# "Must-Read" Mobile Technology Research: A Field Guide

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With over seven billion subscriptions worldwide, the social impact of mobile technology now rivals television, radio, and newspapers. The nomenclature "mobiles" has come to stand in for the variety of practices and affordances including mobile media, mobile communication and mobile technology. Mobile devices are ubiquitous as they all-pervasive. Mobiles take forms from classic mobile cellular phones, cheap-and-cheerful handsets, or luxury phones through feature phones, smartphones, pads and tablets, and multimedia devices to cross-overs with location technology, wearable computers, and driverless cars. Mobile technologies have had a profound influence on society, politics, economy, culture, relationships and identity. Mobiles also have wide-ranging implications for business, government, households, civil society, the private sphere all the way to new kinds of publics.

The beginnings of the field of mobile technology can be seen in the engineering, physical sciences, computing, and information services, and other disciplines. Mobile technologies have been incubated and studied in many applied technical and design fields, especially innovative areas associated with new developments in telecommunications, computer, and data networking. Since their emergence in the late 1970s, mobile technologies have emerged as a major area of research, public discourse, debate, theory, policy and design across sociology, communications, media, and cultural studies, anthropology, politics, law and policy, economics, literary studies, area studies, as well as other areas of the humanities and social sciences. This collection especially focuses on the humanities and social sciences research on mobile technologies. It does not neglect its vital interactions with research in the wide range of other scientific, technological, biological, information, design, and other sciences engaged in mobile technologies. The study of mobile technologies is an interdisciplinary and international domain However, it could be said that the interdisciplinarity of mobile technologies research has made it difficult to reconcile within the humanities understanding of interdisciplinarity. There have been faltering steps, difficulty in grasping, adopting, and adapting previous disciplinary warrants, concepts, and methods to the new objects and situations of mobile technologies. Doubtless mobile technologies have also proven confronting, deceptive, and "disruptive" for other areas of research. However, this collection is broadly centred — in an open, cross-disciplinary, and ecumenical way — in the humanities and social sciences.

As research on mobile technologies has grown dramatically, and the field has matured, there is a need for a reference work to offer an accessible guide to this research; a "rough guide," or map, to its contours. There is the need for the key works by students, researchers coming fresh to the area, and those wishing to explore the area more deeply.

In the spirit of the *Routledge Major Works* enterprise, for this first time this collection brings together in one easy-to-access set, the essential, "must-read" articles on one of the great technologies of our time. This set aims to bring together the dispersed work across the many disciplines that study mobile technologies. It aims to put them into historical, intellectual, and international context. As such we hope that it will provide a valuable research tool and pedagogic resource. To achieve this, we

have aimed to integrate foundational texts and diverse perspectives, as well as the most significant and pioneering new material, to provide researchers, teachers, students, and practitioners alike with the best-known as well as the most crucial yet overlooked materials on this vital topic.

In this introductory chapter, we explain how we have approached the difficult task of selecting papers for this *Major Works: Mobile Technologies* collection. Before we do discuss our concepts and procedures for selection, let's step back to provide critical context. What is the field of mobile technologies research? How did it begin, and how has it evolved? While still quite a spring chicken amidst much older and venerable academic fields, what are its traditions, theoretical approaches and methods? What are its foundational and orienting concepts? Who are its cast of characters, and key figures, institutions, and research outlets? And what are its notable twists and turns, epistemic breaks and ruptures? What are the significant new developments worth watching, and what can one read, and engage with, to understand where research is heading?

## The Field of Mobile Technologies Research

### *Telephone*

A central strand of mobile technology research can be traced back to its most obvious precedessor technology — the landline telephone. It is so commonplace that social science researchers came late to appreciating the significance of this technology. It gained the recognition of academics in the 1970s — as the telephone was well-nigh regarded as a necessity in modern life — and important work was well underway.[1] We see studies and approaches to facets of the topic that, *mutatis mutandi*, are still being discussed. For example, as such as what would life be like without the telephone (now mobile technology) that we often we take for granted?[2] Sidney Aronson was the first to directly open up the question of the sociology of the telephone:

> Communication-in-general (if such a thing can be imagined) has been much studied, but the meaning and consequence for individuals of being able to pick up something called a telephone and rapidly transmit or receive messages have been all but ignored. As with so many other aspects of social life that which we take most for granted usually needs to be most closely examined.[3]

Research on the social aspects of the telephone also appeared in other disciplines, including psychology,[4] science and technology studies (STS), and economics. An outstanding figure was Ithiel de Sola Pool, editor of the landmark volume, *The Social Impact of the Telephone* (1976).[5] This was the first of a number of de Sola Pool's prescient and influential books on the telephone and telecommunications.[6] In the 1980s and 1990s, various studies of the telephone's social nature were published, most notably Claude S. Fischer's *America Calling: A Social History of the Telephone to 1940*.[7] Researchers were especially interested in the role that telephone played in everyday life. There was a particular focus on its social uses in the household and domestic settings.[8] This was a period where important feminist research illuminated the gender dynamics of technology, labor, consumption, and social relations when it came to the telephone. Notable works are the classic 1991 Canadian study by Michèle Martin, *Hello Central?*, Ann Moyal's 1992 study of gender and the telephone in

Australia, as well as Claude Fischer's paper that preceded both of these.[9] Research also investigated the place of the telephone in the lives and social rituals of particular groups and social categories, as well as intra- and inter-generational dynamics.[10]

Researchers took various approaches, including ethnomethodology, conversation and discourse analysis, and linguistics, and psychology, to investigate the nature of communication via the telephone.[11] Such research focused on non-verbal, tacit, as well as verbal communication and interaction, a broad approach which was important later in the development of mobile communication studies.[12]

*Telecommunications*

With the digitization of telecommunications networks, and the long evolution and combining of networks, technologies, and industries (often termed convergence), new issues arose that attracted attention from scholars, such as privacy, surveillance, and equity.[13]

Research on policy and industry aspects of telephony and telecommunications was voluminous and systematic.[14] A key reason for this is that reliable research on aspects of industry and policy were crucial when telecommunications was a highly regulated industry — and, especially in the 1970s-1990s, contentious transformations, such as market liberalization, deregulation, and privatization, were underway. It was in this period, we see the publication of important, book-length histories of telecommunications.[15]

Arising from a different — if ultimately related tradition — the political economy approach to communications and media generated important studies of telecommunications, and critiques of neoliberal policies.[16] An associated tradition is studies of work and labor, and working organization in trade unions and other organizations and collectivities.[17]

Studies of telephony and telecommunications were a minor if respectable part of wider disciplines and currents of research. In the relative absence of interest, focus, and resources from disciplines and researchers, the telecommunications industry itself often supported, encouraged, and commissioned work. Indeed many telecommunication carriers had significant research facilities (famously, the US Bell Laboratories, established by AT&T, but also telecommunication research facilities were common in many European countries)[18], as well as substantial archives. This is worth noting, as it was especially evident in the first wave of scholarly work on mobiles, and still remains the case. Many scholarly conferences on mobile communications have been sponsored and supported by national, regional, and transnational carriers, keen to foster and channel mobile technology research.

*Emergence of Mobile Phone Research*

Mobile telephone services were available in early forms from the 1960s on, but it was only in the late 1970s and early 1980s that the development of cellular mobile telephony became possible and was commercially developed. Cellular mobile phones and networks use distinctive "cell" of approximately 1-50 kilometres across, to efficiently use and share radio spectrum. These "cell phones" and networks — in the North American usage — remain the main building blocks of mobile technologies today. Pioneering papers on mobile communication were published relatively soon

after services were launched. That said, research on mobile phones was relatively sporadic and scattered until the mid-1990s. In the late 1990s, the mobile phone had definitely arrived as a research topic. As the research emerged, it exhibited some very interesting features.

Mobile phone research was not simply a matter of the established telecommunication scholars turning their attention to mobile technologies. There was certainly a fair amount of such continuity. Those who had expertise in telecommunication research, such as James E. Katz, featured prominently in the new mobile phone research.[19] However, there was something about this new object of study that sparked the enthusiasm of a very different, varied, geographically, institutionally, and intellectual dispersed group of researchers around the world.

Early work came from a group of European researchers, funded with European Union scientific collaboration grants (various COST "actions") and industry consortia, peak body, and carrier funding.[20] Key figures included Leslie Haddon,[21] Rich Ling, Leopoldina Fortunati and Enid Mante-Meijer.[22] Important work emerged from the strand of academic and industry collaborative work on understanding users, consumption, and domestication of technologies. This drew on groundwork that had been laid in social science research on computers, information and communication technologies (ICTs), and, to a lesser extent, telecommunications.[23] Another line of research drew on women's use of technology and specifically telephony.[24] Relatively quickly, scholars emerged internationally that built upon and broadened the European work. They began to undertake research from different disciplinary, theoretical, and methodological standpoints, as well as different national contexts.

As a result, the early scholarship in mobile technology research is dispersed across various journals, magazines and websites. Those leading and coordinating the first systematically cross-referenced work also published it in reports, special issues, and, most notably, edited volumes that typically were generated from conferences, research workshops, colloquia, and symposia — and the cumulative conferences that became the semi-coordinated travelling caravan of mobile research. A widely read and highly original early study was feminist technology scholar Sadie Plant's *On the Mobile*.[25] Plant's study was featured in the Vodafone online journal, *Receiver*. For a few years from 2000, *Receiver* became a key site for a series of important articles on the mobile phone including key scholars such as Mizuko Ito.

In particular, 2002 saw the publication of two landmark collections. The collection through which many came to the field was James E. Katz and Mark Aakhus's 2002 *Perpetual Contact: Mobile Communication, Private Talk, and Public Performance*.[26] As its sub-title suggests *Perpetual Contact* placed the mobile phone in a rich tradition of communication, conversation and discourse, and ethnomethodological research. Also published in 2002 was Barry Brown, Nicola Green, and Richard Harper's *Wireless World: Social and Interactional Aspects of the Mobile Age*.[27] This collection framed mobiles from the perspective of research traditions represented in fields like human computer interaction (HCI), computer-supported cooperative work, labor, transport, and urban studies. Interestingly *Wireless World* anticipated many themes that reappeared a decade later with the rise of mobile media — and the emergence of mobility studies.[28]

*Expansion of the Field*

From 2002 onwards, mobile technology research rippled outwards, typically as researchers closely watched and responded to the ongoing socio-technical developments. Sociology was a leading discipline woven into the mix from the outset, something significant given its important role, as we have seen, in the study of the telephone.[29] Notable scholars included Barry Wellman,[30] Hans Geser, [31] as well as many others. While mobile technology research was slow to infilitrate the mainstream of sociology, many papers on mobiles entailed sociological commitments and approach.[32]

The relationship between mobile technology and society has been an axial and enduring theme of mobile technology research. Various edited volumes addressed aspects of this theme.[33] Social connection, cohesion, communication, and necessity are the subjects of Rich Ling's sustained work, commencing with his landmark 2004 *The Mobile Connection*.[34] A first attempt at a global approach was undertaken by distinguished communications scholar Manuel Castells with three emerging scholars, who each subsequently made sustained and significant contributions to the field.[35] Particular topics and categories received considerable attention, such as youth[36] — whereas others (old people, and ageing, or disability) did not. Mobile technology research highlighted dimensions of social transformations in large-scale processes such as urbanization, migration, and overseas workers — a feature mobile communication studies in parts of Asia, especially China, and the Philippines.[37]

Anthropology was something of a late entrant into the field. In the cognate if too often removed area of internet studies, anthropology had been an early mover — not least because of the "community" metaphor for understanding early internet, and also because the internet facilitated an apparently different approach, in the form of "virtual ethnography".[38] That said, it took some time for ethnography and anthropology to be put on a rigorous footing in studying the internet.[39] In mobile technology research, anthropologists were involved early on, especially those based in technology company labs, such as Intel's Genevieve Bell,[40] and Nokia's Jan Chipchase (who described himself as a "user" or "corporate" anthropologist).[41] The concepts and approaches of anthropology were very influential in interrogating the design, use, and consumption foregrounded by the rise of the mobile.

However, more "classic", full-length studies were slow to emerge. The first such account was Heather Horst and Daniel Miller's 2006 *The Cell Phone: An Anthropology of Communication*.[42] Like Miller's earlier co-authored book on the internet,[43] this study is based on fieldwork in Jamaica, and explicitly aimed to foster research on developing countries' use of mobile technology.[44] In the next decade, many important anthropologies of mobile technology were undertaken on previously neglected places including Africa,[45] and regions such Melanesia,[46] Micronesia, and Polynesia. Important new conceptualizations of anthropology and ethnography in and around digital technologies emerged that aimed to properly comprehend the geo-cultural, affective, embodied, and spatial coordinates of mobile technology.[47]

Mobiles for development was often the subject of lament for the tardiness of research. Considerable scholarly attention was fixed on the internet, while deployment, takeup, and innovation of mobiles in emerging markets and the "global south" ran apace.[48] The pioneering scholar was, and remains, Jonathan Donner.[49] Mobiles for development (M4D) became a sub-area of its own right, as part of the

larger information and communication technologies for development (ICT4D) field – – with important researchers including Richard Heeks.[50]

Research on mobiles for development also has provided early notice of the very wide range of issues that the field needs to tackle. Due to their electromagnetic emissions and radiation, mobiles phones were examined as a health risk in the 1990s.[51] Overlooked until later in the piece, the potential of mobiles and wireless to address and improve health is now a fixture in the research.[52]

*Mobile Media and Beyond*

The advent of mobile media saw new objects of study emerge, as mobile technologies generated new forms, platforms, and applications for news, television and video, film, advertising, photography, music and audio, games, books, and magazines. In research, mobile media drew responses from previously underrepresented or less-engaged disciplines or approaches — especially cultural, media, internet, and visual studies. STS proved steadily more influential, especially through scholars such as Christian Licoppe and Judy Wajcman.[53] Researchers sought to understand the place of mobiles in the converging media environment, as well as the innovative, new forms of media being created on mobile deivces.[54] With the advent of smartphones such as the Apple iPhone and Google's Android operating system, scholars turned to investigating the intensive and extensive ways in which mobile technologies were incorporated into everyday life.[55] A rich vein of work focused on artistic, cultural, and creative possibilities of mobile media.[56] Research also focused on the accompanying rise of mobile internet and the decisive role that mobile technologies played in the nature and popularity of social media.[57] The study of location-based mobile technologies — often referred to as "locative media" — constituted something of a sub-field in its own right.[58] There is a similar vein of research regarding the role of mobile phones as news gathering devices by both professional as well as citizen journalists.[59]

Our brief survey and characterization of the field highlights some surprising gaps in work — in the hope to stimulate future research. Studies of the mobile technology industry, business, management, policy, and political economy lag still – — with systematic work badly needed. Pioneering research was undertaken by the industry analyst Dan Steinbock with his early books, *Wireless Horizon* (2003), and *The Mobile Revolution* (2005).[60] The standout scholars of mobile technology industry structures are Peter Curwen and Jason Whalley.[61] That said, more research is needed, especially on new areas of market growth. Another area of relative neglect is history, where there are still surprisingly few histories of mobile technology (less even than histories of the internet).[62]

## Under the Hood: Selecting Top Hits in Mobile Research

We have explained how we see the emergence, characteristics, and dynamics of the research field of mobile technologies. With this in mind, it's important for us to state the principles that guided us, as well as indicating the pragmatic issues we encountered. Conscious of the epistemological and political issues of constructing "canons", as well the intellectual, cognitive, and cultural necessity and benefit of doing so, we aimed to be as open as possible about our collection.

At the broadest level of the conception of this collection, it is highly influenced by the body of research available — and especially the major reference works and book-length studies that aim to map, chart, reshape, represent, and introduce the field and its work. The number of these orienting, authoritative reference, and introductory works is a testament to the maturity of a field. That is, this *Major Works* collection presumes, and builds upon, such earlier cartographies of the field. Such reference works build the case for the research substance of the field that, in turn, sets up the need for our collection. Subtly, in particular, our *Major Works* set is positioned in relation to the existence of James E. Katz's 2008 *Handbook of Mobile Communication*, Gerard Goggin and Larissa Hjorth's 2014 *Routledge Companion to Mobile Media*, as well as dedicated book series such as Kristóf Nyíri's series of edited volumes,[63] Katz's Transaction Publisher's *Mobile Communication Series*, and Oxford University Press' *Studies in Mobile Communication*.[64] Also we have compiled our collection in the knowledge that, since 2012, the Sage journal *Mobile Media & Communication* exists as a dedicated outlet for research — and first port-of-call for new work in the field.

As a framework for making the tough decisions, the broad selection criteria we used were:

- Is the paper a "classic"? That is, a paper that anyone approaching the topic of mobile technologies should have read;
- Is the paper high quality, innovative, conceptually or theoretically strong, and well researched?
- Does the paper cover a crucial aspect of mobile technology?
- Is the paper hard to find elsewhere, and so, despite being a key work is not being widely read, consulted, or cited. Thus will its inclusion mean that it will add to the comprehensiveness, accessibility, and "mini-library" nature of the Major Works set? (Conversely, is the paper readily available elsewhere, so a lower priority for inclusion — on accessibility grounds alone?)

As we went along, especially in the production stage, another criterion that emerged was pragmatic. Was permission to reprint available, and was the cost feasible given the economics of this publishing project for the publisher?

**Conclusion**

Unlike many disciplines, mobile technology research is a moving target. Many of the papers included here have stood the test of time. This is often the case of those papers that attempt to examine the interaction of a technology and society at a somewhat more abstract level. That said, many scholars were surprised with the social effect of SMS (short message service) in its day just as the smartphone has again rearranged the social furniture. In the near term future we can expect to see social disruptions caused by embedded computing, wearables, new forms of social networking, the internet of things, ubiquitous computing and many other forms of technology that we can only vaguely imagine. In addition, we can expect to see the social consequences of large-scale data collection that is facilitated by mobiles and other wireless sensor networks.

Mobile communication studies was founded on the idea that the landline phone that had been geographically bound was now mobile. The object of study was how people would use it to converse with one another, one on one. Eventually SMS allowed for asynchronous text based communication and even today is used by

billions of people. As is obvious this notion of the field has been exploded. The ability to interact with a multitude of others simultaneously; the ability to consume news, videos, music, and so on; the ability to download apps that can attend to the most fundamental (and well as absurd) needs all speak to the way that the situation has changed.

This is to say that the canonical articles in mobile communication will also have to develop and change. Some papers will remain, but the community of scholars will also need to see not only the technology but indeed their scholarship as a dynamic moving target.

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**Notes**

[1] For instance, Donald W. Ball, "Toward a Sociology of Telephones and Telephoners," in *Sociology and Everyday Life*, ed. Marcello Truzzi (Englewood Cliffs, NJ, 1968), 59-74.

[2] See, for instance, Alan H. Wurtzel and Colin Turner, "What Missing the Telephone Means," *Journal of Communication* 27, no. 2 (1977): 48-57. Cf. Bernard Berelson, "What Missing the Newspaper Means," in *Public Opinion and Propaganda: A Book of Readings* (New York: Henry Holt, 1954),

[3] Sidney H. Aronson, "The Sociology of the Telephone," *International Journal of Comparative Sociology* 12 (1971): 153. As evident from Aronson's paper, sociological enquiry into the telephone has a long genealogy. Perhaps the earliest, explicit mention is the short, anonymous commentary, "Sociological Effects of the Telephone", which notes the advent of twice-daily news bulletins via telephone, and that the "telephones have wiped out the middle man or jobber" (*Scientific American*, 44 [June 16, 1906], 500). It is also interesting to examine the work of the so-called Maitland Report to understand the conceptualization of telephony in the less developed parts of the world (Donald Maitland, *The Missing Link. Report of the Independent Commission for Worldwide Telecommunications Development*, Geneva: International Telecommunications Union, December, 1984, http://www.itu.int/en/history/Pages/MaitlandReport.aspx).

[4] John Short, Ederyn Williams, and Bruce Christie, *The Social Psychology of Telecommunications* (London: John Wiley, 1976).

[5] Ithiel de Sola Pool, ed., *The Social Impact of the Telephone* (Cambridge, MA: MIT Press, 1976).

[6] By Ithiel de Sola Pool, see also: *Forecasting the Telephone: A Retrospective Technology Assessment of the Telephone* (Praeger, 1982): *Technologies of Freedom: On Free Speech in an Electronic Age* (Cambridge, MA: Harvard University Press, 1983); *Technologies without Boundaries: On Telecommunications in a Global Age*, ed. Eli M. Noam (Cambridge, MA: Harvard University Press, 1990).

[7] *America Calling: A Social History of the Telephone to 1940* (Berkeley, CA: University of California Press, 1992).

[8] For example: Frederick Williams, Ronald E. Rice, and Herbert Dordick, "Behavioural Impacts in the Information Age," in *Information and Behaviour*, vol. 1, ed. Brent Ruben (New Brunswick, NJ: Transaction, 1985); Harmeet Sawhney and George A. Barnett, eds., *Advances in Telecommunications*, Progress in Communication Sciences, vol. 15 (Stamford, CT: Ablex, 1998); Herbert Dordick and Robert LaRose, "The Telephone in Daily Life," paper presented at the 9th International Telecommunication Society conference, June 14-17, Sydney, 1992; Garrett J. O'Keefe and Barbara K. Sulanowski, "More than Just Talk: Uses, Gratifications, and the Telephone," *Journalism & Mass Communication Quarterly* 72, no. 4 (1995): 922-933.

[9] See: Michèle Martin, *Hello Central?: Gender, Technology, and Culture in the Formation of Telephone Systems* (Montreal: McGill-Queen's University Press, 1991); Ann Moyal, "The Gendered Use of the Telephone: An Australian Case Study,"

*Media, Culture and Society* 14 (1992): 51-72; Claude S. Fischer, "Gender and the Residential Telephone, 1890-1940: Technologies of Sociability," *Sociological Forum* 3, no. 2 (1988): 211-233. Also: Valerie Frissen, "Gender is Calling: Some Reflections on Past, Present, and Future Uses of the Telephone", in *The Gender-Technology Relation: Contemporary Theory and Research* ed. Keith Grint and Rosalind Gill (London: Taylor & Francis, 1995), 79-94; Zbigniew Smoreda and Christian Licoppe, "Gender-Specific Use of the Domestic Telephone", *Social Psychology Quarterly* 63, no. 3 (2000): 238-252; and Venus Green, *Race on the Line: Gender, Labor, and Technology in the Bell System, 1880-1980* (Durham, NC: Duke University Press, 2001).

[10] See, for instance: Ruth Akers-Porrini, "The Telephone Visit. 'Hold on, Gramps!' " *Réseaux* 5, no. (1997): 241-269.

[11] A key text is Emanuel A. Schegloff, "Identification and Recognition in Telephone Conversation Openings," in *Everyday Language: Studies in Ethnomethodology*, ed. George Psathas (New York: Irvington, 1979), 23-78. See also Harvey Sacks, Emanuel A. Schegloff, and Gail Jefferson, "The Simplest Systematics for the Organization of Turn-Taking for Conversations," *Language* 50, no. 4 (1974): 696–735.

[12] For a recent book in this broad tradition, see Michael Argyle, *Communicating by Telephone* (Burlington, VA: Elsevier, 2013).

[13] For instance: William Dutton, "The Social Impact of Emerging Telephone Services," *Telecommunications Policy* 16, no. 5 (1992): 377-387; Oscar H. Gandy, Jr., "The Surveillance Society: Information Technology and Bureaucratic Social Control," *Journal of Communication* 39, no. 3 (1989): 61-76; James E. Katz, "US Telecommunications Privacy Policy: Socio-Political Responses to Technological Advances," *Telecommunications Policy* 12, no. 4 (1988): 353-368; Rohan Samarajiva and Peter Shields, "Telecommunications Networks as Social Space: Implications for Research and Policy and an Exemplar," *Media, Culture & Society* 19, no. 4 (1997): 535-555; and Frederick Williams, *The New Telecommunications: Infrastructure for the Information Age* (New York: Free Press, 1991).

[14] See for example: Svein Johannesen, *Sammendrag Av Markedsundersøkelser Gjennomført for Televerket I Tiden 1966 – 1981* (Kjeller: Televerkets Forskninginstitutt, 1981).

[15] In the US, such telephone histories include: Kenneth Lipartito, *The Bell System and Regional Business: The Telephone in the South, 1877-1920* (Baltimore, MD: Johns Hopkins, 1989); George David Smith, *The Anatomy of a Business Strategy: Bell, Western Electric, and the Origins of the American Telephone Industry* (Baltimore, MD: Johns Hopkins University Press, 1985); Robert W. Garnet, *The Telephone Enterprise: The Evolution of the Bell System's Horizontal Structure, 1876-1909* (Baltimore, MD: Johns Hopkins University Press, 1985).

[16] For critical and political economy accounts of telecommunications reforms, see: Jill Hills, *Deregulating Telecoms: Competition and Control in the United States, Japan, and Britain* (London: F. Pinter, 1986); Robin Mansell, with Dimitri Ypsilanti, *Telecommunications Network-Based Services: Policy Implications* (Paris: OECD, 1989); Robin Mansell, *The New Telecommunications: A Political Economy of Network Evolution* (London: Sage, 1993); Dwayne Winseck, *Reconvergence: A*

*Political Economy of Telecommunications in Canada* (Creskill, NJ: Hampton Press, 1998); Ben Petrazzini, *The Political Economy of Telecommunications Reform in Developing Countries: Privatization and Liberalization in Comparative Perspective* (Westport, CT: Praeger, 1995).

[17] On labor issues in telecommunications, see: Stephen H. Norwood, *Labor's Flaming Youth: Telephone Operators and Worker Militancy, 1878-1923* (Urbana, IL: University of Illinois Press, 1990); John N. Schacht, *The Making of Telephone Unionism, 1920-1947* (New Brunswick, NJ: Rutgers University Press, 1985); Judith Clifton, *The Politics of Telecommunications in Mexico: Privatization and State-Labor Relations, 1982-95* (New York: St Martin's Press, 2000). More recently, see: Vincent Mosco and Catherine McKercher, *The Laboring of Communication: Will Knowledge Workers of the World Unite?* (Lanham, MD: Lexington, 2008); and Catherine McKercher and Vincent Mosco, eds., *Knowledge Workers in the Information Society* (Lanham: Lexington, 2007).

[18] The Bell Labs have been documented and celebrated in various scholarly and popular accounts, including: G. E. Schindler, Jr., ed., *A History of Engineering and Science in the Bell System: Switching Technology (1925-1975)* (New York: The Laboratories, 1982); S. Millman, ed., *A History of Engineering and Science in the Bell System: Communication Sciences 1925-1980* (New York: The Laboratories, 1984); Leonard Reich, *The Making of American Industrial Research: Science and Business at GE and Bell, 1876-1926* (Cambridge: Cambridge University Press, 1985); Louise A. Mozingo, *Pastoral Capitalism: A History of Suburban Corporate Landscapes* (Cambridge, MA: MIT Press, 2011); Jon Gertner, *The Idea Factory: Bell Labs and the Great Age of American Innovation* (New York: Penguin, 2012).

[19] For example: James E. Katz, *Connections: Social and Cultural Studies of the Telephone in American Life* (Brunswick, NJ: Rutgers University Press, 1991).

[20] The COST269 Mobility Workgroup (Leslie Haddon, Chantal de Gournay, Maria Lohan, Britt Östlund, Isabella Palombini, Bartolomeo Sapio, Maud Kilegran), *From Mobile to Mobility: The Consumption of ICTs and Mobility in Everyday Life,* Report for COST269 (updated version, 16 October 2002); Leslie Haddon, "Juventud y Móviles: El Caso Británico y Ostras Cuestiones," *Revista de Estudios de Juventud,* 57 (2002): 115-24; Leslie Haddon, Mante-Meijer, E., Sapio, B., Kommenon, K-H, Fortunati, L., and Kant, A. (eds) (2003) *The Good, the Bad and the Irrelevant: The User and the Future of Information and Communication Technologies*, Conference Proceedings, 1-3, September, Helsinki.

[21] See, for instance: Leslie Haddon's "The Experience of the Mobile Phone," paper presented to the 14th World Congress of Sociology, *Social Knowledge: Heritage, Challenges, Prospects*, Montreal, 26 July-1 August, 1998, and his "The Social Consequences of Mobile Telephony: Framing Questions," paper presented at *Sosiale Konsekvenser av Mobiltelefoni* seminar, organized by Telenor, 16 June, 2000, Oslo.

[22] See for example, Leslie Haddon, ed. *Communications on the Move: The Experience of Mobile Telephony in the 1990s* (Farsta: Telia, 1997). Also Enid Mante-Meijer, Leslie Haddon, Pedro Concejero, L. Klamer, J. Heres, Rich Ling, F. Thomas, Zbigniew Smoreda, and I. Vrieling, *Checking It out with the People — ICT Markets and Users in Europe* (Heidelberg: EURESCOM, 2001).

[23] For instance: Leslie Haddon, Enid Mante, Bartolomeo Sapio, Kari-Hans Kommonen, Leopoldina Fortunati, and Annevi Kant, eds., *Everyday Innovators*: *Researching the Role of Users in Shaping ICTs* (Dordrecht: Springer, 2005).

[24] Lana F. Rakow and Vija Navarro, "Remote Mothering and the Parallel Shift: Women Meet the Cellular Telephone," *Critical Studies in Mass Communication* 10 (1993): 144–57.

[25] Sadie Plant, *On the Mobile: The Effects of Mobile Telephones on Social and Individual Life* (London: Motorola, 2000).

[26] James E. Katz and Mark Aakhus, eds., *Perpetual Contact: Mobile Communication, Private Talk, and Public Performance* (Cambridge: Cambridge University Press, 2002).

[27] Barry Brown, Nicola Green, and Richard Harper, eds., *Wireless World: Social and Internactional Aspects of the Mobile Age* (London: Springer, 2002).

[28] Mimi Sheller and John Urry, eds., *Mobile Technologies of the City* (London and New York: Routledge, 2006); Peter Adey, David Bissell, Kevin Hannam, Peter Merriman, and Mimi Sheller, eds., *Routledge Handbook of Mobillities* (New York: Routledge, 2014).

[29] Early contributions include: J. P. Roos, "300,000 Yuppies?: Mobile Telephones in Finland," *Telecommunications Policy* 17, no. 6 (1993): 446-458.

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