business activities. It is clear that although ICTs have not changed the basic nature of their businesses as dramatically as anticipated, newly developed ICT solutions such as groupware, ERP and video conferencing have offered the firms various alternative options for restructuring their business activities. Presently, we are witnessing the advent of the mobile and wireless technology era influencing contemporary businesses and organisations. Although mobile technologies such as mobile phone and personal digital assistants (PDAs) were first developed as consumer products rather than business solutions, a number of innovative firms are adopting those technologies for restructuring their business processes and organisational forms.

The aim of this paper is to explore the emergence of a new kind of contemporary professional workers, *mobile professionals*, and their use of ICTs in their everyday work practices. Although various kinds of professionals have played an important role in contemporary business, they are likely to be a “neglected workforce” (Barley and Orr, 1997) who recedes from the ‘front stage’ of management and business studies. One of the reasons for this could be that most of these professionals are ‘outsiders’ to the organisations in which they work. They perform their jobs independently and bring their distinct skills and expertise to organisations on an *ad-hoc* basis. Since business activities are becoming more and more “knowledge-intensive” (Alvesson, 1995), effective utilisation of external experts who can bring distinct expertise to the organisation is increasingly important for organisations. Furthermore, a blurring of formal organisational boundaries can be observed as a result of more flexible and fluid modes of organising and of the uptake of interaction technologies (Kakihara and Sørensen, 2002). The characterisation of organisational membership in terms of people being ‘outside’ or ‘inside’ the organisation is therefore increasingly difficult when the notion of organisation is based on economic transactions as opposed to the operational aspects of collaborative activities based on mutual interdependency (Schmidt, 1994).

Based on a field study of more than sixty mobile professionals in Tokyo, Japan during 2002, we propose in this paper the following three essential aspects of mobility in mobile professional work: *locational*, *operational*, and *interactional* mobility. In short, the nature of contemporary professional workers in urban areas cannot be fully appreciated in terms only of their extensive geographical movement, but rather should be taken from a broader perspective shedding a light also on operational and interactional aspects of their work practices.

In the following sections, firstly the historical background of contemporary professional work is addressed, and then the results of the field study, particularly three focus cases of the mobile professionals, are briefly presented. Finally, the analysis of the results and some implication for a new design of professional work and technology use are discussed.

2. The Rise of the Mobile Professional

To be a professional is not at all a new occupation. Among the oldest professionals would be the clergy and teachers, although they must not have been called or even recognised as professionals at the time. Architects also have a long history of contributing to society as professionals with their expertise of designing and constructing buildings. However, we in the contemporary society can see much more diversified kinds of professionals, including accountants, designers and artists, writers, doctors and nurses, engineers, lawyers, pharmacists, psychologists, counsellors, social workers, scientists, librarians, professors, urban planners, and so on. As Schön (1983) argues, professionals have become “essential to the very functioning of our society” (p. 3).

However, the existing research has tended to study professionals only *within* a certain organisation, be it private or public. As a result, professionals working *independently* have been largely neglected in contemporary research on professional work. Obviously, most of the ‘modern’ professionals have been deployed within an organisation. As Whalley and Barley (1997) argue, the need for the professionals’ expertise was “created” in response to changes of inner conditions of the firms. However, in the light of today’s turbulent business environments, addressing only professionals inside the organisational structure clearly does not suffice. In fact, during the last two decades we have seen a rapid growth of workers who are independent of a formal organisation and, in many cases, do their jobs on a freelance and contract basis and establish ongoing relationship with several different client firms (Segal and Sullivan, 1995; 1997). And most of them are knowledge-based rather than material-based professionals such as consultants, designers, writers, journalists and planners of various kinds (Meager, 1992). They live on their lives by selling their own distinct skills, knowledge and/or tangible and intangible products they make to firms.

The emergence and rapid growth of such ‘post-modern’ professionals freed from conventional employment relationships is becoming a critical factor in contemporary business environments, especially in knowledge-intensive sectors. Yet surprisingly little research has been done on such ‘post-modern’ professionals and their work practices which are not bounded by formal organisational structures, rules and constraints but playing critical strategic roles in organisational contexts.

Among the notable exceptions is Malone and Laubacher’s (Laubacher and Malone, 1997; Malone and Laubacher, 1998) work. Seeing Linux open source community’s success, the emergence of virtual companies, the rise of outsourcing and telecommuting and the proliferation of freelance and temporary workers, they found that electronically connected freelancers, whom they call *e-lancers*, actively joined together into fluid and temporary networks of business to produce and sell goods and services. This kind of independent professional workers can be seen at the forefront of the contemporary business environment.

Although independent professionals outside organisations have already existed in various forms such as lawyer and accountants since the middle of the twentieth century, they have remained quite small volume compared with workers employed by a certain firm including both white- and blue-workers. This is mainly because, as traditional economic theories of organisation suggest, firms have benefited from internalising a wide range of labour forces into the formal organisational structure and placing them in the same, fixed locations such as offices and factories to effectively manage them in a centralised manner. In other words, the firms have seen it costly and risky to utilise people who are outside of the organisational boundaries and largely distributed in a wide area due to limited communication and coordination technologies in the industrial age such as trains, cars, telegraph, fixed telephone, and mainframe computers. In consequence, the firms have remained large.

However, with the introduction of powerful and reasonably affordable personal computers, laptops and software, the internet, web-based technologies such as email, mobile phone and PDAs, the firms have become capable of coordinating their business processes and utilising the outside workers, particularly those who have distinct skills and expertise. They no longer have to hold a large number of permanent workers inside the organisations for the sake of centralised coordination of business processes (Malone et al., 1987). Many of the highly skilled people in firms are actually spinning out and finding their workplaces outside of the firms, since being free and independent can provide them with much larger benefits such as gaining more reward for their work and managing their career and lives more flexibly than staying inside the firms. Some of those people are getting together and forming a loosely bounded, partnership based organisation such as a consulting firm and a design studio, but each of them still keeps much more autonomy and freedom than professionals inside the firms. Therefore, considering these shifts occurring around the ‘post-modern,’ *mobile professionals* and their impacts upon contemporary business activities, we must give careful consideration into how such professionals work *with* organisations and how particular ICTs are utilised in their everyday work practices.

3. Mobile Professionals in Tokyo

Tokyo, Japan is a particularly unique place to study mobile professionals primarily for two reasons. First, the *distinctive institutional background* of Tokyo is particularly interesting with a work environment distinctly different from that of Western countries. The Japanese corporate system has typically been associated with three institutionalised traditions: lifetime employment; promotion by seniority; and the enterprise union system (Aoki and Dore, 1996). There is also still widely persistent steep vertical structuring as well as administrative and corporate bureaucracy (Nakane, 1983). Within such a distinctive world, almost all Japanese professionals have been employed by the government or large corporations, which led to the highly elitist internal structure of organisations. Such institutional distinctiveness of the

Japanese work environments could benefit us in understanding actual opportunities, problems, obstacles, and hopes that emerging professional workers are currently faced with much more clearly and contrastively than looking at those in Western contexts.

Second, Japan's *unique and advanced technological environment* is also critical for the choice of fieldwork location. It is widely recognised that Japan has enjoyed advanced technological innovations that resulted largely from Japanese industries' strength in R&D and manufacturing of technical devices, systems, and large infrastructures. Japan is in the middle of dramatic technological innovation and diffusion of mobile technology (Rheingold, 2002). Such a unique technological environment potentially influences Japanese mobile professionals' work practices. The specific socio-technical environment in Tokyo, therefore, makes it a highly suitable setting for studying the emerging realities of mobile technology use.

Having considered these facts, we conducted a field study involving semi-structured interviews and ad-hoc observation of sixty-two mobile professionals from April to July 2002 in Tokyo. The occupation of the informants includes independent consultants, entrepreneurs, marketing planners, designers, journalists, marketing planners, architects, freelance producers, and some others. Here, *three* distinct cases of the mobile professionals are chosen for closer examination¹.

Case A: Independent town planning consultant

Jun², 38, started his independent consulting business in 2000. His main consulting field is town planning for small and medium-sized municipalities. He works alone with no employees but collaborates with many people including other consultants and developers. The majority of his current clients are small- and medium-sized municipalities, mainly in rural areas hundreds miles away from big cities such as Tokyo and Osaka.

He finds the high degree of mobility in his work activities the most conspicuous advantage as a professional worker. Town planning projects typically require the project members to see the actual site in which a certain plan is implemented. He also argues that visiting the site and seeing it with his own eyes is crucial for the town planning business, since the observation of the site offers invaluable data and insights for the project. Particularly acquiring a subnote PC and a mobile phone changed his way of working dramatically. With his mobile phone, he became able to easily contact and be contacted by his clients and co-workers in virtually (not completely) anytime, anywhere. The subnote PC connected with the mobile phone provided him with almost the same PC environment during business trips and site observation.

His work practices clearly show two basic patterns of geographical movements. First is the

¹ Complete analysis and discussion of this research is presented in Kakiyama (2003).

² All names have been changed to protect privacy.

long-distance travel. He follows a working style where he can spend a considerable amount of time in the actual sites where his clients' problem issues reside. Most of his clients are local governments in areas far away from Tokyo. Therefore, it is inevitable that he frequently travels hundreds of miles for a visit and explores the sites physically. Second is the *intensive local travel.* He moves around the Tokyo area intensively to meet his clients and other members of the projects, since meeting those people fact-to-face is extremely important for his business. In such local travel, he usually uses underground trains, taxis as well as walking. Just like moving around Tokyo, he also travels intensively in and across the local areas when visiting the clients' sites.

Case B: Freelance CG designer

Yoshi, 35, is working as a freelance CG designer in Tokyo. He uses a room in his home in central Tokyo as his workspace where he makes almost all his design work. After graduating from a university with a degree in graphic design, he got a job in one of the biggest design firms in Japan. Having worked as a graphic designer for eight years in the firm, he became freelance five years ago. He is an expert of 3-dimensional CG (3D-CG) design but most of the revenue of his work comes from projects relating to website design and coding. He gains most of his revenue from website design work offered by music production companies.

Due to the nature of CG design, he spends a considerable amount of time in front of the computers in this room. In this regard, he is mostly a static home-worker. However, he engages in intense interaction with people outside by actively using the Internet technologies. Particularly interesting is that his corporeal movement is largely static, sitting in a room for a long period of time, but the range of his interaction with other people through the Internet spans the globe and the patterns are significantly intense and diverse.

Even though the intense interaction with various people through the Internet greatly helps Yoshi get access to the latest information about hardware and software, he is still faced with a considerable lack of physical human interaction. In this regard, he has a special place. In 1997 Yoshi received the highly respected CG design award founded by a large entertainment company, one of the most reputable and widely known CG design awards in Japan. This company has established a special design studio in one of their office buildings in central Tokyo exclusively for the winners and finalists of the award. For Yoshi, the special design studio seems to function as a 'Ba' (Nonaka and Konno, 1998), a place where people can share a distinct context of working and exchange a variety of tangible and intangible goods. Such a place can provide people with broad opportunities for 'real' human interaction, which facilitate exchange of valid information concerning new clients and jobs. Furthermore, the studio is also a place for collaboration. Since each of the designers coming to the studio has a

distinct background and expertise of design, they can easily find each other as complementary in their design work.

Case C: E-business entrepreneur

Hiro, 35, is CEO of a small software company. After being involved in the Internet service provider (ISP) business for a few years, he founded the company in 1998. The company primarily develops entertainment software and digital contents such as network-based games on the Internet, a music-composing tool for PCs, and more recently various tools and network contents for Internet-enabled mobile phone services such as the NTT DoCoMo *i-mode* platform.

In contrast to the two previous cases, Hiro is subject to much more intense and dynamic interaction with other people. Whereas Jun and Yoshi primarily work alone and only interact with a limited number of clients and members of projects at the same time, Hiro has twenty members of staff in his company. Moreover, he is involved in constantly changing business situations where he has to interact with a diverse range of current and prospective stakeholders. In order to cope with this, he utilises the combination of email and mobile phone technologies as the primary means of managing his interaction: He forwards all incoming emails to his Internet-enabled mobile phone. In fact, during the interview, his mobile phone notified him about received emails several times, and he checked them immediately. This emphasised the fact that he was engaged in a constant flow of multiple interaction threads. For him, it proved impossible at one particular time to focus on a single interaction at hand and to exclude others. He needed to juggle multiple interaction threads by effectively using technology.

4. Three Aspects of Mobility

The close examination of the work practices of the mobile professionals clearly demonstrates that the conventional understanding of the concept of mobility cannot fully grasp the essence of emerging mobile professional work. By definition, the meaning of the concept of mobility spans a wide spectrum of humans and non-humans as well as concrete and abstract spheres. It can primarily be applied to *anything* that is in a dynamic move or transformation. However, in spite of such a wide and diverse extent of the original meaning, the concept of mobility has been traditionally understood and used quite narrowly in contemporary business and organisational contexts. For example, the concept is typically used in such forms as ‘mobile technology’, ‘mobile office’, and ‘mobile work’ being the most relevant to this research. All of these usages of ‘mobile’ refer to some sense of *geographical movement* or *remoteness from a certain fixed point or location*. The commonly used concept of mobility implies a geographical meaning of movement or being distant from a certain point. However, such usage of the concept ignores another important aspect of the original meaning referring to

transformation or *motion* of object, state, conditions, or structures. As Sherry and Salvador (2002) argue, the conventional understanding of mobile work deals only with remoteness from a specific location and largely ignores the dynamism of work as such.³

The results of the field study in Tokyo clearly demonstrate that the work practices of the mobile professionals exhibit not only an extensive geographical movement in daily work activities but also intense interaction with a wide range of people through both physical and virtual interaction means. They also show flexible operation as an independent unit of business that can be flexibly mobilized by the firms.

Based on the results, we found that the work practices of mobile professional work could be understood more fully and clearly by analysing from three interrelated aspects of mobility: *locational* mobility concerned with the workers’ extensive geographical movement, *operational* mobility in relation to their capability for flexible operation as an independent unit of business, and *interactional* mobility associated with their intense and fluid interaction with a wide range of people. The mobile professionals’ work practices display a high level of those mobilities, although the levels of mobility are uneven according to the nature of each work practice. Table 1 shows the mobilities of the professionals exemplified by the three focus cases.

	<i>Locational mobility</i>	<i>Operational mobility</i>	<i>Interactional mobility</i>
A: Town planning consultant	++	+	+
B: Freelance CG designer		++	+
C: Software entrepreneur	+		++

Table 1: Mobilities of mobile professionals in the three focus cases

‘++’ implies a high degree and ‘+’ a moderate degree of mobility

For example, the work practice of the independent town planning consultant involves high levels of all aspects of mobility. The locational mobility of Jun’s work is particularly high: he worked across extensive geographical areas and demonstrated various modes of mobility such as *travelling*, *visiting*, and *wandering* (Kristoffersen and Ljungberg, 2000). His style of

³ There are some notable exceptions such as Luff and Heath (1998) and Wiberg (2001).

working in terms of such extensive geographic movement is most typically seen as ‘mobile’ work in a conventional sense. However, when taking a close look at his work practices, we also found relatively high levels of other aspects of mobility. In terms of operational mobility, his business of town planning consulting encompasses a high degree of mobility as an independent business unit. He primarily works alone and employs no formal members of staff, but acts as a distinct project unit in various forms such as a consultant, a planner, a facilitator of local events, an outside advisor for local governments, and so on. In this sense, his work operation would hold a relatively high level of operational mobility, although he of course has to collaborate with other stakeholders in actual projects. Furthermore, his interaction with other people appears quite intense. He constantly interacts with various members of a project including client members, business partners such as major construction companies and media companies, and other professional workers such as architects and promotion planners. The ways in which he interacts with them also varies widely, from face-to-face to mediated interaction through the Internet. Thus interactional mobility of Jun’s work practices is also high.

In the case of the freelance CG designer, Yoshi, work practices distinctively show low degree of locational mobility, working at home for long periods of time. The level of operational mobility is, however, significantly high. As discussed previously, CG design work is increasingly unbundled from operational structures of large corporations. In his case, the music companies are seeking and utilising skilful freelance CG designers like Yoshi to constantly create and update a number of artists’ websites every month. In this kind of business environment, Yoshi can serve as an independent business unit outside of the established organisations. It can thus be argued that his work practices involve a significant level of operational mobility. Moreover, when considering the way Yoshi interacts with people, it can be characterised by a relatively high level of interactional mobility. By actively utilising various Internet technologies and applications, he intensively interacts with not only his clients but also various people on the Internet, most of whom he has never met before. In terms of such a virtually conducted and intense interaction, Yoshi’s work practices exhibit highly mobile and fluid features of interaction.

Finally, the case of the software entrepreneur, Hiro, shows a particularly high level of interactional mobility. On a daily basis, he constantly has to manage intense interaction from a significant number of stakeholders, including twenty members of staff in his company and external business relations. Furthermore, the locational mobility of his work practices is also quite high in that he frequently goes out to meet people and to collect information in the field, for example in shops and on the streets of Tokyo. However, the operational mobility in his work practices is relatively low. Being CEO of a small company, his work activities are inevitably restrained to large extent by various explicit and implicit conditions and obligations to keep the company’s business running.

As seen above, the most fundamental finding from the field study on the mobile professionals is that the conventional understanding of the concept of mobility cannot explain the dynamic and diverse aspects of their actual work practices. As typically seen in various existing debates on mobile work such as Kristoffersen and Ljungberg (2000) and Bellotti and Bly (1996), the concept of mobility has been understood in terms only of the worker's geographical movement in their work activities. There is no doubt that contemporary mobile work is characterised by extensive geographical movement of the workers. Yet the concept of mobility originally holds much more diverse meanings referring to dynamic transformation of not only humans but also non-humans such as objects, information, conditions, and structures. Hence we should discuss the emerging mobile work from a broader perspective that can shed a light upon other aspects of mobility.

5. Implications for a New Design

From the extended conceptual lens discussed above, which sheds a light upon not just locational but also operational and interactional mobility, various new insights of mobile professionals and their everyday work practices can be drawn. In this final section we conclude this paper with a brief discussion of four implications for a new design for mobile professional work and technology use.

ICT as mobility-booster

As we have seen in the three cases, ICTs play various roles in their work practices. The mobile phone and the subnote PC provide the professional workers with the continuity of work environment for PC usage and the stability of communication access, which hence maintain a high level of locational and interactional mobility. Internet technologies and applications are particularly important, supporting his intense interaction with people. The Internet has been typically understood as a means for information gathering, but it can also function as facilitating interaction with people, coordinating interpretation of issues, and supporting human relationship (Sørensen and Kakihara, 2002). It is also clear that ICTs, particularly mobile technology, play a critical role in supporting mobility of work practices in general and locational and interactional mobility in particular. The combination of the Internet-enabled mobile phone and email forwarding provides the professionals with an ability to manage the intense interaction effectively even when on the move.

It is, however, important to look at actual work practices embedded in a local context to appreciate the significance of the utilisation of ICTs. The impact of a particular technology on work might vary significantly depending upon what condition and occasion it is actually used. For example, the mobile phone has been typically regarded as enhancing locational mobility of users' activities by affording them stable communication access irrespective of location. However, such stable and constant access may hinder the users' locational and operational

mobility due to the overwhelming amount of interaction they are exposed to. As Suchman (1987) argues, human interaction is inherently situated in a particular context that recursively frames and is reframed by the actual practice of action.

Maintaining multiple on-going interactions

Mobile professionals being subject to intense interaction with a number of people are coping with *multiple on-going interactions*, rather than single, sporadic interaction. Issues around human interaction have attracted the attention of many scholars in a wide range of research fields concerned with technology including CSCW, Computer Mediated Communication (CMC), sociology of interaction, and workplace studies. However, with a few exceptions (e.g. Ishii and Miyake, 1991; Whittaker et al., 1997; Wiberg, 2001), most of the research has focused upon ‘one-shot,’ sporadic interaction taking place one by one, be it face-to-face or mediated. However, when closely considering the cases where the mobile professionals show high levels of interactional mobility such as Jun and Hiro, it is apparent that they frequently face occasions where they have to manage and sort out different kinds of interactions simultaneously. In the work practices of mobile professionals, particularly having a high level of interactional mobility, the workers are subject to an increasing need for dynamic negotiation of multiple threads of ongoing interaction.

The importance of personal networks

The mobile professionals’ work practices are heavily dependent upon personal human networks that have been built through collaborative work activities in the past. Work practices build and enact personal networks, which in turn support future effective work practices. Nardi et al. (2002) address in detail the increasing importance of what they call “intensional networks” in contemporary work environments. Whilst such networking practices have been seen in a limited number of project-based industries such as film production and music, Nardi et al. argue that the importance of personal networks is also rapidly increasing in corporate life in general. Mobile professionals heavily depend upon such intensional networks in their everyday work practices more than ordinary workers, since work practices of mobile professionals inherently cross team, group, and organisational boundaries. Since mobile professionals usually cannot or are not willing to have strong and widespread institutional and infrastructural supports from organisations for their everyday work practices, they seek to build and maintain their own personal networks, which penetrate a number of organisations, for keeping their businesses running. For them, personal networks are not merely networks of friends but rather an essential social foundation for current and future collaboration.

Places as material foundations for interaction

The results of the field study also indicate that in spite of the increasing prevalence of

technologically mediated and virtual interaction with people in work environments, physical spaces where people can meet face-to-face still holds an important function for mobile professional work. The office space can be a place for the material foundation of their work practices supporting and facilitating informal interaction. As Orr (1996) argues, such informal interaction can create various ad-hoc collaborations amongst the workers. Various realities around the mobile professional work resulting from increased mobility in locational, operational, and interactional aspects of work practices tend to make us believe that most of their interaction can be established through technologically mediated ways. On the contrary, a specific place or location still plays critically important roles to support and facilitate their everyday work practices.

Acknowledgement – This research was partly funded by the Daiwa Anglo-Japanese Foundation, through the Japan Foundation Endowment Committee, and the Matsushita International Foundation.

References

- Alvesson, M. (1995). *Management of Knowledge-Intensive Companies*. De Gruyter, New York.
- Aoki, M. and R. Dore (1996). *The Japanese Firm: The Sources of Competitive Strength*. Oxford University Press, Oxford,
- Barley, S.R. and J.E. Orr (1997). *The Neglected Workforce*. In *Between Craft and Science: Technical Work in U.S. Settings*. (S.R. Barley and J.E. Orr eds.) Cornell University Press, Ithaca. pp. 1-19.
- Bellotti, V. and S. Bly (1996). *Walking Away from the Desktop Computer: Distributed Collaboration and Mobility in a Product Design Team*. In *Proceedings of the ACM 1996 Conference on Computer Supported Cooperative Work (CSCW '96)*. ACM Press, Boston, MA, USA. 16th-20th November 1996.
- Ishii, H. and N. Miyake (1991). *Toward an Open Shared Workspace: Computer and Video Fusion Approach of Teamworkstation*. *Communications of the ACM*. Vol.34, No.12, pp. 37-50.
- Kakihara, M. (2003) *Emerging Work Practices of ICT-enabled Mobile Professionals*. Unpublished PhD dissertation submitted to Department of Information Systems, London School of Economics and Political Science, UK. (Downloadable at http://www.kakihara.org/papers/Kakihara_PhDThesis.pdf)
- Kakihara, M. and C. Sørensen (2002). *Mobility: An Extended Perspective*. In *Proceedings of the 35th Hawaii International Conference on System Sciences (HICSS-35)*. IEEE, Big Island, Hawaii. 7th-10th January 2002.
- Kristoffersen, S. and F. Ljungberg (2000). *Mobility: From Stationary to Mobile work*. In *Planet Internet*. (K. Braa, C. Sørensen and B. Dahlbom eds.) Studentlitteratur, Lund. pp. 41-64.
- Laubacher, R.J. and T.W. Malone (1997). *Flexible Work Arrangement and 21st Century Worker's Guilds*. MIT Sloan School of Management Initiative on Inventing the Organizations of the 21st Century Working Papers. No.004, pp.
- Luff, P. and C. Heath (1998). *Mobility in Collaboration*. In *Proceedings of the ACM 1998 Conference of Computer Supported Cooperative Work (CSCW '98)*. ACM Press, Seattle, WA, USA. 14th-18th November 1998.
- Malone, T.W. and R.J. Laubacher (1998). *The Dawn of the E-Lance Economy*. *Harvard Business Review*. No.Sep.-Oct., pp. 145-153.
- Malone, T.W., J. Yates and R.I. Benjamin (1987). *Electronic Markets and Electronic Hierarchies*. *Communications of the ACM*. Vol.30, No.6, pp. 484-497.
- Meager, N. (1992). *The Characteristics of the Self-Employed: Some Anglo-German Comparisons*. In *The New Entrepreneurs*. (P. Leighton and A. Felstead eds.) Kogan Page, London. pp. 69-99.
- Nakane, C. (1983). *Japanese Society*. Penguin, Middlesex.
- Nardi, B.A., S. Whittaker and H. Schwarz (2002). *NetWORKers and their Activity in Intensional Networks*. *Computer Supported Cooperative Work*. Vol.11, pp. 205-242.

- Nonaka, I. and N. Konno (1998). The Concept of 'Ba': Building a Foundation for Knowledge Creation. *California Management Review*. Vol.40, No.3, pp. 40-54.
- Orr, J.E. (1996). *Talking About Machines: An Ethnography of a Modern Job*. Cornell University Press, Ithaca, NY.
- Rheingold, H. (2002). *Smart Mobs: The Next Social Revolution*. Perseus Publishing, Cambridge, MA.
- Schmidt, K. (1994). The Organization of Cooperative Work: Beyond the "Leviathan" Conception of the Organization of Cooperative Work. In *Proceedings of the ACM 1994 Conference on Computer Supported Cooperative Work (CSCW '94)*. ACM Press, Chapel Hill, North Carolina. 24th-26th October 1994.
- Schön, D.A. (1983). *The Reflective Practitioner: How Professionals Think in Action*. Basic Books, New York.
- Segal, L.M. and D.G. Sullivan (1995). The Temporary Labor Force. *Economics Perspectives*. Vol.12, No.2, pp. 2-19.
- Segal, L.M. and D.G. Sullivan (1997). The Growth of Temporary Services Work. *Journal of Economics Perspectives*. Vol.11, No.2, pp. 117-136.
- Sherry, J. and T. Salvador (2002). Running and Grimacing: The Struggle for Balance in Mobile Work. In *Wireless World: Social and Interactional Aspects of the Mobile Age*. (B. Brown, N. Green and R. Harper eds.) Springer-Verlag, London. pp. 108-120.
- Sørensen, C. and M. Kakiyama (2002). Knowledge Discourses and Interaction Technology. In *Proceedings of the 35th Hawaii International Conference on System Sciences (HICSS-35)*. IEEE, Big Island, Hawaii. 7th-10th January 2002.
- Suchman, L.A. (1987). *Plans and Situated Actions: The Problem of Human-Machine Communication*. Cambridge University Press, Cambridge.
- Whalley, P. and S.R. Barley (1997). Technical Work in the Division of Labor: Stalking the Wily Anomaly. In *Between Craft and Science: Technical Work in U.S. Settings*. (S.R. Barley and J.E. Orr eds.) Cornell University Press, Ithaca. pp. 23-52.
- Whittaker, S., J. Swanson, j. Kucan and C. Sidner (1997). TeleNotes: managing lightweight interactions in the desktop. *Transactions on Computer Human Interaction*. Vol.4, pp. 137-168.
- Wiberg, M. (2001). *In Between Mobile Meetings: Exploring Seamless Ongoing Interaction Support for Mobile CSCW*, PhD Dissertation, Umea University, Sweden.