Emerging Work Practices of ICT-Enabled Mobile Professionals

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I dedicate this thesis to my son, Shuntaro, who came into this world on December 7, 2002.

Abstract

Currently, mobility is a significantly pervasive term; the concept is being widely used in multiple discussions including social, economic, political, and technological debates. However, the theoretical grounding of the concept is surprisingly unstable. This thesis aims to offer a theoretical foundation for the concept of mobility, particularly in contemporary work contexts. With support of information and communication technologies (ICTs) in general and mobile technology in particular, contemporary work activities are increasingly distributed and dynamically conducted in various locations. In such an emerging work environment, maintaining a highly level of 'mobility' is becoming critical for contemporary workers, particularly for *mobile professionals*. Based on the theoretical considerations on the concept of mobility, this thesis empirically explores the dynamic and heterogeneous nature of mobile professionals' work practices.

In order to appreciate and explain the nature of mobility in contemporary work, this thesis specifically addresses the *emerging work practices* of mobile professionals. The data collection consisting of in-depth interviews and ad-hoc observations of sixty-two professional workers was conducted in Tokyo, Japan during the summer of 2002. Informed by the results of this qualitative field study, the thesis discusses a distinct mode of mobility in mobile professional work. The mode of mobility is characterised not only by extensive geographical movement but also by operational flexibility and intense interaction in mobile professionals' dynamic work activities. Based on these theoretical and empirical discussions, this thesis aims: 1) to theoretically underpin our understanding of mobility in contemporary work contexts; 2) to offer empirically grounded implications for the post-bureaucratic, fluid organising of work; and finally 3) to advance the ongoing debate on the dynamic interplay of work, organisation, and technology.

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CHAPTER 1:

Introduction

'Mobility' is a significantly pervasive term in our contemporary society. We come across it in a variety of places such as newspapers, popular business magazines, billboard ads on the streets, and in reports and brochures. Likewise, the term 'mobile' seems equally common. It can be argued that 'mobile' is one of the currently most popular words prefixed to the various traditional terms: mobile work, mobile technology, mobile commerce, mobile office, mobile society, and so on. The rapid proliferation of the terms 'mobility' and 'mobile' in our society clearly reflects increasing attention to something that can be characterised by those terms. However, on close inspection, the terms seem to cover a diverse range of issues and phenomena without clear understanding of the domain of discourse.

Given this emerging reality, I aim through this thesis to establish a fundamental reconsideration of the concept of mobility, particularly in contemporary business and organisational contexts. This opening chapter discusses the general background of this research and outline the thesis. *Section 1.1* presents the background of this research. *Section 1.2* addresses the motivations of the research. *Section 1.3* discusses the objectives of this research and the research question. Finally, *Section 1.4* offers an overview of the structure of the thesis.

1.1. Backgrounds

The increasing attention to the concept of mobility is not an a-historical or

coincidental phenomenon. The period we are currently in is a precondition for the emerging discourses on mobility. It is widely recognised that our time can be characterised as the 'post-industrial society' (Bell, 1976), the 'post-capitalist society' (Drucker, 1993), or the 'information' age (Toffler, 1980). These conceptualisations indicate, explicitly or implicitly, that the nature of people's living and working has been radically transformed mainly through the last few decades of technological innovations. Undoubtedly, the rapid and wide diffusion of various information and communication technologies (ICTs) have greatly influenced the social transformation at large in the late twentieth century. ICTs and related technologies such as personal computers (PCs), server and client systems, local and wide area network (LAN/WAN), the Internet, the World Wide Web (WWW), email, Instant Messaging (IM), video conferencing are all dramatically altering our ways of living and working.

At the same time, intense use and domestication of those technologies are producing various outcomes and consequences. In business, firms have been attempting to utilise those technologies in order to innovate themselves, creating and maintaining competitiveness to survive. In the 1990s, they have invented novel strategic solutions enabled by ICTs, such as Business Process Reengineering (BPR), Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), and Knowledge Management (KM). In this regard, ICTs are shaping and also being shaped by people's use and appropriation of them in real-world contexts (Bijker et al., 1987; MacKenzie and Wajcman, 1999).

Having experienced this socio-technical transformation, largely induced by ICTs,

we are currently witnessing the next wave of computing: *ubiquitous* or *nomadic computing*. The original concept of ubiquitous computing was invented by Mark Weiser at Xerox PARC as early as in the 1980s. Weiser's vision of ubiquitous computing came from his observation of two embryonic realities (Weiser, 1991; 1993). The first is that the most successful technologies are those that 'recede' into the background when we use them, becoming an unannounced feature of the world in which we act. The second is that the relentless decrease of price and the downsizing of computing technologies are making computing technologies small and cheap enough for almost everyone to own. Induced by these two rapid trends in modern computing, ICTs are no longer obtrusive elements in human everyday life and, more importantly here, they are rapidly becoming miniaturised and personal so as to be carried around in various locations. Laptop PCs, subnote PCs, personal digital assistants (PDAs), Internet-enabled mobile phones and services (e.g. WAP and *i-mode*), wireless LAN networks (IEEE 802.11a/b), *Bluetooth*, and other 'mobile' technologies and services are energetically creating a new computing environment based on people's nomadic behaviours, which Lyytinen and Yoo (2002b) label as the "nomadic information environment."

In this emerging socio-technical environment where various ICTs are seen as taken-for-granted in everyday life, many non-technological objects are also becoming 'mobile.' Labour forces that have been traditionally employed by specific organisations migrate across various boundaries, whether they are organisational, cultural, or national. Today's corporate financial capital is significantly mobile, instantaneously transferred in digital forms through globally networked financial markets. Contemporary workplaces are not necessarily

located in a fixed space; they can be at outside of buildings, at the airport, in vehicles, and at home (Makimoto and Manners, 1997; Sassen, 2002). In fact, at the beginning of the twenty first century, we are experiencing the rapid *mobilization* of social and economics conditions that shape and are shaped by people's intense use of ICTs and by modern transportation and computing technologies and services.

1.2. Motivations

However, when looking closely at the rapidly growing interest in 'mobility' and related issues, we immediately find that the current discourse on mobility is based on an unstable theoretical scaffold. Currently, there seems to be no rigorous, foundational consideration behind such a public discourse. It can be said that the current discourse on mobility barely avoids being torn down into separate subdiscourses in different areas, such as computer science, engineering, business studies, sociology, and pop-culture talks, only thanks to the mere novelty and the seemingly fascinating connotation of the term 'mobility.' This does not mean that previous and current efforts by scholars and practitioners to discuss various mobility issues are no longer valid or useful. However, based on the facts and trends mentioned above, the current situation of the discourse on mobility is clearly subject to the increasing need for a sound foundation (Lyytinen and Yoo, 2002b).

This thesis hence seeks to delineate the emerging research field which I call *mobility studies*. Mobility studies is the research field addressing a wide range of socio-technical issues. Mobility studies do not deal exclusively with technical

aspects, nor do they take a route towards highly abstract, philosophical inquiries. Instead, what mobility studies aim to deal with is the "lived experiences of mobility" (Brown, 2002), actual human experiences of being in a socio-technical environment where the rapidly diffusing ICTs in general and mobile technology in particular play critical roles. Various signs of the emergence of mobility studies are rising in many aspects of everyday life. Those emerging realities greatly motivate this thesis.

1.3. Research Objectives and Expected Contributions

The primary objective of this thesis is to contribute to the foundation for mobility studies that are currently emerging out of various different research endeavours. To this end, the fundamental reconsideration of the concept of mobility and various related notions forms a crucial objective of this research. As it will be discussed in depth later, the current understandings of mobility involve so many different interpretations and usages that the concept seems to be faced with a danger of becoming a buzzword in pop-culture talk. In order to avoid this, the thesis strives to untangle and clarify the complex nature of mobility by drawing on a variety of literature ranging from computing to philosophy.

Based on the thorough conceptual discussion on mobility, this thesis then aims to establish an empirical base for mobility studies. Many researchers have been tackling various mobility issues in various ways, ranging from the highly technical to the highly social. However, as it will be discussed later, those inquiries into mobility seem to disperse without a common ground. Therefore, this thesis offers a coherent, empirical base for mobility studies by looking at a

specific, real-world issue: *mobile professional work*. Whilst I shall later explain in detail the reasons for studying this issue, I here briefly point out that the nature of professional work is radically transformed by its direct association with the emerging technical and social conditions of mobility. In short, professional work that has been rigidly confined into organisational structures and business processes is being radically mobilized and enacted in post-bureaucratic structuring of work and organisation.

As a consequence of fulfilling these two aims, this thesis intends to advance mobility studies. As mentioned above, whilst a number of research endeavours looking at various mobility issues have been carried out in the last decade, those efforts remain largely disconnected from each other without a common ground of research. If this situation persists, a healthy and coherent development of mobility studies can hardly be expected. Therefore, through the conceptual reconsideration of mobility and the empirical study of mobile professional work, this thesis aims at showing an archetypal form of a study of mobility in contemporary society in general and in current business and organisational contexts in particular.

In order to summarise the research objectives above succinctly, I hereby set the research question for this thesis as follows:

> *How do contemporary professional workers accomplish their daily jobs in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to information and communication technologies (ICTs) in general and emerging mobile technology in particular?*

In order to answer this question, I conducted the empirical fieldwork specifically looking at sixty-two mobile professionals in Tokyo, Japan in the period of April to July 2002. It offered the rich and detailed lived experiences of those professional workers whose work activities were highly mobilized. Through the thorough analysis of the data collected, I shall draw various implications for theory building in mobility studies.

Based on these theoretical and empirical discussions, this thesis is expected to contribute to the study of mobility in contemporary socio-technological contexts in several ways. Firstly, the thesis will theoretically underpin our understanding of mobility in work contexts because, I shall discuss in the following chapters, the concept of mobility and related issues have been addressed based on a surprisingly unstable theoretical scaffold. The thesis will provide us with a sound theoretical foundation for the whole debate on mobility. Secondly, the thesis will offer empirically grounded implications for the post-bureaucratic, fluid organising of work. The mobilization of work, which will be one of the main issues to be discussed, is unfolding a new horizon of the structuring of contemporary organisations. The empirical fieldwork conducted in this research will offer us a firm ground to facilitate our discussions on such novel forms of working and organising. Thirdly, the thesis will advance the ongoing debate on the dynamic interplay of work, organisation, and technology. As ICTs have been rapidly diffused and deeply embedded in contemporary work settings, issues relating to work, organisation, and technology are increasingly interlinked. The debate on mobility will clearly provide us with valuable knowledge about the complex interaction between those issues.

1.4. Structure of the Thesis

This thesis is divided into eight chapters. This chapter begins with an explanation of the background, motivation, and the research questions. It is followed by the description of the structure of the thesis.

Chapter 2 examines the existing literature on mobility and related issues in social scientific research. Firstly, it addresses the current polarised situation of the discourse on mobility and related issues, and then presents several emerging research endeavours. This is followed by a discussion on different types of mobility. Then the growing importance of studying *work practice* for mobility studies in business and organisational contexts is discussed.

Chapter 3 discusses the nature of *mobile professionals*. It presents why and how mobile professionals are entering the centre stage of the mobility discourse. By illuminating the stark contrast between the traditional, organisation-bounded professional workers and the emerging mobile professionals, this chapter offers the theoretical and historical background of the mobile professionals.

Chapter 4 presents and discusses the methodology and methods taken for this research. Then the scope of this research and the analytical lens are discussed. It is followed by the explanation of the design of research process, including the background of and the methods taken in the empirical fieldwork conducted in Tokyo, Japan. It ends with generalisability and potential limitations of this research.

Chapter 5 presents the results of the fieldwork conducted by closely looking at the

work practices of sixty-two mobile professionals in Tokyo. After looking at the general features of the interviewees, three distinct focus cases of mobile professionals are particularly chosen and examined in detail.

Chapter 6 analyses the results of the fieldwork. Based on the conceptual and theoretical discussions in the previous chapters, several distinct themes emerging out of the analysis are addressed in detail.

Chapter 7 discusses the theoretical implications drawn from the analysis. For the primary task of this thesis, building a theoretical foundation of mobility studies, it further extends the discussions for future theory development.

Finally, *Chapter 8* summarises the arguments and discussions presented in the thesis. After presenting an overview of the thesis, the chapter addresses the contribution of the thesis. Then the thesis is concluded with considerations on future research areas for mobility studies.

CHAPTER 2:

Literature: Mobility Studies

Introduction

Debates concerning mobility are proliferating. Nowadays, we frequently find articles talking about mobile technology such as the mobile phone, personal digital assistants (PDAs), and other kinds of handheld computing technologies, not only in the magazines for technology enthusiasts but also in more widely diffused media such as ordinary newspapers and pop-culture magazines. Billboard ads and posters by mobile phone service network operators and handsets manufacturers are everywhere in cities. Our society is now often characterised as a mobile or nomadic society where people, automobiles, planes, mails and parcels, and any kinds of objects bewilderingly move around the world (Castells, 1996; Giddens, 1999; Sassen, 1991; Urry, 2000b). All these clearly indicate the rapidly growing public interest in mobility and various issues relating to 'being mobile.'

Once looking at them closely, however, one can immediately find a vacuum within this emerging debate. That is to say, we are talking about the issues concerning mobility *without* a clear image of 'mobility' itself. In fact, the concept of mobility and the significance of 'being mobile' are understood and used in strikingly diverse ways. In some cases, 'mobile' is simply interchangeable with 'portable' or 'wireless' such as mobile technology and mobile applications. In other cases, 'mobile' is mostly synonymous with 'remote' such as mobile work and mobile office. Furthermore, 'mobile' sometimes refers to a 'flexible' or

'opportunity-abundant' situation, for instance, mobile society and mobile life. To be sure, it is quite usual in history that in the initial stage of a new debate, there are many different definitions and diverse usages of the very concept or subject discussed, just as we saw in the 1990s lively debate on such management practices as business process reengineering (BPR) and knowledge management (KM) (Scarbrough et al., 1999; Sørensen and Snis, 2001). Yet, if such a lively but confusing situation would be prolonged, the debate would gradually shrink and become a 'fad.' Given this, is the emerging debate on mobility merely fad? I believe not. Nor should it be so. It is obvious that we need to ground the debate on a firm and solid foundation of academic discussion, rather than leaving it just pop-culture talk.

In this chapter, I discuss what mobility means in general and what significance it holds particularly in contemporary business contexts by reviewing the existing literature concerned with various mobility issues. *Section 2.1* discusses the current situation of academic discussion on mobility and related issues, which seems to be stuck in the classic 'social-technical dilemma.' *Section 2.2* presents an overview of the emerging research endeavours looking at mobility issues *beyond* the dilemma. *Section 2.3* then takes a general view of various meanings to be provided by the terms 'mobility' and 'mobile.' *Section 2.4* then discusses some potential dangers of mobility studies and the importance of looking at 'lived experience' of mobility. *Section 2.5* deals with work practice as a critical unit of analysis in studying mobility in business and organisational contexts. Finally, *Section 2.6* addresses why looking at work practice is so important for the study of mobility in contemporary business and organisational contexts.

2.1. Polarisation of Research on Mobility

The discussions on mobility and various related issues appear to get lively and vigorous, within both academics and non-academics. Newspapers and popular magazines constantly include articles concerning mobility issues. Several new academic journals dedicated to the discussions on mobility issues have started in the second half of the 1990s. Despite the growing intensity of the discussions, however, the issue of mobility seems to be stuck into the classic dilemma; namely, the gap between the social and the technical.

2.1.1. The classic dilemma: The social vs. the technical

In various debates concerned with social implications of any kind of technology, there has typically been the sustained dilemma of analyses, or rather the gap between the communities of researchers. On the one hand, a set of people tends to focus almost exclusively on technical details of artefacts that humans use. Their analysis is generally of great detail in terms of functions, usability, and applicability of the artefacts. They come primarily from formal, technology-oriented disciplines such as engineering, applied physics, and computer science. On the other hand, others tend to look almost exclusively at broad social implications that the technological artefacts would bring us. Their analytic interests are strongly oriented towards the question of what kinds of societal impact can be brought forth by the introduction and use of a particular technology. Such people consist of a wide range of speakers including academics in the fields of sociology, economics, management studies, social anthropology, and the like, as well as non-academics such as journalists and commentators. This

gap in the discussion led to largely deterministic analyses of the phenomena (Grint and Woolgar, 1997).

2.1.2. The technical school

The current study of mobility appears to be faced with exactly the same dilemma. Firstly, there is a research school, which I would call the *technical* school, that involves strong orientation of analysis towards technical aspects of mobile issues. In computer science and telecommunications fields, there are a number of newly founded academic journals concerning various mobile technology issues, including *IEEE Personal Communications* (later *IEEE Wireless Communications*) in 1993, *Mobile Networks and Applications* in 1996, and *IEEE Pervasive Computing* in 2002. This rush of new academic journals clearly reflected a growing interest in the emerging mobile technologies and applications in the 1990s. They discuss how to build secure and effective infrastructures and applications for "anytime, anywhere" or nomadic computing. Kleinrock (1996) argues:

> The combination of portable computing with portable communications is changing the way we think about information processing. We now recognize that access to computing and communications is necessary not only from one's "home base", but also while one is in transit and/or when one reaches ones destination. Indeed, anytime, anywhere access. (p. 351)

This vision of 'anytime, anywhere' is so pervasive within the technical school of mobility studies that it became almost an axiom for the discussion of mobile systems and applications. The issues that nomadic computing discusses include

the *location* people are at, the *communication device* they are using, the *communication bandwidth* they have available, the *computing platform* they are using, and whether or not they are in *motion*.

Another movement within the technical school is *ubiquitous computing*. Although the original idea of ubiquitous computing by Mark Weiser (1991; 1993), as briefly mentioned in the previous chapter, rested upon the well-balanced perspective between the social and the technical, the later research movement that followed his idea has been fairly technically oriented (cf. Abowd et al., 2001; Borriello and Holmquist, 2002). Their primal concerns are directed towards design and/or implementation of technical artefacts and complex systems based on these, rather than their social impacts on human lives. Whilst some scholars strive to seek more balanced views of ubiquitous computing (e.g. Abowd and Mynatt, 2000; Edwards and Grinter, 2001), the majority of this research school is still dealing with technical issues such as design, coordination, and implementation of particular mobile technologies and architectures. It is rather surprising that in spite of the broad social implications of the original ideas of ubiquitous computing, there has been little collaboration between such technical people and social scientists such as economists, sociologist, and management science researchers.

2.1.3. The social school

In stark contract to the technical school, there is another distinct research school of the study of mobility. The *social* school is mainly concerned with a variety of forms of 'movement': of people, of objects, of class, of labour, and so on. In general, the research in this school does not deal with technology as a central

topic. To be sure, most of the researchers of this school take into their analyses issues relating to various technologies, both traditional and contemporary. However, for them, technology is conceived as one of the *external* factors that condition the 'movement.'

It might be fair to say that geography is the oldest field that has taken mobility issues seriously. Geographers, in particular so-called critical geographers have been keen to relate the modern transformations of social and economic conditions to our understanding of place, space, and time. Space and time had once been tightly linked together in human social life. However, as Harvey (1990) argues, space has been "annihilated" by time in Western capitalism since the middle of the twentieth century. From a geographer's point of view, Massey (1995) examines the concept of place in relation with the time-space compression whereby the social relations that form social space are becoming increasingly 'stretched out' in increasing globalisation of our living world. Furthermore, geographers have tried to discuss not just the geographical movement of physical objects but, as Thrift (1985) did, also spatial distribution of non-physical, intangible entities such as human knowledge and the process of knowing.

Closely resonating with the geographers' work, sociologists, too, have grappled with various forms of mobility in contemporary society. Giddens (1985; 1990) has various theoretical discussions on the relationship, or rather 'distanciation,' between space and time and its influence on modernity. Deleuze and Guattari (1986) discuss the implication of 'nomads' who characterise societies of de-territorialisation, constituted by lines of flight rather than by points or nodes, arguing "the nomads has no points, paths or land" (p. 52). Likewise, Bauman

(1993; 2000) talks of 'postmodern nomads' and the rapid transformation of our social lives. Urban sociologists, for example Sassen (1991; 1994) and Castells (1989; 1996), have been interested in migration of people and capital across cities, regions, and nations, how people, objects, and capital travel around the global society, physically and virtually. In the field of social stratification, too, mobility has been addressed in terms of 'social mobility,' the shifts of demographic pattern across different social classes, occupations, and generations (Goldthorpe, 1987; Hope, 1972).

Urry's (1985; 2000a; 2000b) work is particularly noteworthy in terms of deliberately dealing with contemporary social issues in relation with mobility. He offers comprehensive discussions on various forms of mobility with regards to a wide range of social issues such as human life, dwelling, travel, time, citizenship, and the state in the global society. He argues that "mobilities, as both metaphor and as process, are at the heart of social life and thus should be central to sociological analysis" (Urry, 2000b: p. 49). He also states that the diffusion of modern technologies that dramatically compress time-space requires us to rethink the way in which we appreciate our contemporary world, the interconnected fabric of people and tangible and intangible objects that flow within and across national boundaries in an instantaneous moment of time. Based on Mol and Law's (1994) discussion on social topology, he proposes the metaphor of *global fluids*, "the heterogeneous, uneven and unpredictable mobilities of people, information, objects, money, images and risks, that move chaotically across regions in strikingly faster and unpredictable shapes" and demonstrate "no clear point of departure or arrival, just de-territorialized movement or mobility" (Urry, 2000a: p.

194).

Various commentators also talk about social issues of mobility. Makimoto and Manners (1997), for example, argue that within the next decade or so, a large part of the facilities and tools at home and in the office will be reduced enough in size to be carried, making people "geographically independent" (p. 2). People who use such mobile technologies, it is claimed, will be "free to live where they want and travel as much as they want" and thus they will be forced to consider whether they are settlers or true "global nomads" (p. 6). Kopomaa (2000) discusses the significance of mobile telephone in our contemporary lives, especially in urban areas, pointing out the mobile phone's social impacts on our understanding of living. Caircross (2001) talks of the 'death of distance' by the wide use of the Internet and mobile technologies by which the mobility of communication will be increased.

2.2. Emerging Mobility Studies

As discussed above, the discussions on mobility in contemporary contexts have been polarised into two strikingly contrasting directions. The debates in the *technical* school are strongly oriented towards highly technical issues of mobile technology, looking mainly at technical specification and sophistication of new mobile technologies and related architectures. Hence, social implications of those technological artefacts and systems, such as how those technologies are accommodated and domesticated into people's social lives and can change existing social structures, recede from their central interests. By contrast, the debates in the *social* school are strongly directed towards broad and abstracted

discussions of *any* form of mobility, both that of humans and of non-humans. The researchers in this school are primarily interested in how our social lives and ways of understanding of contemporary world are becoming more and more mobile in terms of rapid movement of a variety of tangible and intangible entities. They treat a variety of new technologies not as a fundamental driver of such increasing mobilities but just as an external factor that tends to be bracketed as an 'black box.' Thus it appears that the current debates on mobility encompass immensely diverse issues that are addressed either the exclusively technical or the exclusively social perspectives.

Since the middle of the 1990s, however, we are witnessing several research endeavours that strive to overcome the classic social-technical dilemma and to reasonably accommodate and link both perspectives. Here, particularly three of them are discussed; namely, CSCW, mobile informatics, and IS research.

2.2.1. CSCW

The research field of Computer Supported Cooperative Work (CSCW) is significantly interesting in many ways. It has a unique mixture of researchers involving computer scientists, cognitive scientists, sociologists, anthropologists, psychologists, and other scholars who are interested in the interaction between human behaviour and technological artefacts. Since the very beginning of this research community, they have been well sensitive to the social-technical gap, "a fundamental mismatch between what is required socially and what we can do technically" (Ackerman, 2000: p. 198). In order to cope with it, they have tried to investigate the grounded nature of technology use *in situ* and the operational

performance of artefacts, both traditional (e.g. papers) and advanced (e.g. computing technologies) (Hughes et al., 1993; Schmidt and Bannon, 1992).

Bellotti and Bly (1996) study collaboration amongst a product design team whose members are spatially distributed across different locations. They found that a large part of these members' activities was not statically done at their desk spaces but accomplished through distributed collaboration based on significant 'local mobility' such as simply walking between rooms or buildings at a local site. They do not take a particular mobile technology as a research subject, although the members use a variety of computers in the sites for their work. Yet they specifically look at 'mobile collaboration' that is benefited from the members' extensive local mobility, working away from their desktop computers.

Luff and Heath (1998) deliberately discuss mobility in several different collaborative work settings: medical consultations, a construction site, and an underground train control room. Through their ethnographic observations in those settings, they argue that collaborative work exhibits uniquely distinct forms of mobility; namely, the actual work activities in those sites intrinsically depends upon mobility of artefacts such as papers, which they call micro-mobility, as well as local mobility of people. For designing and implementing mobile and other technologies in work settings, we need, they argue, to "explore in more detail how objects are used in interaction and forms of work where the mobility of participants is critical to that work." Following this line, an increasing number of CSCW researchers, mainly in UK, have started the study of mobility and been looking at various social implications of mobility and mobile technology in human interaction (e.g. Brown et al., 2002; Perry et al., 2001).

Some CSCW researchers take a specific look on mobile technology. Palen and Youngs (2000) investigate the use of mobile telephony by people who just start using their mobile phones. By closely looking at those new mobile phone users' use of their phones, they draw several distinctive practices: increasing mobility, increasing accessibility, extended net of safety/proximity, substitution for physical agility, on-demand calling, and sharing of resources. They argue that as communication media, mobile telephones are "artefacts that exist in and are affected by the social world" (p. 206). Their analysis of the use of mobile phone is well beyond the technological determinism on which much of the research in the technical school of mobility studies has tended to be based, whether explicitly or implicitly. Likewise, Grinter and her colleagues (Grinter and Eldridge, 2001; Grinter and Palen, 2002) have offered empirical research results of teenagers' mobile phone use and the teenagers' emerging communication practices.

2.2.2. Mobile informatics

Being resonant with the research attempts in the CSCW field discussed above, an increasing number of Scandinavian researchers are studying the relationship between mobility, work, and technology, which they named *mobile informatics*. The base premise of mobile informatics is that in order to appreciate the emerging reality of computing where the rapid diffusion of advanced computing technologies and applications afford us a capability of working in virtual and distributed forms, it is of paramount importance to walk away from "desktop metaphor" that have dominated our understanding of computing. Dahlbom and Ljungberg (1998) insist:

A rapidly increasing use of electronic mail, more adequate telephone services like voice mail and mobile phones quickly change the conditions of work. You are no longer tied to your office and, with increasing communicative interaction, the pace of work increases. There is a shift from bureaucratic document management to the bustle of the market with its many meetings. The old factories for office work, education, research, and health care may very well disintegrate and be replaced by meeting places for mobile service exchange (p. 228)

It is obvious that one needs to reframe the ways in which he or she interacts with computers that are becoming smaller and more personalised than ever and are increasingly embedded and receding into mundane social practices. Mobile informatics specifically aims to shed a light upon such a new world of mobile computing and mobile work.

Since the middle of the 1990s, numerous research results have been produced through this endeavour. Some of them are particularly worth mentioning here. Kristoffersen and Ljungberg (2000) offer an overview of critical issues concerning mobile IT use. For understanding the emerging mobile work and designing new mobile technology to support it, they propose the generic model of mobile IT use, consisting of physical and social *environment*, *modality* of mobility in interaction, and *applications* as a combination of technology, programme, and data used.

One of the most distinctive characteristics of mobile informatics as a research field is its footing on detailed empirical fieldwork. Fagrell (Fagrell, 2000; Fagrell et al., 1999) investigates mobile technology use of news journalists for exchanging time-critical knowledge. Weilenmann (2003) extensively investigates

the use of mobile technology, particularly the local interaction of people using mobile technology. By conducting ethnographic fieldwork and employing the conversation analysis method, she draws the highly contextualised nature of people's use of mobile technology such as mobile phone. Esbjörnsson (2001) studies the road inspectors' work by closely looking at their highly distributed work activities supported mobile technologies and systems. Wiberg (Wiberg, 2001a; b; Wiberg and Ljungberg, 2001) investigates service technicians' work that is extensively mobile and distributed across wide areas. Despite its relative weakness in theoretical implication compared to its strength in empirical grounding[1], mobile informatics is, without doubt, one of the research communities that study mobility issues most intensively and productively.

2.2.3. IS research

Overcoming the social-technical dilemma has been a central issue for IS research as a whole since the middle of the 1980s (Mumford et al., 1985). As a research discipline studying a wide range of the traditional and advanced technologies in business contexts, IS research inherently involves a tendency to lean towards the simplistic positivism and the technological determinism. Reflecting upon this, the IS research community have been keen to accommodate the more socially grounded, interpretive research as well as the positivist research on designing, implementing, managing, and understanding various ICT systems (Lee et al.,

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[1] One good exception is Wiberg, M. (2001a). *In Between Mobile Meetings: Exploring Seamless Ongoing Interaction Support for Mobile CSCW*, PhD Dissertation, Umea University, Sweden.

1997). As a consequence, IS research has established a unique position in the whole social sciences, one from which the scholars in the field can look over both the social and the technical aspects of artefacts and systems and draw theoretical and practical implications for actual business activities and organisational structuring.

Currently, a steadily increasing number of IS researchers have been conducting research dealing with mobility issues, in particular the increasing mobility of people and information in the contemporary business activities. Distributed work arrangements, for example, have been addressed quite intensively (Belanger and Collins, 1998; Venkatesh and Vitalari, 1992). Benefiting from rapidly diffusing internet technologies and applications such as groupware and ERP systems and various personal computing technologies such as mobile phone and PDA, the firms now can coordinate their organisational members' work activities that are dispersed across a wide geographical area, sometimes beyond national boundaries. In response, a growing number of workers come to take advantage of this opportunity in the form of 'telework' (Handy and Mokhtarian, 1995; Jackson and van der Wielen, 1998)[2].

Tightly relating to the debate of distributed work arrangements, research on 'virtual teams/organisations' is also gaining momentum (Davidow and Malone, 1992; Lipnack and Stamps, 1997; Mowshowitz, 1994; Townsend et al., 1998).

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[2] In the U.S. context, 'telecommuting' is used much more widely than 'telework' for describing the same work arrangement.

The new distributed work arrangements ensured by social and technological transformations inevitably lead to the restructuring of the ways in which the firms organise work activities, since more and more activities are to be done across space, time, and organisational boundaries through 'virtual' or technologically mediated communication and coordination. Snow et al. (1999) argue that virtual organisations "can be defined as those that are *multisite*, *multiorganizational*, and *dynamic*" (p. 17, original emphasis). And nowadays, more and more practices of virtual teams/organisations are 'multinational' and 'global,' being dynamically organised across national boundaries (Jarvenpaa and Ives, 1994; Jarvenpaa and Leidner, 1999; Maznevski and Chudoba, 2000; Orlikowski, 2002; Orlikowski et al., 1995). All of these shed a light upon the rapidly increasing mobility of people, information, and work activities across various boundaries.

Admittedly, from a technological point of view, little IS research to date deals with specific mobile technologies and/or mobile communication systems in relation to the discussions on distributed work arrangements and virtual teams/organisations. However, it is acknowledged that there is a growing need for research on social and organisational impacts of mobile technology in 'heterogeneous and distributed environments' (March et al., 2000). March et al. set out agenda for IS research that is currently subject to the contemporary business environments that are technologically heterogeneous and operationally distributed, and argue that building effective mobile computing systems is one of the possible solutions to cope with them. Likewise, Lyytinen and Yoo (2002b) enumerate critical issues for research on *nomadic information environments,* "a heterogeneous assemblage of interconnected technological and organizational

elements, which enables the physical and social mobility of computing and communication services between organizational actors both within and across organizational borders" (p. 378). It thus can be argued that IS research is uniquely positioned to study new business environments and conditions in which mobile technologies and systems play critical roles for effective structuring of business activities.

2.3. What is Mobility?

As we have seen above, the study of mobility was once faced with a danger of polarisation of research, being torn into either technical or social, and then is now taking an integrative way towards socio-technical analysis and explication of the emerging realities of increasing mobilities in such research fields as CSCW, mobile informatics, and recent IS research. However, it is quite surprising that in this brief history of mobility studies, there seems no commonly used definition of the concept of 'mobility' as such. Here I examine in this section some archetypical examples of definitions and usage of mobility in the existing research.

2.3.1. Etymology and general definitions

Before looking at different definitions of the concept of mobility, it would be worth reviewing the etymology of the notions of 'mobile' and 'mobility.' The term 'mobile' has its roots in the old Latin word *mōbilis,* which generally refers to 'move.' It involves a wide variety of significance of move. In the existing printed records, the term 'mobyle,' the ancient spelling of 'mobile,' first appeared in William Caxton's *Eneydos* published in 1490. According to the Oxford English Dictionary (Second edition), 'mobile' means:

1. Capable of movement; movable; not fixed or stationary.

    Of limb; Of a liquid; Of a cell, molecule, etc.; Of a person (able to move into different social levels, or a different environment or field of employment); Of a society (not rigidly stratified).

2. Characterised by facility of movement.

    Of features (that easily change in expression); Of a person (that turns or is turned easily from one thing to another); Constantly in motion; Of troops, police (that may be easily and rapidly moved from place to place).

And 'mobility' means:

1. Ability to move or to be moved; capacity of change of place; movableness.

    Of limb or organs of the body (freedom of movement; absence of fixity or rigidity); Of persons (ability to move about); Of a fluid (freedom of movement of its particles).

2. Ability to change easily or quickly; liability to fluctuation; changeableness; instability; fickleness.

    Of a person (the condition of being easily moved; excitability); Of the features (facility of change of expression).

3. (Of a field force and its equipment) The quality of being able to move rapidly from one position to another.

In general use of its term, 'mobile' refers to a state where a given entity can move or be moved, and 'mobility' refers to ability of or quality for ensuring it. Thus it is obvious that 'mobile' can be relevant to *any* entity, be it physical or non-physical, tangible or intangible, as long as it can 'move' or 'be moved' in some sense. Due to this abstract nature of the meaning, the terms 'mobile' and 'mobility' can signify a wide variety of states and qualities, and hence lead to a difficulty of grasping the nature. In the following, I briefly review some of the archetypical understanding and pictures of the notion of mobility in the contemporary mobility studies discussed in the previous section.

2.3.2. Mobility of people

In the contemporary mobility studies, perhaps the most widely adopted usage of mobility is that of *people* in terms of geographical movement. Kristoffersen and Ljungberg (2000) propose a useful characterisation of mobility of people. To reasonably understand mobility of people, they distinguish between three distinctive types of mobility: *travelling*, *visiting*, and *wandering* (see Figure 2.1). *Travelling* is the process of going from one place to another by using some means of transportation such as cars, buses, trains, and airplanes. In general, this type of mobility refers to the mobility of people in a vehicle. *Visiting* is spending time in one place for a certain period of time before moving on to another place. For example, a consultant is in a *visiting* process when spending time at his/her client's office. A business tripper is visiting when staying in a hotel room during his/her trip. The visiting type of mobility refers to the process in which people spend time in a place on a transitory basis before moving on to another place. *Wandering* is extensive local mobility in a building or local area. An office worker
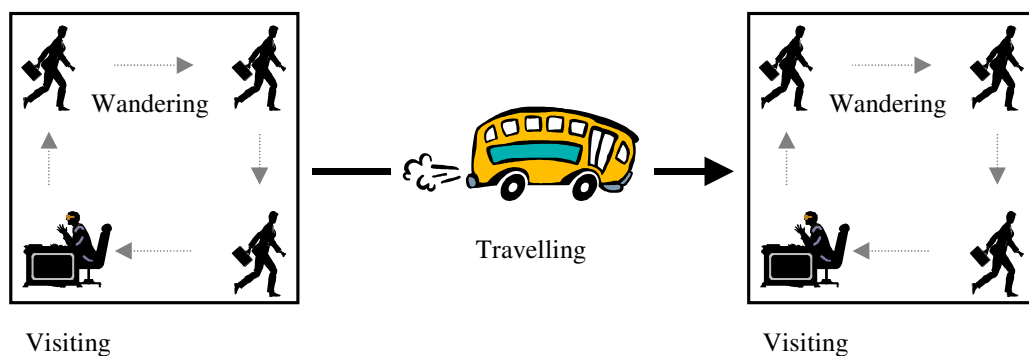
Figure 2.1: Three types of mobility of people
(Adopted from Kristoffersen & Ljungberg, 2000)

is typically wandering inside his/her office during their work time.

Other studies on mobility discussed earlier can be associated with each or several of these types of mobility. For instance, most of the telework studies (Bailey and Kurland, 2002) are concerned with either the travelling or visiting types of mobility, or both. Bellotti and Bly's (1996) analysis of 'local mobility' looks at the wandering type of mobility. The sociological study of tourism and migration of people is concerned, in a large sense, with the increasing intensity of the travelling type of mobility.

With regard to technology for these types of mobility of people, each type of mobility requires distinct qualities of technology. For the travelling mobility, technology has to be carried and used at a limited space in a vehicle. Thus desktop computers are not viable in this mobility, and mobile and portable devices such as laptop PC and handheld PDA serve the roles instead. For the wandering mobility, technological requirements become much stricter: even laptop PC is no longer viable as the user is in motion on foot. Thus handheld devices with much more sophisticated user interface is needed. For the travelling mobility, by contrast, people can use technology in a less strict manner: along with portable and handheld devices, the user can use desktop PC at the site such as client's office and hotel.

Kristoffersen and Ljungberg's typology of mobility of people provides us with a useful framework to understand people's geographical movement and technology use for a specific modality of mobility. Nevertheless, it should be noted that their typology is useful *only* for mobility of humans, not applicable to other broader

aspects of mobility of non-humans. It is also a functional characterisation of modalities of mobility.

2.3.3. Mobility of objects

The significance of mobility is not limited to humans' corporeal movement: it also encompasses mobility of *object*, the movement of a variety of objects such as daily goods, letters, parcels, and freight, all carried from one place to another by some means of transportation. Our contemporary lives rest upon the global mobility of consumer goods. It might be quite typical that people live their lives whereby they drive a German car manufactured in UK, use a Japanese TV made in Taiwan, wear American clothes made in China, have Swedish furniture, eat Italian pastas, and drink French wines. Obviously, objects are increasingly mobile, rapidly circulating around the globe in accordance with humans' seemingly unlimited demands. These objects travel often in conjunction with the movement of people, but in many cases follow diverse and complex routes (Urry, 2000a).

The travel of objects is intertwined with human dwelling and travelling norms. Lury (1997) argues that "objects move in relations of travelling-in-dwelling and relations of dwelling-in-travelling in the practices of global cosmopolitanism" (p. 83). More conspicuously, this can be observed in the case of the Sony *Walkman*, which indicates the interplay between corporeal and object travel:

> It is virtually an extension of the skin. It is fitted, moulded, like so much else in modern consumer culture, to the body itself… It is designed for movement – for mobility, for people who are always out and about, for travelling light. It is part of the required equipment of the modern 'nomad'… it is testimony to the high value which the culture

of late-modernity places on mobility. (du Gay et al., 1997: pp. 23-4)

Luff and Heath (1998) looks in more detail at the mobility of objects, which they name 'micro-mobility,' in actual work settings. Conducting detailed fieldwork at medical work sites, they found that paper-based medical records played a critical role in supporting both synchronous and asynchronous collaboration both between doctors and other medical professionals and between doctors and patients. The medical records are transported amongst a number of people at the clinic, including doctors, nurses, professionals such as ones at radiology department, pharmacists, and so on. In such a medical practice, the portability of paper document is critical for asynchronous collaboration, linking distributed actors' work activities. Furthermore, during consultation between doctors and patients, the mobility of paper records also plays a critical role. With its physical and visual qualities, or "affordances of paper" (Sellen and Harper, 2001), the medical record can support synchronous communication between a doctor and a patient. The doctor can point out some specific information on the record so as to invite the patient to view it and to discuss the matter in detail. Such subtle practices are usually well beyond the functionality of computing technologies and systems. Overall, this micro-mobility of objects, they argue, can be found in not only in medical practices but also a broad range of workplace activities.

2.3.4. Mobility of information

As another form of mobility of non-humans, the relentlessly increasing mobility of information embodies a critical part of the social conditions in our time. Global satellite television networks, for example, broadcast visual images and sound

enabling billions of people to receive news simultaneously. A vast amount of symbols, images, and sounds are transacted in an instantaneous period of time and globally transmitted on the World Wide Web. As the WWW dematerialises the means of communication and interconnects millions of people, the loosely connected network of networks brings forth a virtual spatiality and community (Benedikt, 1991; Kitchin, 1998; Rheingold, 1994). Jones (1998) points out that "cyberspace hasn't a 'where' […] Rather, the space of cyberspace is predicated on knowledge and information, on the common beliefs and practices of a society abstracted from physical space" (p. 15). In this cyberspace, the ever-increasing mobility of information is in fact bringing forth new social realities where distance no longer decides the cost of communication and human identity that are significantly disembedded from physical location (Caircross, 2001; Turkle, 1995).

Castells (1989; 1996) describes these emerging social realities associated with the increasing mobility of information as "the space of flows." He states that "social meaning evaporates from places, and therefore from society, and becomes diluted and diffused in the reconstructed logic of a space of flows whose profile, origin, and ultimate purposes are unknown" (Castells, 1989: p. 349). The space of flows, he argues, is constituted by three layers: the first layer of a circuit of electronic impulses, the second layer of nodes and hubs, and the third layer of spatial organisation of the dominant managerial elites that direct the flows. Perhaps the most conspicuous example of this is today's financial business sector. We are witnessing the fusion of money transaction, ceaselessly exchanging an enormous amount of money, not physical money but a set of digital codes, on interconnected global networks of computing systems, largely freed from geographical

constraints (Leyshon and Thrift, 1997). In this "weightless world" (Coyle, 1998; Quah, 1998), transaction costs dramatically fall and hence this leads to the emergence of the totally new 'weightless' economy where the mobility of information becomes the mobility of capital and resource. Thus all economic actors including business enterprises, financial institutions, inventors, and consumers, are without exception subject to the dynamic global flows of information.

Virtual teams/organisations are specifically taking advantage of the high mobility of information. The Internet and related technologies and systems such as groupware, ERP, and supply chain management (SCM) systems provide dynamic informational support for exercising of these 'virtual' business practices. It is the high mobility of information, ensured by such net-based computing systems, that enabled the managers to effectively coordinate business projects and activities in which the participating members are scattered across different locations beyond organisational and, in some cases, national boundaries.

2.4. The Lived Experience of Mobility

Obviously, mobility is being addressed in diverse fields and in diverse ways. Mobility refers to the ability or quality to move or to be moved in some sense. The moving entity is not restricted to humans but can also be non-humans such as objects and information. The increasing mobility of people, objects, and information embodies a critical dimension of the post-industrial socio-economic conditions in which our contemporary lives are situated. The emerging research endeavours to study various mobility issues are in fact producing a growing

number of fascinating results. In sum, it well looks that mobility studies are developing as an academic discourse. However, we have to be cautious to be overly optimistic about the future directions of mobility studies, since, in spite of the current liveliness of the debate, its footing seems quite unstable.

2.4.1. A potential danger

In spite of the lively and intense debate on mobility to date, the rapid proliferation and diversification of the discourse on mobility in a wide range of disciplines can be harmful to underpinning the debate itself in a coherent, academic manner. It is primarily attributed to lack of two fundamental conditions for healthy development of academic debate; namely, *a well-defined common ground*, and *efforts for theorisation*.

Lack of a well-defined common ground. As we have seen so far in this chapter, the study of mobility is being conducted in various research fields each of which takes its own distinct research approaches, methodology, and conventions. On the technical side of the study, mobility generally refers to portability of technological artefacts such as mobile phone, laptop PC, and PDA. And the research subject is the heterogeneous and distributed nature of technology use enabled by such portable and wireless devices. On the social side, by contrast, mobility refers to more abstract features of social reality such as people's geographical travel, extensive movement of objects, and rapid transaction of information. Generally, the main subject here is the rapidly changing nature of socio-economic conditions. To be sure, the emerging research endeavours that we are seeing in, for example, CSCW research, mobile informatics, and the recent IS research all seek to

integrate both the technical and the social perspectives on mobility in contemporary society. However, even though all of those studies are talking about mobility in one way or another, they seem still to be struggling to find a well-defined common ground of discourse that can reasonably accommodate their research results, facilitate the whole debate, and associate it with much broader domains of discourse. It seems that due to the lack of such a common ground, there is still paradigmatic 'incommensurability' amongst them (Kuhn, 1996).

Lack of efforts for theorisation. Along with the lack of a well-defined common ground, the current mobility studies are also subject to the lack of efforts for theorisation. Theorisation is the practice of constructing a theory. By theory I do not mean an invariable law, as seen in natural sciences, to examine the current and predict the future state of a certain social phenomenon. As many argue, it is extremely difficult, if not impossible, to assume that in social sciences, such invariable laws can be established in a reasonable manner (Bernstein, 1983; Stinchcombe, 1968). In particular, Numagami (1998) explains the infeasibility of establishing invariable laws in management studies in general. Here, I would take rather a moderate view on what a theory is. That is to say, by theory I refer to *a set of propositions* 'invented' by a researcher that reasonably guide our knowledge of a certain social phenomenon or reality and provide us with relevant implications in a given context. Lee (1999) argues that theories, in his view, "are not already 'out there,' waiting to be discovered; rather, we invent them" (p. 11). Taking this view of theory in social sciences, theorisation is a practice of constructing a set of appropriate and/or convincing propositions that will in turn become a repository of relevant research achievements. In this sense, the practice of theorisation, I

believe, is of paramount importance for developing and sustaining scholarly discourses.[3] Seen from this point of view, the current mobility studies are much less keen to theorise about the subject issues than to draw new insights of a specific mobility issue and/or create a new mobile artefact, be it a simple device or complex systems.

Without a common ground *and* efforts for theorisation, any research discourse will not successfully be developed and sustained and hence end up as a 'fad' as we have seen in history numerous research discourses following such a direction such as that on expert systems in the 1980s and on business process reengineering (BPR) in the 1990s. This tendency to fall into a fad is particularly strong and intrinsic in issues concerned with any kind of computing technology because the life cycle of computing technology is becoming shorter and shorter. Mobile technology is no exception.

2.4.2. Looking at the lived experience

To solve this tricky situation of mobility studies, it is of paramount importance to ground the current discourses on mobility not only on highly technical or social discussions but also actual human empirical issues to which the concept of

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[3] I acknowledge that one can take a position against this argument about the power of theorisation in social sciences. For instance, ethnomethodology and phenomenological sociology seem to deny, or at least avoid theorising a social reality. Nevertheless, I would argue that as long as we define a theory as social construction that offers coherent implications in some particular context, such an inherent practice of theorisation could be discerned even in those research fields standing against it.

mobility is actually linked in real world settings. Reflecting upon the emerging studies of mobile technology, Brown (2002) suggests:

> [W]hile it is *mobility* that is the most important aspect of these new technologies, it is mobility as an *empirical* fact. It is mobility in terms of attempts to make use of time while waiting for public transport, or through relaying news to those not at home. These are examples of the lived experience of mobility – how individuals and groups use mobility for their own purposes or how they much work in the envelope which mobility provides. (p. 14, original emphasis)

Brown argues that the lived experience of mobility is a vivid human experience of the ongoing transformations of socio-technical conditions that shape and are shaped by our everyday activities. Every issue relating to mobility is a distinct reality that we experience in the midst of the dynamic interplay between the social and the technical.

Reappraising the mobility studies discussed previously, these are discussing, explicitly or implicitly, not just mobility as merely a conception but, more importantly, the lived experience embodied by the increased mobility of people, objects, and information. Research efforts in CSCW concerning mobility and mobile informatics are dealing with the changing use of computing technology, which has been hindered by desktop-based design and use of computing technologies but being radically liberated by various mobile technologies. Mobile computing is the study of designing and developing technological devices and systems that enable such use of technology. Geography and urban sociology concerning mobility are discussing consequences of the mobilized

socio-economic conditions for contemporary human life such as dwelling, travel, circulation of goods, and transportation. IS research on virtual teams/organisations are concerned with the dynamic and flexible mobilization of corporate resources, be it human, physical, or informational, that have traditionally been confined into organisational boundaries, with support of a variety of the net-based and mobile technologies. Telework research is looking at the mobile ways of working liberated by the diffusion of advanced and personalised technologies.

2.5. Taking Work Practice Seriously

In fact, the recent efforts in mobility studies are looking deliberately at specific human experiences around various mobility issues. Amongst them, the mobility studies looking at *work practice* are particularly noteworthy. Yet, before taking those studies, it would be worthwhile to look at the historic outline of the study of work practice in management and organisational studies in general.

2.5.1. The study of work practice in management and organisational studies

In spite of its importance, the study of work practice had been gradually but steadily alienated from the front stage of management and organisational studies and IS research in the 1970s and 1980s. Barley and Kunda (2001) carefully examine this shift and attribute it to mainly three historical trends within the discipline: *the rise of system-oriented theories* and its application to management and organisational issues, *the methodological norm in the period* preferring quantitative methods with support, for example, of computer-aided analysis and large-scale survey, and *the increasing specialisation* of management and organisational studies. To be sure, work practice issues had been recognised and

discussed in those research fields in the period; but the researchers, particularly those who drew upon systems-oriented theories, dealt with work practice as a 'black box' or a factor independent of other technical and social aspects of the work environment.

Having seen this situation around the study of work, Barley and Kunda caution us that discussions on work practice should be tightly incorporated into management and organisational research. They argue:

> Work and organization are bound in dynamic tension because organizational structures are, by definition, descriptions of and templates for ongoing patterns of action. When managers impose new organizational structures, they invariably alter patterns of work. Conversely, when the nature of work in an organization changes, organizational structures either adapt or risk becoming misaligned with the activities they organize. Because work and organizing are so interdependent, eras of widespread change in the nature of work in society should lead to the emergence and diffusion of new organizational forms and institutions. (p. 76)

They continue:

> Because of the interdependence of work and organizing, significant shifts in the nature of work should coincide with significant changes in the way organizations are structured and in how people experience work in their daily lives. Contemporary organizational theorists many, therefore, face the same challenge that confronted the field's founders: the need to develop images of organizations that are congruent with the realities of work in a new economic order. (p. 77)

In order to capture emerging realities around contemporary organisations and businesses, which are energetically driven by the rapid expansion of ICTs in any kind of business activities, it is essential to look deliberately at the nature of emerging work practices *in situ* and how they shape and are shaped by organisational structures and socio-economic institutions. In fact, since the late 1980s we have come to see resurgence of interest in work practice in several different research fields. Whilst these increasing research interests in work practice as a distinct unit of analysis seem not particularly resonant with each other, those can be seen as an indication of growing importance to look at work practice *in situ* in various contemporary business activities. Here I take a brief look on some of the notable *practice based perspectives* that are being adopted in the contemporary studies on organisations and technology.

2.5.2. A practice lens

First of all, some of the organisational theorists who are concerned with technology used in organisational contexts have been adopting 'a practice lens' through which they look at and investigate how people use technology in daily work practices. Barley and Orlikowski are perhaps the most notable amongst those scholars. By employing ethnographic methods, Barley (1986; 1996b) carefully investigate how technicians adopt and use a certain technology in their workplaces and how their use of the technology reflect the division of labour and occupational structures. Barley's particular focus is "co-evolution of technology, organisation, and work" (Barley, 1996b: p. 404). Through his and his colleague's ethnographic study on other various kinds of technicians such as radiological technologists, programmers, computer technicians, and engineering technicians,

he drew the distinctive characteristics of technicians' work practice; namely, buffering and brokering. And such characteristics have significant impacts on organising their work conditions, identity, and organisational structures.

Largely influenced by Barley's work on technicians' work practices, Orlikowski (1992; 2000; 2002) adopts a practice lens more deliberately for her study of technology in organisations. Through her investigation on the introduction and utilisation of groupware technology (such as *Notes*) in organisations, she particularly looks at how people, technology, and organisations recursively interact with one another in mutually constitutive manners. Orlikowski employs Giddens' structuration theory as the theoretical foundation for her analysis much more explicitly than Barley does. As discussed earlier, structuration theory is one of the contemporary pragmatist social theories that strive to overcome the Cartesian subject/object dualism and to offer a grounded perspective to understand interaction between human agency and structure (Giddens, 1984). Along with other scholars applying the structuration theory to technological issues in organisations (e.g. DeSanctis and Poole, 1994; Poole and DeSanctis, 1990), Orlikowski has been actively proposing "a practice-oriented understanding of the recursive interaction between people, technologies, and social action" (Orlikowski, 2000: p. 405).

2.5.3. A social-practice perspective

In somewhat a different vein of organisational research, a steadily growing number of scholars have been tackling how workers' everyday practices constitute organisational unity, workers' identity, learning processes, and knowledge creation,

which in turn recondition the work practices ceaselessly. In their highly influential book, Lave and Wenger (1991) theoretically discuss the relation between learning and practice from a social-practice perspective. They harshly criticise the conventional explanation that learning can be viewed as a process by which a learner internalises knowledge, whether "discovered," "transmitted" from others, or "experienced in interaction" with others (p. 47). Instead, they propose that learning should be seen as increasing participation in 'communities of practice,' an informal group of people bound together by their collectively developed understanding of what their community is about and forms of accountability to this sense of joint enterprise. In their theorisation, practice of participation is an integral part of learning.

Whereas Lave and Wenger do not pay much attention to technological issues, Brown and Duguid (1991; 2000; 2001) develop Lave and Wenger's theory of community of practice for their discussions on interaction between people, technology, and organisations. For them, work practice is critical to understanding the acquisition of identity and knowledge at work. They argue that "practice-focused analysis brings investigations of knowledge and identity in organizations closer to the point at which working life is lived, work done, and so working identities created" (Brown and Duguid, 2001: p. 202). Likewise, Cook and Brown (1999), too, introduce a practice-based perspective for their critical discussion on knowledge management issues. By proposing 'epistemology of practice' they argue that the nature of organisational knowledge should not be seen as a certain state of possession of 'knowledge' but rather as ongoing practice of 'knowing' that dynamically bridges different types of knowledge, explicit and

tacit, and individual or group. Whereas a practice lens that Barley and Orlikowski adopt primarily focus on individuals' detailed practices, the social-practice perspective gives relatively more emphasis upon how collective unity of people is achieved through work practices.

2.5.4. Interaction studies

Although normally not recognised as practice-oriented research, sociological studies on human interaction could also be seen as an emerging research on work practice. Goffman (1959; 1982), the American sociologist who was influenced by the Durkheimian tradition and the symbolic interactionism in his early academic career, has not been recognised as a 'mainstream' sociologist. This could be attributed mainly to the fact that his research style, "no clear hypotheses, no standard research designs, nor even a theory that could be tested or used to make sense of a variety of research findings" (Drew and Wootton, 1988: p. 2), went well against the conventional American sociological research at the time dominated by naturalistic and functionalistic modelling of social activities. Yet, as Giddens (1988) points out, his close and detailed investigation and analyses of the procedures and practices through which people organised their face-to-face dealings with each other was without doubt one of the groundbreaking achievements of sociology in the post-war period. His main focus was trivial and taken-for-granted features of individuals' practice of interacting with others. Although he seemed quite reluctant to establish a formalised social theory, his work actually provided a number of concepts that involved vast implications for human interaction (Kendon, 1990).

Amongst those who apply Goffman's work to contemporary work settings, Heath (1986; 1988) is a particularly notable figure. By actively using video-recording methods, he closely investigates face-to-face interaction in medical work practices, especially body movement and conversational changes in actual conducts of social interaction. He argues that embarrassment, one of the interactional phenomena at which Goffman particularly looked, is a distinctively useful for understanding and conceptualising various aspects of interactional organisation. Later on, Heath further develops his analysis of social interaction by applying Conversation Analysis together with video-recordings. His continuous concerns are "*in situ* accomplishment of social actions and activities and the resources that participants utilise in producing, recognising and coordinating their conduct with others" (Heath and Luff, 1992b: p. 313).

As seen in Heath and his colleague's work, Goffman's conceptualisation of face-to-face interaction of people provides us with a useful analytical lens for looking into people's practices in work settings of various kinds. In fact, Goffman's work on interaction is being applied to issues surrounding the emerging mobile communication. Ling and Yttri, (2002) for example, look at Norwegian teenagers' use of short message service (SMS) on their mobile phones and argue that the teens' social activities rely heavily upon communication through their mobile phones and such communicative practices significantly influence their social presentations of self amongst the peers, in both face-to-face and mediated interactions.

2.5.5. Workplace studies

Finally but perhaps most interestingly, researchers in the emerging field of *workplace studies* have been addressing a range of issues around work practices in relation with both traditional and advanced technologies. Since the late 1980s, workplace studies has been emerging out of the unique collaboration between sociologists, social anthropologists, cognitive scientists, and researchers in applied computer science fields, particularly human-computer interaction (HCI) and computer supported cooperative work (CSCW). These studies primarily aim to rescue work practice as a distinct research topic from the verge of contemporary debates in sociology, and to link it to technological developments and resulting changes that we are now witnessing in various work settings. Heath and Button (2002), the main proponents of this emerging field, describe:

> [Workplace studies] are not only concerned with the social organization of work and the workplace, and the relationship between work and organizations, but also with rethinking the distinction between the technical and social. … in placing socially organized practice and practicality at the heart of the analytic agenda, and in reflecting upon some of the key sociological concepts and ideas which have informed our understanding of work, organizations and technology. (p. 158)

Workplace studies in general aim to offer empirically grounded analyses of mundane work practices in various work settings such as underground control rooms, (Heath and Luff, 1992a) air traffic control rooms (Harper et al., 1991; Hughes et al., 1988), financial institutions (Harper and Sellen, 1995; Harper, 1998), software engineering firms (Button and Sharrock, 1994), print industry

(Bowers et al., 1995), practices at naval bridges (Hutchins, 1990), and photocopy machine repair service (Orr, 1996; Suchman, 1987). These studies are mainly concerned with situated organisation of human collaborative activities and the ways in which technological artefacts are used in actual everyday work practices. Methodologically, they are naturalistic and ethnographic studies with "thick descriptions" (Geertz, 1973) of human situated activities in complex work environments. Furthermore, compared with other work-practice studies discussed above, workplace studies are much more concerned with technological issues, in particular, reconsidering significance of various technologies, both traditional and advanced, in contemporary workplace environments (Heath et al., 2000; Heath and Luff, 2000).

Whilst workplace studies have not been well recognised in management and organisational studies to date, they surely can contribute to our understanding of contemporary managerial and organisational issues by offering rich and detailed empirical grounds. The organisational theorists, such as Barley, Orlikowski, and Brown and Duguid, employing work-practice perspectives emphasise the importance of dealing with work practice in complex technological environments and they carried out some fascinating field studies. However, seeing management and organisational studies as a whole, empirically grounded research looking specifically at people's work practice and technology use in actual workplaces is still scarce. In fact, in order to grasp the emerging technologically induced organisational changes, Orlikowski and Barley (2001) advocate linking the study of organisations and that of technology together by facilitating more grounded research studying individuals and groups engaged in situated practice. Workplace

studies surely can support this task.

2.6. When Work Practice Meets Mobility

As seen above, the academic interest in work practice is resurfacing in management and organisational studies and an increasing number of scholars not only in management and organisational studies but also in sociology, social anthropology, and CSCW are seriously looking at people's everyday work practices and their situated use of technology. A question here, however, is why taking work practice seriously is so important for studying issues around mobility and mobile professional work where workers actively utilise various mobile and other technologies for getting their job done. In short, because *today's work activities, especially those of professionals, are more and more disembedded from fixed location and thus geographically distributed across various boundaries.*

2.6.1. The changing nature of work

It is apparent that the recent resurgence of the studies of work practice reflects the growing concern about contemporary organisational theories' orientation towards functionalistic and systems-based analyses in the 1980s and the increasing need for opening up the 'black box' of work and for more naturalistic and empirically grounded research on work practice that ceaselessly constitutes organisational dispositions that condition everyday ongoing work activities. However, the nature of work has radically changed in the course of the 'post-industrialisation' of contemporary firms and their business activities in the second half of the twentieth century (Bell, 1976). The traditional organisational theorists and scholars of sociology of labour have tented to assume that modern work is done primarily

within formal organisational structure by formal staffs employed by the firm for an extensive period of time. This traditional employment relation, so-called bureaucratic employment, rested on a bargain that firms provide their employees with secure jobs as long as they remain profitable in exchange for employees' diligent efforts and loyalty (Kunda et al., 2002).

However, economic, institutional, and technological transformations that we have experienced during the second half of the twentieth century have been altering this traditional nature of work dramatically. The number of blue-collar workers has fallen steadily since the 1950s, whereas the white-collar workers have grown in number instead (Barley, 1996a). The economic scale of service industry has dramatically grown (Cappelli, 1999). Managerial work within firms has been highly differentiated to cope with increasingly complex contemporary business tasks at hand (Barley, 1996b). Stable or life-long employment has become no longer a 'normal' occupational style, and instead contingent employment and so-called "boundaryless careers" are rising (Arthur and Rousseau, 1996; Cohany, 1996). Thanks to the powerful modern computing technology, work that had been traditionally operated by direct manipulation of the workers can increasingly be performed in technologically mediated ways (Mumford, 1967; Zuboff, 1987).

Yet, in spite of the fact that all these aspects in the 'post-industrial' work environment are now widely acknowledged, most of the management and organisational theories seem still strongly tied to the idea that work is performed primarily *inside* the organisational structure. For instance, in the late 1990s there has been an intense debate on the Resource-Based View (RBV), and also its variant, the Knowledge-Based View (KBV) of organisations among management

and organisational scholars (e.g. Conner and Prahalad, 1996; Grant, 1996; Kogut and Zander, 1996). Although they have provided us with a wide range of implications for seeing emerging organisational realities, it is also true that they still address such issues as organisational assets, innovation, learning, identity implicitly but exclusively from a largely traditional, functionalist and systems-based perspective that presupposes the existence of 'boundary' neatly demarcating inside and outside of the organisation. The discussion on 'sticky' vs. 'leaky' knowledge (e,g. Hoopes and Postrel, 1999; Liebeskind, 1996; Von Hippel, 1994), for example, clearly rests on the assumption of organisational boundary across which various forms of knowledge would be transferred or exchanged. However, as Brown and Duguid (2001) argue, such an assumption seems quite paradoxical when put in the light of the fact that "rather than sticking or leaking according to type, exactly the same knowledge can prove both sticky and leaky" (p. 199).

Furthermore, taking today's increasing popularity of such management practices as teamwork, taskforce, utilisation of contingent workforce, and 'virtual' organisation, it should also be acknowledged that contemporary work activities are increasingly performed *beyond* and *across* various organisational and even national boundaries (Jackson, 1999; Jarvenpaa and Leidner, 1999; Mowshowitz, 1997; Townsend et al., 1998). It is obvious that those management practices have become enabled by various technological developments including web-based applications, emails, video conferencing, groupware, and the like. Luff et al. (2000) argue:

Workers will be more mobile when all the technological support they need can be

provided wherever they are located and it may even be no longer necessary for individuals to travel to a particular site when they can work from home. The actual 'organisation' for which they work will become fragmented, geographically dispersed and possibly 'virtual', being transformed into a business with no physical location and little organisational structure. (p. 1)

2.6.2. Studying mobile work practice

The traditional management and organisational perspectives seem not be able to bring us appropriate depictions of the realities around contemporary work because they basically rest on the *a priori* assumption of boundary setting of organisations. The contemporary work activities that we are actually witnessing are performed increasingly beyond and across traditional organisational boundaries and organised dynamically and fluidly.

In this regard, "communities of practice" (Lave and Wenger, 1991; Wenger, 1998) is a good example. A community of practice is an informal group of people bound together by their collectively developed understanding of what their community is about and how they hold each other accountable to this sense of joint enterprise. It is built through mutual engagement of the members who interact with one another and establish norms and relationships of mutuality that reflect these interactions. As a consequence, the community of practice produces a shared repertoire of communal resources such as language, routines, sensibilities, artefacts, tools, stories, styles, and so on. By nature, it is formed beyond and across organisational boundaries, encompassing a variety of interdependent members both inside and outside formal organisational structure. Many scholars have been studying such

groups straddling organisational boundaries, though they do not use the term "communities of practice" in various contexts such as technicians (Barley, 1996b), contingent professional workers (Kunda et al., 2002), engineers (Almeida and Kogut, 1999), and international joint venture (Leonard and Sensiper, 1998). In order to grasp the emerging nature of distributed working and organising, we may need to abandon the traditional fixed and bird's-eye perspective looking into work only within organisational structure and instead adopt a dynamic and grounded perspective that can follow increasingly fluid work activities blurring and reconstructing pre-existing organisational boundaries.

Here we return to our discussion on *the practice-based perspective,* which could be amongst the most promising ones for this purpose. The practice-based perspective places great emphasis on *action* rather than abstract concepts and principles. By the term 'practice' in this context I refer primarily to "the coordinated activities of individuals and groups in doing their 'real work' as it is informed by a particular organisational or group context" (Cook and Brown, 1999: pp. 386-387). The perspective looks at situated aspects of action that are bound to the context in which the action is performed. In the state where work as an analytical unit can be appropriately defined and easily followed and the surrounding environment is relatively stable, one can analyse action and context discretely. On the contrary, when work is performed and organised so dynamically and fluidly that static and fixed perspectives cannot follow it, researchers need to address action and context simultaneously. More precisely, dynamic interaction between action and context through an ongoing process of practice needs to be addressed. It can be argued that for looking at emerging, mobile nature of work,

the practice-based perspective is much more appropriate to be adopted than static, systems-based ones.

In order to discuss the emerging mobile work activities that are increasingly distributed and fragmented by the use of various ICTs, the critical task is to take a close look to *work practice* and ongoing organisation of work activities *in situ* of mobile workers. Contemporary mobile work is not always conducted at such particular locations as office but rather takes place at various points of space and time ranging from ordinary office to home to hotels to trains to sometimes even vacation sites. Given the rising fact that mobile work is becoming the 'ordinary' work style for an increasing number of contemporary workers, especially professionals who are largely independent of organisational constraints, the conventional understandings of organisational structure, boundary, and fixed workplaces on which most of the organisational theories to date have drawn clearly require significant reconsideration. Deliberately looking into situated practice of mobile workers in actual work contexts can offer rich and conceptualised pictures of what today's mobile workers do, how they coordinate their everyday work activities and processes, how they interact with other people, and how they cope with mundane problems in various mobile settings.

It would be reasonable to think that amongst emerging mobile workers, the most radical example is independent professional workers, whom I may call *mobile professionals*. They are workers who own distinctive competence and skills to make their own living and work largely independent of formal organisational constraints such as fixed, long-term employment relation, and hierarchical structure of human resource. They include independent consultants, various kinds

of planners, designers, producers, programmers, lawyers and accountants, and so on. They are *autonomous* in the sense that they have primal responsibility for deciding what to do. They are *mobile* in the sense that they can flexibly choose when and where they work.

Conventionally, such independent professionals have been categorised as "contingent labour" usually referring to a range of short-time employment arrangement including part-time work, temporary employment, self-employment, contracting, outsourcing, and home-based work (Barker and Christensen, 1998; Polivka, 1996). However, mobile professionals distinctively differ from other types of contingent workers. Based on the large survey results of labour statistics in U.S., Cohany (1998) shows that mobile professionals are much more content with contingent work arrangement they chose, hold higher education and training, and have higher earnings than the other kinds of contingent workers such as on-call workers, temporary help agency workers, and workers provided by contract firms. In this regard, mobile professionals can be seen as being at the forefront of the mobile work environment, taking best advantage of opportunities of the emerging work environment. Hence, they seem particularly worthwhile for detailed investigation. In so doing, it is especially important to look at situated work practices of the independent professionals, since, as discussed above, their work activities are so mobile and dynamic in terms of space and time that traditional apparatuses for organisational and work analysis cannot sufficiently deal with them.

Summary of Chapter

This chapter aimed to provide an overview of the emerging mobility studies. The current discussions on mobility have been polarised into two contrasting research schools. The *technical* school was strongly oriented towards highly technical issues of mobile technology, looking mainly at technical specification and sophistication of new mobile technologies and related architectures. The *social* school, on the other hand, was strongly directed towards broad and abstracted discussions of *any* form of mobility, looking primarily at how our social lives and ways of understanding our contemporary world are becoming more and more mobile. Since the middle of the 1990s, however, several research endeavours that strive to overcome the classic social-technical dilemma have emerged especially in CSCW, mobile informatics, and the recent IS research. Then, closely taking the very concept of mobility discussed in those diverse fields, we can discern particularly three distinctive types of mobility: mobility of people, of objects, and of information.

However, specifically due to such diversity in terms of fields and definitions, the current mobility studies lack a well-defined common ground and efforts for theorisation, both of which are essential for sustainable development of any scholarly discourse in social sciences. To cope with it, it is important to look at the lived experience of mobility as being rapidly increased by the socio-technical transformation in our contemporary society. In contemporary business and organisational contexts in particular, work practice is a critical aspect of the study of mobility. An increasing number of social scientists advocate the restoration of work practice as a research topic in management and organisational studies and

seek to offer a practice-based understanding of the interaction between work, organisation, and technology. Amongst various kinds of contemporary workers, a set of professional workers whom I call mobile professionals can be seen as a forerunner in the changing, contemporary work environment. This is due to the fact that their work practices are distinctively much more mobile and dynamic than the traditional workers. In order to study such professionals' work activities and processes, which are increasingly mobile and dynamic in time and space, it is necessary to look at detailed, situated work practices of the actual workers.

CHAPTER 3:

The Rise of Mobile Professionals

Introduction

In the previous chapter, I have discussed how mobility studies are emerging and why work practice should be a particular focus of analysis for studying mobility and emerging mobile work in contemporary business and organisational contexts. Because contemporary work activities and processes are increasingly distributed and dynamically performed in various situations with support of ICTs, looking closely at what the workers do in actual contexts is of paramount importance to appreciate and explicate the emerging mobile work activities. Contemporary independent professional workers, *mobile professionals*, are assumed to embrace new technologies and work practices most willingly.

This chapter discusses the distinct characteristics of mobile professionals by contrasting with the traditional professional workers. Through the discussion I explain why such professionals are particularly important to be taken for the study of mobilization in our time. *Section 3.1* discusses the historical background of modern professionalism by examining social science literature. Based on the discussion, *Section 3.2* presents and addresses the consequences of the rise of mobile professionals in the last few decades and some emerging studies on those workers.

3.1. Modern Professionalism

This section discusses the historical background of modern professionalism and explains the rapid increase of its importance in a wide range of social life in general and modern firms' business activities in particular.

3.1.1. Professionals in our society

To be a professionals is not a new occupation. They have a long history from the medieval time. 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 as professionals with their expertise of designing and constructing buildings. However, in our contemporary society there are much more diversified kinds of professionals, including accountants, management consultants, designers and artists, writers, doctors and nurses, engineers, computer scientists, 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). The rise of modern professionalism is clearly not a coincidental phenomenon but rather a consequence of the complex socio-economic transformation in the second half of the twentieth century. Many scholars have discussed the emergence of professional work in and its increasing importance in our social lives in general and our workplaces in particular (e.g. Abbott, 1988; Friedson, 1986; Larson, 1977). Whilst they attribute the rise of professional work to various socio-economic factors and historical aspects, those

can be summarised, from a business and organisational point of view, into primarily two fundamental issues: *an increasing need for the workforce to deal with increasingly complex work*, and *an increasing need for organisations to adapt to turbulent business environments*.

3.1.2. Increasing complexity at work

After World War II, the nature of work has become increasingly complex as a result, for example, of Taylorist division of labour in a wide range of industries and the rapid diffusion of modern manufacturing methods such as the assembly lines. Managers were no longer capable of being experts of every part of their businesses, which became highly specialised in terms of both physical and symbolic manipulation. For example, effectively controlling a manufacturing assembly line is clearly beyond the job of a single manager: it requires a number of professional and technical workers such as controllers in front of the console panel and mechanical specialists for specific manufacturing machines. With regards to this point, Barley and Orr (1997) explain that modern work "becomes increasingly difficult for individuals to master the breadth of knowledge necessary to remain a generalist […] Consequently, most science and professions divide themselves into ever narrower subfields as their knowledge base grows" (p. 7).

Moreover, the introduction of modern computing technologies into almost all workplaces has made the nature of work further complex (Kling, 1996). Since the 1960s various efforts of 'automation' of work activities have been conducted within a wide range of industries such as banks, manufacturing firms, and government agencies (Iacono and Kling, 2001). The rapid escalation of

computerisation at workplaces has further fragmented work activities into a number of subfunctions and subunits in order to increase the efficiency of the daily operations. Furthermore, complex computer-based systems required special workers in the firm who could ensure the systems 'work.' Systems engineers and IT specialists have become essential workers especially for the firms whose business activities heavily rely on such systems.

It is apparent that the increasing complexity of modern work and diversification of knowledge necessary for getting daily job done has been constantly demanding highly skilled workforce with distinct expertise and knowledge.

3.1.3. Turbulent business environments

Today's business environment has become much more uncertain and unpredictable compared with that of fifty years ago. This is in part because of the rapid expansion and globalisation of business activities in the second half of the twentieth century and in part because of ever-increasing consumer demands that constantly and aggressively urge firms to create and serve novel and catchy products (Castells, 1996). In such a business environment, traditional hierarchical organisational forms and bureaucratic decision-making processes are likely to be significant obstacles for firms in their intense competition. In order to cope with such a turbulent business environment, the firms have to make their organisational forms flexible and decision making agile in some ways.

In response to this environmental change, many firms have introduced various solutions in the 1980s and 1990s, for instance, flatter organisational hierarchies, eliminating middle managers, massive downsizing of the permanent workforce,

virtual teams, and extensive use of subcontracting and outsourcing (Peters, 1992). These endeavours to increase adaptability to constantly changing business environments have further raised the importance of professionals in work settings. The qualities that professionals are expected to hold include a certain *distinct expertise*, *autonomy*, *objectivity*, *disinterestedness*, adherence to a set of *professional ethics*, and a *service orientation* (Friedson, 1986; Kerr et al., 1977). With these qualities, professionals have played a critical role in increasing adaptability of firms' capability, being the most skilful and flexible workforces that can be strategically deployed within an organisation.

In response to these two social and organisational needs, professional work has rapidly grown during the second half of the twentieth century. In the U.S., for example, the number of professional and technical jobs has grown by over 300 percent from 1950s to 1990s, whereas the growth rate of the total jobs was 97 percent. (Barley and Orr, 1997) Many scholars have analysed and discussed in depth this rapid growth of the modern professional workers (e.g. Abbott, 1988; Bell, 1976; Drucker, 1993; Friedson, 1986; Leicht and Fennell, 2001; Raelin, 1985; Reich, 1992).

3.2. The Rise of Mobile Professionals

Closely scrutinising the literature on the modern professionals, however, one would immediately realise a simple fact that the literature deals with the professionals either *within* organisations or in inter-organisational arrangements and, as a consequence, generally neglects professionals working *independently*.

3.2.1. Liberation of professional work

Traditionally, most of the modern professionals have been deployed within an organisational structure. As Whalley and Barley (1997) argue, the need for the professionals' expertise was 'created' in response to several changes in the inner conditions of the firms. These changes are for example:

1. Hiving off of work by established professions within organisations

2. *De novo* creation resulting from the introduction of new technologies into organisations

3. Occupationalisation of amateur work that was formerly performed largely on a voluntary basis

4. Upgrading of mechanics in various scenes of business processes

All of these phenomena have been initiated by the first social and organisational need discussed earlier: *a need for the workforce to deal with increasingly complex modern work*. Due to the functional division of labour, the widespread use of modern management techniques, and the rapid computerisation at workplaces, firms' coordination of daily work activities have become increasingly complex. Thus creating and deploying professional workers were a critical task for virtually all firms. In the 1970s and 1980s, this task was accomplished mainly by the internal reconfiguration of workforces rather than utilising human resources outside the firms. Given the relatively rigid employment relationship at that time, such internal 'creation' of professional workforces can be seen as largely valid. It is therefore understandable that much literature of modern professionals primarily looks at professional workers employed by a firm and working within

organisational structures.

However, once considering the second need discussed earlier, *to increase adaptability of organisation to turbulent business environments*, then 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 the 'post'-modern professional workers, whom I call *mobile professionals*, having distinct competence and expertise and being largely independent of formal organisational structures. In many cases, they do their own jobs on a freelance or temporary contract basis and establish ongoing relationship with several different clients (Segal and Sullivan, 1995; 1997; Nardi et al., 2002). In this regard, they are conventionally categorised into "contingent workers" together with on-call workers, temporary help agency workers, and workers provided by contract firms (Barker and Christensen, 1998). However, as mentioned briefly in the previous chapter, mobile professionals strikingly differ from those other kinds of contingent workers. Mobile professionals prefer contingent work arrangement, hold higher education and training, and have higher earnings than the other kinds of contingent workers do (Cohany, 1998) (see Figure 5.1 to 5.5). Most of them are knowledge-based professionals such as contract-based executives and managers, independent consultants, designers, freelance writers and journalists, and planners of various kinds (Meager, 1992). They create their livelihoods by selling their own distinct skills, knowledge and/or tangible and intangible products they make to firms. Concerned with these differences, Marler et al. (2002) distinguish between *boundaryless* and *traditional* contingent workers, the former of which is well consistent with my usage of the term mobile professionals. The emergence and

rapid growth of such mobile professionals is becoming a critical factor in contemporary business environments, especially in knowledge-intensive sectors.

However, surprisingly little research has been done on the emerging mobile professionals and their work practices not being bounded by formal organisational structures, rules and constraints, playing critical strategic roles in organisational contexts. In spite of the fact that various kinds of the mobile professionals are actually playing an important role in contemporary businesses, they have tended to be a "neglected workforce" (Barley and Orr, 1997) who recedes from the 'front stage' of business studies and information systems research. One of the reasons for this would be that most of these professionals are seen as 'outsiders' for 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, 2002a). 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).

Figure 3.1-3.5: Characteristics of independent contractors* in the U.S. (Feb. 1997)
(Adopted from Cohany, 1998)

Figure 3.1: Educational attainment

	College graduate	Less than a bachelor's degree	High school graduate, no college	Less than a high school diploma
Independent contractors	34.1	26.8	30.3	8.7
On-call workers	25.9	32.0	28.7	13.4
Temporary help angency workers	21.9	36.3	30.7	11.1
Workers with traditional arrangements	29.5	28.0	32.8	9.7

Figure 3.2: Occupation

Legend:
- Executive, administrative, and managerial
- Professional specialty
- Technicians and related support
- Sales occupations
- Administrative support, including clerical
- Service occupations
- Precision production, craft, and repair
- Operators, fabricators, and laborers
- Farming, forestry, and fishing

Independent contractors: 20.7, 17.9, 0.8, 17.9, 3.9, 9.1, 17.9, 6.8, ...
On-call workers: 2.7, 21.2, 4.1, 6.7, 8.6, 20.4, 14.7, 18.8, ...
Temporary help angency workers: 6.9, 6.6, 5.8, 1.7, 34.1, 9.1, 5.1, 29.1, 1.6
Workers with traditional arrangements: 14.1, 15.3, 3.4, 11.7, 15.3, 13.5, 10.3, 14.3, 2.2

Source: Current Population Survey (February 1997), U.S. Bureau of Labor Statistics (in Cohany, 1998)

* The group category "independent contractors" in this survey is reasonably consistent with my definition of "mobile professionals."

Figure 3.3: Preference for work arrangement
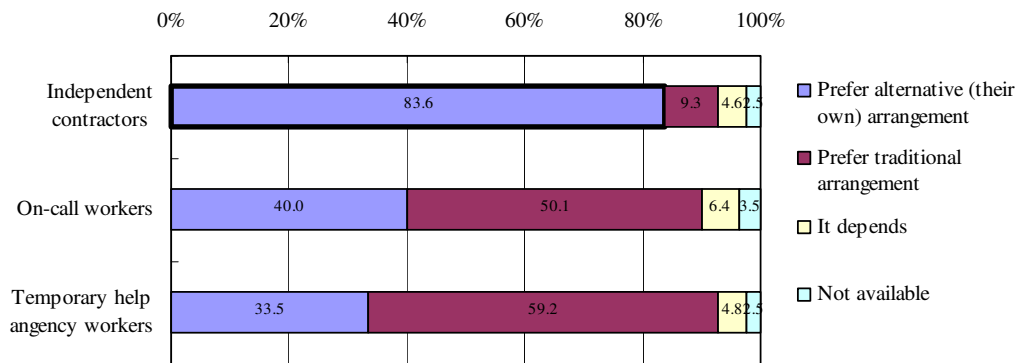
Figure 3.4: Reason for work arrangement
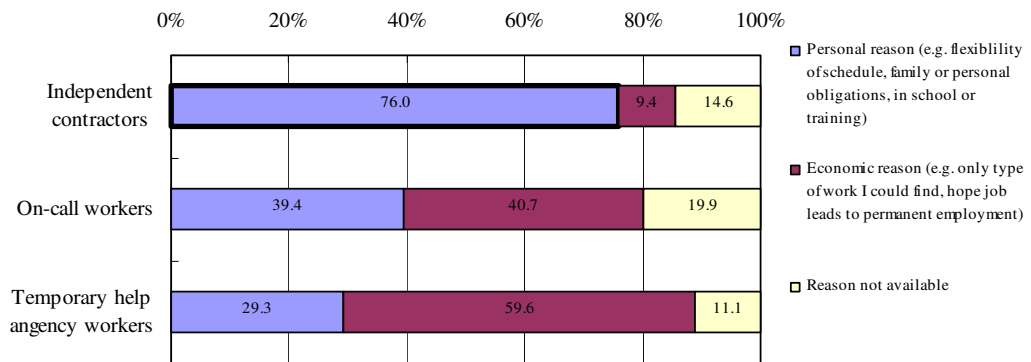
Figure 3.5: Median weekly earnings of full-time workers
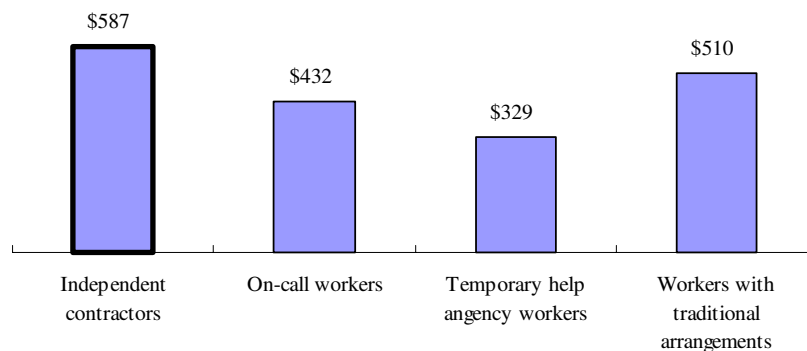
3.2.2. Emerging studies on mobile professionals

Amongst the scarcity of academic research on such mobile professionals, Malone and Laubacher's (Laubacher and Malone, 1997; Malone and Laubacher, 1998) work is one of the notable exceptions. 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 argue:

> The fundamental unit of such an economy is not the corporation but the individual. Tasks aren't assigned and controlled through a stable chain of management but rather are carried out autonomously by independent contractors. These electronically connected freelancers – e-lancers – join together into fluid and temporary networks to produce and sell goods and services" (Malone and Laubacher, 1998: p. 146).

It can be argued that this kind of ICT-enabled mobile professionals, 'e-lancers' in their words, is at the forefront of the contemporary economy. Although mobile professionals outside organisations have already existed in various forms such as lawyer and accountants, they have remained quite small volume compared with workers employed by a certain firm including both white- and blue-collar 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, firms have seen it costly and risky to utilise people who are outside 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. As a consequence, the firms have remained large.

However, with the introduction of powerful and cheap personal computers, laptops, software, the Internet, web-based technologies such as email, mobile phones, and PDAs, 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). Furthermore, an increasing number of highly skilled people within firms are becoming mobile professionals, 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.

Malone and Laubacher's depiction of the ICT-enabled mobile professionals is much resonant with Castells' (2001) 'networked individualism.' He argues that "the development of the Internet provides an appropriate material support for the diffusion of networked individualism [whereby] individuals build their networks, on-line and off-line, on the basis of their interests, values, affinities, and projects" (p. 131). He also insists that in the socio-economic condition based on networked individualism, competent workers are becoming "self-programmable," being able

to "reprogram itself, in skills, knowledge and thinking according to changing task in an evolving business environment" (p. 90-91). Such self-programmable workers clearly differ from the traditional workers in firms. In their working lives, they consider particularly important to establish learning practices whereby "the stock of knowledge and information accumulated in the worker's mind can be expanded and modified throughout his or her working life" (p. 91). The high degrees of autonomy, flexibility, and knowledgeability in working life are the main characteristic of the self-programmable workers.

Castells also points out the flexible employment patterns of the self-programmable workers. As many argue, the Silicon Valley economy is the epitome of the emerging flexible employment practices, and various kinds of self-programmable workers serve as a critical role in sustaining this area of the economy (Benner, 2002; Saxenian, 1994). A UCSF/Field Institute's (1999, cited by Castells, 2001) survey shows the shrinking proportion of traditional employment patterns in the California labour force. Based on the definition of 'traditional' employment as a single, full-time, day-shift job, year around, as a permanent employee, paid by the firm, not working from home or as an independent contractor, and having three or more years of tenure in the same firm, only 22 percent of the working-age Californians fulfil this requirement for the 'traditional' status. This striking fact indicates a clear sign of the rise of new employment patterns that are radically liberated from the traditional organisational structure and business processes.

It is obvious that the autonomy and flexibility of mobile professionals' work practices rely heavily upon the recent development and diffusion of modern

technologies in workplaces. Prior to the widespread availability of mobile communication technologies and services, independent professional workers would depend heavily on fixed telephone and fax lines, which would offer limited communication abilities across temporal and spatial boundaries, rendering them only temporarily separated from the organisations' core activities. However, emerging mobile technologies such as the mobile phone, web-based email clients, laptops and networked PDAs have enabled these people much more fluidly to participate in the clients' business activities. For mobile professionals working independently, being accessible to and keeping in touch with the surrounding world is crucial. This involves keeping communication lines open and stable. In particular the mobile phone has enabled the professionals to be continuously involved in organisational activities by providing them with a geographically independent and portable means of communication.

Therefore, given these shifts occurring around mobile professionals' work practices and their impacts upon contemporary business and organisational activities, it is essential to give careful consideration to how such emerging mobile professionals work *with,* not *within,* various organisations. Nowadays, mobile professionals' work practices are inseparably tied to the core functions and hence competitiveness of contemporary firms. Being an integral part of complex business activities and processes of the firms, mobile professionals are playing a critical role in our contemporary work environment in general and knowledge-intensive and/or service-oriented industries in particular.

Summary of Chapter

This chapter discussed the nature of the emerging mobile professionals and their distinctive characteristics in comparison with that of the traditional workers. Mobile professionals are the workers who own special skills and knowledge and work independently, largely freed from formal organisational constraints and rigid employment relationships. Such professional workers have not been well treated as a research subject in the traditional management and organisational studies to date. In the best case, they have been seen as mere 'contingent labour.' However, mobile professionals should be given much attention and scrutiny particularly with regards to the post-bureaucratic structuring of work, the increasing flexibility of employment patterns, and the technological support for their highly mobile work activities.

CHAPTER 4:

Methodology

Introduction

This chapter discusses the methodology and the approach chosen. Being explicitly aware of methodological choices is of paramount importance in social science research. This is particularly the case when embarking on a new research enterprise that counts relatively few previous achievements. Choosing a certain methodology is tantamount to choosing an overall perspective which determines what a researcher will come to find. Thus, defining an ontology and an epistemology for the research is crucial particularly in social science (Bernstein, 1983; Delanty, 1997).

Section 4.1 discusses why this research is conducted from an *Information Systems (IS) research perspective* following an interpretive stance. In *Section 4.2* the scope and the analytical lens I have selected for this research are discussed. *Section 4.3* deals with the strategy for designing research process. Finally, in *Section 4.4* some potential limitations of this research are discussed.

4.1. Interpretive IS Research

4.1.1. IS research perspective

It is obvious that issues surrounding the concept of mobility are too diverse and complex to discuss from a single, narrowly defined, and rigid perspective. The mobility issues include not only technical issues in relation to rapidly diffusing

mobile communication technologies, such as mobile phone and personal digital assistant (PDA), but also a variety of individual, organisational, and societal problems, dilemmas, and hopes that we face in our everyday lives. However, as discussed in detail in the previous chapter, current mobility studies have been conducted from either a highly technical or highly social perspective. In short, the *technical* school of mobility studies, drawing largely upon computer science and engineering research disciplines, deals primarily with development, implementation, and use of technical infrastructure and architecture for mobile communication, whereas the *social* school, in many cases based on sociological or philosophical theories and discourses, discusses broad societal impacts of mobile communication on various dimensions of our public and/or private lives. While both schools of mobility studies have provided us with a wide range of valuable insights and knowledge concerning those mobility issues, it is clear that there are many unexplored issues to be discussed for healthy development of mobility studies as a whole. Perhaps the most problematic aspect of such a polarised perspective is the tendency to overlook the dynamic interplay and mutual shaping between technology and people (Bijker et al., 1987; Grint and Woolgar, 1997; MacKenzie and Wajcman, 1999; Silverstone and Haddon, 1996).

Reflecting on these, this thesis deliberately takes an *IS (Information Systems) perspective*, especially an European one, which sees information system as dynamic social systems involving not only technological artefacts but also humans who design, use, manage, and change them (Angell and Smithson, 1991; Cornford and Smithson, 1996). Informed from various research achievements of socio-technical systems (Emery and Trist, 1965; Trist and Bamforth, 1951), the

social shaping of technology approach (Bijker and Law, 1994; MacKenzie and Wajcman, 1999), actor-network theory (Callon, 1986; 1999; Latour, 1991), IS research, particularly in Europe, has tried to overcome simplistic technological determinism and the dichotomy of humans and non-humans. It has become sensitised to frequently overlooked social aspects of development, implementation, utilisation, and domestication of technological artefacts and systems. Boland and Hirschheim (1985) describe IS research field as:

> a combination of two primary fields: computer science and management, with a host of supporting disciplines e.g. psychology, sociology, statistics, political science, economics, philosophy and mathematics. IS is concerned not only with the development of new information technologies but also questions such as: how they can best be applied, how they should be managed, and what their wider implications are. (p. vii)

This seems an alternative perspective that we need to take now in addition to existing research perspectives to grasp emerging realities of new mobile communication and resulting organisational and social transformations. Without this, the undesirable and polarised research situation on mobility studies will persist. This research takes such a contemporary IS perspective that could underpin it more steadily in the whole spectrum of the mobility studies. A study on mobility and related issues such as ubiquitous computing and mobile computing have been attracting many IS researchers' interests in recent years but are still at its infant stage as a research topic (Lyytinen and Yoo, 2002a; b). This thesis clearly aims to contribute to this emerging research endeavour.

4.1.2. Interpretivism in IS research

However, taking an IS perspective as such involves its own problems, which have to be appreciated explicitly. Born as an applied research field combining computer science and management studies, IS research has, since its very birth in the 1970s, been always subject to the crisis of *raison d'etre* as an academic discipline. It has been said that current IS research has no common paradigm and that it has many "mini-paradigms." For example, Checkland and Holwell (1998), applying Whitley's (1984) typology of scientific work, argue that today's situation of IS research can be described as "fragmented adhocracy," which has characteristics such as:

1. Weak barriers to entry in the field;

2. Standards which can be affected by 'amateurs';

3. 'Common-sense' language (rather than well-defined terms);

4. Fluid reputations, often based on narrowly specific work;

5. Personal, weakly-coordinated research agendas.

One of the main causes of this situation is that IS researchers have to ceaselessly catch up to the rapid pace of development and diffusion of information and communication technology and its diverse applications to virtually all aspects of our everyday lives. This means that IS research as an academic field inevitably involves a tendency of leaning towards practical rather than theoretical research agenda.

Seeing this intrinsic nature of IS research, many IS researchers have since the 1980s sought how to cope with the fragmented adohocracy by energetically

discussing methodological issues, in particular epistemological foundations for IS research (Boland and Hirschheim, 1987; Galliers, 1985; Galliers and Land, 1987; Hirschheim, 1985; Klein and Lyytinen, 1985; Lyytinen, 1987). In the late 1980s, the main issue to be tackled in the IS research community has been on how to overcome the positivist tradition that had long been predominant not just in IS research but in management and business studies as a whole. By and large, positivist research assumes that reality is given objectively, independent from a viewpoint of observers, and can be described by measurable variables. It aims at hypothesis testing and increasing predictability of phenomena. Orlikowski and Baroudi (1991) argue that IS research is classified as positivist if there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about a phenomenon from the sample to a stated population. In the survey of articles published in selected IS journals from 1983 to 1988, they found that 96% of their sample adopted a positivist perspective.

Partly as a result of those efforts, the IS research community has gradually adopted non-positivist, interpretive techniques and approaches as well as traditional positivist research (Lee 1999). Interpretive research in IS can be summarised by Walsham (1993):

> Interpretive methods of research start form the position that our knowledge of reality, including the domain of human action, is a social construction by human actors and that this applies equally to researchers. Thus there is no objective reality which can be discovered by researchers and replicated by others, in contrast to the assumptions of positivist science. Our theories concerning reality are ways of making sense of the world and shared meanings are a form of intersubjectivity rather than objectivity. (p. 5)

Klein and Myers (1999) explains more succinctly that IS research can be classified as interpretive "if it is assumed that our knowledge of reality is gained only through social constructions such as a language, consciousness, shared meanings, documents, tools, and other artefacts" (p. 69). They also propose, primarily based on hermeneutics of Gadamer and Ricoeur, seven principles for conducting interpretive research in IS: principles of the hermeneutic circle; contextualisation; interaction between the researchers and the subjects; abstraction and generalisation; dialogical reasoning; multiple interpretations; and suspicion (p. 72).

For answering this thesis' research question, "*How do contemporary professional workers accomplish their daily job in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to ICTs in general and emerging mobile technology in particular?*," it is worthwhile to follow the interpretive tradition of IS research, since it gives us much richer and more contextualised insights for the emerging issues around a range of mobility issues than conventional positivist approaches. Applying Klein and Myers' (1999) hermeneutically informed principles for interpretive IS research more flexibly, I shall particularly look at: the context in which mobile technologies are used; how people interpret and appropriate those technologies in their everyday work practices; how emerging mobile communication supported by mobile and other Internet-based technologies shape and are shaped by workplace communication patterns and modalities; and what theories we can generate through those investigation for better understanding current mobility issues.

4.2. Scope and Analytical Lens

In order to keep our discussions here rich and informative enough as an academic research, it is necessary to narrow down the scope of research. At the same time, in order to keep the discussions coherent and rigorous enough, it is also essential to select a particular analytical lens for this research. As briefly mentioned earlier, within the whole continuum of mobility issues, I shall in this thesis look particularly at *mobile professionals* as a distinct group of actors by employing *the practice-based perspective* as an analytical lens for this thesis.

4.2.1. Scope: Mobile professionals

Mobility studies are concerned with a wide range of technical and social issues, dealing with not only various kinds of mobile technology and related information and communication technologies and applications such as mobile phone, laptop PC, PDA, the Internet, email, short message service (SMS), and instant messaging (IM), but also people's actual use of those technologies, resulted changes in human communicative behaviour and patterns, their impacts on organising of work practices and everyday life, and implications for organisational and social transformations at large. It could be argued that mobility studies include any issues that can be attached the term 'mobile' to the top: mobile computing, mobile systems, mobile work, mobile organisation, mobile people, mobile life, mobile society, and so forth. In a sense, the term 'mobile' seems a magic spell that transforms any obsolete topic into a totally new issue to be dealt with urgently. Yet, as we discussed earlier, this means that current mobility studies are faced with the problem of "fragmented adhocracy" just as IS research was and perhaps still is. In

order to avoid this, it is important to define the locus of research and to delineate what this research is to deal particularly with.

It might be quite helpful to discuss what kind of issues this thesis does *not* deal with. Firstly, this thesis does *not* deal solely with technical issues such as development, implementation, and operationalisation of mobile technology and mobile communication architectures. While basic understandings about those technical issues are needed to some extent to discuss non-technical issues around mobile technology and communications, it is not our aim here to plunge into detailed discussions on technical specification of those systems and architectures. Instead, a number of computer scientists and engineers are dealing with those issues under the umbrella research name of mobile and nomadic computing (Dearle, 1998; Varshney and Vetter, 2000).

Secondly, this thesis does *not* deal with broad social issues that barely discuss specific technology or applications. There are an increasing number of scholarly works arguing that our society at large is becoming 'mobile' in terms of modern powerful transportation, nomadic migration of people, friction-free global transaction of money and capital, the rise of 'risk society,' and so on (Adams, 1999; Bauman, 2000; Beck, 1992; Sassen, 2002; Urry, 2000a). This strand of research flourished during the second half of the 1990s, partly reflected by a growing concern with social impact of ICTs upon our ways of living. In fact, our contemporary society can be seen as 'mobile' in many ways. The mobility of various things is increased due to modern technological innovations. It could be argued, along with Bauman (2000), that we are entering into "liquid modernity." However, these broad social issues of mobility are not the main subjects of this

thesis, since addressing exclusively such social issues would not help us understand why and how a specific technology shapes and is shaped by human action and social structures through people's ongoing everyday activities.

Thirdly, this thesis does *not* deal with organisational issues in a simple and direct way. Firms' rapid introduction of mobile technology and other ICTs into their business activities is becoming widely common. This is mainly because contemporary business firms are faced with intense pressure on creating flexible organisational structure and business models with support of various ICTs in order to cope with and even take advantage of constantly changing market conditions. In this regard, arranging an appropriate technological environment and aligning it with business strategy and policy is a crucial task for firms to establish an effective IS strategy (Galliers, 1999). However, it seems quite problematic to address mobile technology in organisational contexts just like such ordinary organisational information systems as groupware and ERP systems because the introduction of mobile technology into organisational business activities radically questions one of the basal conditions of the concept of organisation; namely, the *boundary setting* of an organisation. Mobile technology is by nature a *personal* artefact that people can bring with them virtually everywhere, straddling over various boundaries such as teams, groups, and even organisations. This means that studying mobile technology in organisational contexts require us to reserve, if temporarily, *a priori* assumptions of boundary settings of an organisation itself and to look into *organising* of ongoing business activities in a distributed manner across various organisational boundaries. Therefore it is problematic to discuss organisational impacts of mobile technology in a straightforward manner.

Having considered the above aspects, what I *shall* specifically look at as the particular scope of this research is a certain type of *individuals*, rather than a team, a group, an organisation, or society at large; namely, individuals who work independently to a large extent with support of mobile technology and other ICTs.

There are several advantages of studying individual workers' mobile issue. Firstly, in order to appreciate the dynamic interplay between technology and humans, it is important to look at actual ongoing micro-activities *in situ* rather than organisational or social consequences, since actual utilisation and appropriation of a certain technology are influenced much more directly from each individual's distinct behaviour and the modality of technology use than from organisational or social conditions. Secondly, because mobile workers supported by ICTs get their jobs done in an increasingly distributed manner, a large extent of their work practices tend to be organised beyond and across traditional organisational and social boundaries. Thus, to grasp what actually happens in highly mobile and distributed workplaces, it is crucial to carefully follow *trajectories* of individuals' work activities rather than exploring them from a bird's-eye view. Thirdly, a deep understanding of the nature of *organising*, rather than organisation, of mobile work can be achieved only by inquiring into individuals' detailed *work practices*. As work environments are becoming more and more mobile and fluid with wide the wide spread of ICTs, we need to look at *ongoing process* rather than static snapshots of work practice as we can see in Weick's (1979) primacy of *organising* over organisation and Dahlbom's (2000) primacy of *networking* over network. In so doing, focusing on individuals rather than collective units is significantly beneficial to follow detailed ongoing, constantly changing processes of work

activities *in situ*.

There are of course a number of existing management and organisational studies that shed a light specifically on various aspects of individual workers' behaviours and roles. Classic studies on managerial work (e.g. Kotter, 1986; Mintzberg, 1973; Sayles, 1964) reveal managers' various roles functions in modern organisations. Particularly, Mintzberg's detailed study on managers' everyday work activities identifies six characteristics of managerial work: the quantity and pace of work; the activity patterns; the relationship between action and reflection; the use of different media; the relationship to variety of contacts; and the interplay between rights and duties. Leadership in managerial work has been also intensively studied in management and organisational studies. For example, Kotter (1988; 1990) discusses the process and structure of leadership in organisations. In contemporary business contexts, Heifetz and Laurie (1997) argue that managers' leadership should be more adaptable in order to cope with today's turbulent business environment. In relation to the diffusion of ICTs, individuals' communication patterns and modalities in contemporary business settings are also studied in various research fields. Based on their extensive studies of the effects of ICTs in modern work settings, Sproull and Kiesler (1991) discuss workers' changing roles and functions in ICT-enabled work environments. Daft and Lengel (1986; 1987) study managers' media selection and its impact on their work performance by proposing the media richness theory.

Amongst those studies on individuals in business and organisational contexts, Nardi et al.'s (2002) work on 'netWORKers' significantly influences this research's deliberate focus on mobile professional workers. They define

netWORKers as workers who "rely heavily on their own personal social networks as they seek to get work done in today's world of organizational boundary crossing" (p. 209). Through their close investigation of twenty-two workers working across organisational boundaries, they found that the most fundamental unit of analysis for CSCW is not at the group level but at the individual level because personal social networks, which they call *intensional networks*, become more and more important. They argue that today's work environments are organised increasingly through "the assemblage of people found through intensional networks" (p. 237) rather than constituted as formal teams or groups formed though organisational planning and structuring. Their work looking at intensional networks radically reveals the dynamic organising of individuals' works and its bringing forth of collective unity of organisational structure.

This research generally follows Nardi et al.'s approach but takes a somewhat different route. In order to clarify the increased mobility of individuals and of work itself, this research focuses on individuals whom I call *mobile professionals* rather than general workers that Nardi et al. explore. The label '*mobile professionals*' refers to individuals who work independently to a large extent with distinct skills and knowledge and various ICT supports, in particular mobile technology. Those include independent consultants, freelance designers, planners of various kinds, layers and accountants (not in-house), entrepreneurs, and the like. They are significantly autonomous and flexible in terms of organising their own everyday work practices. In their field investigation of twenty-two netWORKers, Nardi et al. selected those employed by and working within large companies, even a secretarial worker, as informants. In contrast, I exclusively looked at

professional workers whose work practices are increasingly mobile by their active use of mobile and other kinds of communication technologies.

As mentioned earlier, this research does not separately deal with technical, social, or organisational issues of mobility studies but instead sheds a clear light upon a distinct category of individuals; namely, mobile professionals. However, this does not mean that those technical, social, or organisational issues are irrelevant to the study of mobility or worthless to be addressed. Nor does this mean that this research will not offer any insightful implications to those issues. In fact, specifically thanks to its deliberate focus on individuals, this thesis contributes to the discussions on those issues by linking the three discussion areas together and providing them with coherent and pivotal implications (see Figure 4.1). Based on the findings and analyses of my own fieldwork, I shall discuss those implications to technical, organisational, and social issues concerned with mobility in great detail in *Chapter 7*.

Technical issues of mobility

Implications

Focus on
individuals

Implications   *Implications*

Social issues of mobility   Organisational issues
of mobility
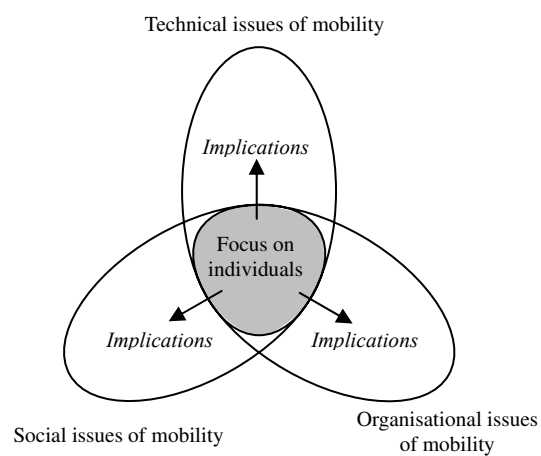
Figure 4.1: Research focus on individuals and its relation to mobility issues

4.2.2. Analytical lens: The practice-based perspective

Having defined the scope of research for this thesis, we move on to selecting a particular analytical lens. By an analytical lens, I mean a certain set of ontological and epistemological positions on which a research is based. In short, an analytical lens is a way, or an attitude, of making sense of a world (Weick, 1995). It can be said that choosing an analytical lens appropriate for research objectives given is the essence of methodological inquiry for interpretive research (Galliers and Land, 1987).

There are numerous research achievements concerned with analytical lenses and related methodological issues in social sciences, particularly in sociology and management studies. Perhaps the most oft-cited works concerned with those issues in sociological and management contexts is Burrell and Morgan's (1979) four paradigms. They propose a typology of paradigms for analysis of social and organisational theories. Looking into various research traditions and approaches in sociology and management studies, they offer a shrewdly defined 2x2 matrix consisting of four distinct research paradigms: functionalism, radical structuralism,

Radical change

Radical Humanist	*Radical Structuralist*
Interpretivist	*Functionalist*

Subjective   **Objective**

Regulation
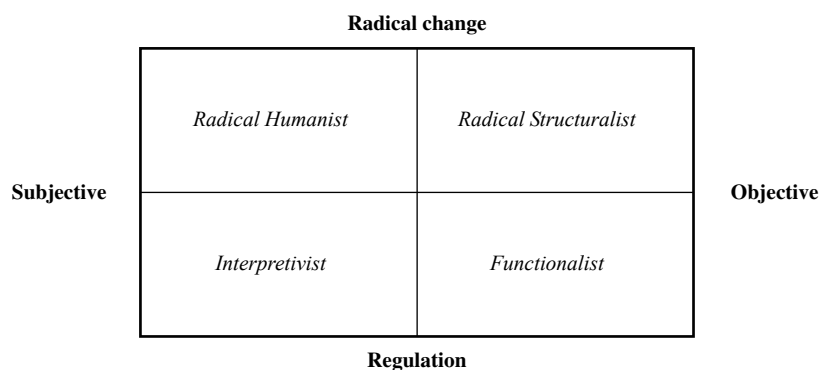
Figure 4.2: Burrell and Morgan's four paradigms

interpretivism, and radical humanism (see Figure 4.2).[4] The matrix is coordinated

by two axes, one regarding epistemology, concerning how to see a world

(objective vs. subjective), and the other regarding ontology, concerning in what

state a reality can be described (regulation vs. radical change), and each

paradigms falls into each quadrant.

The functionalist paradigm, in the objective-regulation quadrant, aims to explain

the status quo, how individual elements of social systems form a collective whole,

and how they create social order. The radical humanist paradigm, in the

objective-radical change quadrant, seeks to offer the explanation of how to

overcome or transcend existing economic and social constraints and power

structures. The interpretivist paradigm, in the subjective-regulation quadrant,

involves a view that human existence and organisational and social realities are

constituted as a form of expression of meanings, consciousness, and value

ascribed to the world[5]. The radical humanist paradigm, in the subjective-radical

change quadrant, seeks to radically transform status quo and emancipate

---

[4] Burrell and Morgan use the term "paradigm" quite broadly; they define it as a "commonality of perspective which binds the work of group of theorists together" (Ibid. p. 23). This use of the term can be seen as equivalent to analytical lens in our discussion here.

[5] The term "interpretivism" in Burrell and Morgan's use is much more narrowly defined than "interpretivism" in IS research that we discussed in the previous section. Interpretivism in IS research can be seen as referring generally to a *non-positivist* position for a research rather than pointing strictly at that in the context of Burrell and Morgan's framework. Thus note that the fact that this thesis primarily follows the interpretive research tradition in IS does not mean that it is exclusively based on the interpretivist paradigm of research methodology in Burrell and Morgan's sense.

constrained ideology, power relations, and value expressions.

Burrell and Morgan's framework for research paradigms has had a significant impact on a wide range of social science fields including IS research (Deetz, 1996; Hirschheim and Klein, 1989). It provides us with a simple but very useful guide map to grasp competing research traditions and related analytical approaches. Furthermore, it offers us a chance to rethink the dominant "functionalist orthodoxy" (Willmott, 1993) and opens our eyes to alternative research methodologies and approaches. However, it is possible to say that Burrell and Morgan's framework as such involves certain ontological and epistemological assumptions, such as separation of objectivity and subjectivity and thus tends to force us to think that four research paradigms are neatly separated and mutually exclusive. In fact, some researchers started criticising, explicitly or implicitly, Burrell and Morgan's framework and advocating methodological pluralism (Gioia and Pitre, 1990; Mingers, 2001; Nissen et al., 1991; Tashakkori and Teddlie, 1998).

One of the emerging efforts to overcome the paradigmatic perspectives of research approaches and methodologies is contemporary social theories based on *pragmatism*, on which this research rests. Pragmatism has its roots in the philosophical works in the late nineteenth and the early twentieth centuries by Peirce (1898), James (1907), and Dewey (1922). Primarily it highlights the importance of understanding and explaining the links that exist between things that are distinctively different and interdependent. Ontologically, pragmatists take the position that there is an objective reality but it is deeply embedded in the context and experience of each individual. Epistemologically, pragmatists see

human endeavour of acquiring knowledge as a continuum rather than opposing and mutually exclusive stand points of objectivity and subjectivity. Thus pragmatism can be located at "somewhere in between positivists and anti-positivists" (Goles and Hirschheim, 2000). Because of this overarching position over different paradigmatic traditions, pragmatists can select "useful" methodologies and approach for answering a particular research question. Here, "useful" does not mean objective instrumentality but depends on a researcher's beliefs and interpretation of the relevance and importance given a specific research question. Tashakkori and Teddlie (1998) summarise pragmatists' attitude to research:

> [P]ragmatists decide what they want to research, guided by their personal value systems; that is, they study what they think is important to study. They then study the topic in a way that is congruent with their value system, including variables and units of analysis that they feel are most appropriate for finding an answer to their research question. (p. 26)

In the second half of the twentieth century, the philosophical tradition of pragmatism has evolved into more formal sociological theories. Two of those are particularly notable in the IS research context: Bourdieu's theory of practice (Bourdieu, 1977) and Giddens' structuration theory (Giddens, 1979; 1984). Although the two sociologists are sometimes put in different veins of sociological research, it would be fair to say that their fundamental intentions advance towards the same direction; that is, both theories aim to overcome the positivistic objective/subjective dichotomy and to provide us with understanding of the duality and mutually constituting relationship of human action (agency or

practice) and social conditions (structure or *habitus*). For the study of technology in general and IS research in particular, which have tended to assume that technology is external and independent to human action and social and organisational structures, these contemporary pragmatist theories have provided us with a useful vehicle for reconsidering "the recursive interaction between people, technologies, and social action" (Orlikowski, 2000: p. 405). Whereas Bourdieu's theory of practice is not applied much widely to the IS research fields as an analytical apparatus (e.g. Schultze and Boland, 2000), Giddens' structuration theory is widely adopted as a distinct analytical lens by a number of researchers in IS research and the study of technology (e.g. Barley, 1986; DeSanctis and Poole, 1994; Karsten, 2000; Orlikowski, 1992; 2000; Orlikowski, 2002; Orlikowski and Robey, 1991).

As seen above, contemporary pragmatist social theories, highlighting duality of human action and social structure and the importance of practice embedded in ongoing everyday activities, is gradually regaining a momentum in IS research and some other fields concerned with technological artefacts. Overcoming the paradigmatic debates on research methodology and analytical instruments, it appears to offer us a useful standing point for investigating various issues concerning mobility and mobile work where technology and human action are inseparably interwoven. Deliberately looking at *ongoing practices* in specific contexts, the practice-based perspective can provide us with grounded implications for a variety of mobility issues and particularly for the nature of mobile professional work that could not be appreciated with purely positivistic or purely interpretive approaches. Whereas this research adopts the practice-based

perspective based on contemporary pragmatism as a distinct analytical lens, the main aim here is not to simply apply contemporary pragmatist social theories such as the theory of practice and the structuration theory to the issues around mobile professional work. With the practice-based lens, what I aim to do here is to deliberately investigate into *work practice* of mobile professionals; more precisely, *the changing nature of their everyday work practices as shaping and being shaped by their use of mobile and other kinds of technologies*. Work practice is the 'lived experience' of mobility to be addressed, where the social and the technical are inseparably interwoven in the contemporary mobile work.

4.3. Design of Research Process

Because of the scarcity of relevant research achievements, the overall research design of this thesis is inevitably exploratory, aiming not to validate pre-defined theoretical constructs concerned with specific issues but to generate brand-new theories and concepts from the data collected in the 'field.' As mentioned above, theory generation is one of the main objectives for interpretive research. Therefore, the research process of this thesis adopts an iterative manner, flexibly renegotiating the research process through continuous interaction with the 'field.'

For designing the research process, this thesis generally followed Eisenhardt's (1989) 8-step iterative model for building theories (see Table 4.1). Her model can be seen as a combination of the grounded theory approach (Glaser and Strauss, 1967) and the comparative case study approach (Yin, 1994), designed especially for empirical research in business and organisational contexts. Although the grounded theory approach is particularly useful for exploratory research dealing

with new social phenomena, it is hard to follow in many cases, especially in rapidly changing research settings such as business and organisational phenomena. Although the case study approach has been widely adopted in management and organisational studies, the approach, in particular Yin's, is based primarily on positivistic understanding of social reality, assuming that social reality consists of dependent and independent variables and that the relationships between them are pre-determined and can be tested by objective data collected. Eisenhardt combines the advantages of both approaches for theory building in management and organisational research and offer a flexible and iterative framework for designing the research process. Her model is appropriate for this thesis because the research setting for data collection is constantly and rapidly changing, aiming to capture on-going, situated work practice of mobile professionals who get their jobs done in various time-space. The following sections discuss how this research applied her model to coordinate the research process.

Step	*Activity*
1. Getting Started	- Definition of research question - Possibly a priori constructs
2. Selecting Cases	- Neither theory nor hypotheses - Specified population
3. Crafting Instruments and Protocols	- Multiple data collection methods - Qualitative and quantitative data combined - Multiple investigators
4. Entering the Field	- Overlap data collection and analysis, including field notes - Flexible and opportunistic data collection methods
5. Analyzing Data	- Within-case analysis - Cross-case pattern search using divergent techniques
6. Shaping Hypotheses	- Iterative tabulation of evidence for each construct - Replication, not sampling, logic across cases - Search evidence for "why" behind relationships
7. Enfolding Literature	- Comparison with conflicting literature - Comparison with similar literature
8. Reaching Closure	- Theoretical saturation when possible

Table 4.1: Eisenhardt's 8-step model of building theories (1989: p. 533)

4.3.1. Getting started

This research started with the initial definition of the research question in broad term: "*How do contemporary professional workers accomplish their daily jobs in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to ICTs in general and emerging mobile technology in particular?*". Setting a research question is crucial to define the domain of inquiry. Eisenhardt argues that the importance of setting a research question in the initial stage at least broad terms is the same as it is in hypothesis-testing research. The initial definitions of the scope and the analytical lens for this research also contributed for making the research direction clear. *A priori* specification of constructs also helped this research at the initial stage. The initial literature review on the concept of mobility and work practice presented in *Chapter 2* provided me with a useful theoretical ground on which to ground the emergent theory and concepts. Furthermore, the discussion on the historical background of the mobile professionals discussed in *Chapter 3* also served as the useful guideline for carrying out the fieldwork.

It is important, however, to recognise that initial definition of the research question and the constructs are only tentative. Eisenhardt insists that "no construct is guaranteed a place in the resultant theory... Also, the research question may shift during the research" (ibid. p. 536). Important shifts of research focus and/or changes of the research direction might happen in the iterative process between data collection and analysis. Moreover, new constructs for theory building might emerge even in the late stage of the research. What I tried to do in this initial stage of the research was to avoid being overly biased by those initial research

questions and constructs that could limit the findings and to be as open as possible to emergent theories and constructs. In fact, a number of findings emerging out of the fieldwork reshaped my research perspective and helped illuminating the lived experience of the mobile professionals.

4.3.2. Selecting cases

The scope of this research, looking at mobile professionals, served as the basis for the selection of cases. As discussed previously, focusing on individuals rather than groups or teams was fundamental for this research since in order to inquire and discuss detailed lived experiences of mobile professionals, each individual's work practice had to be closely examined and analysed. To look closely at actual work practices of mobile professionals, I chose Tokyo, Japan as the fieldwork site for this research. The reasons for choosing the particular site are discussed in this section in detail.

Conducting fieldwork in Tokyo involved several clear benefits for the study on work practice of mobile professionals. Firstly, the *distinctive institutional background* of Tokyo was particularly interesting. Japanese work environment in general has been, and perhaps still is, largely different from that of Western countries. Distinctive characteristics of the Japanese corporate system have been typically described by three institutionalised traditions: the lifetime employment; promotion by seniority; and the enterprise union system (Aoki and Dore, 1996). However, in recent years the 'Japan Corporation' has been subject to severe political and economic pressures from Western countries, particularly U.S. Partly because of it, some of the large Japanese companies, for example, Toyota, Honda,

and Sony, have become much more 'modernised' in terms of manufacturing products and coordinating business processes than Western companies (Womack et al., 1990). In fact, Japan appears to be "a floating world of its own" embracing "both ends of the great arch stretching from the most free-market oriented to the extreme state-directed version of post-industrial society, in a unique combination of private enterprise and administrative guidance" (Perkin, 1996: p. 147).

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. It has been quite difficult for such professionals within rigid and conservative organisational structures to find an alternative life and career outside of their current worlds, simply because in Japan there are scarce resources and opportunities for making a "boundaryless career" (Arthur and Rousseau, 1996; Marler et al., 2002). However, there *are* quite a limited but steadily increasing number of professionals in Japan, mostly in Tokyo, who are working independently to a large extent, freed from traditional organisational structures, and deciding flexibly what and how to do for their own lives. Thus it could be argued that those 'boundaryless' professionals in Japan are just embarking, though quite belated, into the very frontier of the emerging world of work in the post-industrial era (Cappelli, 1999). Therefore, the 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.

Secondly, Japan's *unique and advanced technological environment* was also

critical for this fieldwork. 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.

For example, because of its sustained global competitiveness, Japanese

automobile industry has been one of the most popular research areas in

management and organisational studies during the 1980s and 1990s. (e.g.

Fujimoto, 1999; Nishiguchi, 1994; Womack et al., 1990)

Whereas there are some signs of the Japanese automobile industry being at a

plateau of prosperity, we are now witnessing another dramatic technological

innovation and diffusion in Japan: *mobile technology*. During the last decade,

mobile technology, including mobile telephone, PDA, and ancillary software and

hardware technologies, has rapidly become common and prevalent throughout the

developed countries. The mobile phone, for instance, has almost become a daily

necessity not only for business people but also among teenagers particularly in

Europe and Asia (Kopomaa, 2000). In terms of diffusion rate of mobile phones,

Japan does not particularly stand out from other countries; Scandinavia and South

Korea exhibit a slightly higher diffusion rate of mobile phones. As of June 2002,

77% of the mobile phones subscribed in Japan were internet-enabled (NTT

DoCoMo's *i-mode*, KDDI's *Ezweb*, and J-Phone's *J-Sky*)

(Mobile-Internet-Magazine, 2002), whereas WAP, the similar European standard

of internet-enabled mobile phone services, lagged far behind. Moreover, 3G (third

generation) mobile phones (DoCoMo's *FOMA* and KDDI' *CDMA 2000-1x*) have

also enjoyed comparably rapid popularity in Japan attracting five million

subscribers by December 2002. [6] Obviously, such a unique technological environment potentially influences Japanese mobile professionals' work practices. Nowadays, almost all Japanese professionals are using internet-enabled mobile phones, which offer them a means to send and receive email from their mobile phones. As a mobile phone is a *personal* good, they can bring it with them everywhere, all day, even during weekends. It is no difficult to imagine that new patterns and modalities of human behaviour emerge out of such an environment (Rheingold, 2002). Yet unfortunately we do not sufficiently understand these emerging changes as related to 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.

Thirdly, *direct access to mobile professionals* working around the area was another deciding factor of the site selection. Through my previous experience of working as a business consultant at a medium-size consulting firm in Tokyo, I had participated in numerous projects where I worked together with various clients and business partners in a wide range of industrial sectors. This experience gave me a chance to establish a personal network of professionals working in and around the Tokyo metropolitan area, such as independent consultants, various kinds of planners, designers, business producers, venture capitalists, lawyers, accountants, and so on. This network significantly helped me identify and select

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[6] Whereas the number of subscribers of *FOMA* is still hovering around 1.5 hundred thousand, *CDMA 2000-1x* has been showing a dramatic success so far, gathering 4.7 million subscribers in the first nine months from its inception, almost all subscribers of 3G phones by December 2002.

actual informants for this research. Furthermore, as mobile professionals are expected to account for only a fraction of the workforce, it is also reasonable to choose a large metropolis like Tokyo, where one is likely to encounter independent professionals due to the increased business opportunities as compared with smaller cities.

Given these three benefits, I saw Tokyo as the most appropriate fieldwork site for this research, and during the period of April to July 2002, sixty-two professionals working mainly around the Tokyo area were selected and interviewed. For the search of interviewees, I chose people whose work practices in their professional work activities were highly independent. By independent I mean a high degree of autonomy in deciding what and how to do in actual work practice, regardless of employment relation. In this sense, workers who can get their work processes largely based on their own design and decision can be seen as professionals.

4.3.3. Crafting instruments and protocols

Two complementary data collection methods were used in this research. The first and main method is *in-depth interviewing*. The interview method is among the most widely used in qualitative research in general. However, the interview method can be used in both positivist and interpretive ways. Yin (1994), for example, is one of the main proponents of case study research and refers to interviewing as one of the main means to gain qualitative data from the field. However, his approach is inherently based on positivist understanding of research activities, applying natural scientific methods to social phenomena to identify and validate causal relationships between particular social events. This approach tends

to undervalue contextual data deeply embedded in the social events and unintended consequences (Boudon, 1986). As mentioned earlier, this research takes the practice-based perspective in order to appreciate the changing nature of work practices of mobile professionals being deeply engrained in their ongoing everyday work practices. Thus the interview method taken was used in an interpretive way, in the form of semi-structured, in-depth one, paying much attention to subjectivity of both the interviewer and the interviewees.

The second method used for data collection was *ad-hoc observation* in the field. Barley and Kunda (2001) advocate that although the interview method is especially useful for "understanding how people make sense of their work and the issues they believe important," it is not credible sources of information on "what people actually do or how they do it" (p. 84). They argue that observation-based techniques should be mixed with the interview methods. Among the types of observation-based techniques, participant observation, looking into objects from the 'native' point of view, is particularly useful for acquiring detailed, contextually sensitive data on work practices. This ethnographic technique can reveal the significance and culturally ingrained meanings of everyday work practices that the workers tend to take for granted.

Although participant observation is recognised as one of the 'best' methods to grasp the situated nature of work practice, one would be faced with some practical difficulties when applying the method to fieldwork on mobile professionals. Participant observation requires a researcher to spend an extended period of time in the 'field' (Myers, 1999). However, this makes sense only if the 'field' can be geographically defined and fixed (like office, factory, and home). Mobile

professionals, the main subject of this fieldwork, are in fact a 'moving target' that does not stay in one space for a long time but extensively moves across various geographical as well as social boundaries. This clearly means that the 'field' of the mobile professionals can hardly be described in geographical terms alone. Furthermore, because this research focuses on individuals rather than groups or organisations, participant observation on a single individual, being closely together with him or her for a long period of time, tends to considerable obstacles and interference with his or her actual work activities, physically and mentally. For these reasons, the traditional, 'fixed-point' participant observation was not feasible for this research.

What I employed for collecting highly contextualised data of work practices of mobile professionals was to observe them *ad hoc* mainly during and after each interview session. As work practices of mobile professionals is virtually 'anytime, anywhere,' the interview session is also embedded into their continuous everyday practices, being a part of 'daily events.' Thus during the interview time, I could observe what they were doing along with being interviewed and how they behaved.

As Lyytinen and Yoo (2002b) and Weilenmann (2003) note, studying emerging mobile and nomadic work environments demands considerable reconsideration of research methodology. We need to tailor traditional methodologies, quantitative and qualitative, so as to grasp and explicate contemporary work activities that are more and more geographically distributed and temporarily fragmented. The combination of in-depth interviewing and ad-hoc observation could be one of the solutions.

4.3.4. Entering the field

Eisenhardt argues that the distinct feature of her model for building theory from case studies is "frequent overlap of data analysis with data collection" (ibid. p. 538). In most cases, researchers cannot clearly separate the data collection process from the data analysis process since fieldwork for most kinds of case study takes a long time period to be completed. Researchers can start to analyse the interview records and field notes simultaneously with the on-going data collection process. They can also modify data collection instruments, such as changing and/or adding interview protocols, and even add new cases to gain more insights and information about the focal issue.

The fieldwork was conducted from April to July 2002. Each interview took from one to one hour and a half. Most of the interviews were recorded but some could not be recorded for confidentiality reasons. All the recorded interviews were transcribed and non-recorded ones were reflected and summarised just after the interview sessions based on the notes taken during the interviews. The actual process of identifying and selecting interviewees was not totally controllable but largely dependent upon the interviewees' own personal networks of professional workers. In each interview session I was constantly introduced to new professionals seen as appropriate for my interview objectives from the point of view of the interviewees. Most of them were their friends, colleagues, and previous and current business partners. Therefore I could efficiently find new candidates to interview, and finally the total number of interviews reached sixty-two in the period of the fieldwork.

The ad-hoc observations were carried out much more opportunistically. For instance, during the interview session, some informants received phone calls, emails and texts on their mobile, and even started talking with others on the mobile phone. Likewise, in most of the interviews, I had the chance to spend more time with the interviewees after the session for informal talk over tea, coffee, or dinner in some cases. In this kind of occasion, I could also observe some distinct aspects of their everyday work practices. These observations were totally unintended and held for a limited period of time within or after the interview sessions, but in fact provided me with valuable, contextually sensible data about the mobile professionals' everyday work practices, which can be of great complement to interview data.

4.3.5. Analysing data

The data collected through the interviews and observations was analysed with inductive qualitative techniques (Agar, 1980; Van Maanen, 1988). There are two reasons for this choice. Firstly, this research is highly exploratory by its nature. As discussed earlier, in spite of the recent endeavours to investigate the complex nature of mobility in contemporary work contexts, there have been few research efforts drawing out critical factors and variables from actual work practices of mobile professionals and seeking to establish theoretical foundations. Currently, little research has investigated key factors and variables, how these influence the ways in which the professional workers accomplish their work, and what kinds of social and technological support can and should be introduced. Consequently, this research aims to reveal and extract fundamental issues and/or themes emerging through inductive analysis of the qualitative data collected, rather than examining

preset hypotheses in a deductive manner.

Secondly, this research focuses on work practices. As will be discussed in detail in the next chapter, work practice is deeply embedded into a context in which the practice is conducted. Practice is a highly contextualised human experience that integrates the person with a particular situation and brings forth new ideas, knowledge, and/or innovation that recursively shift the context (Brown and Duguid, 2001). Given this nature of work practice, analysis needs to be highly context-sensitive, requiring iterative reflection between the careful examination of data and the collation of the findings with the context in which the data is collected. In analysing the qualitative data collected, I paid much attention to how mobile professionals made sense of their everyday activities and in what context they found a particular issue critical to their work practices.

4.3.6. Shaping hypotheses

Eisenhardt argues that this step is a two-part process: 1) refining the definition of the construct and 2) building evidence which measures the construct in each case. This is the iterative process where the researcher tries to seek 'fit' between data and theory. For this theory building strategy, hypotheses are not concretely predefined to be tested with objective data but rather tentative constructs that emerge out of the iterative analysis. If the data and the theory fit well then the construct converges and advocate reality. Weick (1989) regards this evolutionary process of theory building as "disciplined imagination" consisting problem statements, through trials, and selection criteria. He argues that "theorizing is more like artificial selection than natural selection, and theorizing becomes more

like natural selection the more the process is dominated by validation and empiricism" (ibid. p. 519).

In this research, the initial theoretical base was first constructed based on the literature and introduced in *Chapter 2* and *Chapter 3*. It was iteratively adjusted and reconstructed through the 'talk' with the data collected in the fieldwork. In this process, the qualitative data was particularly useful to understand 'how' and 'why' questions about the focal issue. In fact, several distinct themes that seemed significant for mobile professional work have emerged through this iterative analysis process, and those will be discussed in great detail in *Chapter 6*.

4.3.7. Enfolding literature

Eisenhardt argues that "an essential feature of theory building is comparison of the emergent concepts, theory, or hypotheses with the extant literature" (ibid. p. 544). She further insists that "tying the emergent theory to existing literature enhances the internal validity, generalizability, and theoretical level of theory building" (ibid. p. 545). This process is particularly important in the case that the emergent findings from the data analysis conflicts with the literature findings.

As discussed in the previous chapter, the literature on mobility and mobile work in business and organisational contexts is quite limited so far. Therefore, the literature used for the comparison with the emergent findings spanned a wide range of social science fields. The discussion will be presented in *Chapter 7*.

4.3.8. Reaching closure

The researcher is inevitably faced with two central problems in reaching closure:

when to stop adding cases, and when to stop iterating between theory and data. In the first problem, it is generally said that the researcher stops adding new cases when theoretical saturation is reached (Glaser and Strauss, 1967). In practice, as Eisenhardt argues, the researcher depends on more pragmatic considerations such as time and budget to decide when to stop. In this research, there were of course time and budget constraints and adding as many new cases as possible within those practical constraints.

The second problem concerning when to stop iterating between theory and data is much more difficult to manage than the first. Thought trials can be continued as the researcher wish, but as in the first problem, theoretical saturation and practical constraints are the deciding factors. In this research, the iteration between theory and data was continued until several theoretical constructs became that emerged out of the process held adequate level of clarity and depth of description. Those results will be discussed in *Chapter 7*.

4.4. Generalisability and Limitations

As this research follows the interpretive research tradition, so does the issue of generalisation of expected findings in the empirical fieldwork. Walsham (1995), one of the main proponent of the interpretive approach in IS research, proposes four types of generalisation from interpretive case studies with examples as follows:

1. Development of concept
    e.g. Zuboff's (1987) development of the concept of "informate" through her case studies of information systems use in U.S. organisations;

2. Generation of theory

> e.g. Orlikowski and Robey's (1991) theorisation of the organisational consequences of information technology through their empirical study;

3. Drawing of specific implications

> e.g. Walsham and Waema's (1994) drawing many implications to information systems development through their in-depth case study of a financial service company;

4. Contribution of rich insights

> e.g. Suchman's (1987) contribution of providing rich insights on human-computer interaction and the relation between human action and plan

Primarily, this research aims to achieve these directions of generalisation that Walsham suggests, rather than attempting to test certain hypotheses or validate empirical statements by using statistically rich data with a large number of samples. Based on the data gained through in-depth interviews and ad-hoc observation on mobile professionals, I aim to construct a theoretical foundation for addressing mobility issues in general and mobile professional work in particular. In addition, I aim to offer implications, both theoretical and practical, to mobile work and insights concerned with various related issues. Hence, in this sense, this research puts much more emphasis on Yin's (1994) "level-two inference" (generalising to theory) than "level-one inference" (generalising to empirical statements). This emphasis is also largely consistence with Glaser and Strauss' (1967) grounded theory approach, facilitating "the generation of theories of process, sequence, and change pertaining to organisations, positions, and social interaction" (p. 114).

Taking this stance of generalisability, this research immediately comes to be faced with at least three potential limitations. The first is the possible cultural biases. For

the sake of several advantages mentioned earlier, Tokyo, Japan was selected as the

fieldwork site for this research. Specifically because of this, the actual data

collected should involve biases attributed to the cultural and institutional

distinctiveness of Japanese society and Japanese workers' norms and conventions.

Empirical findings drawn from the data should also be further distorted due to my

own Japanese perspective and subjective interpretations. With regard to this

possibility of cultural biases, two things have to be mentioned. Firstly, this

research will not, or rather cannot aim to provide globally applicable empirical

findings but to 'inform' mobility studies in general and the study on mobile

professional work in particular with various context-rich examples collected in

Japan that can offer a wide range of implications to mobility issues in other

cultural contexts. Secondly, even so, various discussions in this thesis on mobility

and mobile professional work in Japan can be applicable to mobility issues in

other cultural contexts to some extent. Along with Scandinavian countries, Japan

is a forerunning country in terms of diffusion of emerging mobile technologies

such as web-enabled mobile phone and PDA. This means that, in Japan, there

should be a number of indications concerned with people's emerging work

practices and organisational consequences resulted from their intense use of

mobile technology that Western countries have not yet witnessed. Thus it is

possible to say that Japanese cases of mobile professional work embrace a range

of implications relevant and valuable to other countries' cases.

The second potential limitation of this research comes from the methods actually

taken in the fieldwork; namely, in-depth interviews of sixty-two professionals and

ad-hoc observation on their work practices. One can question whether or not the

number of interviews, sixty-two, is enough to fulfil the objectives of this research; namely, to theoretically inform the study on mobility and mobile professional work. However, it is important to note that the analytical unit of this research is not a group or an organisation but rather *each individual mobile professional.* Thus it can be argued that the fieldwork conducted is not a single case study of sixty-two mobile professionals but a study on *sixty-two cases* of individual mobile professionals. Given this, the number of interviews can be seen as justifiable.

Along with this potential limitation with regard to the number of interviews, one could also question the ad-hoc observation method. As such, ad-hoc observation is quite an unusual style of ethnographic methods for fieldwork. In order to achieve 'thick description,' participant observation normally takes an extended period of time, generally ranging from six months to several years (cf. Orlikowski, 1991; Schultze, 2000). Compared with this, the consecutive length of time of each ad-hoc observation is extremely short, from a few minutes to a couple of hours, seeming insufficient as formal participant observation. However, the ad-hoc observation method is not the primal data collection method for this research, but rather it aims to be *complementary* to in-depth interviews to make them much more context-sensitive. Furthermore, whereas the traditional participant observation is not aimed at following a single person in the field, the ad-hoc observation taken in this research deliberately keeps its focus on a single person throughout the observation period. Hence, such ad-hoc observation on each individual can gain relatively rich data within a limited period of time.

The third potential limitation is the relatively low level of simplicity in theory construction. Weick (1979) points out the inevitable methodological dilemma in

social scientific research: the researcher can only aim to gain any two of the virtues of *simplicity*, *generality* and *accuracy*, by sacrificing the third one in his/her research. This research could obtain the medium level of generality and the high level of accuracy by studying the distinct emerging reality relevant to a broad range of contemporary management and organisational issues with the highly detailed empirical data. Due to such a tendency of this research, the complexity in resultant theories and concepts, which will be presented in *Chapter 8*, could not be appropriately reduced. However, given the fact that the research on mobility in management and organisational studies has just started and that adequate research achievements have not been accumulated so far, choosing this research strategy, seeking for high generality and accuracy at the cost of low simplicity, would be the best way to facilitate this emerging research endeavour. Of course, future research has to complement such a limitation, which will be discussed in *Chapter 8*.

Summary of Chapter

This chapter explained the perspective, distinct scope and approach, and particular methods taken for this research. Amongst various social and organisational consequences rising around people's use of mobile technology, this research looks at *mobile professionals* as a distinct group of individuals whose work practices are heavily dependent upon *mobile technologies* and other ICTs, and how they get their everyday work done. In so doing, this research takes the *interpretive perspective* in IS research and closely investigates the changing nature of the professionals' *work practices* through the *practice-based perspective*. The research process is is designed based on Eisenhardt's 8-step model for theory

building with qualitative case study method. Overall, instead of several potential limitations, this research can provide us with a wide range of valuable data, insights, interpretations, and implications for theory building concerned with mobility issues in general and mobile professional work in particular.

CHAPTER 5:

Fieldwork: Mobile Professionals in Tokyo

Introduction

Until recently, there has been little empirical research on how people use mobile technology along with other ICTs and how this has changed their everyday work practices. Whilst some of the emerging mobility studies discussed in *Chapter 2* have conducted empirical studies, in many cases employing ethnographic methods, there still is a huge demand for an empirically grounded, detailed field study looking at the situated nature of people's use of mobile technology. Such a situation is not only due of its infancy as the research field but also because of the very nature of mobility studies, which involve intrinsic difficulties in separating dependent and independent variables due to the highly fluid conditions for human behaviour in contemporary mobile work settings.

As I have discussed earlier, this research has a specific scope and analytical lens, namely, looking at *mobile professionals* as a distinct group of contemporary workers from a *practice-based perspective.* The field study has been conducted specifically in this line of conduct. With in-depth interviews and ad-hoc observations of sixty-two mobile professionals working in Tokyo, Japan, it aimed to provide contextualised data about how they got their jobs done by utilising various ICTs, especially mobile technology such as mobile phone, laptop PC, and PDA. This chapter discusses in detail the actual process and the general results of the fieldwork. *Section 5.1* first explains the background of the fieldwork,

particularly how the fieldwork was coordinated. *Section 5.2* discusses the generic features of the informants with some statistic data. Then, in *Section 5.3* three distinct cases of mobile professionals are chosen to offer detailed descriptions of their everyday work practices. These three cases are particularly distinctive in terms of representing the common important aspects of mobile professionals' work practices. Thus these can be the critical cases for analysis and discussion in the following chapters.

5.1. Background

The fieldwork was conducted in Tokyo, one of the biggest cities in the world, from April to July 2002. As discussed in the previous chapter, conducting fieldwork in this large metropolis held primarily three benefits for studying mobile professionals and their everyday work practices; namely, the distinctive institutional background, the unique and advanced technological environment, and the direct access to the informants. This section offers the background of the fieldwork, how the informants were selected and how the actual interviews and observations were carried.

5.1.1. Selection of informants

The mobile professionals can be defined as a category of workers:

1) who own distinct and competitive work skills and/or knowledge;

2) who work independently, largely freed from formal organisational constraints and rigid employment relationships; *and*

3) whose work activities are highly mobile in terms of operation, location, and

interaction with the support of ICT, particularly mobile technology.

Typical occupations falling into this category would be consultants, designers, journalist, planners, lawyers, and accountants. Most of the mobile professionals are considered to be independent or contract-based workers, but some mobile professionals may also be employed by an organisation. The distinguishing characteristic here is a high degree of autonomy in their daily activities (such as academic scholars in universities, corporate researchers, lawyers in law firms, etc.). In addition, entrepreneurs running small companies can also be seen as mobile professionals, since they have extensive authority over their companies and hence can decide what to do on a daily basis.

In Japan, professional and technical workers have steadily increased over the decades. In 2001 they rose to 13.6% of all workers in Japan (see Figure 5.1). However, not all of these professional and technical workers are mobile professionals; a considerable number of those workers are still employed full-time and given a wide range of security in terms of constant wage increase and tenure. Given the fact that only 6.7 percent of all workers in U.S. fall into the category of mobile professionals[7] (Cohany, 1998), mobile professionals in Japan, even in Tokyo, are a minority group compared with the vast majority of the traditional, formally employed, office-based workers.

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[7] The group of 'independent contractors' in this survey is considered correspondent to the definition of the mobile professionals.
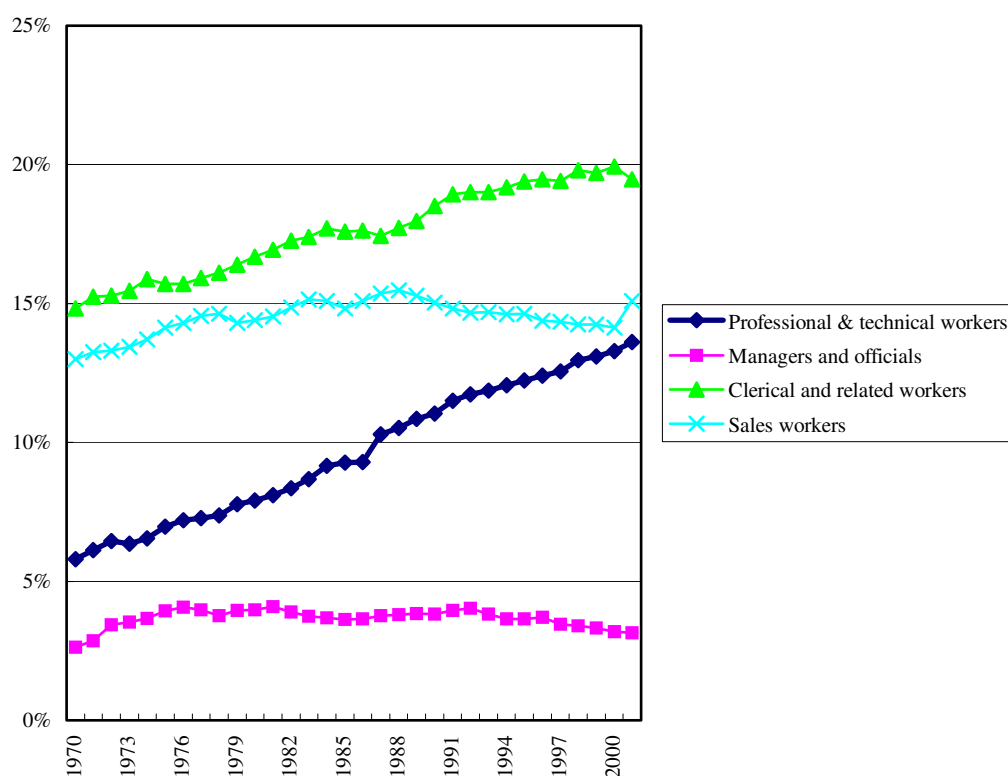
Figure 5.1: Transition of the percentages of workers in Japan
Source: "Labour Force Survey", Statistics Bureau, Management and Coordination Agency

I first tried to contact possible informants one by one based on my own personal network. As mentioned above, through my work experience, I enjoyed a large network, particularly professional workers such as consultants, designers, planners, and the like. By taking advantage of this, I managed to interview twenty-five people, with whom I had direct personal relationships, from April to May 2002. During the interviews, I asked all of the interviewees to introduce me to their friends and acquaintances that could fall into the category of mobile professionals. Consequently, I succeeded to enrol further thirty-seven people for interviews, bringing the total number to sixty-two by the middle of July 2002. The process of locating and contacting informants relied upon various personal

networks, or what Nardi et al call "intensional networks" (Nardi et al., 2002); all the informants had direct or indirect relationships with me and hence with each other. As I shall discuss later in this thesis, mobile professionals create and hence are supported by their personal networks that link them loosely but critically in their everyday work practices. In this regard, it could be argued that this fieldwork of contacting and interviewing various mobile professionals was indeed a product of utilisation of those personal networks.

5.1.2. Data collection procedure

As explained earlier, I employed two data collection methods in this field study: semi-structured interviewing and ad-hoc observation. The main data collection method was semi-structured interviewing. Each interview session took from one to one hour and half on average, although six interview sessions took around thirty minutes due to interviewees' tight schedules or unexpected incidents in their business during the sessions. All the interviews were recorded, except ten that could not for confidentiality reasons. All the recorded interviews were transcribed and the non-recorded ones were reflected on and summarised immediately afterwards based on the notes taken during the interviews. The following list outlines the interview plan applied throughout the semi-structured interviews:

1. Personal background: age, education, nature of job involved, position, year(s) of working in current position, previous position/job, history

2. Possession and use of IT tools: PC (desktop/laptop), PDA, mobile phone, pager, number of email sent and received (business/private)

3. Frequency of meeting: with clients, with internal members

4.   Details of projects currently involved in: types, members, duration, current stage, activities in your charge, project management

5.   Consideration of work site: office, home, clients' site, on vehicle, etc.

6.   Consideration of independency in work activities: positive and negative aspects

7.   Consideration of communication amongst members: obstacles and solutions

8.   Impact of computing technologies on everyday work activities: how did they change your work? New opportunities and problems?

9.   Impact of mobile technologies on everyday work activities: how did they change your work? New opportunities and problems?

10,   Future plan: direction of business, career plan, ideal image of working

Ad-hoc observations were conducted during and in some cases also after each interview session. The period in which the interview was actually held was a good opportunity to observe the informants' daily activities, since his or her business relentlessly kept going even during the interview session. For example, some informants constantly received mobile phone calls during the interview session with the purpose of coordinating such matters as making other meeting appointments and answering other project member's questions. For the interviewee, the interview was merely one of the many issues to be juggled simultaneously. Therefore, I came across a number of interesting behaviours displayed during the interview sessions. In addition, in some cases, I had the opportunity for an informal talk with the informant after the interview session. The informal talk provided me with the opportunity to gain 'lived' data about the

nature of their work activities. Being together with the informant for an extensive period, I could observe, more vividly, various mundane affairs in getting their job done. I described my observations as much as possible on the notes within the day of each interview. Along with these observations, the informal talk and observations were also an invaluable data source. Some critical observations in the three focus cases are drawn and discussed in detail later in this chapter.

5.2. An Overview of Informants

This section explains some general aspects of the informants. Table 5.1 shows the list of all the informants interviewed during this fieldwork.

5.2.1. Occupation

Occupation of the mobile professionals interviewed ranged widely. The largest (eleven) group by occupation consisted of independent consultants. There could be several reasons for this group being the largest. First, independent consultants have highly distinct skills and knowledge that are extremely difficult to be replaced by others and hence they will be in demand. This competitiveness makes them liberated from various organisational constraints. Second, they are very independent in their work practices. Because of their distinct skills and knowledge, each of them can be an effective business unit without forming a team with other people. Third, given the high degree of independence in their work activities, these professionals can decide where and when they work in a flexible manner. Such independent consultants have tended to be treated as one of the contingent workers together with day-workers and home-based workers. However, with regards to their highly competitive skills and knowledge, difficult to be replaced

by others, and extensive mobility in their everyday work practices, independent consultants should definitely be addressed with much more scrutiny.

No.	Job	Gender	Age	No.	Job	Gender	Age
1	Independent consultant	M	50s	32	Corporate manager (employed)	F	40s
2	Corporate manager (employed)	M	50s	33	Consultant (employed)	F	20s
3	Entrepreneur	M	30s	34	Architect	M	40s
4	Independent consultant	M	30s	35	Independent consultant	M	30s
5	Independent consultant	M	50s	36	Sales coordinator (employed)	M	30s
6	Corporate researcher (employed)	M	30s	37	Consultant (employed)	M	30s
7	Corporate researcher (employed)	M	30s	38	Marketing planner (employed)	M	30s
8	Consultant (employed)	F	30s	39	Entrepreneur	F	50s
9	Marketing planner (employed)	M	30s	40	Independent consultant	M	50s
10	Marketing planner (employed)	F	30s	41	Designer (freelance)	M	50s
11	Consultant (employed)	M	30s	42	Journalist	M	30s
12	Entrepreneur	M	30s	43	Journalist	M	30s
13	Entrepreneur	M	50s	44	Sales coordinator (employed)	M	20s
14	Corporate researcher (employed)	M	30s	45	Independent consultant	M	50s
15	Designer (freelance)	M	30s	46	Marketing planner (employed)	M	30s
16	Journalist (employed)	M	20s	47	Independent consultant	M	30s
17	Marketing planner (employed)	M	30s	48	Entrepreneur	M	30s
18	Designer (freelance)	M	30s	49	Sales coordinator (employed)	M	30s
19	Corporate manager (employed)	M	40s	50	Independent consultant	M	50s
20	Entrepreneur	M	20s	51	Independent consultant	M	30s
21	Entrepreneur	F	20s	52	Independent consultant	M	50s
22	Designer (freelance)	M	20s	53	Designer (freelance)	M	50s
23	Independent consultant	M	20s	54	Consultant (employed)	M	40s
24	Entrepreneur	M	30s	55	Consultant (employed)	M	40s
25	Entrepreneur	M	20s	56	Marketing planner (employed)	M	30s
26	Corporate manager (employed)	M	30s	57	Marketing planner (employed)	M	30s
27	Designer (employed)	F	30s	58	Corporate researcher (employed)	M	20s
28	Journalist (employed)	F	20s	59	Corporate researcher (employed)	M	20s
29	Freelance producer	F	30s	60	Sales coordinator (employed)	M	20s
30	Consultant (employed)	M	30s	61	Academic researcher	M	30s
31	Corporate researcher (employed)	M	30s	62	Academic researcher	M	30s

Table 5.1: The list of the informants

The second largest (nine) informant group was that of entrepreneurs. Although entrepreneurs are not likely to be seen as professional workers, their working lives display significant characteristics common to other kinds of mobile professionals. They have clear visions of their business and highly distinct skills and knowledge combined with a high enthusiasm aimed at making their visions materialise. In terms of high competitiveness in skills and knowledge, independent consultants and entrepreneurs present commonalities; whereas independent consultants utilise their skills and knowledge for their clients, entrepreneurs do so for their own. Entrepreneurs, too, can manage their work activities flexibly. Whilst they usually own their office, their work activities span a wide range of areas for meetings and negotiation with various business partners. Because of the small size of business, these companies are in constant need of working as a part of larger consortia, and thus they are engaged in many projects at any point in time. Moreover, most of them use even weekends for their business activities. Some entrepreneurs run their business without any formal employees, and others do so with a small number (typically less than ten) of formally employed members of staff. Despite such a difference in scale, those entrepreneurs' work activities are independent and autonomous to a great extent, since they have decisive authority over their businesses. Considering these unique characteristics, entrepreneurs should also be regarded as an important group of mobile professionals.

I also interviewed professional workers who were employed full-time by a firm or institution but were given great independency in their everyday work activities (seven marketing planners, seven consultants at consultancy firms, and six corporate researchers). These informants worked in companies often called

'professional service firms (PSF)', (Lowendahl, 1997; Maister, 1993) including a marketing planning company, small and large consultancy firms, an advertising agency, and public and private think tanks. Lowendahl identifies the characteristics of a professional service as follows:

1. Highly knowledge intensive, delivered by people with higher education, and frequently closely linked to scientific knowledge development within the relevant area of expertise

2. Involving a high degree of customisation

3. Involving a high degree of discretionary effort and judgement by the experts delivering the service

4. Typically requiring substantial interaction with the client firm representatives

5. Being delivered within the constraints of professional norms of conduct, including setting client needs higher than profits and respecting the limits of professional expertise

In recent years, the firms having these characteristics have been attracting wide attention from both academics and industry (e.g. Alvesson, 2000; Robertson et al., Forthcoming). The workers in PSFs are formally employed and work on a full-time basis, but are usually given much more independence in their daily activities. High degrees of knowledge intensiveness and work productivity are ensured by great flexibility in designing and managing their work activities, since their work is by nature extremely difficult to be routinised and thus needs to be coordinated flexibly according to such factors as the clients' requirements and project procedures. Their daily work activities are much more dynamic than those

of ordinary office workers. As well as sitting in an office for producing reports and documents, they constantly have various meetings with clients and other members inside and outside projects, frequently going out and travelling extensively for pushing their projects forward.

For example, a researcher at a private think tank (#14)[8] had to secure his own research budgets by promoting his research plans to various organisations and institutions that could have interests in it. At the time of the interview, he was running three research projects as a principal investigator and had great autonomy in his daily work. The management section of the think tank annually checks the procedures of the projects and evaluates the outcomes when completed with outside special members. In this regard, he could be seen as an entrepreneur rather than an employed researcher. Therefore, I found that such a type of employed professional workers also needed to be investigated as well as independent consultants and entrepreneurs in the light of mobile professional work.

Designers (freelance: five; employed: one) and journalists (four) are also distinct informant groups in this field study. Designers and journalists are amongst the contemporary workers who had the greatest impacts from the diffusion of various ICTs, especially the Internet and related computing technologies. Before the advent of the advanced technologies, both designers and journalists used to be almost like craftsmen, working mostly alone and dependent upon traditional technologies and skills such as drawing a picture with a canvas and brushes and

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[8] This number corresponds to the sample number attached to each informant on Table 5.1.

writing articles with a pen. However, various computing technologies and Internet-based applications have dramatically transformed their work. Designing became one of the most computerised jobs in the contemporary work environment, utilising a variety of advanced designing technologies like computer-aided design (CAD) applications. Today's journalists' work depends critically upon various Internet-based technologies such as the WWW, email, and instant messaging (IM). Furthermore, mobile technologies such as mobile phones and laptop PC have enabled their work activities to be much more geographically independent. Accommodating these technological innovations, the increasing number of designers and journalists are choosing to become freelancers, more actively taking advantage of being independent of others in their daily work.

Along with these occupational groups, I have interviewed several other professional workers whose work practices were highly mobilized. Those include: corporate managers (four) who travel extensively and coordinate their work dynamically in terms of time and space; sales coordinators (four) who plan product merchandising by searching various goods across wide areas and meeting and negotiating with a wide range of product manufacturers; academic researchers (two) who do research and teach at universities, enjoying much independence in their daily activities; an architect (one) who runs his own design studio with two partners; and a freelance producer (one) who plans and promotes musical events with various corporate partners and theatrical companies. Taking their occupational status as such, they might not be able to be seen as mobile professionals, or even just professional workers. However, I found that their actual work practices were full of mobility in terms of operation, location, and

interaction in their everyday activities, and hence that the boundary between mobile professionals and other traditional workers should be redefined based on their work practices.

5.2.2. Gender and age

With regards to gender, fifty-three informants were male (85%) and nine were female (15%). Obviously, there is significant imbalance in gender distribution in this field study. However, considering the fact that according to the U.S. population survey of 1997 (Cohany, 1998: p. 5), 67% of independent contractors were male and 33% were female, and also the fact that Japan's working environment in general involves much stronger constraints on women than U.S., this gender imbalance in the fieldwork setting could be seen as reflecting the actual state of mobile professionals in Japan.

The age distribution of the informants is as follows: twelve (19%) in their 20s, thirty four (55%) in their 30s, five (8%) in their 40s, and eleven (18%) in their 50s and older. People in their 30s accounted for the largest age group in this field study. Although this must have been influenced largely by the selection process of informants depending on my personal network, it could be argued that 30s is the age in which people can work most actively and energetically, both physically and mentally. Hence this age group would be the largest and thus the most important for discussing the nature of mobile professionals. This is also consistent with the U.S. population survey where this age range represents the largest age group of professional workers (Cohany, 1998: p. 5).

Furthermore, it is interesting that the age group of 50s and older accounted for a relatively large part (18%) of the informants. This is quite understandable in light of the fact that workers in their 50s and older gained unique knowledge and extensive social networks through their previous experiences as managers and/or executives at firms and also were also likely to be liberated from the burden of bringing up their children. For example, the independent marketing consultant (#45) worked in a big food company over thirty years and had mostly been at the marketing division. After retiring, he started a consulting business for small and medium size companies in the food industry. Likewise, the independent media consultant (#52) had a thirty-year work experience in one of the biggest newspaper companies in Japan and quit the position of director five years previously. Based on his knowledge and extensive human network relating to the media business, he was able to consult for several start-ups as well as serve as an advisor for some major companies. As Pink (2002) points out, such independent workers aged 50 or older who have special skills, knowledge, and/or networks are of particular interest in the study of mobile professionals.

5.2.3. Main workplace

Multiplicity in work sites is one of the most conspicuous characteristics of mobile professional work. Amongst all the informants, thirty-two (52%) were constantly on the move, from one site to another in their daily activities. Although they all had fixed office spaces, be it a company office, a private office, or home, they could not point out exactly where their workplaces were. Some typical answers were: *"anywhere I can get news"* (journalist, #28), *"depends on the nature and stage of the project"* (think-tank researcher, #58), *"where clients are"* (sales

coordinator, #44), and *"anywhere I can connect to the Net"* (independent consultant, #5). As I shall discuss later, the advanced technological environment supports this multiplicity of work sites. Especially the rapid increase in the accessibility to the Internet significantly benefited their mobile work practices.

The rest of the informants, thirty (48%) regarded their offices as their main work sites. Amongst them, eighteen people were offered designated workspaces by their employers, eight owned or borrowed an office room for their businesses, and four used their home as their office. Despite the fact that most of them moved out and travelled quite frequently, they saw their office spaces as important for their daily activities: *"the office is like a station where I can meet my colleagues and share a lot of information on business"* (consultant, #33), *"I move out a lot to meet my clients and other members of the project, but the private office space is very important for me because on some occasions I need a space where I can concentrate on my work without disturbance"* (architect, #34), *"I used to use my home for my work, but, honestly, didn't want to let my clients in because it's my private life as well! So I decided to borrow a small office room. Now it works very well"* (freelance designer, #53), *"Some clients don't like doing business with one who doesn't have an office!"* (entrepreneur, #13).

These all show that there is still a significant need for a designated office space for mobile professional work. Thus, this means that a situation where people *can* work 'anytime, anywhere' does not guarantee a work environment where they can work equally regardless of the work site. Various conditions and constraints at each work site do influence the worker's decision of *what* should be done *where* and *when*.

5.2.4. General ICT use

All the mobile professionals interviewed had a good command of new ICTs. All of them used Internet-connected personal computers (PCs) for their daily work activities. Interestingly, ten informants used laptop PCs rather than desktop PCs as their main computer, even when working in their office. Reasons for this included: *"The laptop can be my main machine in any situation, no matter where I go"* (media consultant, #1), *"I have a huge amount of data for my daily work, so I don't want to spread data into several PCs. Using one single PC all the time, this is my ideal. Using several different PCs ends up confusing me about which file is on which PC"* (independent consultant, #5), *"Because I'm moving around all the time, a PC has to be portable"* (sales coordinator, #44), *"Just for saving a space. My desk space is too small to install a desktop PC"* (independent consultant, #47), *"There is no reason to choose a cumbersome desktop PC"* (independent consultant, #50). It was evident that laptop PCs provided them with optimal usability for their highly mobile work styles.

All the sixty-two mobile professionals interviewed used mobile phones. Especially for those who moved extensively during work time, mobile phones were regarded as an essential necessity. *"I can't imagine my work life without a mobile phone"* (entrepreneur, #12), *"Thanks to the mobile phone, I can go out from my office without caring too much about incoming calls"* (independent graphic designer, #15), *"Most of my clients rings my mobile even when I'm in my office, because it doesn't matter where I am"* (independent IT consultant, #23), *"The mobile phone gave me freedom to be anywhere"* (corporate manager, #27).

Compared with the situations in other countries, in Japan, the practice of receiving email through the mobile phone is extremely pervasive (Rheingold, 2002). The well-known NTT DoCoMo *i-mode* service and similar services by other mobile phone operators enable users to receive and send email with their handsets. Some informants used such emailing service at their handsets actively. *"Emails coming into my account are all forwarded to my mobile immediately. Most of the emails are not so urgent, but in some cases, it does help me"* (consultant, #30), *"Sudden changes in schedule sometimes happen in the project I'm involved in now. Such a notice of change is distributed to the project members' mobile phone email accounts so that we can know it immediately. It's really useful"* (independent producer, #29). However, I found that even those respondents rarely sent email from their mobile phone. *"It's just due to its interface. It's too small to type quickly"* (consultant, #30), *"It's better to ring than to type with a thumb"* (journalist, #28). Nevertheless, it was obvious that emailing by a mobile phone handset gave them one alternative, largely complementary, communication method. I shall discuss this in detail later.

As opposed to my speculation, the use of PDA was not so prevalent amongst the informants; fifteen (24%) used PDA for their work activities. Their reasons for using PDA included: *"For using idle time effectively, like checking email"* (corporate researcher, #6), *"It's the portable database of my clients' addresses and telephone numbers"* (independent consultant, #40). In addition to these practical reasons, there were other kinds of reasons: *"It's almost just for fun. I like digital gadgets"* (systems consultant, #11), *"I'm doing my work in the IT industry. So I have to keep me up to the latest products like recent advanced PDA"* (journalist,

#43). I received rather negative opinions about the business use of PDA even from the PDA users: *"I have several PDAs but all the products are actually cumbersome for business use. It's perhaps due to the overly advanced technological functionalities"* (independent consultant, #5). In fact, there were many informants who did not have a PDA but had interest in using it in their work. However, they complained about the limited usability of PDAs: *"A paper note is still much more useful than a PDA. You cannot scribble down with a PDA"* (consultant, #8), *"For designers who want to draw a picture freely, a PDA can't help in many cases"* (independent designer, #15), *"A PDA cannot store large graphic data, but a laptop PC can"* (corporate designer, #27), *"For checking email outside, I use my mobile phone. For writing and presenting a document when travelling, I use my laptop PC. For note taking, I use my paper notebook. For organising schedule, I have no problem in using my filofax"* (corporate manager, #17). The fieldwork clearly showed a problematic situation for PDA use in the business field.

All the results presented above concerning the informants' profiles and their ICT use aimed to offer an overview of the mobile professionals interviewed during the field study. It is obviously necessary to examine much more detailed data in order to discuss their everyday work practices. In the following section I take *three* distinct cases of mobile professionals that I found particularly exemplary. One is the case of an independent town planning consultant (#4), which shows the high degree of mobility in terms of work sites. Second is the case of a freelance computer graphic (CG) designer (#18), where various Internet-based tools and applications play critical roles in his highly independent but collaborative work

style. Third is the case of an e-business entrepreneur (#3), which demonstrates various consequences of the use of mobile technology in mobile professional work. Note that in each case, only a small portion of the whole transcript is presented here. Some descriptions drawn from ad-hoc observation in the cases are used to complement the interview data.

5.3. [Focus Case 1] An Independent Town Planning Consultant

The first case is an independent town planning consultant. This case is particularly interesting, as it shows high degrees of mobility in terms of geographical movement in daily operation and coordination, which will be discussed in depth in *Chapter 6* in relation particularly to *locational mobility*.

5.3.1. Profile and background

Jun[9], 38, started his independent consulting business two years ago. His main consulting field is town planning for small and medium-sized municipalities. He earned his bachelor degree in agricultural science at one of the highly recognised national universities in Japan. He first worked at a big media marketing company. After being involved in many projects of planning events and publishing magazines in the company, he changed his job to working as a consultant at a town planning consultancy firm. After working for several years there, he decided to start his own business as an independent town planner. He works alone with no employees but collaborates with many people including other consultants and

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[9] All names have been changed to protect privacy.

developers. He uses a small studio-type room of a flat in a suburban area of Tokyo as his office space and shares it with his friend working as an architect.

His main business is consultation for local governments, mostly in rural areas of Japan. Currently, many Japanese local governments are suffering from rapid depopulation. An increasing number of people in rural areas, mainly the younger generation, are moving to big cities like Tokyo and Osaka. Depopulation in rural areas of Japan became significantly intense in the economic boom in the 1960s and 1970s. Many people, especially in their 20s and 30s, hoped to get a good job in urban areas, to make their 'Japanese' dream happen. This depopulation trend still continues strong, with a 5.5% decrease in population in the rural areas from 1990 to 1995, whereas the population in urban areas has grown rapidly (Ministry of Public Management, 2001). Faced with this, local governments, particularly in the rural areas, have been trying to keep the youth there and to attract back those already gone. With a limited number of exceptions, almost all local governments have been failing to stop the depopulation trend. He described the motivation of starting his business as follows:

> Jun: Well, the local governments all have to do something to revitalise the economy. I've been involved in many consulting projects to help them as a staff of my former employer, a small town planning consultancy firm. These were actually all exciting experiences, where I was actively involved in the process of the revitalisation of local economy. I really like working at the 'actual' site where I can talk and discuss with local people. […] But, as a member of the firm, I had to do so many other things in the office apart from that kind of exciting job in the local sites. I had a lot of time-consuming stuff for my daily work, like applying for

a travel budget with a formal internal application report. Activities like these kept me away from the local sites where I was really eager to be engaged. So I gradually came to think I could enjoy my job more if I'd be independent as a consultant.

He also pointed out the dilemma with which a consultant employed by a firm would inevitably be faced.

Jun: The consulting business is a shaky business. In order to be profitable, any consultancy firm strictly has to manage project fee, duration of the project, the number of members involved, and so on. In the firm I used to work at, a consulting project lasted on average from three month to half a year. In an environment like this, a consultant has to be profit-seeking, too, doing his or her work as efficiently as possible in a limited amount of time.

MK (interviewer): But that's not what you want to do, is it?

Jun: No. Actual town planning needed at local areas is not like this! Town planning for the local people never ends even if the consulting project is completed in the period of six months. I had huge frustration in being efficient in my job like this. I felt I was playing a game rather than solving the local people's problems. As I said, I like being-in and working for the local area where the actual problems are happening. I think better town planning requires a considerable amount of time being at the site. Moreover, the actual town planning takes far more than six months, taking years or even a decade. But the firm didn't allow me to work like this because it costs a lot. Unfortunately, it's true. So it was a big dilemma for me

as an employed town planner, between being efficient as a member of the firm and being effective for the local people. Then, as you see, I chose the latter.

The gradually increased dissatisfaction with his job in the consultancy firm drove him towards being independent. Taking advantage of work experience at the firm and his social networks he built through the years, he started his own business as an independent town planning consultant. 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. His consultation includes not only proposing a 'rehabilitation' plan for the area, how to energise the area's economic and social welfare, but also implementing it by engaging in close collaboration with the municipalities and with local residents. He explained the reasons for engaging in this style of consulting as follows:

> Jun: Implementation of my plan is the process I find the most exciting. This is what I want to do by becoming independent. You can't do implementation in the firm. Consulting firms avoid being involved in implementation processes, because implementation brings them little profit or rather additional costs. But the reality is that most of the local governments are having much more difficulties in the implementation phase rather than in planning. As an independent consultant, now I can get into the implementation processes. Implementation is a messy and dirty business, totally opposite to the 'smart' and 'clean' image of consulting work, but I'm a kind of guy who can enjoy it. And, I can also make such an implementation business profitable enough because I'm working alone without any employees, with low fixed costs.

From this angle as well, being independent was a rational choice for him. As he explains, his consulting style of being involved in not only planning but also implementation phase makes him competitive in the market simply because the big firms cannot do so due to the costly nature of implementation.

5.3.2. Mobility as the competitive edge

It is easy to imagine that there are both advantages and disadvantages in being independent in the town planning consulting business. Overall, Jun regards himself being independent as having many more advantages than disadvantages.

MK: […] so what is the most immediate advantage of working independently?

Jun: Definitely it's mobility. No doubt. As I said, working in a big firm puts a lot of restrictions on your daily work. Take an example of a business trip. In a firm, you need to have a confirmation from your boss for the trip. Then you need to apply for a travel budget and wait for a reply from the account section. Once back to your office from the trip, you have to make a report of the trip, which nobody reads thereafter. All of these cost immense time. But it is quite normal in this business that your client in a rural area hundreds of miles away wants you to come to their place the next morning. Also it is normal that during a trip you will need to visit other places unexpectedly due to the client's need. You can't act flexibly in such situations as long as you work in the firm, ending up with losing business opportunities. Working independently now, I can move flexibly and my clients know it. Mobility, I would say, is the most immediate and powerful advantage of working independently.

He finds the high degree of mobility in his work activities the most conspicuous advantage. 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 your own eyes is crucial for the town planning business, since the observation of the site offers invaluable data and insights for the project. In such a work environment, inflexibility in moving significantly hinders the daily work activities and hence the business as a whole. It is widely said that a consultancy firm's organisational structure is likely to be less bureaucratic than those of the traditional firms (Lowendahl, 1997; Maister, 1993); however, he thinks that the realities of town planning in the actual sites require much more mobility in moving to and across the sites. In this regard, independence renders his daily work highly mobile.

He finds that the clients' perception towards independent consultants like him has been gradually changing. He argues that local governments are calling for continuous, adaptable, and faithful advice and support.

> Jun: Relating to that [mobility], I came to feel recently that more and more local governments find independent consultants more helpful to them than the big consultancy firms. I've been told many times that local governments came to prefer people who can support them continuously and faithfully rather than big consultancy firms that tend to do profit-seeking and opportunistic consultations. As I said, town planning is a kind of field that takes years until results come out. The big firms can't wait that long as they need an immediate profit to survive. But an independent consultant like me can participate to the project for quite a long time and therefore can create intimate relationships with the local government.

[…] The point is, we are adaptable, the big firms are not.

Although he does not ignore the fact that there are still some fields of town planning where the big firms are more effective than independent consultants, he firmly believes that his business opportunities are becoming larger. He also added:

Jun: Moreover, another fact is that many local governments have become fed up with the big firm consultation. The big firms are generally very good at doing research from a macro point of view. They examine thoroughly a wide range of data, statistics, literature, and the best practices. But many of them just take a bird's-eye view of the given subject and make smart-looking reports without going down to the 'field.' Of course, sometimes such kind of work is needed. But the point is that more and more local governments want 'down-to-earth' consultation with a deep understanding of the 'field' where the actual problems are located.

It is apparent that Jun sees the high mobility in doing his business, being flexible and adaptable to the clients' needs, as the key to compete with the big consultancy firms. Such a strategy seems to be working so far; over the last two years after starting his independent business, he successfully gained ten contracts of town planning projects directly from local governments at various levels, and three of them were still continuing at the time of the interview. However, he also finds some disadvantages of working as an independent consultant.

MK: Aren't there any disadvantages of working alone, without the support staff?

Jun: Of course there are. There is a limit in business scale. So far, my business is going quite well. But the more I get the contracts, the more I feel the disadvantage of

being alone. I have only one body, I can't be at two places at the same time. What's more, I don't have any support staff. I have to do everything for running my business, including making an account book and buying train tickets. I sometimes meet with such a case that I have to give up a business opportunity simply because I'm overloaded with existing projects.

Working independently brings him both the merits and demerits of its small-sized business. On the one hand, it provides him with high mobility in doing business, and, on the other, it restricts its business scale.

5.3.3. Mobile technology that supports mobility

However, Jun finds ICTs as covering the disadvantages of working independently. He stresses how computing technologies help his daily work.

> Jun: The computer has become essential to my work. Writing a report, emailing, storing data, so on. Without it, I could do nothing.

He is not particularly advanced in terms of technology adoption in work activities. He would much rather not be too dependent on technology. However, he explains that particularly a subnote PC he bought recently changed his way of working dramatically. He has two laptop PCs: one is relatively a big one mainly used in the office; the other is a subnote PC that he carries with himself mostly when going outside (see Figure 5.2).

> Jun: Actually, I bought it [the subnote PC] several months ago. Because nobody helps me in my daily activities, I must use my work time wisely, otherwise I lose my

business opportunities. I thought a small subnote PC could help in using time wisely, and it actually does. By bringing this with me when I go on a business trip, I can write a report on a train, plane, and in a hotel room. If I connect my mobile to this, I can check and send emails when outside. I can bring numerous data files with me during the trip. It enables me to minimise 'dead' time especially during a business trip.

Figure 5.2: Jun's mobile technologies
(A main notebook PC, a subnote PC, and a mobile phone)

In his case, a subnote PC clearly plays an important role of carrying out his highly mobile work activities and making up to some extent for the disadvantages of being independent. He also sometimes brings the subnote PC back to his home when he has many urgent things to do. The subnote PC provides him with wider options to the extent of where and when to finish his 'office' job.

Furthermore, he claims that the mobile phone, too, changed his way of working significantly.

> Jun: The mobile phone really helps my independent work. I foward all phone calls coming into the office phone to my mobile. If a call is not picked up in three second, it's automatically diverted to my mobile. So, in theory, I can receive all the calls with this mobile wherever I am. Well, my clients are ringing my mobile directly anyway [laugh]. […] When we didn't have the mobile phone, workers like me had to either hire a secretary to receive phone calls or just give them up completely when going outside for a long time. Now, the mobile phone solves it.

Independent consultants rarely hire secretaries or support staff mainly because hiring such workforce results in large additional fixed costs, an unbearable burden for people working independently. Yet losing important phone calls sometime ends up with a huge loss of business. As seen in Jun's case, the mobile phone can be a simple but powerful option to solve this problem.

However, he seems to have a somewhat different image of 'anytime, anywhere' work style compared with the one that Kleinrock (1996) and many others put into the concept.

> MK: […] Do you feel that those mobile technologies [subnote PC and mobile phone] enable you to work anytime, anywhere?

> Jun: Well… Maybe yes and no. In fact, those technologies enable me to work flexibly. Thanks to them, I can use time and space much more wisely than before. But I think there are still a lot of things that I cannot do with mobile technologies.

MK: What kind of things?

Jun: For instance, when you collect some information from the Internet for writing a report, you need a much faster connection, and perhaps a quiet office space. Also, in my business I sometimes go to places where I can't receive mobile phone signal for site investigation. Mobile phone doesn't work at all there. So it really depends on what you have to do. […] I think some activities do need an appropriate place of work. I don't want to read digital newspapers on a small display in a crowded train [laugh].

He thinks that mobile technology, a subnote PC and a mobile phone in his case, does not straightforwardly enable the 'anywhere, anytime' work style. It is particularly interesting that he insists that some activities would require rather 'specific space, specific time.'

5.3.4. Workplace

Jun rents a small studio-type room as his office space and shares it with a friend working as an independent architect (see Figure 5.3). They sometimes work together on the same project but their businesses are primarily independent of each other. He described how they ended up with sharing the room as follows:

Jun: I met him in a project three, or maybe four years ago, before I became independent. At that time, he just started working as an independent architect. Several months after I started my own consulting business, we met again and I knew he was looking for a person who liked to share his office, which is here. I first started my work at home but was feeling I should have an office outside home. So I decided

to join.

Figure 5.3: Jun's workplace

He stated that sharing the office is helpful for his business not only because it reduces the financial burden to have an office space but also because he can get access to various 'know-how' for working independently.

> Jun: […] You know, there are a lot of arcane 'know-how' to survive as an independent
>
> worker. Taxes, public subsidies, how to get things at low costs, licence stuff, etc.
>
> It's really good to know about them from the person just next me.

Even though he ended up with sharing the office quite accidentally, he finds many advantages of having an office space for his independent business.

MK: Why did you think you needed an office space, outside your home?

Jun: It's really good to have a 'base of operation.' I used to work at home but it was quite difficult to separate between 'on' and 'off' time. Also, I had to go out to a café to meet my clients and members of the project. Now, as you are here, I can meet my guests in the office, which is really nice. […] What's more, still, there are many clients who do not wish to do the project with those without an office. In Japan, it is still widely regarded that having an office separated from home means doing proper business [laugh].

It should be noted that this cultural tendency, namely the low status of home-workers, is peculiar to the Japanese business environment where almost all workers are employed by certain types of organisation. Whilst similar stories can be found in the context of the U.S. (Pink, 2002), difficulties for home-workers in Japan concerning their social status must be ingrained much more deeply than in Western countries. Jun relates this issue to technology.

Jun: As we talked before, technologies like the Internet and the mobile phone are brilliant in the sense that they enable me to work flexibly in time and space. In this respect, there may be no reasons to have an office outside home. In fact, I sometimes work at home. […] But unfortunately it's still important for workers like me to use business cards having an office address and telephone number, and not the ones at home.

In sum, he sees the importance of having an office space not only in its practicalities such as serving as a base of operation and a place to for meetings but

also in its social status *vis-à-vis* client companies. He used to be a home-worker but found some difficulties in working at home.

5.3.5. Extensive geographical movement

Jun's work activities span wide geographical areas. Although patterns of his work vary according to the nature and phase of projects, in general he travels extensively. Take a look at his sample schedule of a week, around the date this interview was held (see Figure 5.4; 5.5). On the 29th of April, he flew to Kumamoto in the Kyushu area, the far southwest part of Japan, for intensive meetings with his clients living and working there. On the 30th of April he had meetings with the client and other members involved, and visited various local sites for inspection. After seeing the local sites, he flew back home in Tokyo on the night of the same day. In the morning of the 1st of May, he attended my

Date	Time	Subject	Place
29 April 2002		- Flight to Kumamoto	Tokyo → Kumamoto (Kyushu area)
30 April 2002	All day	- Meetings with a client and a site inspection - Back to Tokyo	Kumamoto (extensive move in the area) Kumamoto → Tokyo
1 May 2002	10am – 0pm 1pm – 3pm 5pm –	- *This interview* - A meeting with a client - A meeting with members in another project	Office (in suburban Tokyo) The client's office (central Tokyo) The member's office (central Tokyo)
2 May 2002	All day	- Preparing stuff for the business trip from 03-05/05/2002 - Travel to Kobe by a train	Office (suburban Tokyo) Tokyo → Kobe (Kansai area)
3 May 2002	All day	- Working at a site (a public event)	Kobe (extensive move in the area)
4 May 2002	All day	- Working at a site (a public event)	Kobe (extensive move in the area)
5 May 2002	All day	- Working at a site (a public event) - Back to Tokyo	Kobe (extensive move in the area) Kobe → Tokyo
6 May 2002	All day	- A day off	Home (suburban Tokyo)

Figure 5.4: Jun's sample schedule of a week

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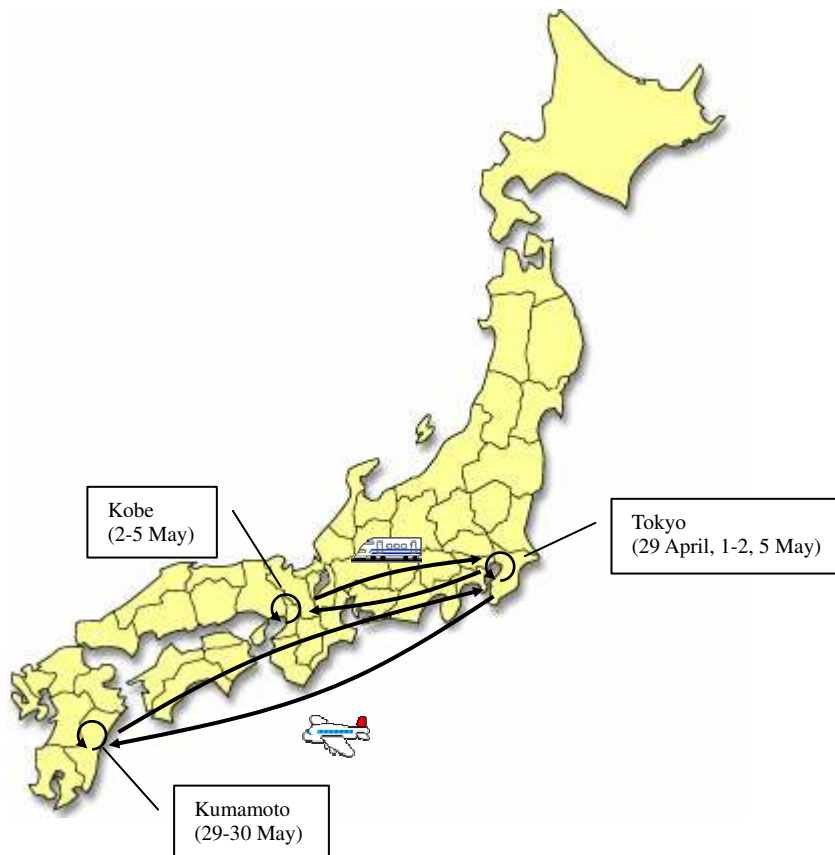
Figure 5.5: Jun's geographical movement in a week

interview in his office in a suburban Tokyo area. After the interview he went to

central Tokyo to meet another client for a meeting, and to have another meeting

with the project members of another different project. The next day, the 2nd of

May, he worked in his office to prepare various things including reports for the

event project that starts the day after in Kobe. After the office work, he travelled

by the Shinkansen rapid train to Kobe in the Kansai area in late evening. From the

3rd to the 5th of May, he participated in a big event project held in Kobe and had

to move around within the site extensively. On the evening of the 5th of May, he

took the Shinkansen train back to Tokyo.

From this sample schedule, two basic patterns of geographical movements in his

work activities can be drawn. First is the 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. In this sample case, he makes two long-distance trips: one is between Tokyo and Kumamoto by plane; and the other is between Tokyo and Kobe by train. He says that as his clients spread from Hokkaido (north) to Kyushu (south), the travel distance inevitably becomes long. Furthermore, because of the nature of his work; namely, being in the field, the frequency of such long-distance travel is also high.

Second is the intensive local travel. As seen in the sample schedule, 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. In Kumamoto, for example, in a single day he visited and saw several local sites where the project was taking place. Likewise, in Kobe, he had to check the progress of the events in several different sites throughout the three days. This kind of sporadic but intensive local travel is also distinctive in his daily work practices with a stark contrast to the long-distance travel.

He described the extensive geographical movement in his work practices as follows:

Jun: […] Yes, I travel quite a lot, and very frequently. It's my style. I know it's quite inefficient in terms of time and money. But at the same time, it's my competitiveness because the big firms can't have this mobility in their practice of consultation. My clients offer me a job because of my style, high mobility and no hesitation to come down to the field.

It is apparent that the competitiveness of Jun's town planning consultation has ensured his work practice of travelling extensively, both in long and local distance.

5.3.6. Summary

The first case, an independent town planning consultant, shows several unique characteristics of mobile professional work. Firstly, it clearly exhibits high mobility in terms of its daily operation and work location. Flexibility and adaptability of work activities to clients' needs and some other contingencies are the mobile professional's competitive advantages in the market.

Secondly, advanced computing technologies, particularly mobile technology, are the key enabler for such highly mobile work practices. In this case, the subnote PC enables him to utilise time and space of daily work activities efficiently. The mobile phone provides him with the ability to receive phone calls at various locations outside the office.

Thirdly, however, this case shows that such technological solutions do not necessarily enable the mobile professional to work 'anytime, anywhere' in a straightforward manner. Professional work practices seem rather strongly tied to

specific local contexts. Furthermore, there are still many advantages in having an office for mobile professional work.

Finally, this case shows extensive geographical movement of work activities. In particular, two distinct patterns of travelling, the long-distance travel and the intensive local travel, can be discerned in this case.

5.4. [Focus Case 2] A Freelance CG Designer

The second case is about a freelance computer graphics (CG) designer. Particularly interesting in this case is that the designer's work practices show the highly independent nature of working, which will be discussed in depth in *Chapter 6* in relation particularly to *operational mobility*.

5.4.1. Profile and background

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-dimentional CG (3D-CG) design but most of the revenue of his work comes from projects relating to website design and coding.

Yoshi had not sought to be independent during the first few years of working in the design firm, but gradually became interested in working independently.

> MK: When did you decide to quit the firm and start working independently?

Yoshi: When I started working there [the design firm] I didn't think at all that I was a kind of a 'freelance' guy. But gradually… I felt I was in the middle of something oppressing me in such a big organisation.

Just as seen in Jun's case, the increasing dissatisfaction at various organisational constraints on the professional's activities is rooted in his decision to start working independently. He also asserted that a large organisation might not be necessary for design work.

MK: Do you mean that the firm didn't contribute to your design work as such?

Yoshi: Well yes. When I worked there, the firm employed fifty or sixty designers and once over a hundred. That must be one of the largest in that kind of firm [in Japan]. But I doubt that the larger size of an organisation contributes more to designers' creativity and productivity. […] I think there is no need for designers to be employed by the same firm. We can collaborate any way.

He argues that designers are basically individualistic in nature because actual design work tends to be very solitary and concentrating on a specific design subject. Although he stresses the importance of collaboration amongst the designers and other project members, he finds that a large organisational structure involving a number of designers does not necessarily contribute to each designer's work activities. He continued:

Yoshi: Of course, the firm did help to some extent. The firm's name makes getting a new project easier as the name was widely known in the design field. But at the level of actual design work, it was just a constraint, like rigid

boss-subordinate relationship, sectionalism, and 'under-the-table' politics, all
as usual in large corporations…

Like professional service firms such as law and consultancy firms, design firms are also subject to the dilemma of keeping members' motivation and productivity up and maintaining organisational unity. Professional services rest heavily upon each professional worker's skills and knowledge, and thus there is little 'economies of scale' in organisational design compared with traditional, non-knowledge-intensive fields such as the manufacturing and sales. Through his work experience in the firm, he gradually found that the large and rigid organisation of the firm was problematic for his own design work and his career.

The turning point of his career as a designer was the time when Yoshi received a highly reputed CG design award, which a large Japanese entertainment company awards annually. Winning the award brought him various chances to meet designers outside of the firm and make his name distributed in the design industry in Japan. Taking advantage of this, he started creating his own network and finally decided to leave the firm.

5.4.2. The trend of the CG design field: Commercialisation and outsourcing

Whilst Yoshi's increasing dissatisfaction with being an employed designer was one of the factors that drove him to be independent, he also saw a new opportunity for working independently in the rapidly changing trend in the field of CG design.

In the early 1990s, only large corporations and university laboratories had dealt with the emerging field of CG. This is partly due to the extremely high price of

facilities for CG design at the time and partly because CG design required programmers and technicians who had 'cutting-edge' skills and knowledge about special hardware and software. However, due to various developments in computation in the middle and late 1990s, including dramatic increase in CPU power, rapid decease of hardware prices, and proliferation of reasonably priced software for CG design, the field of CG design has shifted from the large institutions' domination to the hands of numerous designers who became able to buy such hardware and software easily. This created a rapidly growing commercial CG design market. Seeing this trend, Yoshi said:

Yoshi:　　When I left the design firm in 1997, all the companies, without exception, were extremely keen to create cool corporate websites. But the number of designers who could do it at a professional level was still quite limited. Luckily, as I worked in a big design firm, I could gain various skills and knowledge of 'cutting-edge' website design at that time. […] So I felt I could do as a freelance in this field, at least three years. And now, I still live on it [laugh].

It is clear that he shrewdly seized the opportunity to be independent during the emergence of a commercial CG design market largely induced by technological innovations in the 1990s.

There is another trend that backed up his decision to be a freelance CG designer; that is, since the middle of the 1990s Japanese firms have started utilising contingent workforce for design work. It was at the beginning of the 1990s that Japan's economic situation sharply declined and almost all sectors underwent

severe recession. Being faced with this economic downturn, Japanese firms have struggled to survive by restructuring business and organisational structures, and in some cases were forced to do so by governmental authorities (Porter et al., 2000). In the course of restructuring, an increasing number of firms started cutting off redundant human resources inside the organisation and in turn started utilising more actively than ever contingent workforce outside, including part-timers and contract-based workers. Whilst such a strategy is typically applied to clerical work and ICT-related sections, the design function is also the case. As typically seen in the fashion industry, many firms seek to utilise outside designers in order to flexibly cope with rapid changes in market trends and customers' preferences.

Yoshi said that firms nowadays outsource website design functions widely to independent designers.

> Yoshi: They [firms] used to pay famous design firms a huge fee for website design. But once they created their initial websites, modifying the website became continuous routine tasks. Initially, they did it by themselves, using in-house designers. But they gradually outsourced it to outside independent designers like me as it costs far less than doing internally.

This is particularly the case in the music industry from which Yoshi gains most of his revenue for website design work. The music companies ceaselessly issue numerous new music and video products (CD and DVD) every month. Nowadays, it is widely known that musicians and artists have their own websites for promotion and new web pages are immediately prepared for each new title. In order to do this task, the companies have to efficiently coordinate this rapid pace

of website production for new products. Thus they actively outsource website design work to independent designers like Yoshi in light of flexibility in task and cost management. He described a typical job of website design for a new music tile as follows:

> Yoshi: It's really simple. They [music companies] contact me, typically by phone or email, for a new design job and send me information about the artist and the new song in a digital form, photos, lyrics, and stuff like that. If needed, I meet the guy in charge to get more details. But it's rare, as most of them already know how I work. Then I design a website for it and let them check it through the Net. Usually, it takes a week or two to complete one design job of this kind. I sometimes do an 'express' job, completing it in a couple of days, when the client is really in a rush.

As seen above, his website design work is efficiently operationalised and coordinated in the form of an independent designer's job. This clearly shows that the music companies optimise contingent workforce by effectively utilising net-based technologies that connect them together at extremely low transaction and coordination costs. In the independent designers' side, those technologies provide them with a huge opportunity to get a job from firms and work at home. This is largely because their final products, websites, are digital, not physical, and thus they can be accessed and exchanged through the Internet.

It should be noted that not all independent designers are able to work in a similar way as Yoshi. Critical to this way of working is to build and maintain a trustful relationship with clients.

MK: […] Did it [working efficiently through the Internet] work so well from the beginning?

Yoshi: At the beginning, I had to meet the company guys quit frequently, as they didn't trust me enough [laugh]. There are a bunch of people like me [freelance designers] out there who want website design jobs. But actually most of them are almost like amateurs, doing design work as a hobby, not as a professional job. What's more, such people are quite likely to miss deadlines. You know, this is the thing the companies want to avoid most. […] In order to get jobs continuously from the companies, you need to prove that you are a trustworthy person who does a good job in design without missing deadlines.

Thanks to the wide diffusion of powerful and inexpensive hardware and software for CG design, many people became able to be a CG designer instantly. Ordinary people can buy the machines and applications that once cost tens of thousands and now a few thousands of pounds. In terms of technological equipment, the boundary between a professional and a layperson has largely disappeared. However, this resulted in a flood of inexperienced 'would-be' designers without a professional mind in their work. Working in this current situation of the CG design field, Yoshi stresses the importance of being professional as a CG designer.

Yoshi: Now everybody can be a CG designer. […] So you may think the professional CG design work will disappear. But that's not true. The point is that there are few designers who do their work professionally. As long as you work professionally, I mean, doing your job properly, you can get a job. You

don't need to be famous but you need to be professional.

As a result of the commercialisation of CG design field and the wide diffusion of outsourcing of CG design work to independent designers, the value of professional-minded designers has soared. Although his eight-year work experience at a top design firm must have been of some benefit for proving his credibility in design work, the quality and trustworthiness in his subsequent design work contributed to making his independent job continue more significantly.

5.4.3. Workplace and IT

His workplace is a room on the third floor of his house at central Tokyo containing all his computers, devices, materials for design, and references. He spends almost all his working time in this room.

He uses three computers for his design work. The first is an Apple *Macintosh* computer, the main machine for his design work and other daily tasks such as emailing and accessing the Web. The second machine is a high-spec *Windows* machine used for 3D graphics processing (rendering) which requires a high processing power. The third is a server that operates various devices and stores graphic data from the other two machines.

He said about ICT investment for his workplace:

> Yoshi: Just a few years ago, ordinary individuals couldn't have a minimum set of
>   CG design like this, as it was extremely expensive for individuals. Now it's

possible. But the problem is software. CG design, especially 3D-CG, requires a lot of special software and it still costs a lot for individuals. It also needs to be upgraded constantly at also a high fee. […] Investment on IT is quite high for this work anyway.

Keeping up with the rapid pace of development in both hardware and software, particularly for 3D-CG design, is still a hard task for independent CG designers like him. Although the volume of his revenue from jobs relating to 3D-CG design is currently 10% or less, he seeks to make 3D-CG his professional field and thus tries to prepare the latest possible equipment to get 3D-CG jobs.

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 a quite static home-worker. He explained the reasons that website design particularly suites a home-work style as follows:

Yoshi: Primarily, it [website design] is better done by one designer. A large part of website design is designing user interface. User interface design must have integrity; otherwise, the users are confused. Moreover, website design can be done remotely, as long as you can access the Net.

With regards to the Internet connection, he has a high-speed Internet connection in his room through a cable TV line. For home-working, he stated, an 'always-on' Internet connection is much more important than a high speed connection:

Yoshi: The 'always-on' connection is absolutely crucial for home-working. Not just because of the nature of CG design but because the Internet is an important

'gateway' through which much communication between my clients and me is made.

He uses email extensively for communicating with his clients. He claims that some website design works are done only through email communication with the clients, without meeting face-to-face. In this working style, the 'always-on' Internet environment ensures the stability of communication between his clients and him. The stability thus provides him with an opportunity to work at home.

He finds several merits of working at home. It involves much freedom in how and when to work. He thinks that keeping *"freedom"* is an important condition for design work because it encompasses the highly individualised nature of work, depending upon each individual's talent and effort. Furthermore, working alone at home is no longer a drawback for worker but rather a new competitiveness in the CG design field. The reason for this is that *"high mobility"* of freelance designers like Yoshi is increasingly preferred from the firms that seek flexible design function.

On the other hand, the most significant demerit of working at home, he thinks, is the lack of immediate human interaction.

> Yoshi: As I'm working basically alone at home, the relationship to the outside world inevitably becomes weak. Actually, there's really little 'raw' human interaction. This is not good for design work, as human interaction can develop ideas and imagination. When I worked in the design firm, I could talk with my colleagues around my desk easily and see how they worked.

When I was struggling with a design work, I could get some advice. But now, I can't have this kind of quick feedback.

Immediate human interaction is clearly one of the most valuable functions of the office space. The office space provides, largely implicitly, workers with various situational supports created collectively through human interaction in the same space (Brown and Duguid, 2000). However, in the home-working style, the workplace is a totally solitary space where workers cannot receive such supports. He says that this is exactly the reason for the importance of working professionally in a certain organisational environment. He cautioned:

Yoshi: […] That's why freelance designers working alone need some experience of working with a lot of people, maybe in some firm. As I said, the diffusion of IT creates a lot of 'would-be' CG designers without any experiences in professional designing. Such people don't ever see how other people work, and they don't know how to develop their own ideas. It's really dangerous for people who just learn technicalities of CG design in a school or by themselves to start working as freelance from the first moment. But many do so these days.

Despite this demerit, he thinks that working at home suits him very well, since he has already gotten extensive experiences of working as a designer at a big firm and known how to work professionally even working alone. Furthermore, the Internet-connected work environment can minimise such a demerit of working alone at home.

5.4.4. Intense interaction though the Internet

As seen above, the biggest drawback for him in working alone at home is the lack of immediate human interaction that supports idea generation and sharing of information amongst others. However, he says that nowadays, Internet technologies solve this problem to a large extent.

MK: So how do you cope with it [the demerit of working alone]?

Yoshi: Well, it's difficult, … but the Internet is really helpful in that respect. It's absolutely important especially for getting information about software products I use, concerning upgrading and programme bugs, and so on. There are a huge number of private websites that offer the latest information about various software products for design. There's also a portal site that checks those sites everyday and indicates what kind of new information rises at which sites. Oh, there's also a BBS (bulletin board system) to which people can post possibly useful information about products and their own assessment of a certain product. You can know how other people use the products and how they feel about them just by accessing it. This is really great. I check it every single day.

MK: It's like a Net community of designers, isn't it?

Yoshi: Absolutely.

Working alone at home inevitably brings the home-workers a difficulty in getting the latest information that is spread within the designers' community, since they

have no colleague designers around them. However, the Internet environment does help greatly. As Yoshi says, there are numerous websites that ordinary people created and organised to collect widely distributed information from individuals and to share it with a number of other people by putting on the websites. Interestingly, almost all the websites of that kind are being run on a voluntary base and contain extremely detailed information in a well-organised manner. Moreover, he thinks that those websites are more trustworthy than those of software companies.

> Yoshi: […] It's absolutely amazing. Those [the voluntary websites] are much better than companies' websites, as the companies' website never tell us about negative aspects of their products. They rather tend to conceal negative reputation about their products. But you get to know both positive and negative information about various products in great detail. This is particularly important for software products, as they usually have bugs.

In this regard, getting the latest information concerning products from the website is much more than a substitute of talking with colleague in an office environment to get such information. By accessing such websites frequently, freelance designers working at home can keep up with the rapid pace of information distribution amongst the community as much as, or rather more than designers working in office. Yoshi thinks that in terms of getting new information, working alone at home is not a significant drawback at all.

Yoshi: I said it's difficult to have 'raw' human interaction when working alone at

home. But I have no worries in keeping myself up with the latest information.

Sometimes, I know much better than in-house designers.

MK: Is it because you interact with a lot of people on the Net?

Yoshi: Yes. I can interact with people all over the world, actually from this small

room [laugh]. In this regard, I'm not working alone, simply being isolated

from the world. People on the Net help me very much, so I sometimes help

them too.

Despite the fact that Yoshi works alone at home, he engage in intense interaction with people outside by using the Internet technologies actively. Such intense interaction is not in a physical form but accomplished through virtual space. 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. Therefore, it is obvious that the Internet environment enables independent workers like him to interact with other people even if they work alone at home for most of the time.

He stresses, however, that the importance of face-to-face interaction is still high in his work activities.

MK: Do you feel that the Net enables you to work at home without going out?

Yoshi: Well, I mean, … I don't think the Net interaction totally replaces face-to-face interaction. It's impossible. As I said, for idea generation, face-to-face meeting is really useful. Also, you'd better meet and talk with people face-to-face when the issue to be discussed is quite complicated. Actually, I usually go to my client's office and meet them at the beginning of a new design job to hear about the details of the job. After having such a 'kick-off' meeting face-to-face, you can continue it by using email and phone, without having to meet frequently.

MK: Do you mean face-to-face interaction will not disappear in your work?

Yoshi: It never will.

This indicates that the virtual interaction through the Internet is not a substitute for of face-to-face interaction, which involves rich nuances of the contents and meanings. Nevertheless, the clear fact is that the intense interaction through the Internet provides Yoshi with a broad range of opportunities to access valuable information distributed in the design community and an ability to minimise the disadvantages of working alone at home.

5.4.5. Networking

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 human physical interaction. As he stated, a face-to-face meeting with a client is necessary especially at the beginning of a new job in order to ensure smooth operation of subsequent

activities. More importantly, 'real' human interaction is critical for creating and maintaining a *"network"* of relationships, which is a fundamental source of a design job. He stated that all of the jobs in which he engaged came from his personal network.

MK: How do you get a new job? Was there a case that a totally new client suddenly called you for a new job?

Yoshi: No… All the jobs I have done so far came with an introduction from my friends. I guess having a call from a new client for a new job is quite rare in this field.

MK: Why?

Yoshi: Because the companies want to outsource CG design jobs to 'proper' designers they can trust, as there are a lot of 'amateur' designers out there who don't keep deadlines or work poorly. […] People in the companies in charge of outsourcing are always looking for designers who enjoy a good reputation amongst the designers' community, and asking the designers that they already knew to introduce such 'proper' designers to them. My case is the same. Several of my friends working as a designer introduced me to such people in the companies, who then offered me jobs. Now they offer me jobs on a regular basis.

Specifically because of the abundance of 'amateur' designers on the one hand and the scarcity of professional-minded designers on the other, the companies outsourcing design job pay great attention to the reputation of designers amongst

the community when seeking one for a new job. Such information concerning a certain designer's reputation can be gained only through a designer's personal network. This is why many CG design jobs are allocated to designers in such 'nepotistic' ways.

In Yoshi's case, there are primarily two sets of networks through which his reputation is distributed and hence through which he gains new jobs. The one is the network of his former colleagues in the design firm where he had worked for eight years.

> Yoshi: Most of the people who introduced me to the companies offering me jobs are now my former colleagues in the firm. Some of them are still working there, and others became independent like me. They know me very well, especially my style of working and the taste and quality of my design. They connect me to various other people including new clients and other designers. The colleague network is precious to my work indeed.

It was through this network that Yoshi gained jobs at the very beginning of his independent career. As seen in many other cases in this field study, it is typical that independent workers rest largely upon networks of their friends and colleagues for gaining new jobs or contracts, particularly in the early stage of their independent career. It could be argued that without effectively mobilizing this kind of networks, only a small portion of the professionals can become and survive as independent workers.

The other is the network that Yoshi has built by taking advantage of the opportunity given by the CG design award he received in 1997. The award was founded by a large entertainment company in 1993, and is one of the most reputable and widely known CG design awards in Japan. The award has a specific significance for this company; namely, recruiting talented CG designers for a design job. This company constantly has a huge need to recruit talented CG designers on a contract basis, since it continuously produces new products every month and thus need to create websites and leaflets for each of them. This award is especially popular amongst independent designers because it is guaranteed that the winner and the finalists of the award will be given opportunities of design jobs for this company's products. Furthermore, this company has prepared a special design studio in one of their office buildings in central Tokyo exclusively for the winners and finalists of the award. The studio installs the latest hardware and software and the winners and finalists can keep using it freely and exclusively for their design work. Yoshi commented on the special design room as follows:

Yoshi: That [the special design studio] is absolutely great for me. It's like a salon where independent designers like me can meet and have a chat. The people I meet there are all skilful, talented, and professional indeed. So having a chat with them is absolutely great in terms of exchanging valuable information. What's more, the studio has a lot of 'cutting-edge' machines and devices, which individual designers still can't buy easily due to high price. So the room is really helpful to independent designers like me. […] These days, the price [of the machines and devices] has gone down to a reasonable level even for individual designers to buy. In that sense, the value of the room

might not be so high as it used to be. But I still go there, as meeting those

people is still very valuable to me.

The special design studio seems to function as a 'Ba' (Nonaka and Konno, 1998; Nonaka et al., 2001), or a place where people can share a distinct context of working and exchange a variety of tangible and intangible goods. As Yoshi stated, such a place can provide people with broad opportunities for 'real' human interaction, which facilitate exchange of valid information. Thus, a place like the studio involves not only material usefulness in terms of equipment but also a platform for exchanging and sharing a wide range of intangibles.

Along with functioning as a place for interaction amongst the designers, the studio also serves as a place for coordination and collaboration of design jobs.

Yoshi: Normally, good designers know where jobs are. They know which clients are looking for designers. The studio is filled with such information. We talk about such things quite a lot there, and introduce others to the clients for a new job frequently. Besides, if someone needs help for his or her design job, we work together. Actually, I got supports from people there some times when I needed help on database programming for the websites I worked on.

The informal chats amongst the people coming to the studio facilitate the exchange of information concerning new jobs. It seems that the studio effectively mobilizes the distribution of job information that normally tends not to spread amongst the community. 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. It is obvious that the network that Yoshi has built through the activities afforded by the award and the close interaction with other designers in the studio has provided him with various important resources.

As seen above, the two primary sets of 'human' networks that Yoshi has built, the 'colleague' network and the 'studio' network, have been contributing to his independent career significantly. It would be fair to say that Yoshi could have been independent and continued his design jobs without these two networks. As found in the many other cases in this field study, mobile professionals effectively mobilize such human networks in order to get their jobs, whether they are employed or freelance.

Yoshi also points out that continuous maintenance of the networks is at the heart of his independent working style.

MK: So you mean that keeping such 'real' networks is important for you, no matter how much useful 'virtual' interaction with people through the Internet is?

Yoshi: Absolutely. No matter how much the Net supports my work, networking, I mean in a face-to-face and intimate manner, is definitely an important part of my work. Actually, I go out with those friends and have beers quite often. It's absolutely clear that jobs come through such informal activities. […] Freelance designers like me are very much likely to be gradually isolated from the world out there. So we must be careful not to be so. In a sense, my

job is networking. It's not just sitting in front of the computers and drawing a picture on the display.

For Yoshi, building and maintaining his networks, formally and informally, is the critical constituent of his work activities. Such networking activities ensure his independent work by facilitating 'real' interaction with others, which brings him a variety of information including one concerning new jobs.

5.4.6. Summary

The second case, a freelance CG designer, highlights some distinctive characteristics of mobile professionals and their work practices. Firstly, this case shows the highly independent nature of today's independent professional's work activities. Taking advantage of the structural change of the CG design field in the 1990s, particularly the rapid commercialisation of CG design work and the increased practice of outsourcing, Yoshi succeeded in making his work style and environment highly independent and adaptable in terms of daily operations.

Secondly, this case displays the wide possibilities of intense interaction through the Internet in strengthening the merits and minimising the demerits of working independently. The fast, 'always-on' Internet environment, which had existed only in big firms' offices until just a few years ago, provides professionals working alone in a geographically static manner like Yoshi with a stable communication means for collecting a vast amount of information and for interacting with people all over the world. In this case, the intense 'virtual' interaction and information exchange with people on the Internet greatly helps him in keeping himself updated about the latest situation of the rapidly changing CG design field. This

case clearly shows that even if a worker's geographical movement is largely limited, he or she can have wide access to outside information by utilising the Internet.

Thirdly, the case also indicates that 'real' interaction with people and continuous networking activities are still vital for independent professional work. Personal networks that the workers have previously built serve as an essential conduit through which they can find new jobs, especially in the early stage of their independent work career. In order to effectively mobilize such networks for their work activities, the professionals working alone have to have 'real' interaction with people in the networks and keep access to a wide range of communities.

5.5. [Focus Case 3] An E-business Entrepreneur

The third case is about a software development entrepreneur. The most immediate difference from the other two cases discussed above is that the individual in focus is part of a formal organisation and employs around twenty members of staff. However, this case, too, exhibits various distinctive characteristics of mobile professional work in individual and organisational contexts. In particular, it shows the high degree of mobility in the management of intense interaction by effectively utilising ICTs, which will be discussed in depth in *Chapter 6* in relation particularly to *interactional mobility*.

5.5.1. Profile and background

Hiro, 35, is an entrepreneur and CEO of a small software company. Compared with other ordinary Japanese people, he has an extremely unique background.

After his high school graduation, he began working as a musician, living by playing, composing, and arranging music for himself and for other musicians. As a musician, he had been quite successful, but gradually shifted his career towards ICT-related areas. After being involved in the Internet service provider (ISP) business for a few years, he founded in 1998 the company where he now is CEO. The company primarily develops entertainment software and digital contents such as internet-based games, music-composing applications, and more recently various tools and network contents for Internet-enabled mobile phone services such as the NTT DoCoMo *i-mode* platform. In particular, the mobile phone content business brought his company tremendous success, largely thank to the dramatic increase of users of Internet-enabled mobile phone services in Japan in the late 1990s. Despite its substantial financial success, the company is kept relatively small with only fifteen full-time members of staff and a few part-time workers conducting clerical tasks.

Hiro describes himself as *"a man of ideas"* who always creates innovations that appeal broadly to people and which can be turned into commercial products or services. As the primary responsible for deciding the strategic direction of the company, he also finds it important to closely coordinate the process of transforming the ideas into products. In that respect, he also considers himself *"a producer"* who directs the process of creating new products. He stated:

> Hiro: I'm interested in either making things that have never existed before or reconfigure existing things into a much more interesting form.

> MK: Are there any specific fields of business you want to focus on?

Hiro: No. Any field is OK as long as I can create something new. So far, my

          business has dealt mainly with intangible goods, such as music, software,

          and digital contents. But I also have a big interest in making physical things.

          So I don't have any constraints in choosing a field of business.

Since starting as a musician, he had never worked as a paid employee of an

organisation. He explained the reason for this as follows:

MK: In your first career as a musician and composer, were you working as a

          freelance?

Hiro: Yes, I was entirely working as a freelancer. I always thought that I didn't

          want to be a salaried office worker. I don't know why… Well, what was

          absolutely clear to me was that I wanted to do what I liked to do. I just want

          to do something that fascinates me. I used to work as a musician. Now I'm

          doing my own business. But the principle is still the same.

His eagerness to create something new and interesting drove him towards a

unique career independent of existing firms or institutions. However, as his career

gradually shifted from just working as a musician to having his own business, he

inevitably needed to enrol others.

Hiro: I kept doing what I liked to do. I was not afraid of working alone at all. But

          as I gradually became interested in materialising my ideas at a formal

          business level, I felt limitations in working alone. So, for doing ISP [Internet

          Service Provider] business, I found a partner who knew server technology

          very well. He also played an essential role in starting the current business,

especially for developing net-based applications and contents. When our business resulted in the first big success in 1999, the company had just four members in total, including me.

Compared with numerous Japanese e-business ventures most of which ended up fading out within a few year from their inception, Hiro's business has so far exhibited extremely successful results, becoming one of the most successful e-business ventures in Japan. It is particularly interesting that he still keeps the size of the company relatively small, employing around twenty people including part-time staff.

Hiro: I want to be responsible for what I do in my business. If the company gets any bigger, I couldn't be responsible for everything. That's not my style. […] Now the company has around twenty people. To be honest, even at this level, I sometimes feel stressed managing it. But as long as I can do what I want to do, that's fine. I don't intend to create a mega corporation at all [laugh].

MK: So you mean small is good?

Hiro: Yes. Keeping the organisation small and slim is very important, particularly in this field [Net-based application and contents business]. If you have a larger firm, you have bigger business opportunities. But at the same time, it brings you more risks and constraints.

To fulfil this aim, Hiro keeps his company small enough to be managed directly by himself. Thus it can be said that his spirit of independence and eagerness of self-actualisation still exist within the company.

5.5.2. Managing an overwhelming amount of interaction

In contrast to the cases of Jun and Yoshi, 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. He has two to four business meetings inside and outside his company's office every single weekday. During the day a number of people constantly try to contact him by telephone, email, or sometimes by suddenly showing up without an appointment. He receives on average fifty emails, excluding ones from mailing lists, each day. These emails are all directly related to his business and he therefore needs to reply to most of them.

Simple utilisation of Internet-based and mobile technologies do not necessarily solve this situation, since wider communication access to other people brought by those technologies can make the situation worse, increasing the intensity of interaction further. However, simply missing excessive contacts can result in missed business opportunities. Therefore, he was faced with the dilemma of either accepting intense and complex interaction in his everyday work practices or potentially damaging the progress of projects or the relationship with business partners.

In order to cope with this dilemma, Hiro utilises the combination of email and mobile phone technologies as the primary means of managing his interaction.

Similar to several other mobile professionals interviewed, he forwards all incoming emails to his Internet-enabled mobile phone. When his mobile handset receives an email, he is immediately notified. However, as he receives a large number of emails a day, he has configured the ring tone so as to sound only when receiving email from a person explicitly deemed as important. The preset important people include his secretary, members of ongoing projects, and a few others. When receiving emails from people not explicitly included in the set of important people, the handset just vibrates without playing a sound. Hiro described this practice of managing emails as follows:

Hiro: Many people say that email is asynchronous communication. But I think it should depend on the content of the email. In the case that the content of an email is urgent or important, I reply to it as synchronously as I can. If it's not, I reply to it asynchronously by using available time. […] Currently, I make the decision based on who sends the email. When an email is sent by a really important person, I reply to it immediately, as real-time as I can. But overall, it's important not to leave email unanswered for a long time. Basically I try to answer the emails I receive as quickly as possible. For this purpose, forwarding emails to my mobile is indeed very useful.

In fact, during the interview, Hiro's 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.

With regard to telephone calls, he mentioned:

> Hiro: All members in my company and most clients and business partners know that I'm quite busy [laugh]. And they all know that I use mobile phone and email like this [forwarding emails to the mobile phone handset and replying to them as quickly as possible]. So they rarely ring my mobile, except in the cases of really urgent issues. Instead, they send me an email to check if I'm available or not.

In order to cope with an overwhelming amount of interaction, Hiro clearly needs to screen interactions to assess which ones pertain to less urgent issues, allowing him to direct his attention and time to the ones involving more urgent or important issues. It seems that he could use his secretary or other subordinates to sort out those interactions. However, he chose to manage all interaction himself by using a combination of technology and established social practices for using the mediated interaction media. He, in fact, clearly noticed that this way of managing interaction is only feasible in a small company.

> Hiro: […] I don't think I can do this if my company gets much bigger, say having a hundred members of staff. But at the current size of the organisation, employing less than twenty people, I believe this is much better.

It is apparent that a technological solution is not always beneficial and sometimes ends up creating new problems. The effectiveness of a certain technology in actual work practices largely depends upon the context in which the technology is used. In Hiro's case, combining email and mobile phone resulted in effective

management of an overwhelming amount of interactions. This does not mean, however, that such a technological solution works in *any* work context.

5.5.3. Maintaining mobility

As seen above, Hiro is keen to maintaining direct control of the daily activities in his company. There is, however, an additional rationale for keeping the organisation small. A small organisation can easily remain agile and competitive.

> Hiro: […] The critical issue is whether I can make a decision about the directions of this company. As you know, the economic situation in Japan is really bad at the moment and IT-related ventures like ours are facing it at the forefront. So making decision as quickly as you can is absolutely crucial for survival in this field.

> MK: Is that why you try to get in touch with various activities [in the company] as directly as you can?

> Hiro: Oh yes. My job is actually thinking about the future directions of the company and making decisions to move. That's all. To make decisions quickly, you need to have direct access to the issues.

As Hiro mentioned, the Japanese e-business venture businesses have undergone 'boom and burst' in a short period of time, from 1999 to 2001. Numerous start-ups emerged out of nowhere in the late 1990s, but with only a few exceptions, those companies have faced severe problems and most of them disappeared. Furthermore, rules and conditions for competition in e-businesses are constantly

changing. It is therefore important for organisations to be agile and flexible in making crucial strategic decisions concerning the directions of the business. Smaller organisations where the owner has a direct involvement can sustain innovation better than larger ones with a more bureaucratised structure. Hiro continued:

Hiro: The point is mobility. Keeping a high level of mobility is absolutely important.

MK: Could you explain a bit more about 'mobility'?

Hiro: Well, the field where we are doing our business is in constant and rapid change, especially in technological development. So we have to adjust our business all the time according to those changes, like adjusting a clock to the actual time. In so doing, it is problematic if the organisation is too big to make a decision quickly. In the same way, it's not good either that the decision maker is quite distant from daily operations. […] So all I do is keeping my business and my organisation mobile, making them adaptable to the changes of the market.

It is extremely interesting that he uses the term *"mobility"* to describe his way of managing the company. By mobility he primarily means the capability of the firm to make decisions quickly and to adjust the domain and procedures to the rapid change of the surrounding environments without delay. By keeping his business and organisation mobile, his company has experienced exceptional success so far.

This particular usage of the term 'mobility' can be found in many other cases in

this field study, especially in the case of entrepreneurs (#12, #13, #20, #21, #24, #25, #39, #48)[10]. Entrepreneurs are always subject to constant and rapid changes of the market where they operate their businesses. Normally, they are vulnerable to such changes, since they have more limited redundant resources that can be mobilized when needed compared with larger corporations. Therefore, for entrepreneurs, establishing highly mobile and adaptive organisational structures is of paramount importance. This is particularly the case in ICT-related businesses that are still experiencing the exponential growth of computing processing power and rapid decrease of market price. In Hiro's case, even if his company has enjoyed huge success so far, he keeps paying close attention to maintaining his business and organisation mobile.

5.5.4. Being 'analogue'

Along with the mobility of business and organisation, Hiro also emphasised the ways in which he collects information.

> Hiro: […] To make a decision quickly, you always need to pay attention to what is going on out there. Collecting the latest information is absolutely essential. To do so, I try to go out and see the outside with my own eyes as well as through the Internet. I frequently wander around the cities, as I like seeing people, things they have, cars, billboard adds, or whatever. And I love shopping. Shopping is a really useful way of getting information about

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[10] They used the Japanese word *'kidosei'* or *'kidoryoku'*, both of which generally mean mobility.

'now', about popular trends of fashion, food, entertainment, and so on. When
new IT-related products come out, I immediately go to Akihabara [a large
shopping town in central Tokyo for computers and electronic appliances] in
order to touch them by myself. This kind of legwork is indeed necessary for
my business.

Just like Jun in the first case, Hiro is a man of the field. He spends a considerable
amount of time outside the organisation, not only for meeting people but also for
wandering and experiencing whatever is out there. For him, wandering around is a
means of gathering lived information in the field where the actual social and
economic activities of people are taking place. This information gathering is
conducted purposefully in some cases, for example evaluating a new product in a
shop, but it is also done without any specific purpose:

> Hiro: There are a lot of interesting things I come across when outside. It's not
> unusual at all that a trivial chat between women sitting next to me in a café
> inspires my next new idea.

He stresses that unexpected encounters with various happenings outside can hold
possibly useful or important information for his business. Nowadays, people can
get a wide range of information through the Internet. There are countless public
and private sites, portals, mailing lists, bulletin board services (BBSs), chat rooms,
auction sites, web application services, and so on. By using a search engine such
as *Google* and *Lycos*, people can search and find information about any issue.
However, Hiro asserts that there is still a need to *"verify"* information on the
Internet by 'analogue' means.

Hiro: I think that it is in the last few years that the Internet can be used as a not-too-bad data source for business. Before that, it had been filled with a lot of biased information that covered quite limited issues. Such information was too dangerous to believe for business use. But now, there are many useful websites and services… for example, product evaluation sites, news providers, and voluntary sites where a number of people post useful information and their opinions. But, still, you need to verify the information you get from the Internet. To do this, I go out, see with my own eyes, and talk with people about the issue in person. Wandering around is also one of my ways for verifying the 'feeling' I get from the Net.

It is particularly fascinating that even if he is in the software and digital content business and his working life is widely supported by various ICTs, he still thinks of immediate information that he gains through traditional, direct means as important for his business. Hiro claims a similar role for magazines. He reads an extensive amount of material and diverse kinds of weekly and monthly magazines and journals, ranging from PC-related magazines and business journals to academic-oriented journals and pop-culture magazines aimed at both men and women. He admits that he relies heavily upon these magazines and journals for collecting the latest information. However, he again insists that the information needs to be verified through 'analogue' means such as visiting the site, touching the products, and feeling the atmosphere. This approach to information gathering and verification can best be described as follows:

Hiro: The point is that any information you get has to be assimilated by 'analogue' means.

What is important to him is the process of assimilating of information, how to filter and then interpret diverse information gained through various digital and analogue media including the Internet, magazines and journals, and by visiting and wandering around a site.

The fact that Hiro regards 'analogue' activities such as visiting and wandering as important for verifying information he gains through the Internet and magazines does not necessarily mean that technology does not help support 'analogue' activities at all. On the contrary, technological supports do help his 'analogue' activities. He claimed:

> Hiro: […] As I go out quite a lot to see the site and the product I'm interested in, the mobile phone really helps me. By having my mobile I can contact and be contacted when outside. Also, as I said, emails are forwarded to the mobile handset so that I can receive and send email immediately. The mobile phone gives me substantial freedom to decide on where I should be. It's absolutely clear that the mobile phone greatly helps entrepreneurs like me who have to move around. By using it we no longer miss the critical timing when making decisions.

The combination of the mobile phone and email forwarding clearly ensures Hiro's extensive movement and timely decision making. As he clearly stated earlier, an entrepreneur's main job is making decisions. Seizing the right timing is paramount for making the right decision. The mobile phone enables him not to miss the right timing and, at the same time, provides him with a high level of mobility in actual physical movement.

5.5.5. Summary

The third case, an entrepreneur, demonstrated, compared with the previous two, a somewhat different but related picture of mobile professional work. Firstly, the entrepreneur, too, desperately seeks independence from 'fomal' work and career just like the other two cases, but the entrepreneur strives more than the other two cases to materialise his own ideas, passions, and dreams. Whereas the independent consultant and the freelance designer basically participate in existing business structures typically by being members of projects, the entrepreneur seeks to build up his *own* business structures with support from various internal and external members.

Secondly, the entrepreneur is constantly subject to an intense level of human interactions, both direct and indirect. Since entrepreneurs work with an extensive range of people in their everyday work practices, the intensity of interaction is typically very high. They have to simultaneously juggle multiple incoming interactions through telephone, email, and in person. This case clearly shows that effective utilisation of mobile technology and email can be a solution to coordinate such multiple threads of human interactions.

Thirdly, mobility is generally deemed important for the entrepreneur's work activities and business. Here, mobility primarily means the entrepreneur's capability to quickly make decisions about business strategy and to rapidly adjust the business to the rapid changes in the surrounding environment. maintaining a high level of mobility is crucial particularly for small companies like the one described in this case. For this purpose, the stable communication access afforded

by the mobile phone and related technologies provides him with an ability to maintain a high level of mobility in his everyday work practices, especially outside.

Fourthly, the entrepreneur regards various 'analogue' activities such as visiting a site, observing and meeting with people, as well as touching new product by hands as crucial for collecting the latest information about the market and products. This is mainly because the information that can be obtained from the Internet is still largely biased and restricted, so that business people have to 'verify' such 'digital' information in 'analogue' ways. For example, wandering around is one of the entrepreneur's main 'analogue' approaches to verify the information he gained from the Internet or from magazines and journals. Various technologies, especially the mobile phone, significantly support such extensive movement by continuously allowing access. Furthermore, the increased opportunities for interaction and communication enabled by ICTs ensure much quicker decision making without missing critical timing.

Summary of Chapter

This chapter explored the results of the fieldwork looking at various work practices of mobile professionals. After looking at the general features of the interviewees, I have drawn a variety of lived experiences of three distinct mobile professionals. The first focus case was *Jun*, an independent town planning consultant, whose work practices displayed extensive and rapid geographical movement supported by mobile technology. The second focus case was *Yoshi*, a freelance CG designer, whose work practices were highly independent of the

traditional business structures. Yoshi's case also showed various potentials of the Internet and related services for interaction with people. The third focus case was *Hiro*, an e-business entrepreneur, whose work practices were distinctively characterised by his dynamic interaction with a diverse range of stakeholders of his business. Whilst other cases in the fieldwork also involved a variety of different stories in different contexts, these three focus cases represented the main characteristics of the emerging mobile professionals and their work practices.

CHAPTER 6:

Analysis

Introduction

This chapter analyses the results drawn from the fieldwork discussed in the previous chapter. As discussed in *Chapter 4*, the particular analytical lens that I chose for this research is the practice-based perspective. This aims to highlight *work practice*, a fundamental human action that continuously constitutes and is constituted by the structure of work environments. Work practice is deeply embedded in workers' everyday activities and inseparable from the contexts in which it resides. In order to answer the research question that I set in Chapter 2, "*How do contemporary professional workers accomplish their daily jobs in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to ICTs in general and emerging mobile technology in particular?*", I have carefully examined the actual work practices of sixty-two mobile professionals. This chapter presents critical findings drawn from the fieldwork discussed in the previous chapter and my analysis of them.

In the following sections, the results of the fieldwork are analysed and condensed into a set of specific *themes*, which illuminate the nature of mobile professionals' work practices and form the foundation for theory construction and practical applications. Note that although my initial analysis here was largely shaped by the theoretical consideration that I have done before starting analysis, I paid through

this analysing process careful attention to the iterative interaction between data and theory, through which those themes to be dealt with has emerged. The previous chapter discussed in great detail three distinct cases: an independent town planning consultant, a freelance CG designer, and an e-business entrepreneur. Whilst those three cases were chosen because of their effective representation of the issues that emerged in the fieldwork, the other cases have also provided me with various important findings and implications. The themes present common important aspects of the mobile professionals' work practices.

In the following sections, I discuss the following seven distinct themes:

1.   Beyond the geographical understanding of mobility

2.   ICT as an enabler of mobile professional work

3.   Negotiation of multiple threads of ongoing interaction

4.   A place as material and interactional foundation

5.   The importance of personal networks

6.   Boundary-crossing and boundary-forming

7.   Multi-participation and knowledge brokering

6.1. Beyond the Geographical Understanding of Mobility

The first theme drawn from the empirical study cuts through all the other themes and hence this research as a whole. The close examination of work practices of mobile professionals clearly demonstrates that the conventional understanding of the concept of mobility cannot fully grasp the essence of emerging mobile professional work.

As I have discussed in *Chapter 2*, the concept of mobility encompasses a wide range of meanings that in general signify ability for movement. The concept of mobility can be applied not only to people who move around but also to objects and information that are not fixed in a specific state or location. 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*: 'mobile technology' is a technology that can be moved from a desktop space; 'mobile office' refers to an office space separated and distant from the main and formal office; 'mobile work' is a mode of working where people work outside of the formal office space such as home, hotel, and vehicle. To be sure, 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 almost completely ignores another important aspect of the original meaning referring to *transformation* or *motion* of object, state, conditions, or structures.

With regard to this issue, Sherry and Salvador (2002) clearly point out the need for reconsideration and expansion of the concept of mobility when studying what

is typically labelled 'mobile work.' They argue that although mobile work typically means work involving "remoteness" or "separation from a resource-rich 'home-base'", what they call "truly mobile work" involves "both remoteness and motion, or at least more fleeting periods of stasis" (p. 110). As they argue, the conventional understanding of mobile work deals only with remoteness from a specific location and largely ignores the dynamism of work as such, although there are some notable exceptions such as Luff and Heath (1998) and Wiberg (2001a). It could be argued that this limited perspective towards the concept of mobility resulted from the lack of close and detailed analysis of the work practices in actual work contexts.

In the first focus case, Jun, an independent town planning consultant (#4), distinctively shows extensive geographical movement, moving within and between cities within a short period of time. Likewise, an entrepreneur in the health care service business (#25) moves extensively around the Tokyo metropolitan area to meet a number of existing and potential clients in a single day. A sales coordinator (#45), too, moves and walks around to daily inspect a number of shops. Taking the geographical movement or remoteness of their work, those cases are clearly 'mobile' work in the traditional understanding of the term. Applying Kristoffersen and Ljungberg's (2000) functional characterisation of mobility of people, their work practices clearly exhibit all three modalities: *travelling*, *visiting*, and *wandering*. However, their work practices can be seen as mobile not just in a geographical sense but also in their dynamic activities whereby they interact with a variety of people in constantly changing situations.

Dynamic aspects of mobility can also be seen in the cases where the worker's

geographical movement is largely static. For example, in the second focus case, Yoshi, a freelance CG designer (#18), has a static work style in a geographical sense, working from home for most of the day. However, when considering his intense interaction through the Internet, he constantly interacts with numerous people via various websites and services such as BBS. He actively exchanges valuable information relating to his design work, for example, information concerning evaluation and reputation of new software products. This clearly demonstrates that his work practices are *geographically* static but *interactionally* mobile and dynamic. Furthermore, the mobility of information in his work practices is considerably high, exchanging information with a global span. Similar examples can also be found in many other cases in the fieldwork such as a marketing planner mainly engaging in website design and evaluation (#10), a corporate researcher in a private research firm (#31), and an academic researcher (#62). Those professional workers have not been deemed as 'mobile' workers, since in a geographical sense their work is located primarily in a specific place for an extensive period of time. However, if taking interactional aspects of their work practices, they can reasonably be seen as 'mobile' workers, dynamically interacting with a wide range of people in their jobs.

In addition to the mobility in terms of geographical movement and of interaction, some of the mobile professionals interviewed show another distinct mode of mobility: mobility in *operation* of their work practices. Again, Yoshi works as the independent business on its own that does not belong to or is supported by a formal organisation. As I have discussed in his case in detail in the previous chapter, firms in various industries, especially the entertainment industry

including music and PC game businesses, are actively outsourcing CG design jobs to freelance designers working independently like Yoshi. This is because the firms are faced with the increasing need for cost reduction of design work and for gaining operational flexibility in order to quickly adapt to the transition of market trend. Taking advantage of this rapidly spreading outsourcing strategy, an increasing number of professional workers employed by and working inside organisations are seeking "boundaryless careers" (Arthur and Rousseau, 1996), becoming independent and engaging in their own distinct working styles.

In short, various professional jobs that used to be internalised by the organisation are increasingly "unbundled" (Hagel and Singer, 1999) from the rigid operational structure and now operationalised by independent professionals, just like many people interviewed during this research. In this sense, Yoshi's work practices of design can also be seen as a 'mobile' business unit, being unbundled from the organisational and utilised flexibly. This kind of mobility as an independent business unit is also seen in many other cases such as independent consultants (#1, #4, #23, #45), an architect (#34), a freelance producer (#29), and journalists (#42, #43). All of these cases demonstrate that their work practices demonstrate a large extent of mobility in terms of operation and little operational dependency upon other businesses. All of the professionals listed above are working alone without any formal employees and can act as a distinct business unit.

The results of the fieldwork therefore clearly demonstrate that the conventional understanding of mobility, rigidly confined to geographic aspects, does not suffice for grasping the diverse realities of dynamic work practices of contemporary professional workers, in particular mobile professionals. Their work practices

exhibit not only 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, it can be argued that emerging mobile professional work can be analysed from three interrelated perspectives on 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 6.1 shows the mobilities of the mobile professionals exemplified by the three focus cases.

	Locational mobility	*Operational mobility*	*Interactional mobility*
[1] Independent town planning consultant	++	+	+
[2] Freelance CG designer		++	+
[3] Entrepreneur	+		++

('++' means a high level and '+' means a moderate level of each mobility)

Table 6.1: Mobilities of mobile professionals in the three focus cases

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 works across extensive geographical areas and shows various modes of mobility such as travelling, visiting, and wandering. His style of 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, I 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 a low degree of locational mobility, working at home for long periods of time. The level of operational mobility is, however, significant. 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 collecting the latest information about new software products on the Internet, he visits designed websites and BBSs on which people all over the world post their evaluation of the products. 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 e-business entrepreneur, Hiro, shows a particularly high level of interactional mobility. On a daily basis, he constantly has to manage and sort out intense interaction from a significant number of stakeholders, including twenty members of staff in his company and external business relations. As the CEO of a small venture company, he has primal authority over the strategic decision making of the company. Therefore, he is constantly subject to the huge need for making decision quickly, leading to the high level of interaction. Thus the high degree of interactional mobility can be seen as a distinct characteristic of his work practices. 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, in terms of operational mobility, Hiro's work practices are relatively low, being constrained by various work conditions and structures. Being CEO of a small company, his work activities are inevitably restrained to large extent by various explicit and implicit obligations to keep the company's business running. Compared with totally independent freelancers who have few restrictions on deciding what to do and when and where to work, he has to pay much more attention to issues at the company level as well as those at the individual level. Despite such a relatively low level of operational mobility, however, his work practices clearly display the high levels of locational and interactional mobilities.

As clearly seen in these three focus cases, the work practices of each mobile professional interviewed show a distinct mixture of locational, operational, and interactional mobilities (see *Appendix* for details). For instance, work practices of independent consultants (#1, #5, #23, #35, #40, #45, #47, #50, #51, #52, and Jun) generally show the high level of mobility in all aspects but particularly high in locational and interactional mobilities. Journalists' work practices (#16, #28, #42, #43) also show high mobility in all aspects but especially high levels of locational mobility involving rapid geographical movement on a daily basis. In contrast, corporate researchers (#6, #7, #14, #31, #58, #59) and academic researchers (#61, #62) have relatively low locational mobility, working primarily in fixed locations. However, their work practices show the highly level of interactional mobility, intensively interacting with various people through both face-to-face and mediated communication. Moreover, in spite of being employed by a firm or a

university, they hold relatively high operational mobility, being able to work independently with few formal constraints from their employers. Sales coordinators' (#36, #44, #49, #60) work practices involve a significant level of locational and interactional mobilities, meeting a number of clients and customers in a single day, but quite low operational mobility due to formal employment relationship and largely rigid daily operation under supervision of the office.

As seen above, the most fundamental finding from the field study on 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.

6.2. ICT as an Enabler of Mobile Professional Work

From the extended conceptual lens discussed above, which sheds a light upon not just locational but also operational and interactional mobilities, various new insights of mobile professionals and their everyday work practices can be drawn. The immediate issue to be discussed would be the role of ICTs, since mobile

professionals' work is enabled by their intense use of ICTs, in particular the Internet and mobile technology.

As we have seen in the three focus cases, ICTs play various roles in their work practices. In the first case, mobile access to email and mobile phone critically support Jun's everyday work practices. Since Jun frequently travels within and across cities and towns, he stays in his office for a sporadic period of time. With such a working style, the mobile phone enables him to contact and be contacted by people when outside. Stable access afforded by the mobile phone clearly ensures a high degree of locational mobility of his work practices. Moreover, his subnote PC provides him with a computing environment almost equal to that of his office wherever he goes. Jun uses his subnote PC for writing reports when being at a client's office, on the train or plane, or when staying in a hotel. Furthermore, the subnote PC, connected with his mobile phone, offers him the ability to receive and send emails when on the move. In Jun's case, the mobile phone and the subnote PC afford him the continuity of his work environment for PC usage and the stability of communication access, which hence maintain his high level of locational and interactional mobility.

Given the work practices of the freelance CG designer, the Internet technologies and applications are particularly important, supporting his intense interaction with people. I found that Yoshi's work practices displayed quite a low level of locational mobility. He mostly works alone at his home, being in front of PCs and other devices for CG design, although he sometimes goes out to meet clients and friends in the design studio. For this kind of work situation, effectively using the Internet can minimise the drawbacks of working alone at home. As seen in his

utilisation of various websites and BBSs, the Internet can be an extremely useful conduit through which a wide variety of information can be obtained. 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). In Yoshi's case, utilisation of the Internet, or more specifically 'always-on' broadband access to the Internet, ensures his high interactional mobility in particular, providing him with the ability to interact with people.

Furthermore, Yoshi can gain a high level of operational mobility by utilising ICTs in general and the Internet in particular. Thanks to the rapid decline in the price of PCs and other computing devices, freelance CG designers like Yoshi can on their own establish almost the same computing environment as that in large design firms. This possibility for freelance designers to own powerful computing environments at a reasonable cost resulted in the unbundling of CG design work from operational structures of large companies. In addition, the Internet also ensures the high level of operational mobility in CG designers' work practices, enabling them to work independently without material and infrastructural supports from large organisations.

In the case of the e-business entrepreneur, it is clear that ICTs, particularly mobile technology, play a critical role in supporting mobility of work practices in general and locational and interactional mobilities in particular. Hiro is constantly subject to intense levels of interaction from a diverse and only partly predictable set of people. As clearly seen in his work practices, the combination of the Internet-enabled mobile phone and email forwarding provides him with an ability

to manage the intense interaction effectively even when on the move. Continuous accessibility is essential for his quick decision making for the company, delivering important information and issues to him without delay.

Other cases of mobile professionals also show various roles of ICTs in their work practices. As briefly touched upon in the previous chapter, some informants claimed that they prefer laptop PCs as their main computer even when working inside their office. This is mainly because they can bring the office PC environment with them when needed by carrying their laptop PCs. This is exactly the case when the continuity of PC environment can facilitate locational mobility of work practices. Furthermore, stable 'always-on' access to the Internet for individuals such as DSL services and the Internet access via cable TV lines enable a wide range of mobile professionals, especially freelancers, to have an opportunity to be independent of the formal organisations without being lagged behind the current market trends.

However, it is important to note that simple introduction of ICTs does not necessarily increase those mobilities of work practices in a straightforward manner, since the actual ways of utilisation of a particular technology may vary significantly amongst the workers. For example, some informants asserted that PDAs could support their work activities especially when going out, whilst some others insisted that the usability of the existing PDAs was too poor and cumbersome to introduce in a business settings. A similar story can also be seen in the case of the emailing function on the Internet-enabled mobile phone. The majority of the informants stated that they did not use the email sending function on their mobile phone as frequently as the email receiving function simply

because the interface for typing words on a mobile phone handset was extremely cumbersome due to a limited number of keys. However, some (#23, #30, #53) mentioned that they used the email sending function on their mobile phone frequently, since they constantly face the need to reply to incoming email quickly, for instance just sending a short message like "Got it. Call U in a few minutes."

This is exactly the reason why we need 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 mobilities due to the overwhelming amount of interaction they are exposed to. Human interaction is inherently situated in a particular context that recursively frames and is reframed by the actual practice of action. Suchman (1987) argues that "the coherence of situated action is tied in essential ways not to individual predispositions or conventional rules but to local interactions contingent on the actor's particular circumstances" (p. 28).

To sum up, the introduction and utilisation of ICTs can generally support and facilitate mobile work practices of professionals; however, the impact that a certain technology holds and the extent to which it influences can vary significantly according to how and in what context and circumstance the technology is actually used.

6.3. Negotiation of Multiple Threads of Ongoing Interaction

When taking a closer look at the cases of the mobile professionals being exposed to high levels of interactional mobility in work practices, we can find an interesting but largely ignored fact. Many scholars, especially in computer science and engineering, tend to offer the simple proposition that by using mobile ICTs we are now able to interact with others 'anytime, anywhere' (e.g. Agre, 2001; Kleinrock, 1996). This is valid in the sense that ICTs, especially email and mobile phones, help us interact with those who are in remote locations either synchronously or asynchronously. However, with the close examination of the actual interaction of the mobile professionals suggests their interaction is not so free from time-space constraints but rather it is subject to *constant negotiation of multiple threads of ongoing interaction*.

Hiro, an e-business entrepreneur, is perhaps the informant who presents the most intensive and widespread use of various ICTs. He stated that *"the 'always-on' Internet access has already become absolutely natural in my daily life"* in the sense that he has the 'always-on' broadband Internet access both in his office and home and also the 'always-on' Internet access through his mobile phone handset when on the move. In terms of *accessibility* to the Internet, his work environment displays the 'anytime, anywhere' Internet environment. However, in reality he does not wish for the 'anytime, anywhere' environment literally because it must provide him with much more disruptive communication and interaction environments because he is exposed to a massive amount of interaction from others regardless of time and place.

For Hiro, the 'anytime, anywhere' computing is already a mundane reality. The crucial issue for his effective working is how to strike a balance between the merits and demerits of the 'anytime, anywhere' environments. He manages the level of intensity of interaction by the effective use of email and mobile phone. He prioritises interaction with important people based on the name appearing on the screen of the PC and the mobile phone. Whilst he admits that this filtering approach is not always effective, it is clear that a certain means for managing the level of interaction intensity is necessary for his daily operation.

Jun, an independent town planning consultant, clearly stated his doubt regarding the 'anytime, anywhere' vision. In his case, a subnote PC and a mobile phone provided him with great geographical and temporal flexibility of work. However, as he mentioned that *"some activities do need an appropriate place of work"*, flexible work environments enabled by mobile technology are not always suitable for, in his case, writing a report and using the Internet for a prolonged period of time. He sometimes has to concentrate on deskwork or on a site inspection with clients. Time and space in the actual work practices *"depends on what you have to do"*.

Wiberg and Ljungberg (2001) demonstrate that the emergence of the 'anytime, anywhere' computing environment does not necessarily mean that we can interact with others *"every time, everywhere."* In their investigation of mobile work at a Swedish telecommunication service and maintenance company, mobile workers' activities must in most cases be conducted according to geographical and temporal constraints. As discussed earlier, every human action and interaction is inherently situated in a particular context; this is also true in the case of mobile

communication and interaction, ensured by ICTs, including mobile technologies (Kim et al., 2002). Likewise, Sherry and Salvador (2002) argue that "the often voiced ideal of 'anytime, anywhere computing' seems to ignore the value of this rich, command centre-like environment that supports much of the cognitive, social and communicative work associated with computing" (p. 114).

In reality, mobile professionals being subject to intense interaction with a number of people are coping with *multiple threads of ongoing interaction*, rather than single, sporadic interaction. As discussed in *Chapter 2*, various 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, 2001a), most of the research has focused upon 'one-shot,' sporadic interaction taking place one by one, be it face-to-face or mediated. For example, Olson and Olson (2000) discuss in great detail effects and consequences of computer mediated communication between people at a distance. However, their analytical focus is exclusively on 'one-shot' interaction that involves identifiable beginnings and ends. The "anytime, anywhere" ideal is predicated on the such an assumption, that is, People's interactional behaviour can be neatly separated into discrete parts of interaction and computing technologies can effectively manage those parts without any conflict between them. However, in order to appreciate work practices of mobile professionals who are faced with high levels of interactional mobility, only considering interaction as 'one-shot,' sporadic interaction does not suffice. To that end, it is crucial to examine interactional
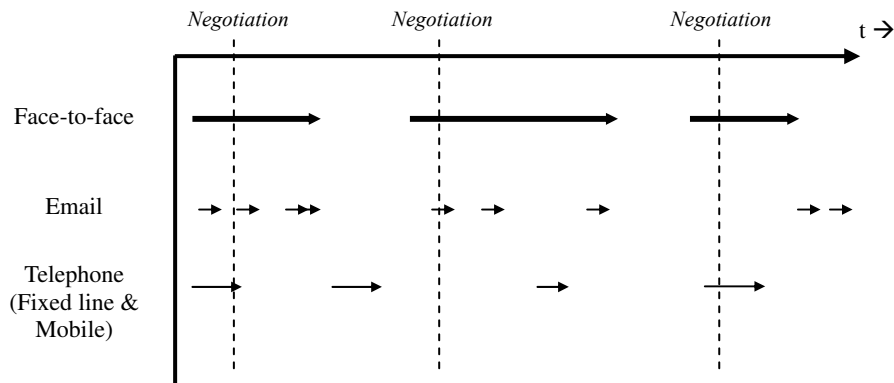
Figure 6.1: An image of multiple threads of ongoing interaction

mobility of the mobile professional is a perspective that illuminates *multiple threads of ongoing interaction* in their work practices (see Figure 6.1). When closely considering the cases where 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 Hiro's case, it is normal that he receives several calls on his mobile phone whilst engaging in a face-to-face meeting. He also frequently receives important emails forwarded to his mobile phone, each associated with a distinct sound notification. In both cases, he cannot ignore those incoming interactions simply because those can contain extremely important information or issues.

As mentioned in the previous chapter, I actually came across several times in the fieldwork the situation where the interviewee received a mobile phone call during the interview session. Whereas some interviewees checked the caller's name appearing on the screen, ignored it, and immediately retrieved his or her attention

to the interview session, most of them replied to the calls and initiated a phone conversation. It is easy to imagine that such an incident can take place in many other situations. The immediate issue here is that in the work practices of mobile professionals, particularly having a high level of interactional mobility, the workers are subject to local contextual conditions that shape their actual interactional behaviour.

6.4. Place as Material and Interactional Foundation

The results of the fieldwork 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. It was surprising that all the informants interviewed strongly insisted that a physical space such as an office and a meeting room was absolutely necessary for their work practices, even in the cases of the professionals interacting with people mostly through the Internet (an independent website creator: #22; an independent systems consultant: #35).

As we have seen in the case of Jun, an independent town planning consultant, the office served as his *"base of operation"* that could settle to some extent his work practices involving a significant level of locational mobility. For the workers who own many things such as machines, facilities, devices, and/or tools for their daily work practices (e.g. an independent architect: #34, a freelance graphic designer: #15), the office space is an important storing space for those things. Moreover, as many others interviewed also mentioned, Jun uses the office space for a social status reason. In the Japanese business context, independent professionals without

a formal office space could be faced with a significant problem in getting new jobs or projects from the large corporations that typically care much about whether such professionals do 'proper' business or not. Taking these aspects together, the office space can be a place for the *material foundation* of their work practices.

In addition to such a material-based function, a physical space can act as supporting and facilitating interaction. In the case of Yoshi, a freelance CG designer, the design studio could be used exclusively by the winners and the finalists of the CG design award as a *"salon"* where a number of designers could meet up and engage in informal conversations. As he mentioned, informal interaction taking place in the studio facilitates the exchange of valuable information in the community, especially concerning new jobs. Furthermore, ad-hoc collaboration amongst the people can emerge out of such informal interaction. Orr (1996) discusses in detail such functions of information interaction in workplace settings. In some cases, such a space is not fixed in a specific location. An independent IT consultant (#23) regularly organises *"a beer party"* at a local pub or restaurant where his friends and their friends just meet up and have a chat over a beer. He regards this occasion as *"very useful for getting to know each other and exchanging various stories and episodes of their jobs"*. As seen, a place like the studio and the pub can also play the role of the *interactional foundation*.

Regarding the discussion on the functions of a place, Nonaka and his colleagues (Nonaka and Konno, 1998; Nonaka et al., 2001; Nonaka et al., 2000) propose the

concept of *Ba*, a Japanese word for place or field. They define the concept of *Ba* in the following way:

> *Ba* can be thought of as a shared mental space for emerging relationships. This space can be physical […] virtual […] or mental. *Ba* provides a platform for interaction for knowledge creation…(Nonaka et al., 2000: p. 93)

As they clearly argue, *Ba*, or a place can be a physical, virtual, or mental platform for interaction and hence can exist anywhere. In a similar way, Harrison and Dourish (1996) argue:

> [S]pace is the opportunity; place is the understood reality" and also that "a place is generally a space with something added — social meaning, convention, cultural understandings about role, function and nature and so on. The sense of place transforms the space.

Based on their discussions, a place as the interactional foundation can be virtual in forms of, for example, BBSs and mailing lists, whilst such virtual places cannot serve as the material foundation. Likewise, Lee and Sawyer (2002) theoretically discuss the interrelationship between space and time in ICT-enabled contemporary work settings.

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 as the material and interactional foundation.

6.5. The Importance of Personal Networks

Throughout the fieldwork, I have come across a number of instances whereby the mobile professionals interviewed asserted the importance of personal relationships with a multitude of people for doing their jobs. As we have seen in the three focus cases, they all mentioned how heavily their business or daily jobs depended upon their personal relationships with friends, clients, members of projects, and so on.

Jun, an independent town planning consultant, admitted that the personal relationships that he had built during his career in the consultancy firm greatly helped him start a new career as an independent consultant. He stated that in the first two months after starting the independent consulting business, he *"struggled to get new jobs"* by approaching various potential clients with his plans and ideas. However, the first job he finally gained was not from such private hunting but through an introduction by his close friend who was still working in the consultancy firm. Furthermore, as seen in his case, he started sharing an office room with a friend working as an independent architect. Without this personal relationship, he could not have had an office outside his home at affordable costs.

Similarly, Yoshi, a freelance CG designer, relied heavily upon his personal networks for business. Just like Jun, Yoshi was greatly supported by his friends whom he met in his previous career in a big design firm. As he stated, the personal *"'friends' networks"* he had built during his previous career and through interaction in the design studio were the main and essential source of his business. He has not engaged in any promotional activities to secure new jobs, even in the beginning of his independent career. Almost all his design jobs came through the

introduction by his friends and existing clients. Moreover, he frequently exchanged valuable information and collaborated with people whom he met in the design studio for a new design job or project. Serving as a 'salon,' the design studio facilitates such collaborations amongst the members of the studio. He, furthermore, has extensive 'virtual' networks with people on the Internet. Information he gains through BBSs and mailing lists is essential for him to be updated about new hardware and software products. It is thus clear that Yoshi's everyday work practices are critically supported by his personal social networks.

Hiro, an e-business entrepreneur, started his company with a friend. Whilst his company currently employs around twenty members of staff, all the members except for the part-time staff have entered the company through Hiro's or other member's personal networks. Thanks to this close relationship amongst the members and its small size, Hiro's company still presents the atmosphere of 'a garage company' in spite of the dramatic financial success.

Similar stories can be found in many other cases in the fieldwork. A freelance graphic designer (#15) mentioned that he got jobs entirely through the personal relationships with his friends and former colleagues. Like Yoshi, he has never done promotion activities by himself. Interestingly enough, he asserted that building personal networks before starting a freelance career was significantly important for getting jobs constantly, saying *"If you have to make great promotional efforts to get a new job, it's too early to be a freelance designer. When the time comes, your friends help you. That's my case"*.

Just like Hiro, an entrepreneur in the health care service business (#25) started his

health care business with his friend with whom he worked in his previous career as a public certified accountant in a large auditing firm. The first client of his business was also included in his personal networks, being a person in charge of one of his client companies in the period of working in the auditing firm. He could never start his own business without this person's supports.

Employed professionals, too, found their personal social networks invaluable for their work success. A corporate researcher (#14) working in a think-tank stated that he frequently voluntarily participated in various research workshops organised by his personal friends outside the company. As a researcher, he regarded such workshops as extremely useful for exchanging information relating to his research projects, since some unofficial information, especially the one relating to the governmental policy, is distributed only amongst a specific research community. A media consultant and producer (#54) in a media agency said that he frequently created an *"ad-hoc team"* involving diverse members both from inside and outside the firm including planners, designers, editors, and photographers for promoting a new business or product. Most of the members of such an ad-hoc team are his friends and people with whom he has already worked. The reason for this is his conviction that *"a close relationship between the members is necessary for doing a good job"*. When the project is finished, the team is dissolved but their personal relationships remain. In this case, the persistent personal networks are the foundation for mutual trust for their collaborative working.

All the facts above clearly demonstrate that the mobile professionals' work practices are heavily dependent upon personal 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. Many scholars have addressed this dynamic nature of personal networks (e.g. Dubini and Aldrich, 1991; Granovetter, 1973; 1982; Haythornthwaite, 2001; Pickering and King, 1995). Amongst them, Nardi et al.'s (2002) work is perhaps the most relevant to the discussion here, since they address in detail the increasing importance of what they call 'intensional networks' in contemporary work environments. They argue:

> Intensional networks are the personal social networks workers draw from and collaborate with to get work done. […] it is increasingly common for workers to replace the organizational backdrop and predetermined roles of old style corporate working with their own assemblages of people who come together to collaborate for short or long periods. These assemblages are recruited to meet the needs of the current particular work project. Once joint work is completed, the network has some persistence: the shared experience of the joint work serves to establish relationships that may form the basis for future joint work. (p. 207)

Whilst such networking practices have been seen so far in a limited number of project-based business fields such as the film productions and music industries, Nardi et al. argue that the importance of personal networks is also rapidly increasing in corporate life in general. Through the interviews with workers mainly in media businesses, they found that NetWORK, a set of activities of building, maintaining, and activating personal networks, could be seen in various boundary-crossing work settings. Here it could be argued that 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. All the professionals interviewed have clearly understood the importance of such personal networks for their effective working and netWORK in everyday activities

6.6. Boundary-Crossing and Boundary-Forming

Closely associated with the issues of personal networks, mobile professionals' various boundary-crossing activities were also distinct throughout the fieldwork. By nature, mobile professional work dissolves existing boundaries of teams, groups, and organisations, since it is widely common that they participate in several different projects simultaneously. More importantly, various facts drawn from the fieldwork question the fundamental existence of boundary as such.

Jun's case would be particularly useful to deal with boundary issues. As an independent town planning consultant, he engages in two to five projects at the same time. Clients are also diverse, ranging from local municipalities to national government offices. Clients' offices and sites of projects are distributed in wide geographical areas, spreading across the country. It is normal that he has several business meetings with different clients in a single day. For instance, take his

schedule of the day in which the interview was held (1st May, see Figure 5.4). He had the interview in his office in the morning. Then, around noon, he went out to central Tokyo to have a meeting with a client, and later met members of another project in a different place. He dynamically switches his work contexts and premises from one to another according to which issues are at hand. Given this heterogeneity of work settings in terms of projects, clients, worksites, and conditions, whether being *inside* or *outside* a team, a group, or an organisation is an overly simplistic question for him, since his work practices constantly cross over existing boundaries.

Yoshi's work activities are also constituted across boundaries. Since he works as a freelancer, he does not belong to any organisation in a formal employment sense. However, his design work is clearly involved in large business processes of client companies. For example, his main clients are music production companies, which outsource website design jobs to him regularly. With the high level of operational mobility in his work practices, he can act as a small (one-person!) but independent business unit for the companies. When engaging in a particular website design, he is clearly a part of the whole strategic processes of the client based on contract- and trust-based relationships. Given this fact, boundaries exist only in terms of employment relationship.

Hiro has an organisation of his own, employing around twenty members of staff. In this regard, the boundary that separates those members from outside people clearly exists. However, when considering his everyday work practices, he, just like Jun and Yoshi, constantly penetrates various different organisations. Meeting a wide range of outside people is an essential part of his daily activities. Those

people include existing and prospective clients, business partners with which he collaborates, subcontractors such as designers and programmers, and many others. His software and digital contents business consists of a diverse range of stakeholders both inside and outside, each of which undertakes one part or another of the actual business operation. In such a diverse and dynamic business environment, the corporate boundary matters only in terms of employment relationship.

Given such dynamic processes of operation and great heterogeneity of stakeholders, mobile professional work can hardly be appreciated based on the traditional assumption of a boundary that demarcates between the inside condition and the outside environment. As discussed in *Chapter 2*, the systems-oriented view of organisation and work has dominated the management and organisational studies since the 1950s. Whilst some of the recent studies on contemporary work and organisation, especially in the CSCW field, are not predicated on such a systems-oriented view, there are still many works that presuppose *a priori* existence of organisational boundaries in some form.

Some scholars are striving to overcome and reformulate the traditional boundary issues in contemporary business contexts. For example, Yan and Louis (1999) summarise various ways of conceptualising boundaries in the management literature into four groups: boundary as *demarcation*, as *perimeter*, as *interface*, and as *frontier*. Based on a literature study, they propose three types of boundary-crossing activities: *boundary buffering* to keep an organisational system closed off from environmental disturbances; *boundary spanning* such as bargaining and negotiation, contracting and cooperation, and alliance and

coalition building with outside stakeholders; and *bringing up boundaries* referring to the activity of attracting its members' energies and attachment to tighten the work system up. By applying this framework, Cross et al. (2000) further discuss detailed cases of those boundary activities. Likewise, Ancona and her colleagues (Ancona et al., 2002; Ancona, 1990; Ancona and Caldwell, 1992) extensively study boundary-crossing activities of product development teams in organisations and conceptualise the transactional roles of the boundary-crossing teams such as *scout*, *ambassador*, *sentry*, and *guard.*

The discussion on boundary-crossing activities involves a number of insightful implications for contemporary business and organisational studies. However, if we would place their discussion in light of the facts drawn from the fieldwork on mobile professional work, we would immediately find its limitation. The analysis and conceptualisation has been done primarily from an organisational point of view that still involves *a priori* assumption of the existence of organisational boundary. Their unit of analysis is a team or its members employed by an organisation. The teams, in their analysis, are considered as going *from inside to outside* the organisation crossing boundaries to accomplish their activities. And they look at such boundary-crossing activities from a static, organisation-based point of view. Such a perspective still rests implicitly but firmly upon the classic demarcation between *system* and *environment*.

Having looked at the dynamic and heterogeneous work practices of mobile professionals, I argue that for mobile professionals there is no simple distinction between 'inside' and 'outside' in their activities. On one hand, they are always *outsiders* in the sense that they have high autonomy and independency in their

daily activities and their involvement to a specific project is temporary. On the other hand, they are also always *insiders* in the sense that the level of their commitment to a project is considerably high due to their professional-minded work style. They keep maintaining close relationship to their clients and project members even after completion of the project for re-collaboration in future. By enacting their personal networks, they ceaselessly participate in and withdraw from various teams, groups, and organisations. All these facts would indicate that, for mobile professionals, boundaries of teams, groups, and organisations are not pregiven but rather emerge out of their dynamic and heterogeneous work practices. From close analysis of work practices of mobile professionals, it can be reasonably argued that a boundary is a *product* and a *trace* of their ongoing work practices rather than *a priori* preconditions.

Each mobile professional has a distinct way of forming boundaries in his or her work activities. Some take a radical and deconstructive approach. The entrepreneurs interviewed generally displayed rapid and radical patterns of boundary forming in their businesses. This is perhaps because in order to constantly innovate their businesses, they have to create and negotiate relationships with business partners on a daily basis. For instance, an entrepreneur running a small media planning company (#24) produces a music radio programme in cooperation with a radio station and some corporate sponsors. For planning and creating weekly contents for the programme, he meets, almost everyday, a wide range of strangers who could contribute to the programme, including musicians, TV/radio personalities, famous writers, various kinds of artists, and so on. Given this, his work practices can be well characterised by the

rapid creation and the constant negotiation of new threads of human networks.

In contrast, some others take a rather smooth and moderate approach in boundary-forming activities. Corporate and academic researchers interviewed showed less radical patterns of boundary forming. This is perhaps because of the relatively long-term relationships with project members. For example, a researcher in a governmental agency (#58) is engaging in a big research project that examines economic conditions of a developing country, working with various researchers and the governmental staff in the local country. Given that the project is expected to take two to three years for completion, the form and state of the project team are largely stable with little change of its members.

The point is that mobile professionals display not only *boundary-crossing* activities but also *boundary-forming* activities that generate new boundaries through their dynamic and heterogeneous work practices. It should be noted boundaries in some organisational sense do not completely disappear in mobile professional work. Mobile professional work is still subject to various formal boundaries in terms of employment relationships and project formation. The striking finding from the fieldwork is that mobile professionals *constantly* and *actively* create and negotiate their own boundary settings through ongoing their work practices based on those formal boundaries. For mobile professionals, a boundary setting is not static or concrete but rather emergent and transient. The fieldwork results shows us that the negotiation of boundary settings is an important task for mobile professionals, creating their behavioural dispositions that shape their work practices and hence roles and functions in the focal context.

6.7. Multi-Participation and Knowledge Brokering

The boundary issues discussed above shed a light upon at least two interrelated characteristics of mobile professional work: *multi-participation* and *knowledge brokering*.

As seen earlier, all of the mobile professionals interviewed engage in several different projects or jobs simultaneously, although the number of project engaged in and the level of intensity of work and involvement vary amongst the informants. Jun, for example, engages in two to five projects at the same time, whereas Yoshi does three design projects in parallel. Hiro cannot count how many projects he engages in, since he always has many ideas or plans for new business or product, and discusses them with people simultaneously in various episodic occasions. Yet it is clear that he is directly involved in many business issues simultaneously. The average number of projects or jobs in progress in which each interviewee was directly involved was 2.9 (n=46 out of 62).[11]

This multi-participation in projects or jobs is widely common amongst the mobile professionals interviewed. In most of the cases, such multi-participation is accomplished across organisational boundaries; they participate in different projects or jobs in different organisations. Taking a closer look at work practices of mobile professionals, I found that such multi-participation is ensured by high

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[11] Along with Hiro, fifteen other informants could not answer this question for exactly the same reason. Therefore, the actual figure of the average number of ongoing projects is expected much more than 2.9.

levels of locational, operational, and interactional mobility in their work practices. Dynamic and heterogeneous work environments require that those professional workers have such high levels of mobility, which in turn facilitate their multi-participation, dynamically engaging in several projects or jobs in different contexts.

As discussed above, ICTs support their high levels of mobility, and this therefore means that ICTs serve as a foundation for their practice of multi-participation. ICTs in general and mobile technology in particular help mobile professionals manage their practice of multi-participation. The introduction of various personal ICTs into workplaces has reduced communication and coordination costs among members significantly. The mobile phone, for example, provides a mobile professional who works in dynamic and heterogeneous work contexts with a capability of keeping communication lines open to various people, including different clients and members of project, irrespective of where he or she is. Particularly, as seen in Hiro's case, the combination of email and mobile technology enables the professionals to continuously interact with clients and other members of the projects.

Here it would be important for the discussion on the practice of multi-participation to revisit the issue of 'participation' as such from the practice-based perspective. Participation is "a complex process that combines doing, talking, thinking, feeling, and belonging. It involves our whole person, including our bodies, minds, emotions, and social relations" (Wenger, 1998: p. 56) and "always based on situated negotiation and renegotiation of meaning in the world. This implies that understanding and experience are in constant interaction

– indeed, are mutually constitutive" (Lave and Wenger, 1991: pp. 51-2). Lave and Wenger's theory of Community of Practice (CoP) puts great emphasis upon the notion of participation, as participation is a fundamental process of learning and identity building.

Having considered this dynamic nature of participation, multi-participation implies another distinct characteristic of mobile professional work: *knowledge brokering*. According to the theory of CoP, Brokering:

> involves processes of translation, coordination, and alignment between perspectives. It requires enough legitimacy to influence the development of a practice, mobilize attention, and address conflicting interests. It also requires the ability to link practices by facilitating transactions between them, and to cause learning by introducing into a practice elements of another. Toward this end, brokering provides a participative connection (Wenger, 1998: p. 109).

The practice of brokering can take a variety of forms: *boundary spanners* crossing various boundaries over time; *roamers* going from place to place, creating connections, and moving knowledge; *outposts* bringing back news from the forefront and exploring new territories; and *pairs* coming from different groups or communities and exchanging certain entities based on their personal relationship (Wenger, 2000: p. 235). Obviously, the effective practice of brokering is ensured by high levels of mobility in location, operation, and interaction.

Although brokered objects can be tangible or intangible, knowledge is amongst the most important ones in mobile professional work. In a sense, mobile

professionals are by nature knowledge brokers. The most immediate role that Jun is expected to play from his clients is that of knowledge brokering. Jun stated that local governments were especially keen to know what kind of policy was chosen and implemented in other local areas. In short, he was expected to provide them with such information and stories. More conspicuously, an independent media consultant's (#52) work is knowledge brokering only. Through his thirty-year experience in a newspaper company, he has established extensive personal networks throughout the media industry in Japan, from traditional ones such as newspapers and TV broadcast companies to emerging dot.com ventures. Based on such extensive personal networks, his work is connecting people and bringing valuable information to his clients.

Knowledge brokering can be done through the professionals' dynamic and heterogeneous work practices, participating into different teams, groups, and organisations dynamically and smoothly. Their work practices facilitate and strengthen the processes of translation, coordination, and alignment between perspectives amongst the team, group, or organisation. Through such processes, mobile professionals become a vehicle of knowledge brokering. However, the transfer of specific knowledge from one place to another is not as simple or easy as moving an object from one place to another. This is because any kind of knowledge, even a digitally codified pattern of knowledge, is inherently embedded in and connected to its specific social context. Such 'stickiness' of knowledge (Brown and Duguid, 2001) can be overcome not by a symbolic manipulation of knowledge but by a practice of brokering through which the worker conveys the knowledge and implements it to a new context. Matusik and

Hill (1998) discuss the knowledge brokering roles that contingent workers including independent professionals can play, stimulating knowledge dissemination between organisations and knowledge creation in a particular organisation.

Furthermore, it is important to bear in mind that knowledge brokering is rather delicate. Brokering "requires an ability to manage carefully the coexistence of membership and nonmembership, yielding enough distance to bring a different perspective, but also enough legitimacy to be listened to" (Wenger, 1998: p. 110). Therefore, for mobile professionals, managing interaction and relationship with various members across boundaries is of paramount importance in their practice of knowledge brokering. In this regard, effective integration of mobile technology and traditional ICTs can provide professionals with higher operational and interactional mobilities in managing and maintaining the interaction and relationship.

Overall, since effective transfer and diffusion of organisational knowledge is an urgent issue to be tackled in a wide range of business fields (Kogut and Zander, 1992), the mobile professionals' practice of knowledge brokering is of paramount importance and could contribute to an understanding of such dynamics.

Summary of Chapter

This chapter analysed the results and findings drawn from the field study on work practices of mobile professionals in Japan and aimed to build a foundation for succeeding theoretical and practical discussions. Linking together various facts

and stories about mobile professionals' lived experiences of working, I have drawn seven interrelated themes that seem to require in-depth analysis and discussion.

The first and overarching theme is *the limitation of traditional, geographical understanding of mobility*. Having looked closely at actual work practices of mobile professionals, I found that a high level of mobility in geographical movement in daily activities could not fully explain their diverse, dynamic, and heterogeneous work practices. Along with geographical movement, their work practices can be seen as highly mobile in terms of their daily operation of work and their interaction with people. Linking them together, I formulated three aspects of mobility in mobile professional work: locational mobility, operational mobility, and interactional mobility.

The second theme is the role of *ICTs as an enabler of mobile professional work*. The interplay between mobile professionals' work practices and their active utilisation of ICTs in their activities is of particular importance for studying the nature of emerging mobile professional work. ICTs, particularly mobile technology, boost the levels of mobility in all aspects, and in turn the increased mobility further necessitates ICT use.

Increased mobility of their work practices raises the third and fourth themes. The third theme relates to interactional aspects of their work practices. Mobile professionals are not in the "anytime, anywhere" condition but constantly subject to the need for *negotiating multiple threads of ongoing interaction*, since due to their high levels of mobility, they are inevitably exposed to an overwhelming

amount of interaction. The fourth theme is concerned with the role of *place as material and interactional foundation* for their mobile professional work. Physical locations have come to serve as a stable foundation for their actual operation and for their interaction with people.

The fifth theme is about *the importance of personal networks* in mobile professional work. Mobile professionals' daily work activities, particularly in the early stage of their professional career, rely not on organisational or institutional supports but heavily on their personal social networks built through their past experiences. Especially for freelancers, personal networks are the main conduit though which they gain new projects or jobs. Personal networks cut through existing terms, groups, and organisations, and are built, maintained, and activated through their work practices.

The sixth theme is directly associated with the theme concerning personal networks: mobile professionals' boundary-crossing and boundary-forming activities. By enacting their personal networks in a particular work context, mobile professionals get their jobs done across various existing boundaries such as that of teams, of groups, and of organisations. Boundary-crossing activities are one of the most distinct characteristics of mobile professional work. At the same time, however, close examination of their dynamic and heterogeneous work practices indicates that mobile professionals continuously form new boundaries for their activities through their work practices. Their double-faced identities as insiders and outsiders are constantly shifted depending on work contexts.

The seventh theme is mobile professionals' practices of multi-participation and

knowledge brokering, both of which are ensured by their boundary-crossing and boundary-forming activities. Thanks to their high levels of mobility in locational, operational, and interactional aspects of work practices, mobile professionals are able to participate in several different projects or jobs. Such a practice of multi-participation facilitates their knowledge brokering practice that catalyses work activities conducted in different contexts.

All these themes are closely related to each other and jointly fabricate the multifaceted nature of mobile professional work in contemporary work contexts. Different analyses of mobile professional work could be made in different research contexts, for example in different countries. However, through the detailed investigation of the results of the field study in Japan, these interrelated research themes can serve as a useful foundation for drawing further theoretical and practical implications in the next chapter.

CHAPTER 7:

Discussion

Introduction

In the previous chapter, I have explored seven distinct themes that have emerged out of the analysis of the fieldwork results. Studies of mobility and of mobile professional work in contemporary business and organisational contexts have just started and been largely unexplored. Having acknowledged such an infant stage of the research endeavour, I have strived in this thesis not to be deterministically based on pre-existing frameworks and/or assumptions concerning the concept of mobility and emerging mobile professional work but to look closely at various lived experiences of mobile professionals and to carefully draw themes that seemed to involve significant importance for further discussion. As I mentioned, those themes do not cover the whole dimensions of the emerging mobile professional work in general, since this research was conducted on cultural and institutional conditions peculiar to the Japanese work environment. Nevertheless, I would argue that developing our discussions on those themes must be significantly beneficial to fuelling a wide range of debates on mobility and mobile professional work in social sciences.

In the following sections, I particularly raise five issues, each of which holds important implications for developing our preceding discussions. *Section 7.1* discusses the most important issue in this thesis; namely, the reconceptualisation of mobility based on the previous discussions on locational, operational, and

interactional mobilities. In so doing, I propose a new perspective on mobility: *hypermobility*. *Section 7.2* addresses, from the perspective of hypermobility, the emerging work practices of mobile professionals by applying the metaphor of *fluids*. *Section 7.3* expands the discussion concerning the increasing interactional mobility by pointing out a need for coping with the inherent *asymmetry of interaction*. *Section 7.4* discusses the transformation of work and organisation induced by the intensified hypermobility, and introduce the concept of *the fluid organisation*. Finally, *Section 7.5* expands the discussion on the concept of hypermobility by taking a closer look at the *duality of hypermobility* in mobile professional work.

7.1. Hypermobility: A New Perspective

As we have seen so far, the results of the fieldwork clearly show that the conventional understanding of the concept of mobility, which predominantly has been characterised in terms of geographical movement, does not suffice to grasp the diverse and complex realities of dynamic and heterogeneous work practices of contemporary professional workers, in particular mobile professionals. Their work practices exhibit not only an extensive geographical movement in daily work activities but also flexible operation as an independent business unit that can be flexibly mobilized by the firms. Furthermore, it entails intense interaction with a wide range of people through both physical and virtual interaction and communication means. All of these realities are associated not only with mobility in a geographical sense but more crucially with *mobilization of work* in contemporary business environments. Professional work is perhaps the most radically mobilized field of work in the sense that it is increasingly unbundled and

disembedded from formal organisational structures and business processes. Nowadays, mobile professionals can serve as a distinct independent business unit.

7.1.1. Multiple mobilities revisited

Through the close investigation of mobile professionals' work practices, I have drawn out three distinctive aspects of mobility: *locational*, *operational*, and *interactional*. I found that various types of mobile professional work involve a distinct mixture of those mobilities. The following outlines those multiple mobilities more substantially.

Firstly, *locational mobility* is a quality for flexible work practice in terms of work location. Mobile professionals usually get their jobs done at various different locations rather than spending a long period of time in one place such as an office. Mobile professionals extensively move around to meet and work with their clients, members of ongoing projects, and various other stakeholders. For example, as seen in Jun's case, town planners seem to be one of the most mobile professionals in this sense (Tewdwr-Jones, 2002). Not only do they visit their clients' offices to present their plans and explain the progress of their work, but they also need to meet various other members involved in a project in different locations such as project members from construction companies, architects, various advisors, people of government offices, and so on. Furthermore, in some cases, they need to visit construction sites to check the progress of the actual work. As opposed to the conventional image of the white-collar worker sitting in an office, mobile professionals are widely mobile in terms of their extensive geographical movement.

Secondly, *operational mobility* is a quality for being an independent business unit or flexible human resource. Mobile professionals are typically 'mobile' human resources that firms can utilise on an on-demand basis. Since establishing flexible organisational and operational structures is of paramout importance for virtually all firms in our time, a growing number of firms are employing such solutions as project teams, task forces and virtual organisations (Murchie, 1998; Randolph and Posner, 1992; Townsend et al., 1998). In executing these solutions, independently working professionals outside the firms usually play important roles. They are important not only because they often have more competent skills and knowledge than their counterparts inside the firms but also because their work practices are extremely task-based and thus can be utilised *ad hoc*. Saxenian (1994) describes the growing prevalence of freelancing and contract-based work practices of engineers in the information technology industry in Silicon Valley. Similarly, it is a usual practice in the retail and fashion industries that firms make contracts with highly reputable, outside designers for a specific product design project in a specified period of time (Djelic and Ainamo, 1999). Such professionals' distinct skills and knowledge enable them to work with a number of different firms and to be mobile workforces for a number of firms simultaneously.

This can be seen as the high level of 'task variety' at the operational level. Task variety is a property of the work unit in organisations, more specifically, the number of exceptional or unfamiliar cases encountered in the work (Daft and Macintosh, 1981; Perrow, 1967). It is obvious that the task variety of mobile professional in their work practices is considerably high since their tasks are executed in highly distributed and heterogeneous work settings. The traditional

management and organisational literature asserts that the low level of task variety (or high level of routineness) in work unit is fundamental for structuring organisational work activities (Cyert and March, 1963; Nelson and Winter, 1982; Perrow, 1967). From such a view, the considerably high level of task variety in mobile professionals' work practices might seem disruptive for sound structuring of work. On the contrary, in contemporary professional work contexts, operational mobility as a distinct quality of the mobile professional is actually ensured by high task variety in their work practices and hence enables them to be a unique work unit in larger organisational contexts. As discussed in the previous chapter, their practices of multi-participation and knowledge brokering are clearly ensured by their high levels of operational mobility.

Thirdly, *interactional mobility* is a quality for intense and dynamic interaction with people. More specifically, what is mobile is not just their body but also their interaction in their work practices. When discussing the concept of mobility and its related issues, it is crucially important not to limit our perspective to solely concerning humans' geographical movement, because 'being mobile' is not just a matter of people travelling but, far more importantly, related to the interaction they perform, the way in which they interact with each other in their social lives (Kakihara and Sørensen, 2002a). The interactional patterns of mobile professionals are significantly mobile because their interaction with people is freed not just from geographical but also from temporal and contextual constraints by using various emerging ICTs, especially mobile devices such mobile phones, laptop and subnote PCs, and PDAs. It is this high level of interactional mobility of work practice that enables the mobile professionals to be a highly effective work

force in organisational contexts.

Admittedly, interactional mobility facilitated by ICTs has been dealt with in one way or another in various fields, especially in relation to ICT application and use in work contexts. Research on communication networks addresses how workers' communication patterns are restructured by their introduction and use of ICTs (e.g. Finholt and Sproull, 1990; Fulk and Boyd, 1991; Zack and McKenney, 1995). The scholars advocating media richness theory argue that workers need to use 'rich' channels for uncertain and equivocal communication (Daft and Lengel, 1986; Daft et al., 1987). Being perhaps the most relevant to this research, Hinds and Kiesler's (1995) study on workers' communication patterns across organisational boundaries clearly demonstrates the ICTs can facilitate horizontal communication between different departments in the organisation. Compared with these existing studies, the notion of interactional mobility sheds a light on the increasing intensity and flexibility of workers' interaction not just *within* the organisation but more importantly across organisational boundaries.

7.1.2. Hypermobility and ICTs

The locational, operational, and interactional mobilities in mobile professionals' work practices are largely consistent with the recent debates on 'virtual work' and 'post-bureaucratic organising.' Watson-Manheim et al. (2002a), for example, show the increasing diversity of debates on virtual work and propose the notion of "discontinuity" as a systematic analytical lens for those debates. They argue that discontinuities are "gaps or a lack of coherence in aspects of work, such as work setting, task, and relations with other workers or managers" (p. 193), and that

post-bureaucratic work can be characterised by such discontinuities (Watson-Manheim et al., 2002b). Although they discuss contemporary worker in general from an organisation-based perspective and do not give specific analysis of mobile professionals who dynamically cross and form organisational boundaries, it could be said that the discontinuities at work are particularly marked in mobile professionals.

Given these emerging multiple mobilities in work practices, it is obvious that we have to overcome the conventional geographical understanding of the concept of mobility. Mobile professionals are mobile in not just a geographical sense but also mobile in their flexible operation and intense and dynamic interaction. Therefore, what is needed for a study of mobile professionals is the reconceptualisation of mobility; namely, from mobility merely as geographical movement to *hypermobility,* signifying dynamic transformation in location, operation, and interaction in work practice. Introduction of the concept of hypermobility enables us to grasp much wider and more detailed aspects of the actual work practices of
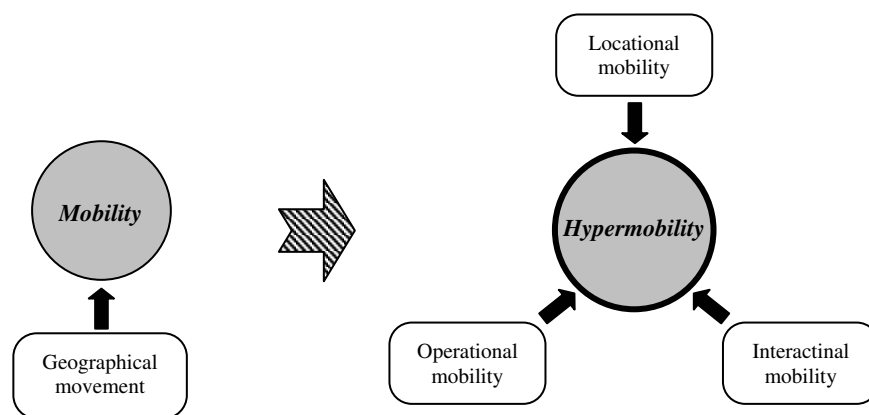
Figure 7.1: Reconceptualisation of mobility

mobile professionals (see Figure 7.1). A different reconceptualisation can be made in a different context of inquiry. Yet for the study of emerging mobile professionals, the concept of hypermobility can be a useful conceptual vehicle for illuminating the largely uncovered nature of their highly mobile work practices.

The introduction of various ICTs has made work practices of mobile professionals increasingly mobile, and amongst those ICTs, mobile technology is particularly worth examining in detail. Mobile telephony has become almost an everyday commodity in the developed world, changing a wide range of everyday activities, not just the ways in which we communicate but also our ways of doing, behaving, and even perceiving the world (Katz and Askhus, 2002; Kopomaa, 2000; Rheingold, 2002).

As we have seen in the many cases of mobile professional work, emerging mobile technologies clearly have significant impacts on all the aspects of mobility in work practices. Mobile technology has its most immediate impact on locational mobility. As discussed earlier, mobile professionals work at various locations: in their own office, at clients' offices, at other members' offices, at work sites, on trains, planes and cars, in hotel rooms, in coffee shops and a restaurants, and so on. In such a dynamic movement of work activities, the professionals become able to be 'on-line' by using mobile phone regardless their location and extensive movement. Baines (1999) investigated ICT adoption and use of freelance journalists in the UK (mainly in London) and found that they use mobile phones in their work more regularly than the Internet. In a sense, mobile technologies such as mobile phones and PDAs are the only communication technology that can 'follow' the professionals' extensive movement (Fagrell, 2000).

Regarding operational mobility, the qualities of mobile professionals as mobile human resources are ensured not only by their highly competent skills and expertise but also by their communication and coordination capabilities that have been greatly enhanced by the introduction of ICTs. Looking at the emergence of the IT-enabled mobile professionals, 'e-lancers', Malone and Laubacher (1998) argue that "because information can be shared instantly and inexpensively among people in many locations, […] individuals can manage themselves, coordinating their efforts through electronic links with other independent parties [by] the new coordination technologies" (pp. 147-148). Mobile technology can drive this trend further. Whilst newly developed business strategies such as project teams, task forces and virtual corporations are increasingly prevalent, the execution of such strategies requires smooth communication and efficient coordination amongst the members including independent professionals outside of the firm. Mobile technology can be the 'glue' for the distributed and moving members, providing them with communication access regardless of their location, connecting them together more tightly, and hence reducing communication and coordination costs. As we have seen in the cases of Hiro and many others, effective utilisation of mobile technology, in combination with other ICTs, enables mobile professionals to constitute a 'mobile' workforce in terms of flexible operation of business.

Mobile technology also has significant impacts on interactional mobility of professionals' work practices. ICTs in general provide workers with a wider range of opportunities for interacting with people. As seen in Yoshi's case, independent professionals working from home are able to interact with people intensely by using the Internet and related applications such as email, BBS, and instant

messaging. Without those technologies they easily become isolated from the latest information concerning new products and market trends. Furthermore, increasingly widespread broadband Internet access such as DSL and cable TV connection offers them 'always-on' Internet connectivity for less than twenty pounds a month. The 'always-on' mobile Internet access also influences professional work practices. As seen in Hiro's case, the combination of the 'always-on' Internet-enabled mobile phone and email forwarding solves such limitations of asynchronous communication, providing moving workers with the capability of receiving and sending email with little delay regardless of their location. Just like Hiro, more and more mobile professionals are adopting such an emailing practice of automatically forwarding emails, coming into their formal account, to their Internet-enabled mobile phones. This can be seen as an emerging fluid interaction practice of combining advantages of email and 'always-on' Internet-enabled mobile phone communication.

As shown above, mobile technology has without doubt great potentials to transform the nature of mobile professional work and increase the levels of mobility in locational, operational, and interactional aspects of their work practices. However, surprisingly little attempt has been made so far to investigate and clarify how such mobile professionals' work practices shape and are shaped by their use of mobile technology and what consequences will potentially arise by their adoption and intense use of mobile technology in their everyday work practices.

Admittedly, some have investigated mobile technology use in social and business contexts (e.g. Brodie and Perry, 2001; Esbjornsson, 2001; Juhlin and Weilenmann,

2001; Wiberg, 2001b; Wiberg and Ljungberg, 2001). Whilst all these research efforts offer detailed descriptions of people's mobile technology use and its consequences, their research contexts are mainly manual, blue-collar, or traditional professional workplaces such as service technicians, highway emergency service, and airport maintenance workers. Furthermore, due to such research contexts, they do not deal with boundary issues that, as discussed in the previous chapter, are closely linked to dynamic and heterogeneous work practices of mobile professionals. More fundamentally, those studies rarely seek to reformulate the basic assumptions for the concept of mobility and contemporary mobile work.

Considering these, there seems to be a growing need, both in academics and practical fields, to put forward debates on the relationship between work, organisation, and people's situated use of technology in contemporary work settings.

7.2. Fluid Work Practice

Mobile professionals work in constantly changing work settings (space, time, and context) and in a constant flux of interaction with various stakeholders (Kakihara and Sørensen, 2002a). Throughout the fieldwork I found various kinds of mobile professionals' work practices that have been radically mobilized in terms of work location, daily operation, and interactional patterns. In spite of this distinctiveness, however, those emerging realities of dynamic and heterogeneous work practices of mobile professionals have been largely unexplored or even unnoticed.

7.2.1. Social topology

In order to capture such a complex and diversified nature of mobile professionals'
work practice, it might be beneficial to conceptualise the significance of such
dynamism and heterogeneity of work practices. To do so I take a metaphorical
approach with ideas from *social topology.*

Topology is a branch of mathematics that deals with various geometrical
properties and spatial relations. However, it is not restricted by Euclidean
three-dimensional geometry; it localises objects in terms of a variety of
co-ordinate systems. In topology the three standard axes, X, Y, and Z are no
longer a fixed or concrete geographical frame of reference.

Applying the basic ideas of topology, Mol and Law (1994) propose three distinct
'social topologies' drawn from their investigation on the spatial properties of the
medical condition of anaemia in which there are too few red blood cells in the
blood. First, the *region* is a distinct topology whereby objects are clustered
together and boundaries are drawn around each particular regional cluster. In short,
this topology can be characterised by "boundary." Second, the *network* is a
topology whereby relative distance is a function of the relationship between
components constituting the network. Complex patterns of connected nodes create
the whole network structure. This topology can be characterised by "relationship."
Third and most important to the discussion here, the *fluid* is a topology whereby
"neither boundaries nor relations mark the difference between one place and
another. Instead, sometimes boundaries come and go, allow leakage or disappear
altogether, while relations transform themselves without fracture. Sometimes, then,

social space behaves like a fluid" (p. 643). This is a particular image of the topology of anaemia discussed by Mol and Law. Anaemia, like blood, can be seen as flowing in and out of different regions, across different borders, using diverse networks.

Applying these metaphors of social topology enables us to appreciate the nature of mobile professionals' work practices more properly. The region metaphor can be clearly applied to the traditional, geographically dependent human interaction in the pre-ICT age. Even in the early computing era, the region metaphor was pertinent to characterise that computational support that was limited to mainframes with connected terminals. The network metaphor can characterise modern life styles. Interactions amongst people via various media networks such as telephones and the internet have been radically mobilized in terms of symbolic travel of data, images, sounds and so on. Computer installations comprising of local- and wide-area networks are precisely characterised as networks, and the metaphor can also be expanded to characterise the socio-technical mesh of humans and technologies in organisational settings (e.g. Castells, 1996; 2001).

7.2.2: ICT-enabled fluid work practice

However, given the rapid diffusion and domestication of various ICT applications including mobile phones, SMS, PDAs, laptop PCs, and awareness technologies such as ICQ into our everyday lives, the network metaphor seems increasingly insufficient to explain our social lives in general and work activities in particular. In the environment where people can interact with others by using those emerging technologies, relational disposition of human interaction is becoming ambiguous

and transitory. In particular, as discussed earlier, dynamic and heterogeneous work practices of mobile professionals inherently involves the capacity of boundary-crossing and boundary-forming. Such a social topology can be seen as a fluid. According to Mol and Law, a fluid world is "a world of mixtures" (ibid. p. 660) and "variation without boundaries and transformation without discontinuity" (ibid. p. 658). A fluid world ensured by multiple mobilisation of interaction can be characterised as "the remarkably uneven and fragmented flows of people, information, objects, money, images and risks across regions in strikingly faster and unpredictable shapes" (Urry, 2000b: p. 38).

This is clearly the world of the contemporary mobile professional work. Mobile professionals get their jobs done not only in formal offices but at various sites such as home, clients' offices, hotels, moving vehicles and so on; anywhere can be their office. With powerful supports of ICTs, their work practices permeate across various "regions" of work (projects, teams, organisations, etc.) and "networks" (private and public, formal and informal, etc.). In this sense, I argue that mobile professional work is the fluid mode of working. The fluid nature of work practice cannot be fully captured from static perspectives, since it always transforms the work context. Mobile professionals' work practices are always in transition, extensively moving around, participating into several different projects, and interacting with diverse stakeholders. Thus, work practices of mobile professionals can reasonably be characterised by the fluid metaphor rather than the region or the network metaphors.

Fluid work practice raises a variety of new issues to be addressed. For example, due to increasing interactional mobility, being able to interact with many people

with various ICT supports, workers may feel exposed to "interaction overload" (Ljungberg and Sørensen, 2000), which provides them with various unwelcome consequences. Whereas fluid work practices offer workers a wide range of benefits such as interacting with people remotely and flexibly, it also creates interruption and disturbance in their actual work environment. By having a mobile phone, for instance, a worker can be disturbed by anyone who knows his or her number, irrespective of the level of busy-ness. Although e-mail is an asynchronous communication way that does not require one's immediate response, if one keeps storing emails without any reply then he or she can be "overloaded" by e-mail. PDAs enable workers to check and send e-mail outside their offices, but one's colleagues who know that he or she has a PDA would expect a quick reply to their e-mail. As seen in these examples, intensified fluid work practices offer us another practical issue to be solved: *the asymmetry of interaction*.

7.3. Asymmetry of Interaction

Specifically because of their widespread utilisation of ICTs in everyday work practices and resulting fluid work practices, mobile professionals are more and more exposed to a rapid flux of interaction from people. This "interaction overload" is becoming increasingly common in a wide range of contemporary work settings. However, little research has been conducted so far for better understanding and effective management of this emerging reality.

7.3.1. Managing interaction

Ljungberg and Sørensen (2000) characterise interaction overload based on two distinct problem domains: *interaction context*, and *interaction modality*.

Interaction is inherently shaped by local *context* in which the interaction is conducted. They point out three factors of interaction context: *actors*, who interact with someone; *situation* in which the interaction is conducted; and *content* of the interaction. Any interaction is contingent upon these contextual factors. Along with interaction context, what they call interaction modality also needs to be addressed for understanding interaction overload. People interact with others not only in a simple face-to-face mode but also in much more diverse modalities of interaction. One useful characterisation of diverse interaction modalities is the distinction of *obtrusiveness* and *persistence* of interaction (Schmidt, 1994; Schmidt and Simone, 1996). As shown in Figure 7.2, interaction that people perform has come to take various modalities due to the wide introduction of traditional (non-computational) and advanced technologies in our social lives in general and in work settings in particular.
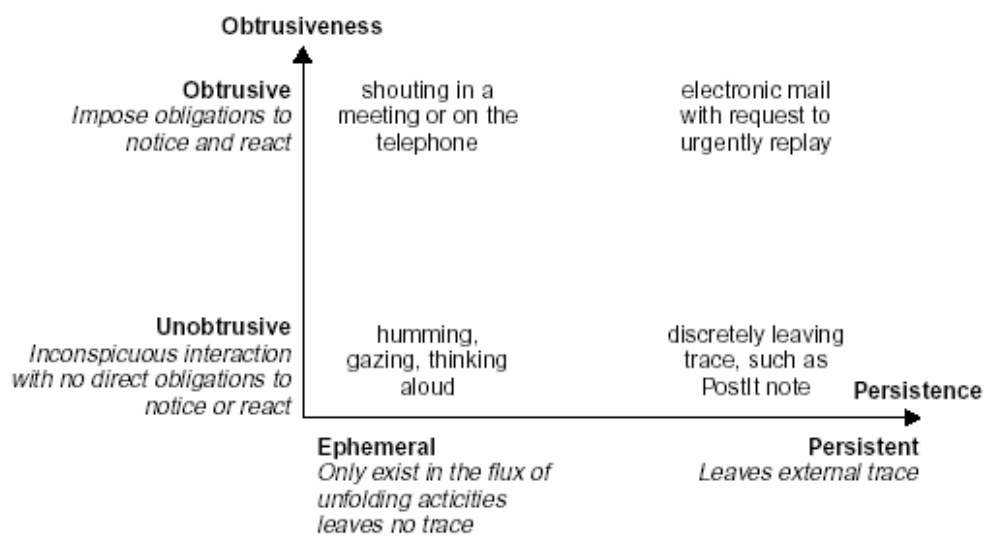
Figure 7.2: Interaction modality: obtrusiveness vs. persistence
(Adopted from Ljungberg and Sørensen, 2000: p. 125)

Mobile professionals' work practices involve hypermobility, or high levels of mobilities in locational, operational, and interactional aspects of work practices. As typically seen in Hiro's case, mobile professionals are continuously subject to an overwhelming amount of interaction from others and their work contexts are highly dynamic and heterogeneous, resulting from diverse stakeholders, complex contents, and ever-changing work situations. Furthermore, as discussed in the analysis of the fieldwork results, interaction in mobile professional work contexts is performed not in a 'one-shot,' sporadic manner but in an ongoing and concurrent manner. It is clear that with such fluid work practices, mobile professionals need to effectively manage interaction in some way.

Amongst various important issues to be tackled in the discussion of interaction overload, one that has attracted little scholarly attention is the problem of *asymmetry of interaction*. The asymmetry of interaction occurs when "the time and topic are convenient for the initiator, but not necessarily the recipient. This asymmetry arises because while initiators benefit from rapid feedback about their pressing issue, recipients are forced to respond to the initiator's agenda, suffering interruption" (Nardi and Whittaker, 2000). A distinct focus on issues related to conduct fluid work practices, will inevitably place some significance on the initial phases of interaction, which in particular can be characterised as *outeraction*, an activity of negotiating the communication (Nardi and Whittaker, 2000). With a few exceptions (e.g. Whittaker et al., 1997; Wiberg, 2001a), current research concerning interaction in contemporary work settings puts little emphasis on personal desire and individuals' improvisational practices whereby their emotional disposition affect decisions as to how they interact and with whom. Ciborra (1999;

2001) calls for better understanding of the role of improvisation and moods in meetings between people and contemporary technologies; however, little research has been conducted on practicalities of managing interaction in increasingly fluid work settings.

7.3.2. Interactive, interpassive, and asymmetric dispositions

In order to analyse more closely the issues related to the asymmetry of interaction whereby an individual faces disagreement of desirability and availability of contact with another person at a given point of time, I initially propose a simple framework of interactional dispositions in one-to-one contact between the initiator and the recipient of interaction (see Figure 7.3). The *interactive* disposition is a state whereby both the initiator and the recipient share desire to contact each other at a given period of time. In this disposition, some kind of interaction is actually
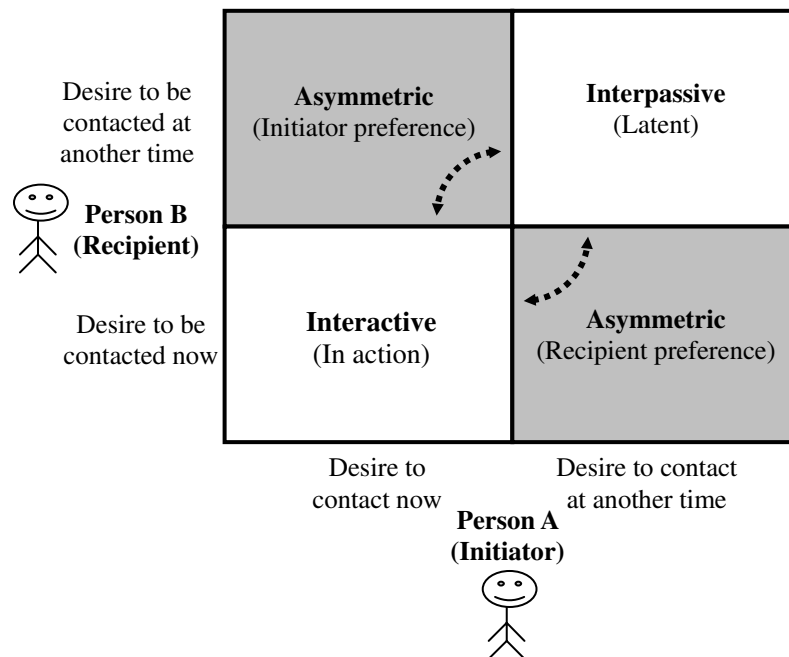
Figure 7.3: A framework of interactional dispositions

put in action and takes place. The contrary situation is the *interpassive* diposition, a state whereby both the initiator and the recipient do not wish or need to have interaction at a given point of time. In this disposition, the interactional relationship between them becomes latent, being put into background of activities. This can be characterised as *interpassive,* since both are passive in terms of desire at the time but open for interaction at another time. As discussed in the previous chapter, workers typically have many latent but still ongoing threads of interaction.

The problems to be solved in actual fluid work practices are two types of *asymmetric* dispositions: one is the initiator-preference, and the other is the recipient-preference. The asymmetry of interaction takes place either in the case whereby the initiator desires to contact at a given point of time but the recipient does not desire to receive it or in the case whereby the recipient desires to be contacted from the initiator at a given point of time but the initiator does not desire to do so. As discussed in the previous chapter, the workers, especially mobile professionals conducting fluid work practices, are subject to the constant need for negotiation of multiple and concurrent threads of ongoing interaction. Like Hiro, the workers involving a high level of interactional mobility in their work practices are typically exposed to constant interruption from others (O'Conaill and Frohlich, 1995; Rouncefield et al., 1995). They need to choose carefully when to be connected simply because they are immersed in a flood of interaction. If this is the case, then one of the primary issues will be to prioritise between different strands of interaction. This implies that interaction can lead to meta-interaction, or "outeraction" (Nardi and Whittaker, 2000), a set of

communicative processes outside of information exchange, in which people reach out to others in patently social ways to enable information exchange. The negotiation of interaction here also involves thread swapping where decisions to hold or wait relate to discussion and negotiation of availability and relative importance of different threads involving different configurations of involved actors.

The realities of negotiation of multiple threads of interaction in dynamic and heterogeneous work practices are much more complex and entangled than the simple picture offered above explaining interactional dispositions in one-to-one interaction. Nevertheless, this framework clearly demonstrates that ICT-enabled fluid work practices raise various issues relating to the asymmetry of interaction in fluid work practices and that the workers cope with them by technical and non-technical supports for interaction management (Ljungberg, 1999; Ljungberg and Sørensen, 2000). Interaction management is clearly an essential research topic to be discussed for the development of the study of contemporary work in general and mobile professional work in particular.

7.4. The Rise of the Fluid Organisation?

Throughout the thesis, I have deliberately chosen *individuals* as a level of analysis and *the practice-based perspective* as a distinct analytical lens. This is because, as discussed in *Chapter 4*, taking such an individual-based perspective is critical for investigating the dynamic and situated nature of mobile professionals' work practices crossing and reformulating boundaries at various levels. However, an organisation-based perspective enables a discussion on fundamental issues related

to the *fluid organisation*.

7.4.1. Beyond static perspectives

As I have discussed in *Chapter 5*, contemporary businesses, especially in service, entertainment, and ICT-related areas, increasingly utilise non-traditional labour forces such as contract-based workers, people from staffing service companies, various kinds of freelancers, and contract-based technicians (Barker and Christensen, 1998; Cappelli, 1999). Furthermore, companies are actively adopting newly developed, flexible organisational practices such as taskforces, project-based teams, and virtual teams, which typically include various 'outside' professional members such as consultants, designers, and planners (Snow et al., 1999; Townsend et al., 1998).

Given these emerging practices of the companies, it seems that an organisation as a distinct unit of operation and hence of analysis is far from self-evident or well-defined, since the unity of today's organisation in turbulent business environments, particularly knowledge-intensive industries, is predicated less and less on stable organisational structure, constant and well-defined business processes, or long-lasting membership of the staff. Ciborra and Andreu (2001) argue:

> In industries in which know-how is critical, such as telecommunications, software or
> pharmaceuticals, companies cooperate with private research laboratories, universities,
> foundations and other firms […] it is difficult to identify distinct clusters of recombined
> learning ladders. It is hard to separate the strings and their connections of this entangled,
> spaghetti-like configuration of resources, practices, routines and capabilities derived

from the fusion of knowledge inputs being provided by the various participants. (p. 78)

In this regard, mobile professionals are perhaps the most radical group of workers whose work activities deconstruct the traditional sense of unity of organisations. As we have seen, mobile professionals are keen to liberate themselves from organisational structures, processes, and conventions that are likely to hamper their knowledge-intensive, autonomous ways of working. From an organisational point of view, they should be seen as 'outsiders', as most of them do not have formal employment relationship with the organisation. However, from project members' point of view, they should be seen as 'insiders' in the sense that due to their distinct skills and knowledge, their work practices are tightly linked to the organisation's business processes and hence competitiveness. Being knowledge brokers, mobile professionals constantly straddle boundaries at various levels and form new boundaries of a group of practitioners, or a community of practice (CoP), through their fluid work practices over time.

Given such fluid work practices, the traditional image of organisation might require reconsideration. As discussed in *Chapter 2*, the traditional way of understanding organisations had been firmly based on a systems-oriented perspective largely influenced by various classic systems theories (e.g. Buckley, 1967; von Bertalanffy, 1950; 1968; Wiener, 1948). Although such traditional, systems-oriented perspectives have gradually waned, a wide array of contemporary organisational theories such as contingency theory, socio-technical systems, neo-institutionalism, the resource-based view of the firms, and the knowledge-based view of the firms, all still seem to presuppose some degree of organisational unity that can be neatly demarcated from its surrounding

'environment.' However, when considering the fact that mobile professionals'
work practices typically cut through and reformulate boundaries at various levels
over time, the distinction between organisation and environment and between
'inside' and 'outside' becomes shaky and vague.

7.4.2. From network to fluid

Reflecting upon such intensified pressure to reconsider the epistemologies of
forms of organisations, many have proposed the network-based view of
organisation (e.g. Alstyne, 1997; Callon, 1991; Castells, 1996; Jarvenpaa and Ives,
1994; Powell, 1989; Rochart and Short, 1991; Snow et al., 1992). Largely
supported by the development and diffusion of ICTs in general and the Internet in
particular, organisations have become able to coordinate their business operations
and processes by directly reaching to and connecting with a variety of players in
the market such as foreign business partners, suppliers of raw materials and parts,
famous designers in the world, and their own customers. Castells (1996) describes
this transformation by stating that "networks constitute the new social
morphology of our societies, and the diffusion of networking logic substantially
modifies the operation and outcomes in processes of production, experience,
power, and culture" (p. 469). Powell (1989) argues that the networked forms of
organisation can be an alternative to the transactions of markets and the
hierarchical governance structures of firms in some industrial sectors. However,
despite those theories' implications for our understanding of contemporary
organisations, it appears that their theorisation is still largely static, specifically
because of the network metaphor. The network metaphor is typically described by
the assemblage of interconnected nodes, hubs, and spokes. Whilst this

metaphorical approach is particularly useful for explaining complex relationships between the organisation and its diverse stakeholders, it seems to be implicitly but firmly predicated on static, 'snapshot' depictions of the ongoing operations and processes that dynamically constitute and reconstitute emergent relationships amongst the stakeholders.

Imai and Kaneko (1988) point out the fundamental difference between the traditional image of networks and the one in actual organisational contexts (see Figure 7.4). Through their investigation on Japanese manufacturing and other industries, they insist that the network organisation in actual organisational settings is:

> [...] constructed not through individuals' activities as discrete functional elements in the organisation but through each individual's personal and spontaneous activities that create self-organising relationships amongst the members, redefine boundaries between 'self' and 'others', and then produce dynamic and diverse contexts in which real
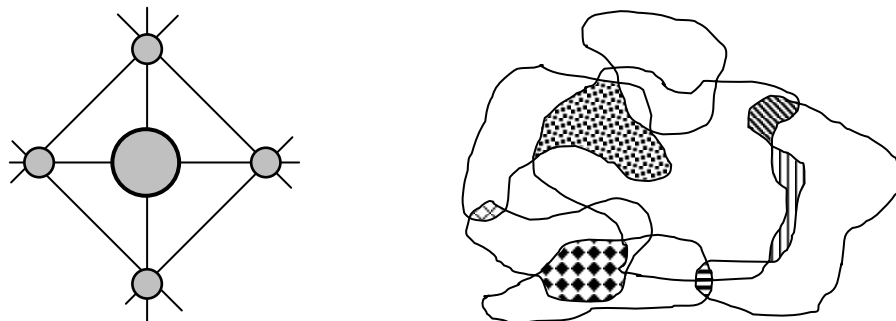
Figure 7.4: Comparison between the traditional and actual views on networks
(Adopted from Imai and Kaneko, 1988)

innovations emerge. (p. 149)[12]

This view greatly resonates with what Mol and Law (1994) describe by the fluid metaphor rather than the network metaphors. As opposed to computer networks, the configuration of social networks are always in a dynamic transformation. Relationships and boundaries in social networks in work settings can never be fixed but are iteratively produced and reproduced through the stakeholders' work practices, which in turn create work contexts in which they interact with each other. This view does not deny the existence of relationships and boundaries in organisational settings; however, it requires us to pay specific attention to the emergent aspects of ongoing formation of the relationships and boundaries in actual work contexts.

Some scholars have discussed such a fluid view of organisation, and Morgan's (1997) comprehensive review of various images of organisation provides a useful overview. Along with many other images of organisation such as machines, organisms, brains, cultures, political systems, psychic prisons, and instruments of domination, he offers a distinct image of organisation as *flux* and *transformation*. By applying Autopoiesis theory (Maturana and Varela, 1980; 1992), Morgan explains that organisations can be seen as constant flow and change that can hardly be captured from a static, "external observer's view". From this fluid perspective, the distinction between organisation and environment is just a product of external observation. They insist that relations with any environment

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[12] My translation.

are *internally* determined and boundaries are continuously produced and reproduced through continuous enactment of self-referencing acts.

More specifically, my conceptualisation of the fluid organisation is closely related to Ciborra's (1996) discussion of "the platform organisation." He explains that the platform organisation is:

> a virtual organizing scheme, collectively shared and reproduced in action by a pool of human resources, where structure and potential for strategic action tend to coincidence in highly circumstantial ways, depending upon the transitory contingencies of the market, the technology and the competitors' moves. (p. 115)

More succinctly, the platform organisation, he argues, can be characterised by "fragmentation, fuzziness and displacement" (p. 116). Through his detailed case study of Olivetti, a leading European computer company at the time of his study, the organisation sometimes markedly exhibited organisational features far from the traditional images of specific organisational structure, authority lines, and communication flows. It is full of chaotic events, contingencies, and surprises, which in turn produce new organisational configuration. Whilst Mintzberg (1983) proposes a similar form of organisation, *adhocracy* characterised as organic, flexible, non-hierarchical and highly informal, the platform organisation places much more emphasis upon transformation and improvisation in and around the organisation. Although Ciborra'a focus is mainly on internal events of the company, his study clearly indicates that an organisation can be perceived as a fluid.

7.4.3. The fluid organisation in the age of mobilization

It should be noted, however, that the perspective of the fluid organisation cannot be applied to all the realities of today's organisational phenomena. As discussed in *Chapter 5*, mobile professionals currently account for a fraction of the whole workforces even in urban areas of the developed countries. Furthermore, the industries that actively utilise mobile professionals as a competitive and flexible workforce are still quite limited, mainly to knowledge-intensive and/or ICT-related industries. Therefore, the fluid nature of organisational structuring might appear in few occasions and in organisations in a small number of industries.

Nevertheless, I submit here several reasons to why the perspective of the fluid organisation is becoming so important. Firstly, today's organisations are increasingly knowledge-intensive. It is widely acknowledged that knowledge has become a critical resource for companies' competitiveness in a wide range of industries (Davenport and Prusak, 1998; Kogut and Zander, 1996; Nonaka and Takeuchi, 1995). As many argue, dealing with knowledge in organisational contexts is always an issue spreading across boundaries between teams and between organisations, and the configuration of such boundaries are constantly transformed over time through interaction amongst diverse stakeholders (Ciborra and Andreu, 2001; Knights et al., 1993). In such dynamic intra-, inter-, and trans-organisational contexts, it is important to address actual work practices of people in and around organisations not from a rigid and static perspective but from a fluid perspective that can shed a light upon the ever-changing nature of organisational knowledge.

Secondly, an increasing number of organisations are faced with intense pressure of downsizing. Business environment in the U.S., Europe, and Japan are all becoming further competitive and the contrast between winners and losers in those areas tend to be striking. For all the organisations, even in the mega-industries such as automobile, telecommunication and media, creating simple and lean organisational structures and reducing redundancy within them came to be one of the most urgent tasks to be accomplished. In order to cope with such marked economic situations, active utilisation of contingent labour is rapidly spreading in various industries (Barker and Christensen, 1998; Nollen and Axel, 1996) and came to influence significantly the adopting companies' competitiveness (Matusik and Hill, 1998). Furthermore, we are also witnessing the increasing prevalence of various post-bureaucratic ways of organising work and structuring business processes such as project teams, task forces, and virtual organisations, all of which typically involve a variety of contract-based, professional workers. The rise of such non-traditional workers who have not been treated as formal members of organisations requires that we reconsider the ways of organising work and of structuring business processes from perspectives beyond a single organisation's.

Thirdly, more and more workers are seeking boundaryless careers (Arthur and Rousseau, 1996). Since the middle of the twentieth century, workers have normally worked in a certain company or institution for long periods of time in their lives. However, the employment tenure is becoming shorter and shorter: the median employment tenure for all U.S. workers is four and a half years, and even in Japan, the median for male workers is eight years (Arthur, 1994). The fusion of

the traditional employment system resulted mainly from the growing inefficiency of rigid, bureaucratic approaches for managing organisational activities. In response, career paths of workers are no longer confined within a single organisation but remarkably vary and cross the boundaries of different employers (Arthur, 1994). We are witnessing the emergence of news kinds of independent workers symbolically depicted as "e-lancers" (Malone and Laubacher, 1998), "self-programmable workers" (Castells, 2001), and "post-modern professionals" (Kakihara and Sørensen, 2002b). This transformation of the contemporary career system clearly necessitates reconsideration of organisation as a place for career building.

Having considered these emerging realities in contemporary organisational and work environments, I argue that the perspective of the fluid organisation is of significant importance for the study of organisation and work in the age of mobilization. Individuals, teams, organisations, institutions, all are being faced with the upheaval of existing settings, structures, and conditions, shifting from relatively stable and static states to dynamic and constant transformation. To address these ever-changing social realities, our perspective has to be also dynamic and flexible. The perspective of the fluid organisation can be one of such distinct analytical lenses.

7.5. Duality of Hypermobility: Fluidity and Stability

I have discussed thus far in this chapter several issues directly associated with the fluidity of contemporary work and organisation brought forth by increased hypermobility. With increasing hypermobility in terms of locational, operational,

and interactional aspects of work, contemporary workers, particularly professionals, posses distinct capabilities to organise their daily activities: they can fluidly organise and manage their work practices by effectively utilising various ICTs in general and mobile devices in particular. However, overly emphasising fluid aspects of the emerging work practices of mobile professionals might conceal another critical aspect: *stability* in work practices.

7.5.1. Stability as ontological security

Fluid work practice is perhaps the most distinctive characteristic of the emerging workers I call mobile professionals. Being highly independent, autonomous, active, and knowledgeable, mobile professionals play important roles in a wider range of contemporary business scenes. The mobile professional is the enabler of the emerging form of organisation: the fluid organisation. The fluid organisation is dynamically configured through work practices of heterogeneous stakeholders. Boundaries of the fluid organisation is not pregiven but self-referentially determined in continuous transformation. Currently, such a fluid form of organisation is typically seen in project-based business fields such film and music production, but gradually widespread to a wider range of businesses and industries. This indicates that increased hypermobility is bringing us fluidity in contemporary work and organisation.

It should be noted, however, that fluidity is only one side of the coin. Fluid work practice and fluid organisation are in fact enabled by increased hypermobility in workers' activities. With their fluid work practices, mobile professionals are facilitating the transformation of work and organisation that have long been

constrained by various bureaucratic structures and rigid employment arrangements since the middle of the twentieth century. Yet what we are witnessing now is neither the total fusion of conventional work arrangements nor the complete decomposition of traditional organisational forms. What we have to pay attention to is the condition through which such fluid arrangements in work and organisation can actually be enacted. In short, the fluid arrangements in work and organisation require some degree of *stability*.

Here, by stability I mean relative continuity and/or fixity in state or quality of a given entity, in which people can have some sense of trust or security. In social contexts, stability is a social foundation for human action, identity building, trust, and many other factors in our social lives as a whole. Stability in some cases takes place in physical forms such as pillars, buildings, parks, and signs, and in some other cases in mental or cognitive forms such as rules, conventions, rituals, and customs. Social stability is one of the classic themes in social sciences, but most intensively explored in sociology. Perhaps the closest to the usage in the context here is Giddens' conceptualisation of 'ontological security.' He describes:

> Ordinary day-to-day life – in greater or less degree according to context and the vagaries of individual personality – involves an *ontological security* expressing an *autonomy of bodily* control within *predictable routines* (Giddens, 1984: p. 50, original emphasis).

He also explains it from a different angle:

> A lifestyle involves a cluster of habits and orientations, and hence has a certain unity – important to a continuing sense of *ontological security* – that connects options in a more

or less ordered pattern. […] [T]he selection or creation of lifestyles is influenced by group pressures and the visibility of role models, as well as by socioeconomic circumstances (Giddens, 1991: p. 82, emphasis added).

Put it in a simple way, social entities including humans and non-humans need a certain relatively stable structure[13], be it tangible or intangible, for their very existence. Stability does not mean completely rigid; it involves a capability to change itself. And yet the change is made through ongoing human practices, gradually and cumulatively.

7.5.2. Structural properties in hypermobility

Fluidity in work and organisation is no exception: it does need some stability for the very nature of fluidity. Revisiting the discussions above concerning fluid work practice and the fluid organisation, we can see that fluid work practices are marked by their dynamic and heterogeneous nature, accomplished through the worker's hypermobile boundary-crossing and boundary-forming activities and his or her continuous interaction with a variety of stakeholders. Being knowledge brokers, mobile professionals play a catalytic role of collecting and disseminating knowledge across organisations through their fluid work practice. Thus, hypermobility in work activities is the fundamental condition of fluid work practices. However, hypermobile workers are not permanent wanderers without

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[13] Here, by structure I mean "recursively organized sets of rules and resources" (Giddens, 1984: p. 25). Structure is not completely fixed but constituted and reconstituted through recursive practice of human agency.

any stopping; as Jun mentioned, they do need some *"base of operation"* or designated office spaces. In their daily operation, they have various routinised practices as seen, for example, in the case of the independent marketing consultant (#5) who uses one single laptop PC regardless of his worksite (home, office, or outside) to keep a stable computing environment. Hiro makes sure to keep his communication line open and stable by effectively using mobile phone and email forwarding so as to be able to move around as he wishes. Likewise, as discussed earlier, the fluid organisational form is brought forth when the workers can hold hypermobility in their work activities, dynamically participating and crossing and reforming boundaries of teams and organisations. Yet, again, such hypermobility requires some stable conditions. As seen in many cases of mobile professionals' work practices, hypermobility of the workers is clearly enabled and supported by various forms of stability in location, operation, and interaction.

This interdependency between fluidity and stability can be schematically described as shown in Figure 7.5. Stability is the essential condition for hypermobility, which in turn enables fluid work practice and fluid organising. As we have seen, hypermobility in mobile professional work is implicitly but firmly supported by various stable structures. For locational mobility, physical spaces such as office, desk spaces, and meeting rooms serve as material foundation for mobile work activities. All the mobile professionals interviewed contended that they need some physical workspaces for their day-to-day operation. Even Yoshi, who interacts with people mostly through the Internet, insisted that a place like the design studio was essential for idea generation and informal discussions. As Sassen (1999; 2002) argues, the importance of physical location as being material

foundation never disappear even in the increasingly digitalised industries such as global financial market.

I have also found various stable structures in mobile professional work for operational mobility. As briefly touched upon above, various routines in everyday work activities provide hypermobile work activities with stability for smooth and swift accomplishment of their daily tasks. Continuity of computing environments across time and space affords the workers flexibility in where and when to work. The Internet is an essential infrastructure for both the workers and their clients in the sense that it enables them to communicate with each other easily and to share
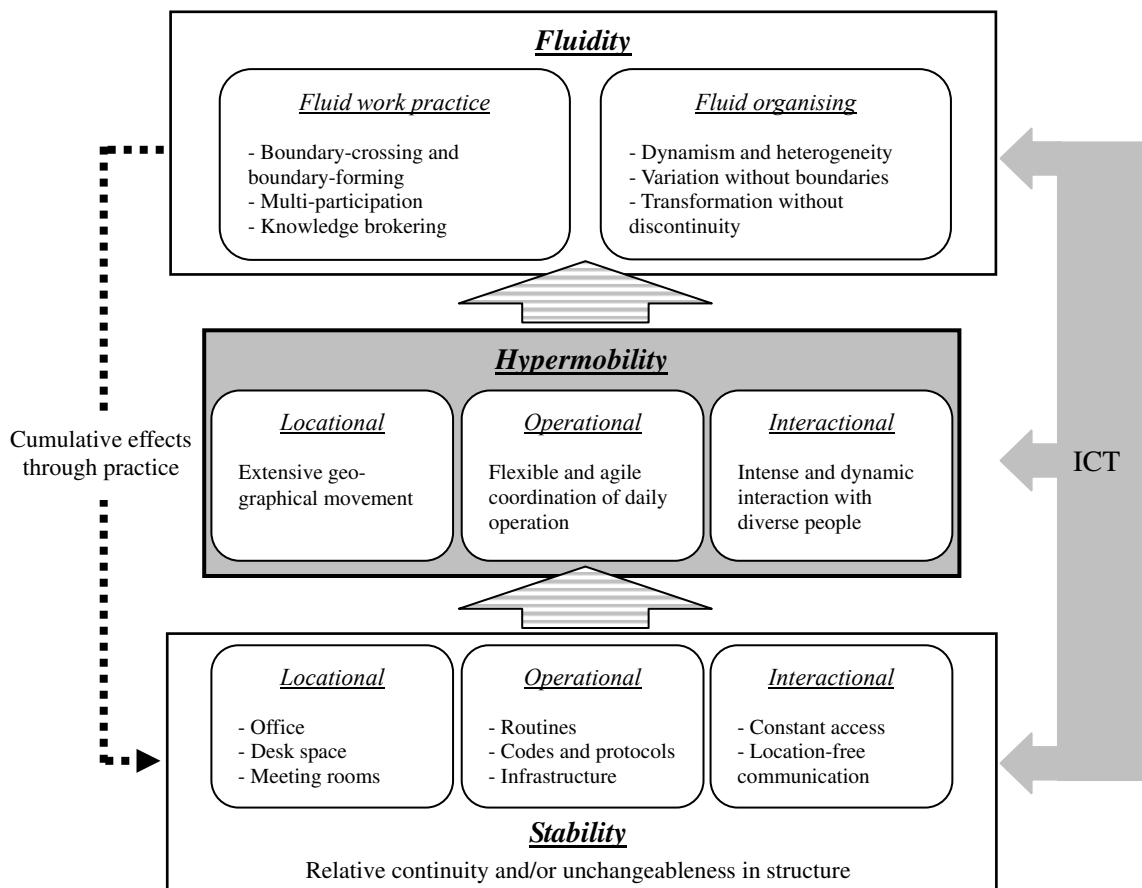
Figure 7.5: A schematic model of the interdependency between fluidity and stability

a variety of information, necessary to accomplish a task. Furthermore, various forms of sets of codes and protocols are the bedrock of effective operation. Yoshi shares with his clients various explicit and implicit codes and protocols for designing websites in order to get the job done smoothly.

Regarding interactional mobility, various ICTs, particuarly mobile technology, provide mobile professionals with stable, continuous, and perpetual contact with people (Katz and Askhus, 2002). Constant accessibility to other people largely freed from geograhpical constraitns enables flexible work. With mobile phone and other mobile devices, the workers *can* communicate with others 'anytime, anywhere', although they might not desire to do so. This stable possibility of interaction and communication supports their work practices greatly.

7.5.3. Duality of hypermobility

As seen above, hypermobility in work practices of mobile professionals is significantly supported by various stable structures, whether they are physical, cognitive, or institutional. Without such stable structures, mobile professionals would immediately face immense difficulties in their hypermobile work activities in general and fluid work practices and fluid organising in particular. Intensified fluidity in mobile professional work does not imply that mobile professional work does not need any stable foundations for their daily activities. On the contrary, mobile professional work does need various stable structures specifically for performing their fluid work practices and fluid organising of work and relationships.

Furthermore, structural properties in a given work context can be transformed, but in gradual and cumulative manners through the workers' everyday practices. To be sure, technological infrastructures can be introduced into work settings quickly and drastically; however, actual workers' adoption and appropriation of a new technical artefact and system takes a much longer time and involves various contingencies and improvisations in constantly shifting work contexts (Ciborra, 2000; Orlikowski, 1996a; Orlikowski, 1996b). In the context of mobile professional work, mobile professionals' fluid work practices and fluid organising recursively influence the stable structures upon which their hypermobile work activities are carried out.

Given these considerations, I argue that hypermobility should be appreciated as *duality*: a dynamic interplay between fluidity and stability. Fluidity and stability mutually reinforce and hypermobility is both an enabler and a product of the dialectic between fluidity and stability. The fieldwork results clearly demonstrate that emerging mobile professionals' work activities exhibit both fluid aspects in work practices and ways of organising work and stable structures that support and enable their hypermobile work activities. What we are witnessing now is that such a mutually reinforcing mechanism of fluidity, stability, and hypermobility is increasingly dependent upon and intensified by the rapid diffusion and intense utilisation of ICTs in general and mobile technology in particular. ICTs afford the workers both fluidity and stability for their work practices and organising of work. It is therefore clear that the study of work, organisation, and technology in the age of mobilization should be explored from a perspective that sheds a clear light on both fluid and stable aspects of emerging realities in work settings.

Summary of Chapter

This chapter aimed to expand the analysis of the fieldwork results and to discuss various implications for the study of mobility and mobile professional work.

The first and most important issue that I raised is the reconceptualisation of mobility. The fieldwork results demonstrate that work practices of emerging mobile professionals can be characterised not only by extensive geographical movement of their working location but also by flexible and agile operation of their day-to-day tasks and intense interaction with a diverse range of people. From this discussion, I proposed a conceptual shift: from *mobility* characterised only by a geographical understanding to *hypermobility*, signifying the dynamic interplay of locational, operational, and interactional mobilities. Hypermobility is strongly present in mobile professional work, but it is also emerging in many other work contexts.

Secondly, I discussed mobile professionals' fluid work practices that are enabled by the increased hypermobility in their work activities. By applying Mol and Law's discussion on social topology, I characterised the emerging work practices of mobile professionals as *fluid*, constantly transforming in dynamic and heterogeneous work contexts. Fluid work practice is ensured by hypermobility of the workers' activities.

Thirdly, I discussed one of the immediate consequences of fluid work practice of mobile professionals: *asymmetry of interaction*. As mobile professionals interact with a wide range of people in their work activities in various work contexts, they

are inevitably faced with the need for negotiating multiple threads of interaction. The diffusion of mobile telephony and wireless access to the Internet further intensifies the asymmetry of interaction, more specifically, inconsistency of desire amongst the interacting people concerning when to contact and be contacted. To cope with this emerging problem, both social and technical practices are clearly needed.

Fourthly, I discussed issues around fluid work practices from an organisation's point of view. Having considered various emerging realities of organising work activities and collective performance of an organisation, the traditional image of organisation as functional machines or systems seems to have become incapable of addressing highly dynamic practices of organising work, typically seen in the film and music production industries. In such fields where a variety of mobile professionals act as important business units, boundaries of and relationships within the organisation become increasingly blurred. For better understanding such organisational phenomena, I proposed the perspective of *the fluid organisation* and discussed its potential of explicating the increasingly fluid nature of contemporary organisations and ways of organising work.

Finally, I discussed, along with fluidity, another critical dimension of mobile professional work: *stability* in work practice and organising. Whilst hypermobility in mobile professional work brings forth fluid work practices and fluid organising, it is essential to pay attention to the conditions upon which such hypermobility can take place in actual work contexts. That is, stability, or relative continuity of state and structure in work activities serves as a fundamental enabler of hypermobile work activities. I then proposed a model of interdependency between

fluidity, stability, and mobility, which clearly points out the duality of hypermobility, a dialectic of fluidity and stability.

CHAPTER 8:

Conclusion

Introduction

This thesis has so far explored a variety of issues concerning the concept of mobility and mobile professional work. Due to the concept's diverse and elastic meanings and implications, the discussions stretched across a wide range of research fields such as IS research, organisational studies, CSCW, workplace studies, and sociology of work. Yet I have throughout the thesis directed my research attention towards the fundamental significance of mobility in contemporary business and organisational contexts. Through the literature study of mobility, work practice, and professional work and the detailed fieldwork on mobile professionals in Tokyo, my aim has been to look deeply into lived experiences of the mobile professionals and to extract the very essence of the mobility concept and of the emerging ICT-enabled professional work in the age of mobilization. In this final chapter, I summarise the main arguments submitted in the thesis, outline potential theoretical and practical contributions, and discuss future directions of the study of mobility and mobile professional work.

8.1. Overview of the Thesis

Chapter 1 introduced the general background of this thesis, the initial motivation, and the research questions: *How do contemporary professional workers accomplish their daily jobs in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to*

ICTs in general and emerging mobile technology in particular?

Chapter 2 explored the existing literature on issues in mobility studies. I first argued that the current discussions on mobility were polarised into two contrasting research schools: *the technical* and *the social*. Next I discussed the several emerging research endeavours in the middle of the 1990s that strived to overcome the classic social-technical dilemma, which have emerged mainly in CSCW, mobile informatics, and the latest IS research. Then I examined three distinctive types of mobility: mobility of *people*, of *objects*, and of *information*. Having pointed out the current mobility studies' lack a well-defined common ground and efforts for theorisation, I proposed paying specific attention to the *lived experience of mobility* in contemporary society. Then I discussed the significance of *work practice* for mobility studies. In the last decade a number of social scientists have offered various new understandings of the interplay of work, organisation, and technology by shedding a specific light on work practice in actual work contexts. Then I explained the increasing need for examining a distinct group of contemporary workers, whom I call *mobile professionals*, since their work practices appear distinctively mobile and dynamic compared with the traditional workers.

Chapter 3 discussed the nature of the emerging *mobile professionals*. The mobile professionals are the workers who own competitive and distinct skills and knowledge and work independently, largely freed from formal organisational constraints and rigid employment relationships. Such professional workers have not been well treated as a research subject in the traditional management and organisational studies to date, or have been seen just as a mere kind of 'contingent

labour.' I argued that because of their highly mobile and dynamic work practices, mobile professionals should deserve more attention and scrutiny within the light of post-bureaucratic structuring of work and organisation in the age of mobilization.

Chapter 4 presented and discussed the research methodology. I first explained the reasons for the choosing the interpretivism in IS research as the basic methodological foundation for this research. Then I discussed the scope of this research, contemporary professional workers, and the analytical lens, the practice-based perspective based on contemporary pragmatism. I discussed the design of research process based on Eisenstardt's 8-step model of theory building. Finally I examined the generalisability and potential limitations of this research.

Chapter 5 explored, based on the theoretical discussions above, the results of the fieldwork researching the work practices of sixty-two mobile professionals in Tokyo, Japan. After looking at the general features of the interviewees, I have drawn a variety of lived experiences of three distinct mobile professionals: an independent town planning consultant, a freelance CG designer, and an e-business entrepreneur. Along with other cases, these three focus cases showed the main characteristics of emerging mobile professionals and their work practices.

Chapter 6 analysed the fieldwork results and discussed eight interrelated themes that emerged out of the analysis: 1) Beyond the geographic understanding of mobility; 2) ICT as an enabler of mobile professional work; 3) Negotiation of multiple threads of ongoing interaction; 4) A place as material and interactional foundation; 5) The importance of personal networks; 6) Boundary-crossing and

boundary-forming; and 7) Multi-participation and knowledge brokering.

Chapter 7 discussed various implications that could be drawn from the fieldwork results by taking a closer look at particularly five issues. Firstly, I proposed *hypermobility* signifying the dynamic interplay of locational, operational, and interactional mobilities in mobile professionals' work practices. Secondly, I discussed mobile professionals' *fluid work practices*, enabled by increased hypermobility in their work activities. Thirdly, I discussed *asymmetry of interaction*, one of the immediate consequences of fluid work practice of mobile professionals. Fourthly, I explored the possibility of the perspective of *the fluid organisation* for explicating the increasingly fluid nature of contemporary organisations and ways of organising work. Finally, I proposed a model of interdependency between fluidity, stability, and mobility, which clearly points out to the duality of hypermobility, a dialectic of fluidity and stability.

8.2. Contributions

Having discussed a wide range of issues concerning mobility and mobile professional work, this research can significantly contribute to our debates on those issues, both theoretically and practically.

8.2.1. Theoretical contributions

This research's main concern was on the advancement of mobility studies in general and the study of mobile professional work in particular. 'Mobile' is one of the most popular terms nowadays prefixed to various traditional words in the forms, for example, of mobile office, mobile devices, mobile society, and mobile

work. As discussed in *Chapter 2*, the actual meanings of 'mobile' used in those terminologies are so diverse that the term 'mobile' tends to rather confuse the debates on those issues. This confusion resulted mainly from two problems in mobility studies as such: the lack of a well-defined common ground for debate, and the lack of efforts for theorisation. Having considered this, I have tried throughout this thesis to deal with a variety of mobility issues from theoretical perspectives and to grasp the significance of the concept of mobility in contemporary business and organisational contexts. Especially, *Chapter 2,* dealing with the concept of mobility and various mobility studies, can serve as a conceptual foundation on which various discussions relating to 'mobile' and 'mobility' can be made.

Based on the conceptual work of mobility, I have then narrowed down the scope of research to contemporary work issues. As I discussed in *Chapter 2*, work practice, being one of the classic themes in management and organisational studies and sociology for decades, has to be addressed seriously. The most crucial reason for this is that the nature of contemporary work is being transformed as a result of the dynamic interplay between the rapid diffusion of ICTs in workplaces and workers' intensive utilisation of them in everyday work practices. In short, work is increasingly unleashed from the traditional organisational structures and business processes and mobilized through dynamic interaction amongst diverse people including both inside and outside members of the organisation in constantly shifting work contexts. Fuelled by various diffusing business practices of unbundling the corporate structures and business processes, the mobilization of work is becoming a critical issue to be closely addressed in the context of

post-bureaucratic organising of work. This thesis's discussion of the mobilization of work is still preliminary but can facilitate the debate further.

Based on those theoretical discussions, I conducted a qualitative field study to answer the specific research question that I set: "*How do contemporary professional workers accomplish their daily jobs in highly mobile work settings and how their distinct mode of mobility function and characterise their work practices in relation to ICTs in general and emerging mobile technology in particular?*". Highly contextualised, qualitative data on actual work practices of sixty-two mobile professionals identified several characteristics of the nature of mobile professional work, which I discussed in *Chapter 6*. Through the iterative process between data analysis and theoretical consideration, I drew seven distinct *themes* that were commonly observed in the work practices of the mobile professionals interviewed. Although those themes would not be comprehensive in terms of representation of the lived experiences of mobile professionals, they clearly present critical aspects of mobile professionals' work practices and their situated ICT use and hence reasonably answered the research question. One of the main reasons for the lack of the firm theoretical base for mobility studies is the scarcity of efforts to gain original empirical data of real-world cases and to draw rich implications for theory building from it. Whilst this fieldwork involved some degree of cultural and institutional biases due to the fieldwork site, it clearly helped us obtain a useful theoretical foundation to understand the nature of contemporary professional work particularly in relation to their ICT use.

The exploratory discussions in *Chapter 7* illuminated some of the under-researched but critical theoretical issues for mobility studies. Along with the

several novel concepts and frameworks submitted in the chapter, I particularly proposed *hypermobility* as being the fundamental concept for making sense of work practices of emerging mobile professionals. Hypermobility is a specific conceptual lens for appreciating and explicating dynamic and heterogeneous work practices of mobile professionals. Hypermobility is not a universally objective concept that can be applied to all other mobility issues; it is obvious that a different type of reconceptualisation of mobility can be made in different research contexts. However, I argue that such an effort of reconceptualisation of mobility and hence of redefinition of our scope of research is of paramount importance, since the traditional geographical understandings of mobility can deal with only a limited aspect of the whole complex nature of mobility. My whole discussion on hypermobility can be an initial facilitator for the social science discourses concerned with mobility issues in general and mobile professional work in particular.

8.2.2. Practical contributions

Whilst this thesis primarily aimed to fertilise the theoretical discussions on mobility issues, it also provided us with practical implications mainly for two issues: firms' utilisation of mobile professionals, and designing new mobile devices and related applications and services.

This research can be of benefit for managers in firms in terms of providing them with detailed qualitative data on how mobile professionals get their jobs done in actual work contexts. As discussed in *Chapter 3*, various post-bureaucratic organisational strategies such as taskforce, project teams, distributed work, and

virtual organisation are being actively adopted in project-based business areas such as film production. However, nowadays, they are also increasingly prevalent in other business sectors such as manufacturing and service. In implementing those strategies, mobile professionals and the like play critical roles. Although many scholars have discussed extensively those strategies, most of them addressed the issues from static, organisation-based perspectives, not from the professionals' own (e.g. Ancona et al., 2002; Ancona and Caldwell, 1992). The distinct characteristics of mobile professionals' actual work practices, which I discussed in *Chapter 5* and analysed in *Chapter 6*, can be highly beneficial for the implementation of those novel organisational strategies in particular mobile work contexts.

This research also offered various implications for planning and designing new technological solution for professional work. A number of new technical artefacts and systems are energetically developed and introduced into a wide range of work areas. Particularly, mobile devices, applications, and services are attracting huge attention and immense investment in the last few years. However, design principles and criteria of those devices and applications significantly vary probably due to the lack of sufficient empirical testing. Through the close observation of professionals' use of various ICTs, including emerging mobile technology such as web-enabled mobile phones, PDAs, and subnote PCs, this research can inform the design practice of those technologies with detailed empirical data about how and in which situation they are used and what kind of new problems emerge. Although the qualitative data collected in this research needs to be complemented with quantitative data on those technologies' specific

impacts upon workers' performance and work efficiency, this research can be a useful guideline to identify independent and dependent variables in those issues.

As seen above, this research holds several practical implications. However, perhaps the most important finding from this research with regards to strategy making and designing is that any decision on strategy and design must be incorporated with a deep understanding of people's work practices. Through his field observation on people's mobile technology use and emerging ways of living in Tokyo, Helsinki, Manhattan, and Seattle, Rheingold (2002) argues:

> The "killer apps" of tomorrow's mobile infocom industry won't be hardware devices or software programs but *social practices*. The most far-reaching changes will come, as they often do, from the kinds of relationships, enterprises, communities, and markets that the infrastructure makes possible" (p. xii, emphasis added).

The relationship between work, organisation, and technology cannot be addressed without taking account of how individual workers interpret, adopt, use, and appropriate a specific technology to a particular work situation. Therefore, for practical discussions, it is crucial to direct our attention not sorely to a discrete technology and/or strategic solution at hand but to workers' actual practices that link them together and afford a specific meaning in their lived work experiences.

8.3. Future Research

Finally, future directions of the emerging mobility studies need to be addressed. As discussed in *Chapter 2*, it is important for all the scholars studying any mobility issue to realise that the current mobility studies in general do rest upon

highly precarious foundations of research that have not been sufficiently underpinned by rigorous theoretical and empirical discussions. Throughout the thesis I have deliberately focused upon issues at *individual* levels. Looking closely at individuals' work practices was essential to capture their dynamic ways of working and the situated nature of their technology use. Moreover, this research's deliberate focus on individuals is also predicated upon my conviction that all meso- and macro-level phenomena in organisational contexts have their origin in individuals' work practices that cumulatively bring forth collective behavioural features such as teams and organisation. Teams and organisations do not exist *a priori* out there in a certain material form; they are brought forth *only* through individuals' collaborative work practices. Thus, research on work, teams, organisation, and inter-organisational relationships all need deliberate research focus upon individuals' micro-activities.

Nevertheless, this does not imply that there is no need to expand our discussion at individual levels towards more collective levels. We do need to appreciate and explicate the collective features of individual workers and their technology use, since actual business processes encompass dynamic and complex collaboration and cooperation amongst diverse stakeholders. Therefore, the discussions in this thesis concerning individual work practices in professional work contexts clearly need to be expanded to team, organisational and inter-organisational levels in future research.

Lyytinen and Yoo's (2002b) agenda for research on 'nomadic information environments' is particularly worth noting here. They define the nomadic information environment as "a heterogeneous assemblage of interconnected

technological and organizational elements, which enables the physical and social mobility of computing and communication services between organizational actors both within and across organizational borders" (p. 378). They regard mobility as one of the fundamental issues to be tackled for studying emerging computing and social environments. They argue that rapidly increasing mobility in location and mode of technology use demand reconsideration in research perspective and methodology.

Based on various cross-disciplinary discussions on mobility issues, they set out emerging research issues on design and management in nomadic information environment (see Table 8.1). They divide those issues into two domains of inquiry: *service* (design, use and adoption, and impact) and *infrastructure* (enabling capabilities, and governance and control), and four levels of analysis: *individual*, *team*, *organisational*, and *interorganisational*. It is obvious that this research can be located mainly in the service and infrastructure domains at the individual level. The main subject in this research is how to make sense of the lived experience of mobile professionals and their situated technology use. Therefore, issues at team, organisational, and interorganisational levels are largely unexplored in this thesis. According to Lyytinen and Yoo's research agenda, the immediate step following this research would be to extend the research scope towards more collective, macro-level features of nomadic information environments.

However, when discussing various mobile issues from macro-perspectives, it is important to bear in mind that the boundaries between team, organisational, and interorganisational levels are increasingly blurred and reformulated due to the

	Individual level	Team level	Organizational level	Inter-organizational level
Services **Design**	• Development of personal, intelligent, mobile assistants • Micro-mobility • Content and medium independence	• Socio-technical transactive memory • Coordination of data and knowledge creation through technical "scripts"	• Enterprise applications and architectures • New workflow and organizational structure • Social ontology models	• Inter-organizational agents • Transaction and coordination mechanisms
Use and adoption	• Use of information channel • Sense-making and enacting in virtual environments • Management of personal information	• Team level adoption and configuration of services • Team process design and maangement – leadership, decision-making, communications	• Organization wide use and adoption of services • Service management and governance	• Industry adoption and network externalities • Emergence, coordination, and control of standards and services
Impact	• Efficiency and effectiveness of decision-making • Information overload • Learning	• Team performance (efficiency and effectiveness) • Team development (trust and learning)	• Organizational performance, and competitive advantage • Organizational learning and agility • Place-less processes	• Emergence of new industry structures and value chains • Transformation of industry structure
Infrastructure **Enabling capabilities**	• Micro mobility • Synchronization • Peer-to-peer connections • User profiling • Intelligent environments • Directory information	• Awareness support • Simultaneous local and remote mobility	• Integration and maintenance of heterogeneous systems • Partnerships in services • Maintenance of geographically dispersed computing resources	• Standard development • Interoperability
Governance and control	• Access privileges • Security • Privacy • Visibility of personal / public knowledge	• Team level ownership and control of data and information • Access and control of services	• IT services governance • Enterprise architectures • Pricing and control of IT resources	• Regulatory policy and instruments • Pricing • Security and privacy

Fundamental Drivers
- Mobility
- Convergence
- Mass Scale

Table 8.1: Emergent research issues in nomadic information environments
(Adopted from Lyytinen and Yoo, 2002b)

very nature of nomadic information environments. As closely observed throughout this thesis, mobile professional work in contemporary business and organisational contexts is accomplished within and across various existing boundaries. For instance, Jun's work practices can and in fact should be discussed at all the analytical levels from individual to interorganisational. He is sometimes completely independent of any other stakeholders when, for example, focusing on writing a report. Yet he is deeply involved in his client's organisational business

processes, acting as an important player in a specific project. He is also an interorganisational agent who collects and disseminates valuable information and 'know-how'. As discussed in *Chapter 7*, organisation and coordination of mobile work appear to be increasingly fluid in the sense that mobile work can hardly be confined into a single level of analysis. Furthermore, in nomadic information environments, a single technology can function both as a personal device and as an organisational and interorganisational communication system. The 'always-on' Internet-enabled mobile phone is particularly such a case. As seen in Hiro's case, the mobile phone combined with the email forwarding practice can serve as an essential and flexible communication infrastructure for a company.

In this regard, Lyytinen and Yoo (2002a) clearly argue that studying nomadic and ubiquitous computing issues demands "transcending the traditional boundaries between social and technical as well as levels of analysis – individual, team, and organizational" (p. 65). Therefore, we need ensure careful extending of the research scope towards further macro levels so as not to arbitrarily divide the spectrum of actual work practices into discrete analytical units based on existing boundary settings but to shed a light upon fluid and continuous organising of the work practices.

Concluding Remarks

Overall, the research endeavour in this thesis represents an initial attempt to approach the emerging realities of mobilization of work that we are currently experiencing. It is extremely difficult to deal with such ongoing social phenomena in a scholarly way not only due to little empirical evidence but also because of the

difficulty in defining a problem domain. It was therefore inevitable that this research ended up presenting strong exploratory characteristics. More detailed empirical validation, particularly by quantitative methods, of all the issues, concepts, and framework I have raised in this thesis is clearly needed. Moreover, it is also critical to look at work practices of mobile professionals in different national contexts, for example in the U.S. and Europe, and comparatively analyse them with the findings emerging out of this research. For embarking on such future works, this research can, I firmly believe, be a valuable foundation of debate for both academics and practitioners.

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Appendix

The following tables outline the analysis of the all the informants. The analysis is based on the issues discussed in *Chapter 6*, particularly to the seven distinct themes.

#	Job	Main workplace	PDA use	Laptop use	Number of project	1. Mobility			2. ICT as an enabler of mobile professional work	3. Negotiation of multiple threads of ongoing interaction	4. Place as material and interactional foundation	5. Importance of personal networks	6. Boundary-crossing and boundary-forming	7. Multi-participation and knowledge brokering
						Locational	Operational	Interactional						
1	Independent consultant	Various places	Yes	Yes (main)	3	++	+	+	*	*	*	*	*	*
2	Corporate manager (employed)	Various places	Yes	Yes (main)	2	+		++	*	*		*		
3	Entrepreneur	Various places	Yes	Yes	N/A	+		++	*	*	*	*	*	*
4	Independent consultant	Various places	No	Yes (main)	3.5	++	+	+	*	*	*	*	*	*
5	Independent consultant	Various places	Yes	Yes (main)	3	+		++	*	*	*	*	*	
6	Corporate researcher (employed)	Office	Yes	No	3		+	+	*	*	*			*
7	Corporate researcher (employed)	Office	Yes	No	3		+	++	*	*	*	*		*
8	Consultant (employed)	Office	No	Yes	2		+	+	*	*	*	*		*
9	Marketing planner (employed)	Office	No	No	4	+	+	++		*			*	*
10	Marketing planner (employed)	Office	No	No	3	+	+		*				*	*
11	Consultant (employed)	Office	Yes	Yes	N/A		+	+	*	*	*		*	
12	Entrepreneur	Various places	No	No	2	++		++	*	*	*	*	*	*
13	Entrepreneur	Office (private)	No	No	N/A		+	+	*	*	*			*

Table A-1: Details of the analysis

#	Job	Main workplace	PDA use	Laptop use	Number of project	1. Mobility			2. ICT as an enabler of mobile professional work	3. Negotiation of multiple threads of ongoing interaction	4. Place as material and interactional foundation	5. Importance of personal networks	6. Boundary-crossing and boundary-forming	7. Multi-participation and knowledge brokering
						Locational	Operational	Interactional						
14	Corporate researcher (employed)	Various places	No	No	2	+	+	+	*	*		*	*	*
15	Designer (freelance)	Office (private)	No	No	3		++	+	*	*	*	*	*	*
16	Journalist (employed)	Various places	No	No	N/A	++		+	*	*	*		*	*
17	Marketing planner (employed)	Various places	No	No	2	+		+	*	*	*		*	
18	Designer (freelance)	Home	No	No	3		++	+	*	*	*	*	*	*
19	Corporate manager (employed)	Office	Yes	No	N/A	+		+	*	*	*	*		
20	Entrepreneur	Office (private)	No	No	N/A	+		+	*	*	*	*	*	
21	Entrepreneur	Various places	No	No	N/A	+	+				*	*	*	
22	Designer (freelance)	Various places	No	No	3	+	++		*		*	*	*	
23	Independent consultant	Home	Yes	No	4	+	++	++	*	*	*	*	*	*
24	Entrepreneur	Various places	No	No	3	++	+	+		*	*	*	*	*
25	Entrepreneur	Various places	No	No	N/A	++	+	+	*	*	*	*	*	*
26	Corporate manager (employed)	Office	No	No	3	+		+	*	*	*	*		

Table A-2: Details of the analysis (continued)

#	Job	Main workplace	PDA use	Laptop use	Number of project	1. Mobility			2. ICT as an enabler of mobile professional work	3. Negotiation of multiple threads of ongoing interaction	4. Place as material and interactional foundation	5. Importance of personal networks	6. Boundary-crossing and boundary-forming	7. Multi-participation and knowledge brokering
						Locational	Operational	Interactional						
27	Designer (employed)	Office	No	No	3		+	++	*	*	*			*
28	Journalist (employed)	Various places	Yes	No	4	++		+	*	*	*	*	*	*
29	Freelance producer	Various places	No	No	4	++	+		*	*	*	*	*	*
30	Consultant (employed)	Various places	No	No	3	++	+	+	*	*	*		*	*
31	Corporate researcher (employed)	Office	Yes	No	2	++			*		*			*
32	Corporate manager (employed)	Various places	No	Yes	N/A	+		+	*	*	*	*	*	
33	Consultant (employed)	Office	No	No	2	+	+	+		*	*			*
34	Architect	Office (private)	No	No	3		++	+	*	*	*	*	*	*
35	Independent consultant	Home	No	Yes	3	++	++	+	*	*		*	*	*
36	Sales coordinator (employed)	Various places	No	No	N/A	++		+		*	*	*	*	
37	Consultant (employed)	Various places	No	No	2	+	+	+	*	*	*		*	*
38	Marketing planner (employed)	Various places	Yes	No	3	++		+	*	*	*	*		*
39	Entrepreneur	Various places	No	No	4	+		++	*	*	*	*	*	*

Table A-3: Details of the analysis (continued)

#	Job	Main workplace	PDA use	Laptop use	Number of project	1. Mobility			2. ICT as an enabler of mobile professional work	3. Negotiation of multiple threads of ongoing interaction	4. Place as material and interactional foundation	5. Importance of personal networks	6. Boundary-crossing and boundary-forming	7. Multi-participation and knowledge brokering
						Locational	Operational	Interactional						
40	Independent consultant	Various places	Yes	No	2	+		+	*	*	*	*		
41	Designer (freelance)	Office (private)	No	No	N/A		++	+		*	*	*	*	*
42	Journalist	Various places	Yes	Yes	4	+	+	++	*	*	*	*	*	*
43	Journalist	Various places	Yes	Yes	5	+	+	+	*	*	*	*	*	*
44	Sales coordinator (employed)	Various places	No	Yes (main)	N/A	++		+	*	*	*	*	*	*
45	Independent consultant	Home	No	No	2	+	++		*			*	*	
46	Marketing planner (employed)	Office	No	Yes (main)	3		+	++	*	*	*			*
47	Independent consultant	Office (private)	No	Yes (main)	3		++	++	*	*	*	*	*	*
48	Entrepreneur	Various places	No	No	2	++		+	*	*	*	*	*	*
49	Sales coordinator (employed)	Various places	No	No	3	++		+	*	*		*		*
50	Independent consultant	Office (private)	No	Yes (main)	2		++	++	*	*	*	*	*	
51	Independent consultant	Various places	No	No	N/A	++	+	+	*	*	*	*	*	*
52	Independent consultant	Various places	No	No	5	+	++	+		*		*	*	*

Table A-4: Details of the analysis (continued)

#	Job	Main workplace	PDA use	Laptop use	Number of project	1. Mobility			2. ICT as an enabler of mobile professional work	3. Negotiation of multiple threads of ongoing interaction	4. Place as material and interactional foundation	5. Importance of personal networks	6. Boundary-crossing and boundary-forming	7. Multi-participation and knowledge brokering
						Locational	Operational	Interactional						
53	Designer (freelance)	Office (private)	No	No	3		++	+		*	*	*	*	*
54	Consultant (employed)	Various places	No	No	3	+		+	*	*		*	*	*
55	Consultant (employed)	Office	No	Yes	2	+		+		*	*	*		*
56	Marketing planner (employed)	Office	No	Yes (main)	2		+	+	*	*	*			*
57	Marketing planner (employed)	Office	No	Yes (main)	2		+	+	*	*	*			*
58	Corporate researcher (employed)	Various places	No	Yes	2	++	++	+	*	*	*		*	*
59	Corporate researcher (employed)	Office	No	No	N/A		+	+	*	*	*			
60	Sales coordinator (employed)	Various places	No	No	N/A	++		+		*	*	*		
61	Academic researcher	Office	No	No	N/A		++				*	*		
62	Academic researcher	Office	No	No	4	+	++	+	*	*	*	*		*

Table A-5: Details of the analysis (continued)