



Technology, time and everyday life

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Overview

This Forum Discussion Paper reports on a Workshop held at the Oxford Internet Institute (OII) on 25th November 2005. The workshop brought together leading international researchers on the mobile phone to assess the state of the art and to explore future research agendas. While research on the mobile phone is proliferating, it has not been systematically linked with research on the Internet. Given the increasing overlap between cellular telephones and Internet delivery, the OII felt it was an opportune time to consider the issues raised by the whole range of wireless information and communication technologies (ICTs) that afford continual availability and mobility. The workshop thus explored the links as well as differences between the fields of Internet and mobile phone research, pondering whether the convergence of these technologies poses new issues for social theory and research.

Workshop participants

Ben Anderson (Deputy Director of Chimera, University of Essex); **Geoff Cooper** (Head of Department of Sociology, Surrey University); **Paul du Gay** (Professor of Sociology, Open University); **Bill Dutton** (Director, Oxford Internet Institute); **Leopoldina Fortunati** (Department of Economy, Society & Geography, University of Udine); **Nicola Green** (Lecturer, Department of Sociology, University of Surrey); **Corinna di Gennaro** (Survey Research Officer, Oxford Internet Institute); **Leslie Haddon** (Associate Fellow, Oxford Internet Institute); **Christian Licoppe** (Professor in Sociology of Technology, Ecole Nationale Supérieure des Télécommunications); **Vicki Nash** (Policy and Research Officer, Oxford Internet Institute); **Ralph Schroeder** (Research Fellow, Oxford Internet Institute); **Carsten Sorensen** (Senior Lecturer in Information Systems, London School of Economics); **Nigel Thrift** (Head of Division of Life & Environmental Sciences, University of Oxford); **Jane Vincent** (Research Fellow, Digital World Research Centre, University of Surrey); **Judy Wajcman** (Visiting Fellow, Oxford Internet Institute, Professor, Research School of Social Sciences, Australian National University)

Throughout the text, participants are referred to by their initials.

A converging research agenda for converging ICTs?

The convenors of the workshop began by outlining some general questions to organise the day's discussion:

What are the new challenges that digital convergence poses for theory and research practice in the area?

What are the effects of mobile technologies on the temporal dimensions of contemporary society?

Can frameworks developed for Internet research usefully be applied to the mobile phone?

Can the multidisciplinary approaches of the social studies of science and technology (STS), domestication and new media/cultural studies be integrated, without losing their distinctive strengths?

What do clichés such as 'ICTs collapse time and space' really mean?

Judy Wajcman's presentation began with some background on developments within STS, and the close fit between the social shaping of technology approach and the focus of the OII on understanding the social dynamics shaping, and being shaped by, ICTs. The general approach in STS has shifted to considering the mutual shaping or co-constitution of technology and society, as captured in the loss of the hyphen in 'sociotechnical'. Technological innovation is recognised as being a contingent and heterogeneous process. Moreover, in recent years STS has given more attention to the role of users in shaping technologies. While authors adopting the domestication approach, as well as cultural studies/new media scholars, have always recognised users, the shift in focus in STS is partly attributable to changes in the nature of ICTs themselves. These technologies are more flexible, and open to 'interpretive flexibility', than some earlier machines such as cars and missiles. As a result, there is more synergy between cultural studies of consumption and STS approaches. However, although STS had neglected users early on, Wajcman was concerned about losing sight of the relationship between design and use. This is one of the strengths of the social shaping approach.

To date, research on the Internet has not been systematically linked to research on the mobile phone. Some people have shifted from studying the Internet to studying the mobile phone, and they have thus applied similar frameworks and questions to this area. For example, some of the most researched themes with regard to the Internet have been: inequality and the digital divide; virtual communities and social capital; political participation; surveillance, and its impact on work and organisations, especially in the context of flexible working. What can we learn from Internet studies and what are distinct issues re mobiles, and will they remain distinct given increasing convergence?

One theme emerging from Internet research has been the use of the Internet to complement, rather than displace, both existing media and existing patterns of behaviour. Is the same true for the mobile? Another theme has been how Internet access at home has enabled more flexible working, and the increased permeability of the boundaries between work and home life. While flexibility may be positive, there is also a concern about work intensification and extended working hours. Are mobiles extending these trends and do they represent a qualitative shift in how people negotiate everyday life? The Oxford Internet Survey (OxIS: <http://www.oii.ox.ac.uk/research/?rq=oxis/index>) indicates that people believe that the Internet saves time, while other surveys indicate that people are experiencing time pressure or a shortage of time. How do we explain such a paradox? How much is this to do with the speeding up of activities through the use of ICTs? One would expect that ICTs both ease and exacerbate time pressures. Preliminary research indicates that ICTs do both: ease as well as intensify time pressure. As Geoff Cooper (2001) put it: the mobile is a classic example of a device which both facilitates the intensification of demands made upon people and makes it possible to meet them.

One of the distinctions often made between the mobile and the Internet is in the form of communication. Whereas the mobile is primarily a device for one-to-one direct communication and for maintaining relationships (as also discussed by Christian Licoppe below), the Internet can extend people's knowledge and horizons. Moreover, research on the mobile already indicates that it is intensively used for maintaining a close set of intimate, primary relationships or strong ties. Indeed, it is argued that social relationships are transformed through the mediation of the Internet and the mobile phone. Concepts such as 'perpetual contact', 'connected presence', 'mobile privatisation', and 'communications repertoire' try to capture the specificity of the constant connection and ubiquity afforded by wireless ICTs.

However, having looked at some of the discussions of this theme, Wajcman speculated that perhaps there was a preoccupation with talk as a basis of intimacy, a concern that misses out the various ways in which people also perform caring tasks and activities in order to support relationships. In conclusion, she also noted that this might be a result of the more general lack of connection between studies of the impact of ICTs on work and organisations with those on personal, mediated communication.

The theme of convergence was then more fully developed by Leslie Haddon. He began by stressing that, since convergence is such a key word, we need to recognise that there are different forms of convergence that lead to different frameworks and hence different questions. This point was exemplified by three types of convergence, and illustrated with Korean examples. The first form of convergence occurs when telecom services interrelate mobile device and the Internet. In the Korean example, making mobile calls earns cybermoney, which can be spent on embellishing home pages on the online Cyworld; there is a service which forwards the online visitors' book to the mobile, and a reply from the mobile can be sent to the visitor's home page.

A second form of convergence occurs when mobile or ubiquitous devices provide ways of doing things online when people are mobile, that is, away from a work or home PC. We can then ask about the consequences of changing mode (and in the case of Korean students, frequency) of online access. For example, it could produce greater ongoing awareness of the virtual world as a backdrop (for example, when Korean students' feelings reflected their current popularity online). This mobile access might also have implications for how people manage mobility.

A third form of convergence occurs when users develop practices relating the use of the mobile to the use of the Internet. In the Cyworld case, the practices of posting photos on the home page (quickly), sometimes as a gift/creating social capital, led to the camera function of mobiles being used more. It also led to new etiquettes being developed, for example, around the practice of decorating these pictures.

Haddon then went on to raise some time questions relating to people's communications repertoire, as he has looked in the past at how different uses of communication interrelate (for example, how people choose between them, how one media practice builds on another). One time implication that emerged was when mobile use involved cost–time trade offs (that is, if people want to keep bills low, their inventive strategies to do so can be time-consuming). In general, the problem of managing communications is a theme across all modes of communication, and is even important for youth.

The discussion then moved on to time, coordination and the mobile phone. Richard Ling's research on the use of mobiles to organise meetings more spontaneously than in the past, and his observations about the moral dimensions of managing time, were noted. Haddon posed a number of related questions:

There are constraints on spontaneity because of the time structures in which we operate: institutional, conventions, commitments. How can we research the rigidity of personal time structure?

To what extent do people stick to routines as a coping strategy?

How widespread is spontaneous mobile scheduling beyond youth?

To what extent is this spontaneous practice of scheduling an age/life-stage matter vs generational? (that is, to what extent will this cohort continue these practices as they grow older?)

What are the time implications of new mobile phone-based coordinating practices (for example, when are they time consuming)?

Finally, Haddon looked at cross-cultural studies, time and mobiles. He noted that when looking at cultural factors influencing ICT use, one factor, among many, is

time structures, especially institutional times, which may explain some cross-cultural differences. A more promising avenue is time cultures (for example, monochronic vs polychronic). Is the mobile affecting this, producing a move to the latter, and how do people feel about this? Finally, noting some examples of Korean students taking great care when rescheduling, are there cross-cultural dimensions to the moral aspect of time (for example, the 'right' way to handle such matters)?

From absence/presence to 'connected presence': the management of social relationships with technology

Christian Licoppe introduced this topic, arguing that we should not start our studies with technology, but rather start with the activities of people. This would enable us to look at people's use of all the (technological) resources they have at hand—their technoscapes. Licoppe's primary interest is in the different ways individuals build and maintain social bonds. In general, it is important to have rich and long communications to demonstrate mutual commitment to maintaining these bonds.

Starting first with how people manage strong social bonds, he outlined two models. The first, the substitution model, views other channels (for example, letter writing, phone calls, other electronic media) as being compensatory if for some reason people cannot manage face-to-face contact (which in this model is always primary, representing the highest quality).

In the second model, people are seen as communicating all the time using all available resources. In particular, there is a seamless web of communication with a few, close people. The model blurs the distinction between face-to-face and mediated communication—there is no longer the strong distinction of the previous model. As a consequence, there are many information-poor exchanges, but that is not the point. Their role (IM, SMS) is that of maintaining mutual awareness, a sense of presence, keeping open channels of communication, and creating the feeling of 'growing old together' (Schutz).

Referring to debates about the decline of social capital, Licoppe pointed out that this sense of 'connected presence' actually helps to maintain social capital. People feel they have got to keep contact, they are reluctant to let go, and this phenomenon was also captured in Japanese discussions of telecocooning (Ito et al. 2005). Such background communication means that 'absence matters less than silence'—to have no such chatter would be worse. Thus, while Internet-based communication generates a large number of weak bonds, mobile phones support a few strong bonds.

Finally, Licoppe explored the idea that there is an 'economy of availability', meaning that availability is a scarce resource and yet there is an increased

pressure to be open to others (also noted in Sorensen's presentation discussed below). This raises the question of how to manage this, given social constraints, and the way that availability is managed as a personal project. Such constant availability has led to changing expectations and decisions about how to answer communications (for example, filtering practices, negotiating mutual availability), and indeed some technological features allow users to rely on the environment to meet the obligation to answer, such as the personalisation of musical ring tones to identify different callers, caller ID itself, etc. These techniques can alleviate the burden of whether to take a call or not, when, for example, the ring tone allows one to decide who is calling. To the extent that some callers increasingly call on a whim, this can become a burden on the recipient, who therefore uses all available tools to manage this burden.

Returning to his main argument, then, Licoppe observed that an activity perspective (for example, beginning with questions about people's sociability, mobility, etc.) has the advantage of making links with other fields of sociology and helps to prevent communication studies from being marginalised. On the other hand, there is the question of how keep a coherent focus on communications, if there is one.

Discussion

The discussion after these papers fell into two parts. The first part dealt with issues of convergence. RS commented that it is often claimed that the use of the Web primarily supports weak bonds, but Haddon's Korean example seems to show that it can support strong bonds in Cyworld. So it appears that there are examples of ICTs supporting both strong and weak bonds.

LF pointed to the influence of the Internet on television—more has been written on the television than ever before. In this way, one could say that an important dimension of convergence is the colonisation of television by the Internet. Interestingly, in Asia/China, the mobile phone is used more as a computer. She also wondered what users think about convergence—do they think about it at all? People want simplicity and yet Italian research shows how the washing machine is becoming more and more complex—there are over 100 possible programmes now. So there seems little connection between the preferences of designers and consumers.

The topic of convergence leads to very different questions depending on the research approach adopted, that is, whether it is social theory or more empirically based grounded theory. For example, the former approach may lead to research on, for example, the impact of the mobile on time use, whereas grounded theory may result in research on such issues as the role of ring tones. For BD, then, the central question is how to keep both approaches in play while researching convergence.

At the policy level, convergence poses particular problems. VN pointed out that the different domains of ICTs have been kept very separate in the past. This is

because policy tends to foreground technology when defining domains. It does not foreground the ecology in which people operate.

The second part of the discussion focused on the question of what different disciplines bring to research on the mobile phone. The Surrey group, GC and NG, commented that they had started out their project aiming to examine the whole circuit of production, but it had narrowed down to become solely a study of users. This was because there was an easy connection with consumer studies and the project's funders were primarily interested in the uses of the mobile phone. Therefore, we need to consider the political economy of research and how it affects the way in which the research process is carried out.

There was then some discussion of whether the 'domestication' approach is a theory or a synthesising concept. LH argued that what questions are asked within domestication depends on the researchers concerned: different people have used it slightly differently. For example, British research and many other studies have focused on the home, while others have looked beyond this. It could be expanded to look at social networks and sites beyond the home. The approach tends to be at the level of microanalysis, showing interpersonal influences and constraints but also creativity in unintended uses. Nevertheless, the research material can be of interest to firms and be mobilised in policy debates—for example, about the 'revolutionary' nature of the Internet, and issues such as the digital divide. On the other hand, the domestication approach cannot address all macro issues, and so it has generally been used in a complementary way with other traditions, for example, the social construction of childhood. In sum, any theory's usefulness in the area of the mobile depends on the question asked and the issues concerned.

In relation to the focus of mobile phone research on communications, JW commented that there might be an over-emphasis on talk when discussing intimacy. CL responded by saying that, in his work, the stress was not on communications as a starting point, but on bonding/relationships/affiliation. Communication was only one way of achieving this. Conversational Analysis and ethnomethodology provide tools for analysis of the moment-by-moment management of this process. For JW, the point is that individuals have to work to create intimacy and this is reflected in the literature on domestic labour and the invisible emotional labour of caring that produces intimacy. RS found CL's approach most illuminating as he agreed that there was a bias towards valuing face-to-face interaction more than mediated communications, whereas Licoppe was saying that mediated communication is also good and can be intimate. Certainly the discussion pointed to the fact that, as BD expressed it, researchers have now put to bed the substitution arguments about different ICTs, and rather stress the complementarities of different modes of communication

Returning to the issues of different disciplinary approaches, CS said that it is easy to get entrenched, either in studying the users or the technology and to ignore the other side rather than study both. He noted the critique of media-richness theory, in relation to CL's presentation, showing how seemingly information poor channels could be of value. For JW, the strength of STS is that it had models of stages/processes that technologies go through and which should be of interest.

Originally it was responding to a cultural studies focus on consumption, impact studies of technology, and technological determinism. The 'social shaping of technology' approach was later critiqued by Callon, for example, for being social determinist. For JW, however, it was bringing together design and users. To date, STS approaches have not had much influence on studies of the mobile and the Internet. More commonly, academics studying these ICTs were coming from a communications background. More STS people are now coming in. However, JW gave the example of the recent 4S annual conference where Mizuko Ito held a stream on mobility studies, yet few of the established people from STS attended that stream—instead it was mainly academics with a media studies and cultural studies background. There was insufficient interaction with STS approaches.

This is rather ironic, as PG commented that cultural studies has lost its way to some extent. It is no longer regarded in the same way as it was 10-15 years ago, when it was fashionable. Now, media studies are fashionable. This is because cultural studies was associated with a moment of theory—post-structuralism/post-modernism—and had run out of steam when that moment passed. Indeed, students originally attracted to cultural studies—with revolutionary hopes, wanting all questions answered—have now moved into STS/ANT, as evidenced in large numbers of PhD applications (Foucault was out of favour). There was a renewed interest in STS because of its openness.

However, as CL pointed out, STS too has its limitations. It was initially a theory about science and innovation, with a bias towards the deconstruction of science and innovations. There is some unease when it is applied to studying the use of technologies. The classic STS critique of the black box—with good arguments, for example, about inscription—loses some of its impact when it is applied to objects that are not black boxes in the same way. This is because ICTs have been made much more interactive, and invite modification. As a result, the users of these technologies have a much more prominent role in their production.

Time and technologies: old and new

The workshop then turned more specifically to the effects of technologies on the temporal dimensions of society. Ben Anderson presented the first paper, starting with the question of whether temporal patterns of interaction are changing (for example, since the 1960s), what has caused this and what change, in turn, might such developments cause? One immediate problem in attempts to answer these questions is that if we are doing different things than in earlier periods, what counts as the 'doing' categories that we are comparing over time—for example, the nature of childcare has changed since the 1960s and now includes many more things. But a set of specific questions also followed from this general problem. Are we doing more things at once? With whom are we doing things? And can we identify changes in the where, when and why data?

Turning to the problems of research, time use diaries have been regarded as the most accurate method for addressing such questions. Anderson demonstrated with graphs that the frequency with which we measure things itself influences the conclusions we can draw. Time use surveys also face problems of non-response: the fact that we cannot easily ask 'why' questions, complex data can be time-consuming and difficult to analyse, small acts get missed, and they are non-continuous (only collected every twelve months). As people make the effort to fill in dairies, the act itself becomes a very foreground activity, raising reliability issues. Moreover, longitudinal time use surveys can overburden the participants, such that they dropout and they are still non-continuous (only yearly). Anderson provided examples of how time use data could produce results (for example, in graphs showing couples travelling together and parental co-presence with children over the course of the day). Overall, however, Anderson opined that time use dairies had run out of steam for the things he wanted to do.

Shadowing/tracking as a methodology was another option, but it is intrusive, leading to investigator effects and, although it produces detailed data, it inevitably entails small samples. Anderson then outlined his novel idea of Technotraces, illustrating how it is now common to use technologies such as radio collar in studies of animal behaviour. He argued that you could increasingly use mobile phones for studying the mobility of people, given that we can track to within a cell, and to within 50 cm with GPS. In addition, some acts can be captured by mobile phone billing systems, a bluetooth facility can be configured to work out what other devices are around, thus telling us about the user's environment, and we can trace people in social networks via the mobile's register.

Anderson considered the ethical issues, especially given that we cannot ask for everyone's consent when studying a person's social network, and there are difficult questions of how to deal with anonymising, and permission to use the data. If the material collected is then archived, this will constitute a leap in the amount of data involved. In sum, the mobile phone provides us with a new means of studying everyday life, providing actual micro-behavioural data as opposed to reported behaviour. This needs to be more fully explored, as scientific insights often flow from the application of new methods.

Contemporary discussions of the relationship between time and new technologies inevitably make assumptions about people's experience of time in the past. So it was most useful at this point for Nigel Thrift to present a historical perspective, discussing his research on the history of clock time from 1300 to 1800. During this period, people in the UK went through a series of radical changes in terms of their consciousness of time. His account sets itself against the dominant narrative of a 'Gradgrind time that leaches out colour in the world', where clock time is a bad thing, implying an earlier authenticity about the world. In fact, he thought that it had been very positive in many senses and allowed new things that we could not previously do. The research also suggests that some of the classic account of E.P.Thompson in 1967 was empirically inaccurate. Awareness of clock time had nothing to do with the industrial revolution and, through mapping clocks and noting records of repairs of clocks, there were far more clocks around earlier than Thompson had claimed.

One issue was what counts as clock time, given that there were many different types of clock time. There were various communities of practice that appreciated the need to keep exact time (for example, astronomers and navigators), and clock time entered into various practices, from love affairs to gambling. Another issue was what counts as evidence? Such daily time issues were taken for granted and often not written about, except in rhetorical form by the upper middle classes complaining that other people did not think the same way as they did.

Thrift identified three revolutions. The first was the widespread use of equal hours time-keeping—from the 1550s people were thinking routinely in these terms. This was accompanied by an increase in the number and density of public clocks and was reflected in records of when people were born or died (important because of astrological implications). The second phase was that of dividing the hour into quarters, minutes, and seconds. By 1600, minutes were standard and in part, but only in part, reflected improvements in clocks. The third phase was the diversification amongst communities of practice.

The historical period covered has usually been portrayed as unsophisticated. In fact, people at this time were sophisticated with the tools they had to hand. They could imagine things they could not yet do (for example, envisaging exact experiments). And there was a routinisation of improvisation: people found various ways to know or tell the time, listening to bells ringing and noting traffic patterns (for example, coaches passing on schedules). In addition, larger organisations, such as the Navy and Merchant Navy, needed to know the exact time for large-scale coordination. In fact, England kept clock time earlier than some other countries, as evidenced by foreigners noting that the English were obsessed by time. This may also have reflected the fact that London grew large very early on (compared to other countries) and hence there was a greater need for time keeping just to manage logistics.

Discussion

In the general discussion that followed these two papers there was speculation about whether the earlier standardisation of clock time was now being transformed by the mobile phone's capacity to 'soften' time and scheduling. Such issues have major implications for the organisation of work and it is to this subject that the workshop now turned.

Mobile interaction and labour

Carsten Sorensen introduced the discussion of new ways of organising interactions afforded by mobile technologies. He started by observing that organisations that have less hierarchy experience a greater lack of certainty, and decision processes are more complicated. In hierarchical organisations, things used to be more predictable; it was clearer what you had to do (for example, career progression in a company). As a result, there are new pressures or features that are promoted by the use of ICTs:

Synchronising idiosyncratic cultivation of habits

Technology imposes a pressure to be more available

Pressures of asynchronicity (you have to reply to email within a certain time)

Drifting media obligations (if you don't answer your mobile phone, you have to explain why not; if you have a videophone, why don't you sometimes want me to see you—that is, why do you turn the video off)

Asymmetrical social relations (differences in power between people) and technological assumptions of symmetry (the design assumption that both parties have equal power)

Lure of ease (the ease of use of some technologies helps their adoption and use but can also create significant side effects—for example, it is so easy to call someone on the mobile phone, but this then creates a burden for others)

The use of personal contextual information (the mobile phone can tell outsiders where users are and what they are doing—this can lead to more harvesting of our private data, creating privacy issues)

Carstan concluded that the surveillance issue was worrying, as we are under constant surveillance because of our own email (if we download it, the receipt can sometimes be seen by others, who now know we are online). However, he also noted that organisations waste time and resources as a result. For the business person, it is wasting time to receive calls asking where you are. Organisations have not yet learnt to make full use of ICTs when employees are not in the office.

Discussion

The general discussion that followed this paper centred on the extent to which knowledge about employees' location, facilitated by the mobile phone, is productive or counter-productive for organisations. LF pointed out that the mobile

stops defensive strategies where employees could previously hide from the firm's surveillance. It creates more discipline. In work with a low degree of discretion, the mobile makes little difference. For employees with high discretion, the mobile allows more flexibility. CL said that his Japanese research shows that when you can see the location of game players on screen, this actually leads to more communication. In other words, if we know more about a person's location, this may act as a resource to help interaction.

Mobile futures

The final part of the workshop turned to the broader context of research on mobiles. These two papers were more speculative in nature, the first drawing links to wider social theory while the latter outlined some the future directions for research. Leopoldina Fortunati began the first talk with two key questions, acknowledging that they were fundamentally difficult to answer. Does the mobile phone help people to save on labour, time and income? Does the mobile manage to make us communicate more on the whole, or does it produce more de-communication?

She noted that research on mobiles often does not connect with larger social theory, arguing that domestication has not connected with domestic labour debates and the position of women in society. Therefore, in this presentation Fortunati aimed to connect the mobile to theories of domesticity and, particularly, globalisation. Past analysts have talked about three major phases in the evolution of communication—writing, print, and electronic media. For Fortunati, the role of the mobile has been so important that it has launched the fourth communicative revolution, since it has a special place within electronic media. She then went on to outline several social processes that attest to this.

She began with globalisation, that is, extending its logic and principle to all parts of society—the key principal being that of fusion, the capacity to merge and facilitate interaction between previously separated elements. In this context, the mobile phone can be understood as a strategic tool of social labour rather than just treated in narrow functionalist terms. Its strategic importance lies in valorisation processes.

Another factor is the penetration of technologies in the body that has opened up the hybridisation between the human body and technologies. Fortunati described how artistic practices are allowing ICTs to be nearer to or inside the body. The mobile leads to the disappearance of distance between technology and the user and, by doing so, changes the relationship between them, changes concepts of what is internal and external to the body, changes how we present ourselves, describe our identity and how we connect with the world. The mobile has added to a move to minimalism in writing. SMS is causal, like the tee-shirt. We can talk without conveying a heavy meaning. She also contrasted formal knowledge (for

example, in the academy) with everyday life content (which she felt was increasingly poor).

Overall, Fortunati argued that the mobile phone has been under-estimated and under-researched in relation to virtuality: while the Internet is considered the centre of virtual life, the mobile also creates a virtual life for people. She concluded by noting the fall of private man/woman—the opposite of Richard Sennett's argument. People have become less interested in maintaining privacy, by, for example, talking about intimate things on the mobile in public, and on television. This implied a greater willingness to make the self public, both physically and emotionally, to share with other people.

The final paper was presented by Jane Vincent, who had the difficult task of mapping some future directions for research. This presentation was partly based on desk research and partly on discussions with key figures from the industry. Vincent set the scene with a number of observations. 'There are two times as many mobiles with WWW access capability than pc's and twenty times more people texting regularly than using instant messaging', hence underlining the significance of SMS. In the industry there was now more competition, and less latent demand. At the same time, while not much R&D was being conducted by the operators, there is a sense that they need to get a better feel of what people will find interesting. One current industry interest was in 'Liquid media', that is, content on the move. There is currently a trial in Oxford of TV on mobiles, although industry was not entirely convinced that people wanted this.

Vincent then listed some emerging trends and topics in the industry:

Digital divides: both geographically (for example, where wifi/broadband is available) and economic (that is, who does not have access, and can access be made affordable)

Cross-cultural perspectives (dealing with the fact that the same products are sold into different cultures)

Citizen journalism and camera phones (industry was excited by this idea)

Convergence of technologies (the consequences of bringing together established technologies with different legacies, different economic structures and conflicting business models)

Child protection (and what lessons can be learnt from Internet research)

Etiquette: what is the new mobile etiquette? (for example, raising questions of regulation of location based services, the addition of an audible click on the camera-phone)

The existence of many piecemeal small-scale studies and hence a feeling that it is important to collate the existing evidence

A methodology required for examining what might and might not sell

Questions of form vs function in the design of handsets

A global approach to regulation

The talk ended with some pointers to gaps in our knowledge about mobile phones that the industry might yet consider, such as politics and mobile phones; issues of inclusion on the basis of economics, age, gender and diversity (currently little addressed in industry); fashion: affiliation and addiction; and the lifetime of mobility (for example, the use of the mobile in the medical world even before birth, and the novel practice of burying mobiles in coffins). In conclusion, Vincent noted the emergence of a new industry ecology, moving from a framework of operators and manufacturers leading innovation, to one in which smaller, entrepreneurial companies try out new possibilities, somewhat like Internet dot.com companies.

Discussion

In the final discussion, several points were made about the similarities and differences between the Internet and the mobile phone. BA pointed out that in the past, telecom systems have not been like the Internet. In the latter, small dot.com companies could try out innovations. Now it is becoming easier to put services on the mobile. JV suggested that social networks have not been studied in a multidisciplinary way as communities of practice, and that this was a way forward. JW suggested that there were obvious limitations to studying the mobile on its own, and that we need to see how it is used in relation to other ICTs. NG's approach is to pick a theme, like her current interest in memory. This can provide a middle ground between theory and empirical studies.

Bill Dutton closed the workshop by emphasising that convergence had indeed been the key theme during the day's discussions—and a theme to which the discussion had kept returning. He argued that we need a multidisciplinary study in this area, looking at the business model, the technology and the social side. There was a degree of consensus among the participants that, at the end of the day, mobile phones need to be researched in relation to people's use of other ICTs.

Appendix 1. Further reading

Link to 'mobile phone and everyday life' bibliography:

<http://members.aol.com/leshaddon/MobileRefs.html>

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