The interplay between information practices and information context: The case of mobile knowledge workers

2 authors:

Mohammad Hossein Jarrahi
University of North Carolina at Chapel Hill
30 PUBLICATIONS   103 CITATIONS

SEE PROFILE

Leslie Thomson
University of North Carolina at Chapel Hill
11 PUBLICATIONS   28 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:

Project   Digital nomadism View project

The Interplay Between Information Practices and Information Context: The Case of Mobile Knowledge Workers

Mohammad Hossein Jarrahi and Leslie Thomson
School of Information and Library Science, University of North Carolina at Chapel Hill, 200 Manning Hall, Chapel Hill, NC 27599. E-mail:jarrahi@unc.edu

The knowledge workforce is changing: global economic factors, increasing professional specialization, and rapid technological advancements mean that more individuals than ever can be found working in independent, modular, and mobile arrangements. Little is known about professional information practices or actions outside of traditional, centralized offices; however, the dynamic, unconventional, and less stable mobile work context diverges substantially from this model, and presents significant challenges and opportunities for the accomplishing of work tasks. This article identifies 5 main information practices geared toward mobilizing work, based on in-depth interviews with 31 *mobile knowledge workers* (MKWs). It then uses these 5 practices as starting points for beginning to delineate the context of mobile knowledge work. We find that the information practices and information contexts of MKWs are mutually constitutive: challenges and opportunities of their work arrangements are what enable the development of practices that continually (re)construct productive spatial, temporal, social, and material contexts for work. This article contributes to an empirical understanding of the information practices of an increasingly visible yet understudied population, and to a theoretical understanding of the contemporary mobile knowledge work information context.

Introduction

Current research suggests that the information context of mobile knowledge work is distinct from that of more traditional knowledge work, which tends to be tethered to centralized locales and stable, stationary office arrangements (e.g., Costas, 2013; de Carvalho, Ciolfi, & Gray, 2011; Erickson & Jarrahi, 2016; Perry, 2007; Rossitto, Bogdan, & Severinson-Eklundh, 2014; Su & Mark, 2008). This article explores the information context of mobile knowledge work, and illuminates how it is constructed through the information practices of its workers as they attempt to accomplish

professional tasks across multiple spaces and on the move. To acknowledge information context means taking a holistic view of how diverse information sources and tools mesh with people's information practices (Widén, Steinerová, & Voisey, 2014). A number of studies in the information science field have inquired into the information context of professional workplaces, characterizing these as information ecologies (e.g., Davenport & Prusak, 1998), information landscapes (e.g., Lloyd, 2005), and information fields (Johnson, 2003), for example. This body of work makes clear that, within each version of context, the meaning and significance of information in individuals' work activities is something that is, at least to some degree, socially negotiated and understood (Barreau, 1995; Courtright, 2007; Davenport & Cronin, 1998). The concept of information context thus affords researchers an entry point for examining how diverse sources of information are socially interpreted and integrated in workers' information practices (Widén et al., 2014).

Inspired by the "broad church of thinking" (Cox, 2013b) that surrounds practice theory, with influential writings coming from, for example, Giddens (1984), Bourdieu (1990), Reckwitz (2002), and Schatzki (1996), several information science scholars have proposed the notion of "information practice" as a useful lens for capturing rich information contexts and expressing the ways that these both shape and are shaped by people's information-related actions (Huizing & Cavanagh, 2011; Rivera & Cox, 2014). As an "umbrella concept" (Savolainen, 2007), the term information practice emphasizes social context and the actors in this context who engage with information (Cox, 2012); people's information contexts and their information practices are considered inseparable and mutually constitutive (Pilerot & Limberg, 2011). In order to examine particularities of the context within which mobile knowledge workers (or MKWs) perform work activities and make sense of diverse information sources, this article adopts a practice-centric orientation.

Knowledge Work and Mobile Knowledge Work

The primary work outputs of many knowledge workers are intangible, analytic, creative, and—oftentimes today—digital

in nature. Given this, contemporary knowledge work positions typically afford the option for individuals to work "anytime, anyplace" and to "go mobile" (Davis, 2002; Rainie & Wellman, 2012). Unlike earlier, more mechanistic forms of work, most knowledge work is project- rather than function-based (Barley & Kunda, 2006; Schultze & Boland, 2000) and, as such, is easily unstrapped from the need for a specific location, provided technology is available (Costas, 2013; Davis, 2002; Olson & Olson, 2014). With the proliferation of various information and communication technologies (ICTs) in recent decades, there has been sharp growth in the number of knowledge workers who no longer identify with single physical workplaces, dubbed the "mobilocracy" (Blatt & Gallagher, 2013). Forrester's survey of 4,938 knowledge workers across Europe and the United States indicates that the population of those in some way "mobile" increased from 15 to 29 percent between 2001 and 2012 (Brodkin 2013). New forms of modular and contractual work such as online freelancing ("e-lancing") (Aguinis & Lawal, 2013) and "micro-" or "solo"-preneurship (Altman, Nagle, & Tushman, 2013) have risen equally in prevalence alongside the number of MKWs. For example, hotdesking trends provide a work environment for temporary use by multiple workers, enabling them to stay physically connected with the organization while simultaneously allowing the organization to reduce space requirements for permanent offices (Fulton, 2005).

Distinct from traditional office workers, who are often tied to single locales, MKWs "extend and expand" their workspaces beyond an organizational nucleus (Ciolfi & de Carvalho, 2014; Middleton, 2008). They conduct work, for example, in coffee shops, coworking spaces, and airport lounges. When they are location-independent and spatially mobile to "extreme" degrees (Chen & Nath, 2008; Su & Mark, 2008), MKWs have been variously termed offroaders (Harmer & Pauleen, 2012), on-site-movers (PearnKandola, 2007), and digital nomads (Dal Fiore, Mokhtarian, Salomon, & Singer, 2014), and defined by their "nomadic" work practices (Chen & Nath, 2008; Czarniawska, 2014; Su & Mark, 2008). These may include long-distance travel, work without stable workplaces or fixed organizational anchors, and responsibility to manage and carry resources (de Carvalho et al., 2011; Rossitto & Eklundh, 2007). "Nomadic" MKWs are of most interest to us here as—unlike most traditional office workers with reliable sets of resources in centralized or home offices—nomadic MKWs must constantly seek, manage, and reconfigure their work resources, and fashion operable "mobile offices" of what accouterments they can (Su & Mark, 2008). At the same time, technology is the mediator of most all of the information practices of these MKWs, something that "shapes not only the type, volume, and presentation of available information, but also the expectations of the kinds of information [they] can, should, or will seek" (Courtright, 2007, p. 284). It is important to note that the boundary between MKWs and more stationary knowledge workers is a blurry one: work practices of many knowledge workers today, such as academics, for example, allow a degree of mobility and location-independence. Still,

this mobility tends to be occasional in comparison, and physical mobility not a core component of their daily work (Bardram & Bossen, 2005; Perry & Brodie, 2006).

The context in which all MKWs move is dynamic and unpredictable, but this is not to say it is necessarily problematic. Enterprise mobility engages the mutual development of mobile work and ubiquitous technological capabilities by opening up new possibilities for innovative organization and management of work across time and space (Sørensen, 2014; Spinuzzi, 2012). To be sure, several benefits of mobile working arrangements are often touted, the most common being untethering from fixed locations (Johns & Gratton, 2013), more flexible working hours (Liegl, 2014), and more face-to-face interactions with customers (Su & Mark, 2008), in addition to time saved commuting and cost savings (for workers and companies alike; see, e.g., IBM, 2005). Nonetheless, mobile workers, when contracted, often grapple with a lack of access to information or tools held centrally, and need to navigate multiple contextual boundaries that stem from their work over unfamiliar territories, with a number of companies, and on disparate, disjointed projects (Costas, 2013; Cousins & Robey, 2005). Deeper issues, such as corporate invisibility or isolation and, in turn, loss of "social capital" and under-recognition, troubles balancing work and life (IBM, 2005; Koehne, Shih, & Olson, 2012; Olson & Olson, 2014), or even destabilized senses of self (Büscher, 2013; D'Mello & Sahay, 2007), also arise. Moreover, MKWs' work is largely autonomous and so necessarily improvisational; they are without the structures, conveniences, and fallbacks that traditional offices provide, and must fend for themselves by engaging in on-the-go solutions that can anticipate or respond to situational contingencies (Harmer & Pauleen, 2012). They must do so all in the face of persistent risk that connections will fail or tools break down (Erickson, Jarrahi, Thomson, & Sawyer, 2014).

The confluence of these factors suggests that MKWs' information context is complicated in ways not adequately addressed in the existing information science literature, which ideas of well-bounded professional contexts and orchestrated repertoires of "organizational information behavior" (Huotari & Wilson, 2001) characterize. Workplace information contexts, and activities are the dominant subjects of analysis in information science research (e.g., Julien, Pecoskie, & Reed, 2011; Lloyd & Williamson, 2008; Veinot, 2007; Widén et al., 2014), yet this body of work focuses mainly upon stationary workers, or at the least upon workers whose professional arrangements can be taken for granted, and presumed stable to the point of being rendered invisible. Technological infrastructures, other work-related resources, and company standards may not be given second thoughts, for these are already "set up... [and] designed" to process predictable job demands (Huotari & Wilson, 2001, Introduction). The picture that is portrayed of professionals' information contexts and information practices is therefore one of a discernible, even systematic, rule-based, "programmed," and "verging on ritualistic" (Johnson, 2003) pattern—an ill-fitting representation of the reality of mobile knowledge

work. Looser affiliations, higher degrees of autonomy, and various compounding mobilities (spatial, temporal, technological, or otherwise) mean that MKWs do not and perhaps cannot connect to vital resources in the same way as the traditional workforce, so prevalent in information science research.

For these reasons, MKWs constantly confront practical challenges that make "mobilization work" (Perry, 2007)—the extra labor in contingency planning and packing for daily mobility and spatial or temporal shifts where possible (Rossitto & Eklundh, 2007)—part of their daily routines. With this, work practices and the mobilization of work are intimately bound, despite mobilization not being a part of one's predefined work (Perry, 2007; Perry & Brodie, 2006). Mobilization work is different from the actual core work practices of workers because it sets the stage, and "does not ask what is the work of the nomadic [or mobile] worker, but what is the work that is required to make such work possible" (Perry 2007, p. 1). For example, one core work practice of a web-content manager may be composing a blog post, which involves collecting input from several outside organizations, drafting notes, preparing hyperlinks, and more. Although this may be unique to this content manager, he or she may nonetheless share the mobilizing work practice of identifying and navigating local coffee shop Internet access and train connectivity with other MKWs in far-flung work fields.

"Mobilization" (Perry, 2007) or "mobility" work generates the understanding needed "to achieve the right configuration of people, resources, knowledge, and place" (Bardram & Bossen, 2005) for task completion while a worker is mobile and location-independent. Mobilizing work is thus inherently information-intensive because unpredictable and heterogeneous work environments pose a great deal of uncertainty that may only be addressed by constantly navigating different places and generating awareness about the resources and infrastructures that are and are not available there. Mobilization or mobility work can be understood as a set of information practices; when workers draw on their experience to help shape solution to problems related to working across multiple places, they "are engaging with ways of knowing that contribute to [their] information literacy practice" (Lloyd, 2014, p. 99) and generating a "practical understanding [of how] to do some things appropriate to a situation" (Cox, 2012, p. 178). As such, in addition to the core tasks and work practices, performing mobile and location-independent work requires a combination of "mobilizing information practices." These are geared toward mobilizing work and result in ongoing and evolving understandings of how to push the spatial, temporal, and contextual boundaries of work. Physically bringing a bricolage of material, social, and work-related resources together and maintaining the alignment of these by, for example, identifying and connecting to an unfamiliar network (Ciolfi & de Carvalho, 2014; Czarniawska, 2014; Perry, O'hara, Sellen, Brown, & Harper, 2001; Su & Mark, 2008), are aspects of information practice (embodied ones) that draw upon and contribute to an understanding of one's dynamic work context (Nicolini, Gherardi, & Yanow, 2003). This understanding may also be derived from explicit information sources (textual ones) when, for example, an MKW consults a website like seatguru.com to find out about the arrangement of airplane powerports. Still, the situated experience and embodied information practices in which MKWs engage—the actual "doing" of—are critical components of their success at work.

In order to address the gap in our understanding of new work environments, this article centers on the mobilizing information practices of MKWs, who are moving within an unconventional, unpredictable information context that is instantiated across various mobile working forms. Its central research question is: *what are the most significant mobilizing information practices that enable mobile knowledge workers to overcome multiple boundaries and construct an information context that allows them to be productive?* The article proceeds as follows. First, we provide an overview of practice theory, the theoretical framework for this study. Then, we describe our research method. The next section outlines primary research findings based on the notion of mobilizing information practice. We conclude by highlighting the reciprocal relationship between MKWs' mobilizing information practices and their information contexts.

Theoretical Framework

Information Practice

This article takes a practice-centric orientation or approach to investigating the mobilizing information practices of MKWs and the information context of mobile knowledge work. Not so much a uniform "theory" as it is a collection of perspectives on social order and change (Feldman & Orlikowski, 2011; Huizing & Cavanagh, 2011)—hence why we sometimes refer to a practice-centric orientation—practice theory imparts in-depth understanding of what people actually do as they order their personal and professional lives. It emphasizes the complex interdependencies of social actors and objects, as well as the point that situated, local actions and broader social worlds are entwined. People's day-to-day practices are seen as consequential to the construction of their social worlds, as it is through these real practices that meanings are ascribed to actors and tools, parts in a continuously moving nexus (Schatzki, 1996). At the same time, institutional properties can influence how practices are carried out, and necessitate attention to context (Postill, 2010).

A practice-centric orientation recognizes that actions are at once ordered across time and space and agentic (Giddens, 1984). It uses an angle of routine and habit (Bourdieu, 1990) to explain dynamic relations between people, organisms, artifacts, and things (Orlikowski & Scott, 2008; Sundin & Francke, 2009), equally underscoring the knowledgeability and flexibility of the individuals who act within particular settings (Giddens, 1984; Suchman, 2007). Words like "bricolage" and "tinkering" are often mentioned alongside practice, suggesting that there is leeway for adjustment,

depending on contingencies, within even the most repetitious of practices (Ciborra, 2002).

To date, several studies from the field of information science have explicitly adopted practice theory (e.g., Cox, 2013a; Huizing & Cavanagh, 2011; Lloyd, 2010b; McKenzie, 2003; Pilerot & Limberg, 2011; Savolainen, 2008; Talja & Hansen, 2005), with "information practice" presented as a viable alternative to "information behavior," claimed "a more sociologically and contextually oriented line of research" (Savolainen, 2007, p. 120) that challenges the inherent undercurrents of individualism or cognitivism sometimes associated with "information behavior" (Savolainen, 2008). Information practices foreground the interplay between individual choices and environments, the forces of social context, and the embeddedness of information-related actions (Talja & McKenzie, 2007). A practice approach is therefore intended to evoke the ways that people sense(-)make as they draw upon their surroundings and carry out intelligent acts (Nicolini et al., 2003).

Since gaining momentum within the information science field, practice theory and the concept of "information practices" have been applied at varying levels of granularity. On one hand, information practices have been used to refer to people's socially and culturally established ways of seeking, using, and sharing information articles (Davenport, 2013; Savolainen, 2008); that is, to concrete manipulations of explicit information artifacts, such as would be the subjects of inquiry for document or personal information management scholars (e.g., Jones et al., 2015). Talja and Hansen (2005, p. 113), for example, define information practices as those "practices of information seeking, retrieval, filtering and synthesis," whereas Savolainen (2008) gravitates toward an objectified view, calling information practices "socially and culturally established ways to identify, see, use and share the information available in various sources such as television, newspaper and the Internet" (p. 2). However, these formulations capture only individuals' uses of explicit information, and do not address the embodied dimensions of individuals' practical knowing that have also proven important in information science research.

On the other hand, recent articulations of information practice also describe suites or bundles of activities that bring about individuals' understanding or "literacy" as tacit know-how (McKenzie, 2009; Moring & Lloyd, 2013; Nicolini et al., 2003). This latter application involves people's engagement with their informational landscape, learning about what is needed in a particular setting, and the ways that they use cues from thought, body, sense, aesthetic, and social history to inform their work practices (Lloyd, 2010b). For example, one may come to know what is socially acceptable in a specific organization via formal training, on-the-job experience, and through casual conversation. This view of information practices as steps to "becoming informed" and gaining "information as knowledge" differs from a view of information practices as manipulating or processing data and document "information as thing" (Buckland, 1991, p. 352). Tacit or nonpropositional information

(Schatzki, 2001)—what Buckland (1991, p. 352) calls "information as knowledge"—is learned through active participation in practices and "*is largely carried in practical consciousness*" (Giddens, 1984p. xxiii). Annemarie Lloyd (2014) encourages information scientists to develop approaches for discovering the informational aspects of local, embedded, tacit knowledge that relate to how things are "actually" done. These are significant information sources and contributors to literacy within workplaces, despite their de-emphasis in information science research.

Information practices, like all social practices, are as much about "shared embodied know how" (Schatzki, 2001, p. 3)—practical and tacit understandings and embodied actions and assessments (Dourish, 2004)—as they are about direct interactions with information artifacts. Underscoring the embodied nature of information, Lloyd (2010a) formulates an information practice as "an array of information-related activities and skills, constituted, negotiated, and made sense of in a social context, directed at generating a shared understanding about ways of knowing, and recognizing how situated performance is conducted, enabled and constrained" (p. 285).

For MKWs, the most pivotal form of practical and embodied knowing involves cultivating "the right configurations of people, resources, knowledge, and place" (Bardram & Bossen, 2005, p. 136), despite any number of unforeseeable circumstances or contingencies. This is the sort of skilled performance in a professional setting that comes with experience and repeated practice (Lloyd, 2009), accessible via work practices and domain-dependent tasks in which understandings are actually put to use (Tuominen, Savolainen, & Talja, 2005). Building from the broader application of information practice offered by Lloyd (2009, 2010a, 2014), we define the "mobilizing information practices" of MKWs as *sets of activities that afford opportunities to make sense of and navigate manifold work environments, and to assemble and use resources to accomplish work across multiple places*. As a result, mobilizing information practices are entwined with "understanding" (McKenzie, 2009), "literacy" (Lloyd, 2003), and "knowing" (Nicolini et al., 2003; Orlikowski, 2002) relative to how best to carry out work responsibilities across diverse terrain, when one is working on-the-move and independently of a conventional organization.

Information Context

Information context provides an important basis for understanding people's information needs and practices. Most simply, context describes different aspects of a situation (Myrhaug & Göker, 2003), explanations of information context no exception. In an early articulation of context-aware computing, Schilit and colleagues (1994) defined context as "where you are, who you are with, and what resources are nearby." Morse and colleagues (2000) focus on the information resources in a context, and on the ways in which these offer "implicit situational information." Another

information-centric formulation of context is offered by Dey and colleagues (2001, p. 5), who delineated context as any information that can be used to characterize the situation of a person, place, or object relevant to a user-application interaction. Allen (1997) is among those who distinguish contexts as large, subjectively defined, socially constructed settings such as work environments, and situations as immediate, smaller-scale unfoldings within these. Schmidt and colleagues (1999) call contexts the "interrelated conditions in which something occurs," and Cool and Spink (2002) the environment in which information activities take place.

As with information practices, two major perspectives on information context exist in the field of information science. The first frames information context as a stable suite of entities that can be understood independently of actors and actions, something of an "objectified container" (Talja, Keso, & Pietiläinen, 1999) for information practices. The second frames information context as something that is made both by and in people's actions and social interactions (Cox, 2013a; Huizing & Cavanagh, 2011; Lloyd, 2010a), something not "out there," but instead intimately bound to and transformed in practice (Savolainen, 2009). This is a subjectivist approach, as it defines context through the social actions that constitute it, as a "field of practices" with its own logic (Postill, 2010) or as a "site" that enmeshes practices with surrounding materials (Schatzki, 2005). The character and role of an information context is thereby understood by identifying its inextricably linked information practices (Byström & Lloyd, 2012).

The mobile work information context differs from that of traditional office work. Stationary employees typically have greater routine and familiarity with the people, technologies, and other objects in their workplace. They typically have a resource-rich information context—interpersonal, digital, and artifactual—that can be contrasted with what the MKW encounters when needing to learn about and assemble ad-hoc supplies and infrastructures in widely dispersed places, from transit (trains, airplanes, and cars) to outside locations (clients' offices, hotel rooms, and airports) (Lamming, Eldridge, Flynn, Jones, & Pendlebury, 2000). The information context of MKWs is likely to be less predictable and more variable across similar dimensions of people, technologies, and other artifacts. triggering different information needs (Goker, Myrhaug, & Bierig, 2009).

Methods

This research was undertaken with two main goals. The first was to understand the significant mobilizing information practices that enable MKWs to seize opportunities and overcome challenges posed by their working arrangements. The second was to characterize the information context of mobile knowledge work. Our research is exploratory; as Stebbins (2001) writes, "researchers explore when they have little or no scientific knowledge about the group, process, activity, or situation they want to examine but nevertheless have reason to believe it contains elements worth discovering" (p. 6).

Ethnographic research methods that allow researchers to immerse themselves in research settings and produce rich accounts of concrete, visible practices are common in practice-based research (Huizing & Cavanagh, 2011). However, the high levels of mobility and independence that make our target demographic so fascinating complicated the design of a study that involved prolonged or repeated observations. As an alternative, in-depth, semi-structured, qualitative research interviews were conducted. These afforded the chance to "understand the world from the subjects' points of view, to unfold the meaning of their experiences, to uncover their lived world prior to scientific explanations" (Kvale & Brinkmann, 2009, p. 9). There is a wealth of practice-based research that has drawn only upon interviews to uncover situated practices of workers. For example, Nicolini (2009), Gherardi (2013), and Lloyd (2014) advocate the "interview to the double" as a way to identify and explicate salient practices. To this end, our understanding of mobilizing information practices is primarily rooted in the traces of practices that were evident in our interview data. Ethnographic work would have offered more grounded accounts of work practices (Orlikowski, 2002), a limitation of this study that should be noted. As a first exploratory step, however, interviews have sensitized us to many possible avenues for follow-up research.

Study Participants

Thirty-one mobile knowledge workers took part in our study, some employed by larger organizations, ranging from an insurance firm to a business consulting firm and a large university, but most either self-employed and/or contracted by different companies or clients. Our pool of participants includes individuals who vary across lines of work, job positions, ages, and genders. Although we did not collect specific demographic information per subject, all participants were US residents between their mid-twenties and mid-sixties. Table 1 below summarizes some other details about our study sample as a whole.

Participants were identified through purposive sampling of possible contacts developed from our engagement with community-based freelance and entrepreneurial groups in North Carolina, online searches of local freelancers, websites such as nomadlist.com, and the personal recommendations of interviewees. We followed a form of theoretical sampling in which cases are selected to replicate or extend the emergent theory (Eisenhardt, 1989), and this strategy generated a pool of possible study participants that was not random but that provided some basis for comparison. Participants recruited were selected for inclusion in the study based on the following criteria: (a) engagement in knowledge work, (b) mobility in their work, and (c) centrality of nomadic practices. We define knowledge work as *work that produces and transmits knowledge; involves intellectual skills such as manipulation or abstraction; is primarily*

nonroutine and creative; and requires a blend of theoretical and technical knowledge and formal education ([Schultze, 2000](#)). Only those mobile workers whose work qualified as knowledge-intensive were selected; as a result, we do not include all types of mobile workers or mobile tradesmen (e.g., bus drivers or plumbers).

Participant recruitment refined over the study's progression. Initially, little rigidity was kept in our definition of a MKW, and we were inclusive of individuals with lower levels of spatial mobility (as in, e.g., PearnKandola, 2007) who occasionally worked away from fixed locations (in jobs with regular required business trips), who were simply detached from an organizational nucleus (in home offices), and who alternated working between a handful of fixed work locations (employers' offices, clients' offices, and home offices). Early data analysis led us to target recruitment of individuals with higher—even "extreme" or "nomadic"—levels of between- and within-day spatial mobility, critical indicators of the sorts of significant mobilizing information practices in which we were interested.

As noted, our aim in initiating this study was to be exploratory, seeking out how MKWs of differing professions might converge in their habits or practices. Thus, our sampling approach began to focus on workers who exhibited nomadic practices and performed mobilizing information practices. In doing so, we utilized the methodological advice of Huizing and Cavanagh (2011), who urge researchers to follow actions and practices rather than actors. This allowed representation of MKWs' highly dynamic mobilizing practices, which take place "in a net of fragmented, multiple contexts, through multitudes of kaleidoscopic movements" (Czarniawska, 2004, p. 786).

Data Collection

Our study is a qualitative inquiry based on semistructured interviews with a final 31 mobile knowledge workers, either remotely (via the Skype platform) or inperson, at a location of the participant's choosing. Our interview protocol was open-ended, and centered upon eliciting a detailed picture of the professional fields, responsibilities, arrangements, and work spaces of MKWs; their professional tools and material infrastructures—documents, devices, applications, systems, and otherwise; the opportunities afforded by their working arrangements; and their strategies for dealing with challenges in their working arrangements. Our loose interview protocol can be found in Appendix. We offered no pre-set definition of "information" to our participants, asking questions that spanned a spectrum of concrete, physical items and more abstract, tacit sensibilities. Interviews ranged in length from about 50 to 90 minutes, and all were audio recorded and transcribed. The interview protocol was developed to address three core areas related to mobilizing information practices of MKWs: (a) their professional backgrounds, working situations, and working arrangements; (b) the nature and structure of their mobilities (e.g., spatial, temporal); (c) the persistent opportunities and

TABLE 1. Distribution of informants.

Gender	Male	18
	Female	13
Size of organization	Freelance (solo)	17
	Small/Medium	10
	Large	4
Type of mobility	Alternating between two fixed locations (e.g., management consultants)	9
	Working at one site, but frequently moving between buildings (e.g., IT support staff)	1
	Working at three or more places and constantly moving (e.g., real estate agents and public speakers)	21
Knowledge work domains	Business and strategy consulting	7
	Higher education	2
	Web and user experience design	6
	Communication and content management	9
	IT support	2
	Real estate	3
	Legal services	2
Total		31

challenges of mobile work; and (d) strategies and knowledge developed in order to exploit opportunities and address challenges.

Data Analysis

In line with the exploratory, grounded approach taken in this study, data collection and data analysis proceeded concurrently. Interview transcripts were imported to NVivo research software. Though the orienting ideas of information practices, derived from broader theorizations of the concept (e.g., [Lloyd, 2014](#); [McKenzie, 2003](#)), offered some direction to our independent and collaborative efforts, our data analysis was inductive. With practice-centric orientations, instances of "practice making" ([Nicolini et al., 2003](#)) that navigate individuals beyond challenges are identified. Here, we operationalized mobilizing information practices as those that generate the understandings that enable MKWs to mobilize their work and overcome challenges or constraints in their broad work arrangements.

Open coding and initial memoing identified ideas and issues that we followed up on with later interviewees; with iterative refinement, we created focused codes and integrative memos (per Maxwell, 2005, pp. 63–66). We did not set out aiming for data saturation, but rather to begin piecing together salient details on mobilizing information practices. However, our later interviewees did not identify new themes for our project.

Findings

Analysis highlights five mobilizing information practices that enable MKWs to navigate the dynamic, amorphous nature of their work. Summarized in Table 2, each practice

TABLE 2. Mobilizing information practices.

Mobilizing information practice	Challenge(s) addressed	Embodied "knowing" involved
Ensuring information access	Barriers to information access such as nonconnected, blackout periods or software lockdowns (e.g., working over an unverified network).	How to/being able to access documents, files, and communications "any time, any place."
Maintaining technological acuity	Responsibility for one's autonomous technological set-up and how it works in transit.	How to/being able to work within and around the constraints of a variety of tools and digital infrastructures, remaining a viable worker.
Keeping social cohesion	Relative social invisibility and disconnectivity that comes with working mobilely and remotely.	How to/being able to maintain professional presence when working remotely, via virtual and physical means.
Upholding work rhythm	What tasks, infrastructure, and services are possible or available within nonamenable spaces or at nonregular hours.	How to/being able to exploit local environments to conduct work as seamlessly as possible.
Enacting personal-professional balance	Barriers (or lack thereof) between "on" and "off" time.	How to/being able to live with fluidity between traditionally bounded spheres, figuring out where, when, and how to integrate or segment home and work to play multiple roles.

is identified based on an underlying "challenge" that it addresses. These practices in some way revolve around or relate to tangible information—to information "things" (Buckland, 1991)—but all can also be seen as part of a broader repertoire of intangible information activities that enable day-to-day work productivity. We identified direct handling and manipulation of tangible information artifacts in just one of the five information practices (Ensuring information access), as MKWs confirmed their information availability. The other four information practices instead represent tacit, situational awareness of the sort that is gained through actual practice. These four practices certainly relate to tangible information, but they are foremost extra-institutional or vernacular approaches to knowing one's work on one's own terms (Lloyd, 2014); therefore the role of information activities centered on handling of tangible information is not as visible in these practices, because the primary source of "knowing" lies in the actual embodied practices of MKWs. MKWs' mobilizing information practices are contingent, improvisational and—interestingly for the organizations employing a mobile workforce—not necessarily reflective of formal structures, rules, procedures, or codified tricks of the trade.

These five mobilizing information practices are more process- than product-oriented: all are about MKWs coming to understand how to best accomplish their work from "mobile offices" (Su & Mark, 2008). These five mobilizing information practices are not always clearly demarcated, and there is much overlap between them. And, when considered separately, these information practices may not always even be totally unique to MKWs. Rather, the sum of these five mobilizing information practices is what is here seen to distinguish the skillful, literate accomplishment of professional tasks in the mobile knowledge work context. Descriptive accounts of the mobilizing information practices that proved salient for those we interviewed as well as the types of embodied "knowing" that these practices engendered follow below.

Ensuring Information Access

In unpredictable working arrangements, MKWs often raised their awareness and sought assurances of being able to work around and overcome whatever on-the-ground, in-the-moment situations might affect their access to information. All participants indicated learning about and using at least one cloud storage system, such as Dropbox, Google Drive, or Microsoft OneDrive, to ensure access to both personal and shared documents and files across different times and places. P7 noted: "*I could log into any computer anywhere and get all my information online. So if somebody stole all my electric devices, I could go to any computer and on the Internet get all of my documentation. I have stuff on OneDrive, I have it on iCloud [...] anything I need is predominantly available online.*" Similarly, they leveraged cloud services as a way to transfer information among their multiple devices (e.g., laptops, smart phones, and tablets). A recent global survey suggests that the average mobile worker carries about 3.5 mobile devices (Lai, 2012), a trend that we found exacerbated the device-agnostic information use of many; as P6 stated, "*Because of cloud services like Gmail and Dropbox, it doesn't matter what machine I use. The machine is almost irrelevant.*" In an early study of the role of mobile phones in mobile work contexts, Perry and colleagues (2001) presented the mobile phone as an indirect and imperfect means for accessing information. Phone calls were not considered sufficient to complete transactions given that necessary information was often lacking. In contrast, we found most smart phones offer strikingly comprehensive embedded computing affordances, such as instant access to e-mail and cloud-based information resources, enabling MKWs to more easily establish sufficient "mobile offices" in a pinch.

The majority of those interviewed also exhibited a habit of digitizing newly received (and even sometimes older) information items. Over time, they came to recognize the benefits of all-around information accessibility, as well as

information portability. P11 explained, "*I want to remain mobile, so I would prefer a pdf [file rather than a paper]. I want to have [a document] on my computer or a phone; I don't even own a printer at home*." This latter sentiment was echoed again and again throughout interviews. Participants also valued convenience, something that was definitely afforded when they could ensure singular technological access points to a multitude of resources, whether originally paper or not. The confluence of these three factors—accessibility, portability, and convenience—led even several former paper-handlers to scan. One avid scanner further emphasized the (convenient) ease of memory it brought: "*I'd rather do it and then I have [any information] with me. I don't have to remember to carry around a file folder, I can keep it on here and always have it*" (P2).

Another crucial, convenient advantage of digitizing learned by the participants was searchability of information and its concomitant speedy retrieval in fast-paced, changeable work situations. P4 recounted, "*I've found that the need to search and retrieve stuff has kind of made the scales tip more in the favor of doing it [handling information] digitally*." Another reason that MKWs scanned pages was to appear to be "seamless" professionals, even while fending off information availability challenges. "*Because I'm so reliant on technology, it's easier to find my phone than it is a pen and piece of paper*," stated P14, speaking to convenience. He continued, "*You know, another thing is, in terms of professionalism, to me, walking around with a piece of paper and a pen scribbling down notes can be a little unclean.*"

Routine digitizing was a skill learned over time as MKWs perceived that being paper-based hampered efficiency. P7 and P30 explained that their move to an all-digitized stance occurred gradually, as they began to make sense of the ins and outs of their work arrangements: "*If you're not going to go 100 percent paperless [as an MKW], then you've got to be comfortable with being more paperless than you are*" (P30). The same was true for P27, who "*loved notebooks, I love writing, physical writing, but the reason why I don't use them very often is because of that, it's just one more piece of luggage [. . .] I really had to become more technologically savvy, so I had to really start to let go of the physical notebooks and all that and I had to start learning applications. [. . .] I had to really up my game with that and also learn that I can get by with less*" (P27).

In addition to integrating digital technologies into their mobilizing information practices, MKWs in this study learned and developed different strategies to deal with foreseeable "blackout" periods in their daily work situations. For example, if Internet, intranet, or cloud-storage connections would be lost (e.g., during a flight), they might download networked documents to offline drives or print relevant papers as a last resort, making sure to have at hand whatever documents they would need—"*it's just kind of a planning issue, you cannot really figure out what are those things that you will be able to do [so you have to be prepared]*" (P19).

Maintaining Technological Acuity

Closely related to MKWs' learned strategies for keeping information accessible across all manner of working scenarios—always via digital technologies—was their practice of continual learning about different infrastructures, devices, and potential disconnects among them. Any of a desktop, laptop, tablet, or mobile phone might have to serve as the main worktop for an MKW at any time, and each embedded its own constraints from limited battery life to being unrecognized on secure networks. When perfect one-to-one correspondence between devices was lacking, MKWs faced obstacles to their work productivity on the move. P28, a frequent international traveler, finally decided to adopt the habit of simply buying new, low-model phones every time she left the United States on business, rather than struggling with international rate plans and complications. Technological acuity resembles the concept of "infrastructural competence" suggested by Erickson and coauthors (2014), and is a crux in MKWs' work-related knowledge, vital for their adaptation to changing digital circumstances.

What might seem like mere trivia about such points as hours of battery life or power-splitting potential was some of the most precious knowledge that could be put into action by our participants. MKWs knew to double, triple, and even quadruple the number of mobile phone chargers and docks they carried with them, some investing in expensive multipurpose or solar chargers as extra security. A lightweight, high-powered back-up laptop battery was another investment participants were glad to make, as they often faced long workdays and flight delays. These items were then placed strategically. P3 explained her set-up: "*For my phone, I actually take four types of chargers, [but there's] always one permanently in my car, and one permanently at my daughter's, and one permanently in my house. And it lasts a day and a half, the battery.*" As a real estate agent always on the go, P14 noted the "devastating" consequences of not being nimble with regard to his charging.

Understanding connective capabilities at local brick-and-mortar establishments is another major component in MKWs' work, one discussed as part of the information practice of "Learning to uphold work rhythm" below. However, competency around how their devices would react to and how the professional information they handled was or was not congruent with these free services—especially when these free services were the only proximal gateways to needed pieces of communication—was a matter of technological acuity. Airport and coffee shop WiFi networks were scouted as potential candidates for use by participants who did not have concerns about security, speed, or bandwidth. P5 knew that, should his home Internet fail, he could "*drive down to the McDonald's or the Subway [. . .] and just work there.*" As a particularly radical case, P22 mentioned that, "*if I needed to upload a big file and I didn't have Internet access right now, I'd park in the parking lot out front here and just run my upload [. . .] I have antennas to be able to extend the range.*" P27 even kept a portable WiFi detector

and connector for use on the road. Still, others knew that neither the information they handled nor the devices and servers to which they required access would even allow for unsecure café connections—also an important aspect of technological acuity in practice. For these MKWs, an understanding of how to enable mobile hotspots and an ability to ration data bytes were required; as P10 and P11 shared, "*there are companies where you know you shouldn't log on. [. . .] Public WiFi is notoriously insecure*" (P11). P10, a lawyer, was especially cognizant of clients' confidentiality; as a result, he used his data plan rather than free public WiFi and stored clients' information with Clio,[1] an extra-secure cloud-based legal management system.

Our participants also enacted a number of trial-and-error work-arounds that helped them to bridge technological boundaries or "roadblocks" (P14), especially common when working with larger organizations. Dealing with established companies as contractors could mean months of "onboarding" for just a small project, as P25 experienced. P4, a remote employee of one large company, found that inadequate and over-secured resources had been grandfathered into his mobile set-up without any managerial foresight. As a consequence, he worked with his personal computer in addition to a company computer: "*I can't do half the things I need to do on my work computer, because it's restricted and locked down [. . .] I can't function without both of them [. . .] I spend so much time trying to work around the system*" (P4). To download a file requiring editing with software only found on his home computer, the same participant learned that he had to burn a disk "*because [company managers] don't allow flash drives on our work computers [. . .] it shuts down as soon as I stick a flash drive in.*" To print documents, he knew to e-mail them to his personal address and to override security pop-ups before using his personal printer.

Keeping Social Cohesion

Being a mobile worker means having distance from a central organizational locus, which translates into the absence of informal mechanisms for "keeping in touch" with others, such as cubicle chats, cafeteria discussions, and impromptu team meetings. The detachment and independence involved in mobile work also leave one without the face-time that makes gaining feedback, maintaining motivation, and developing and exploiting "social capital" easier. P25 summarized: "*Silence is the best feedback that you can get. They [Contracting managers] don't owe you any kind of performance review; there are no leisurely chats with your supervisors. [. . .] Working in a vacuum like that, you have to be super deliberate about making sure that you don't just go down the rabbit hole.*" P11 mentioned that since becoming mobile, he "*definitely has noticed that I get left out of the loop.*" Learning how to keep up with social connections was critical for MKWs, whether employed by larger organizations or running their own businesses. To do so, they often turned to digital technologies, undertaking one of two main activities: gathering information with which to solidify professional networks, or outputting information that would present them as viable colleagues, collaborators, and contractees.

Self-employed MKWs were often found assembling ad-hoc, temporary teams that were driven by the terms and rules of current contracts and projects. Knowing the right people and maintaining the right relationships with an extended network of skilled experts was, for them, especially instrumental. Interestingly, this sort of team assembly leads to even more modularity within one's mobile work arrangements. P5 explained well that: "*If I need somebody to do a graphic design, then I will get a graphic designer to do that, and I will pay them for their time, and then I will get the product and that's the end of the relationship. If I need somebody to do the HTML CSS for a site, then I have a friend that has his own business and I will pay him for that. And then I get the work, he gets the money, and we're done there. It's almost like. . . we've moved to this 'every-man-for-himself'-type thing.*"

Conscious of precariousness in their distanced positions, MKWs strategically combined virtual interactions with face-to-face information exchanges, traveling to corporate offices as they felt fitting in order to remain visible. P6 explained the reasoning behind an upcoming cross-national move that would position him closer to a home-base office: "*The first people to go are the people like me, people in remote offices. It [will] give me a chance to sort of be more of a presence in their office, and to make myself better known to them, and possibly position me for the next thing.*" He continued, "*it's a thin stream of communication to do things in a chat room or [over] e-mail or Twitter. It's very, 'lo-band,' and sometimes you need 'hi-band'*" (P6). This theme of attending to "hi-band" communication was repeated by others (e.g., P18), several even paying monthly fees to rent physical offices for their client meetings (e.g., P8, P10, P21, P22).

This managing of one's own image and of *how* one was visible online proved a major activity, mobile work creating the "*dynamic where your digital self is now your social, personal self*" (P8). MKWs learned to use the means at their disposal to "speak" to the specific audiences they wanted to reach, employing different outlets to these ends. Their typical first encounters with others all online, participants paid much attention to e-mail inboxes and corporate IM systems throughout the day. Still, at times, virtual features were used in the opposite way, as means of further separating or removing oneself from social contact. P4 explains of his conference calls, "*if I didn't have the mute button I would be in trouble, because I'll do everything from feeding the cats to doing chores around the house.*"

Upholding Work Rhythm across Time and Space

Driving, flying, and in some cases, crossing national and international boundaries are routine aspects of mobile work arrangements, disrupting both the time and space for

accomplishing professional tasks. So often on the go, our MKWs learned to exploit their local environments in order to be as "seamless" as possible in their workdays (Vertesi, 2014). P28 explained, "*I have to give the face of consistency to [clients] even though I might be moving all around.*" Difficulties brought by constant traversing are addressed in part by becoming familiar with the lay of different times and spaces, and with what tasks, infrastructure, or amenities are possible or available within them.

The MKWs interviewed were cognizant about connecting otherwise "dead time" to core work activities; the significant amount of time they spent moving through airports, in cars, or between meetings pushed them to do so. The majority mentioned holding conference calls and using voice-memo features on their mobile phones while driving from location to location. Though mobile phones were not the preferred device for accessing, reading, and handling textual information—the majority of our participants complaining of ergonomic issues with typing and with small screen size—mobile phones became extensions of one's body when transiting. While in the air, many MKWs took similar action, preparing e-mails to send once on the ground. "*I'll use that time [...] even though [messages] can't send until I land, I'll write everything I need to, attach everything I need to, do whatever I have to, and then have them ready to send as soon as I connect to WiFi again,*" P7 told us. Others experimented and discovered that iMessage often still worked in-flight and that nonrefreshed, preloaded browser pages could remain alive. Upholding the rhythm of their workdays meant "maximizing" (P9) any and all time with *in situ* "mobilization work."

Our MKWs also took advantage of their immediate spatial surroundings as they could, tracking the neighborhood spots with reliable WiFi and amenable atmospheres. As P14 said, "*you figure out which place you can pull up in the parking lot, jump off the WiFi versus places where you might have to go in*". MKWs who were frequently travelling in unfamiliar cities or countries for business turned to the online reviews made by fellow mobile professionals in their search for hospitable work environments. Once temporarily situated, simple things like electrical outlets were coveted to the end of upholding work rhythm. Years of experience led P9 to carry an electrical splitter with him at all times, because he knew that "*finding a table near a plug is hard [...] when I'm in an airport or in a Starbucks.*" Likewise, all MKWs knew the ambiance they preferred, and were unromantic about "*creating [their] own private space*" (P4) when working in public, usually employing headphones. Sometimes, it was worth fronting an extra cost for the assurance of better atmospheres; P9 explained that he "*actually pays to be an Admiral Club Member[2]. When I have long layovers in airports, I can go in and have a big area to sit and WiFi and everything else—it's better.*" When traveling for long durations, MKWs trusted Airbnb[3] as the way to find the best apartments and "*get into a steady routine*" (P23).

An observable outcome of MKWs learning to uphold work rhythm was the "mobile office." Mobile offices are portable, dependable suites of tools and resources that facilitate MKWs' momentum in work tasks. These assemblages tend to embody fluidity, and to "emerge" over time and situations. Participants in our study defined their mobile offices in terms of much-used technological devices like smart phones and laptops (e.g., P17, P18, P23, P26, P27, P31, and P33). P24 noted: "*my office is really anywhere I have my phone, but even more importantly, [it's] anywhere I have my laptop and an Internet connection.*" P30 proclaimed, "*there's nothing in my business that I do that I can't pick up and take with me.*"

Enacting Personal and Professional Balance

MKWs live with fluidity between home and work, two traditionally distinct spheres. Another major challenge they face is thus that of blurred personal and professional lives. When work structured around other time zones, this was especially so for our participants, as hours became "kind of nebulous" (P12). In such cases, MKWs may not strive to uphold their work rhythm so much as to abdicate the guilt, "stress" (P19), and "burden" (P26) that came with wishing to unplug. P13 explained that his work "*is a lot of playing with time zones,*" and "*being available for someone to ask me a question. If I've asked for [another's] feedback, it really kind of sucks if I'm not there to receive it.*" Enforcing separation between home and work fell to individual MKWs, each deciding for him or herself where, when, and how or how not to do so, always aware that there was no straightforward formula for doing so. P6 reflected, "*We kind of integrate technology to our lives, which you could either see as never stopping working, or you can see as managing our time more fluidly*" for "*greater sanity.*"

In many ways, this ability to work at any time, with flexibility, was appreciated. For example, spousal illness made P10 a full-time worker, parent, and caregiver for a months-long stretch, but he found that he "*didn't really have to change anything*" and could still accomplish work between other family and household commitments. Still, there was general consensus among participants that being an independent employee especially leads to "*working more because, most likely, you're working on building a business*" (P30), and are "*the only person that can deal with stuff, and it's your income source and it's very easy to rationalize, 'if I don't deal with it, we may be living out of the car next month'*" (P24). As P9 told us, "*my family would tell you I work all the time, because I own the business and the business is me.*"

Mazmanian, Orlikowski, and Yates (2013) have referred to the spiraling expectations and standards for availability associated with mobile phone use as an "autonomy paradox." Technology of all kinds was in many ways the enabler of an "always on" mentality among our MKWs, but knowing when to simply sign off each day was one of the most significant sensibilities, knowing or "disciplines" (P29) obtained. "*It's a parameter I had to learn being a mobile*

---

[2]https://www.goclio.com
[3]https://www.airbnb.com

worker," P7 explained, while P3 aptly stated that, "*it used to be that I came home and I was unplugged. Then, I had to make a conscious effort to go to get plugged in. Now, you have to make a conscious effort to unplug.*" Many drew the distinctions between "on" and "off" work hours through the use of separate personal and professional equipment, as this "*helps me work more, helps me focus more, it just makes that barrier*" (P12). Experience as an MKW brought more trained willingness to "*let things just be in their proper place at their proper time*" (P7).

Discussion

The theme that unites mobility and the contemporary workforce and that is echoed across sociological and socio-technical literature (Costas, 2013; Czarniawska, 2014; Perry, 2007; Sørensen, 2011; Urry, 2013) is that the context of mobile work is always shifting and never stable, and is fluid and dynamic. There is continual modularity across the projects, people, and organizations with which MKWs deal and with whom they interact. Our participants, for example, estimated being engaged in anywhere from four to eight projects, all "in different stages" (P5), or with as many as 20 different clients (P14) or collaborators working "in parallel" (P25), at any given point in their professional lives. This led to their facing an increased number of challenges and increased potential for breakdowns (Erickson et al., 2014)—issues that well-learned information practices may be able to ameliorate, but never entirely alleviate. This leads us to suggest that each of the five mobilizing information practices identified here enables MKWs to generate needed practical knowing and prepare for core work practices while also adapting to the changing conditions of their mobile working arrangements. The people, places, and objects with which MKWs engage are configured and reconfigured countless times in a workday, rather than once and for all. Over and over, the information infrastructures and contexts for mobile knowledge work are built and rebuilt, and a practice approach draws attention to how MKWs adroitly perform and adapt their materially mediated activity sets in locally specific ways (Cox, 2012). Gaining access to information sources and resources while on the move, being dexterous with technology, staying in contact, cultivating work momentum, and juggling personal and professional demands all require MKWs' situated instantiations of practice.

By drawing out five key mobilizing information practices of mobile knowledge work, the present study stresses three themes: (a) mobilizing information practices are a form of "articulation work" (Strauss, 1988); (b) mobilizing information practices exist in a mutually constitutive relationship with the information context of mobile work; and (c) when engaged in, these mobilizing information practices comprise a sort of practical knowing or knowing-in-practice.

Mobilizing Information Practices as Articulation Work

Existing research into professional information dealings tends to fall under the paradigm of "organizational informa-

tion behaviour" (Huotari & Wilson, 2001), a quite top-down model of planning, forecasting, and scripting what information documents and systems are used by teams of workers. In this, individual ingenuity occurs within bounded areas of action. In the mobile knowledge work setting, however, there is a greater degree of literal and figurative distance from a centralized work model, and on-the-ground responses are continually, autonomously enacted.

More independence from a traditional organizational center (both its physical location and its managerial reach) can lead to more flexibility in work practices, but also requires that individuals proactively (re)align their own working information landscapes. MKWs meet this persistent need by engaging in a number of mobilizing information practices; however, these actually materialize as extra tasks that must be carried out in order that core work tasks can be accomplished at all. This "articulation" (Strauss, 1988) and "mobilization" work (Perry, 2007) addresses the contingencies of unstable mobile work times and spaces, and is necessary before real knowledge work can take place. As a unit of analysis, information practices effectively accommodate articulation work, being in many ways about learned, strategic, and tactical ways of producing core action, thus seeming themselves comparatively more "mundane" (Tuominen et al., 2005) or even "hidden" (Schmidt & Simonee, 1996). As Hogan and Palmer (2005) argue, information practices involve many banal, invisible activities that are nevertheless essential interlocking parts in "the work of living" (p. 3).

Constituting Information Context

Identifying some of the mobilizing information practices that are central to mobile knowledge work allows us to begin conceptualizing the information context of mobile knowledge work as one that is emergent and always evolving. Practice theory suggests all social contexts are in constant flux (Østerlund & Carlile, 2005). In this light, the context of mobile work cannot be understood as a stable or static set of contextual features, but instead is always in state of becoming (Huizing & Cavanagh, 2011). It is constituted and reconstituted as workers engage in different mobilizing information practices that address the practical challenges they face and, in this sense, is both a source and an outcome of workers' mobilizing information practices.

As noted, practice theory is not a coherent and homogenous theoretical stance (Cox, 2012; Moring & Lloyd, 2013) but consists of several theoretical perspectives, particularly when it comes to how social order, context, and change are seen (Huizing & Cavanagh, 2011). Almost all practice theorists highlight the productivity of everyday practices, but what is produced when people engage with social practices and how this is produced is a point on which scholars diverge (Feldman & Orlikowski, 2011, p. 1242): social structures (Giddens, 1984), fields and habitus (Bourdieu, 1990), and bundled arrays of activity (Schatzki, 2001) have all been advanced. While Schatzki defines context as a "field of practice," and presents social order as nexus of

TABLE 3. Linkages between mobilizing information practices and various aspects of information context.

Information practice	Spatial structure	Temporal structure	Social structure	Material structure
Ensuring information access	Access to information resources across different spaces (e.g., access to documents from a home office, in transition and client sites using Dropbox).	Access to information resources across different times and time zones (e.g., access to documents through offline drives during "black-out" periods).	Access to information and updates about social ties (e.g., list of professional contacts on LinkedIn with expertise in business analytics).	A variety of technologies and technological tools that facilitate access to information (e.g., extensive use of cloud storage and digitizing services).
Maintaining technological acuity	Awareness and leverage of available technological infrastructures in multiple places (e.g., use of portable WiFi detector and connector for use on-the-road).	Awareness and leverage of available technological options to handle time-based challenges (e.g., use of cellphone or laptop backup batteries to support long workdays outside home).	Adaptation to the technological needs and preferences of partners and clients (e.g., use of multiple cloud services or e-mail accounts to accommodate collaboration with different clients).	Appropriated, individualized, understood assemblages of technological infrastructures that support mobile work (e.g. use of various free mobile applications).
Keeping social cohesion	Strategic combination of virtual and face-to-face meetings (e.g., periodic travel to corporate offices as in order to remain visible).	Continuous and constant contact with partners, colleagues, clients and other social and professional ties (e.g., constant attention to corporate IM system).	Developed and augmented social infrastructures (e.g., extensive use of social networks for locating experts and expertise).	Social media tools that maintain and permit leverage of a professional network (e.g., use of LinkedIn for promoting one's skillset and potentials).
Upholding work rhythm	Flexible and versatile mobile offices (e.g., conference calls while driving).	Flexible work hours (e.g., dividing work hours between family and household commitments).	Expansion of weak ties (e.g. meeting professionals working from the same Starbucks).	A mobile office defined based on a variety of technologies and technological tools and connectivity (e.g., extensive use of laptops and mobile devices rather than desktop computers).
Enacting personal-professional balance	Separate or integrated personal and professional spheres (e.g., working only outside the home).	Temporal structures separating or integrating personal and professional spheres (e.g., designating off-times).	Separation between personal and professional networks (e.g., use of Facebook only for personal connections).	A connection or disconnection to various technologies as appropriate (e.g., switching off the Wi-Fi router after 10pm).

practices and material arrangements, Giddens accentuates the duality and interplay between micro social practices and macro social structures, as the latter is both an input into and an output of human action: external social structures proffer the norms, rules, and shared understandings for practice, but are changed in and by them. The constitutive relationship between contextualized social structures and social practices means that social regularities are always "in the making" (Feldman & Orlikowski, 2011) and are ongoing accomplishments produced and transformed in all instances of practice (Gherardi, 2006).

Practice-centric approaches emphasize actors' knowledgeability (Giddens & Pierson, 1998). Consistent with this, we found that MKWs actively monitor the ongoing flow and flux in their physical, social, and temporal work arrangements, which are always-changing, dynamic "topographies and climates" (Lloyd, 2003). As such, MKWs' information practices are adaptive, and aim at helping them navigate unsettled and complex nomadicity. At the same time, they are generative of spatial, temporal, and social aspects in their information context itself.

MKWs have high levels of spatial mobility and carry out their work over many different physical locales. As they do, they enact the spatial structure of their information context. MKWs have much temporal mobility as well, stretching and contracting work hours and accommodating other time zones as needed. When they do this, they enact the temporal structure of their information context. MKWs are furthermore very socially mobile, participating in large professional and social networks. And, likewise, as they do so, they enact the social structure of their information context. Each of these three dimensions—spatiality, temporality, and sociality—is a recognized contributor to what defines information contexts overall (Mervyn & Allen, 2012; Savolainen, 2006, 2009). In addition to these dimensions, material structure is another key contributor to the mobile knowledge work context: MKWs' information practices are inseparably material, near-entirely mediated by technology. Collections of

technologies make possible their access to documents and to clients and collaborators. By knowledgably leveraging these artifacts, MKWs are able to be productive, successful, and viable in what they do.

A practice-based view is useful in delineating this material dimension of the mobile knowledge work context, and technology's supporting role in social activities (e.g., Orlikowski & Scott, 2008; Pilerot & Limberg, 2011). Talja and Hansen (2005, p. 126) note that "the social practice approach sees a mutually shaping relationship between information and collaboration practices and the tools developed for purposes of communication and knowledge sharing." Table 3 outlines the interplay between these four aspects of the mobile knowledge work information context and the five salient mobilizing information practices we identified. MKWs' engaging with these information practices results in the recurrent construction and transformation of the spatial, temporal, social, and material structures of their information context.

Knowing-in-Practice

Each of the five mobilizing information practices outlined here is part of a constellation of activities that embodies distinct forms of knowing about mobile knowledge work. Knowing-in-practice develops in and through engagement with an information context, and is developed as MKWs competently and confidently navigate the opportunities afforded and the challenges brought by their mobility. "Knowing" is a consequence of information practices (Cox, 2012; Moring & Lloyd, 2013; Nicolini et al., 2003), and knowing-in-practice is at once explicit and tacit, involving both information-as-thing and subjective, nonquantifiable informedness (Buckland, 1991). We have deliberately stepped away from a rational, needs-driven, cognitive viewpoint (Olsson, 2005; Talja, 1997) in order to present a social constructivist, practice-centric picture of MKWs' knowing as part of their ongoing interactions and actual doings in a broader context that is guaranteed to be variable and contingent.

Finally, it bears stating that MKWs' tacit and embodied understanding of their information context does not come overnight. Time spent and experience gained on the job affect individuals' practices as they become more literate and "developed a healthy kind of regimen" (P26) and a "discipline" (P29) about the best ways to work and to make their work successful. Participants in this study frequently implied their own mobile "learning curves" and their increasing attunedness to their environments, noticing things like, for example, outlet locations. P11 "likes to say that the difference between a new person in the industry versus a seasoned person is that the new person will Google 60 times a day and the seasoned will only do it 20 times a day."

Conclusions

As previous literature (e.g., Huizing & Cavanagh, 2011) suggests, practice theory enables researchers to capture the significance of (information) context by emphasizing the information practices that bring order and sense to activities. We identify the information and mobilizing information practices that are parts of MKWs' practical knowing, dispensing of "a narrow preoccupation with goal-oriented information seeking" (Cox, 2012, p. 185) and pointing to the embodied, emergent, negotiated, and tacit quality of their information dealings. Practical knowing is gathered and developed out of activities, but is nested in a broader nexus of social and work practices (Savolainen, 2008) and not always driven by purposive actions, needs, or discrete information actions.

Capturing the context within which information is sought, used, and shared is a difficult undertaking in the field of information science (Allen, Karanasios, & Slavova, 2011; Courtright, 2007; Johnson, 2003; Kari & Savolainen, 2007; Mervyn & Allen, 2012; Tabak, 2014). This article attempts to delineate a cohesive but dynamic view of the information context of mobile knowledge work by directing attention to its coconstitutive relationship with mobilizing information practices. Rather than being a stable container, the mobile knowledge work information context takes shape through workers' recurrent information practices, mirroring the social order, arrangements, and normative dimensions of mobile knowledge work. At the same time, its chaotic mutability influences how workers' mobilizing information practices are enacted. Decomposing it along spatial, temporal, social, and material dimensions offers a robust picture of the mobile knowledge work context as complex and multilayered (Cousins & Robey, 2005; Harmer & Pauleen, 2012; Kakihara & Sørensen, 2001), not just about spatial mobility and the freedom to change work locations (de Carvalho et al., 2011). This view of information context has some overlap with the existing models of context in information retrieval, which emphasize environmental, spatial-temporal, social, personal, and task-based information subcontexts (Goker et al., 2009). A spatial-temporal sub-context, for example, affects an individual's perception of information usefulness in mobile computing (Bierig & Göker, 2006).

Future research could take at least two theoretical directions. First, despite its focus on mobile knowledge work, this article illuminates the rapidly changing nature of most knowledge-intensive professions. Much knowledge work today has a mobile dimension, and workers' semi-independent, decentralized, and diverse organizational affiliations will continue to become more common (Rainie & Wellman, 2012). Knowledge work enables and may require a "modern nomadicity," as workers mainly deal with information that can be represented digitally and accessed from various locations (Davis, 2002) and that can and often must be detached from stable premises, and performed when and where it suits the workers' needs (Ciolfi & de Carvalho, 2014). Other knowledge-intensive professions are thus ripe subjects for examining the unique relationship between workers' information practices and their information contexts.

Second, future research might delve further into an investigation of the material structure of the mobile knowledge work information context, delineating the precise role of the technologies that play into workers' information practices. Mobile work is increasingly digital, and mobilizing information practices are increasingly mediated by digital technologies, but more research is needed in order to advance our understanding of mobile work technological infrastructures and their enactments in practice. Recent research into similar work arrangements proposes the "user-driven, self-organized, bottom-up, [...] decentralized" (Egyedi, Mehos, & Vree, 2009, p. 3) nature of these. We speculate that MKWs' technological infrastructures are also "emergent," intentionally incomplete, and open to changeable information dealings—a departure from information science's dominant discourse surrounding formalized professional information practices and traditional professional information contexts.

We plan to carry forward these two research trajectories. Our next project involves participant-generated digital research diaries, a method that enables us to address the limitations of interviews and to gather data that are closer to MKWs' in-the-moment mobilizing information practices. The nomadic nature of mobile work, with frequently altering social and environmental factors (Ciolfi & de Carvalho, 2014), necessitates that conventional and widely used research methods be adapted. Mobility places nontrivial limitations on a researcher's ability to follow mobile knowledge workers over an extended period of time when only methods such as shadowing, for example, are considered. Diary studies partially address the challenge of capturing mobilizing information practices by allowing participants to self-report on their activities in almost real time (Grinter & Eldridge, 2001). This noted, another possible direction for future research is to focus on the locations typically frequented by MKWs: coworking spaces, airport lounges, and work-friendly coffee shops may permit observation of MKW work practices.

Understanding mobile knowledge work and MKWs' mobilizing information practices can provide rich accounts to organizational managers who are increasingly called upon to motivate and manage mobile workforces. The central concern should no longer be about maintaining "control," but embracing a mobile trend and taking advantage of ubiquitous computing and consumerization. However, attitude is only one half of the equation. Many organizations still lack the ability to adequately support and extend access to various mobile devices like iPhones, iPads, and Android devices (Kar, 2012), and risk falling behind.

Understanding mobile knowledge work and MKWs' mobilizing information practices, particularly their artful use of technological resources, can also provide rich accounts that will help system designers to scope and improve their design. As indicated, "mobile offices" for MKWs are primarily assemblages of mobile devices (Su & Mark, 2008). Most MKWs in this and other studies (e.g., Lagunas, 2012) use their personal devices for work-related purposes, either exclusively or in addition to company-issued devices, point-

ing to a widespread BYOD "bring your own device" mentality, also now supplemented by "use your own cloud system." This requires that more attention be given to making enterprise mobility services compatible with commercial mobile devices when secure access, storage, scanning, and printing capabilities are needed (Reuters, 2012). The challenges associated with spatial mobility that our research has highlighted can also inform the design of mobile applications. Internet connectivity is not always available in the mobile work context, so work-related applications must offer offline functionalities. P31 found Asana[4] to be a powerful tool for managing project tasks and projects, for example, but its lack of offline power meant she had to leverage other mobile applications and transfer data between servers. Finally, during transit, human information processing abilities are limited (Perry et al., 2001), yet contemporary interfaces are "screen-obsessed," as P3 put it, and offer few alternative methods of interaction for MKWs who spend a lot of time travelling but otherwise occupied (e.g., driving). There has been a surge in voice-recognition features in recent years, but these have yet to provide a seamless and complete experience for spatially mobile users.

Acknowledgments

References

Aguinis, H., & Lawal, S.O. (2013). eLancing: A review and research agenda for bridging the science–practice gap. Human Resource Management Review, 23, 6–17.

Allen, B. (1997). Information needs: A person-in-situation approach. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), Information Seeking in Context (pp. 111–122). London, UK: Taylor Graham Publishing.

Allen, D., Karanasios, S., & Slavova, M. (2011). Working with activity theory: Context, technology, and information behavior. Journal of the American Society for Information Science and Technology, 62, 776–788.

Altman, E.J., Nagle, F., & Tushman, M. (2013). Innovating Without Information Constraints: Organizations, Communities, and Innovation When Information Costs Approach Zero. In M. Hitt, C. Shalley, & J. Zhou (Eds.), Oxford handbook of creativity, innovation, and entrepreneurship (pp. 353–275). Oxford: Oxford University Press.

Bardram, J.E., & Bossen, C. (2005). Mobility work: The spatial dimension of collaboration at a hospital. Computer Supported Cooperative Work (CSCW), 14, 131–160.

Barley, S.R., & Kunda, G. (2006). Contracting: A new form of professional practice. The Academy of Management Perspectives, 20, 45–66.

---

[4]https://www.asana.com

Barreau, D.K. (1995). Context as a factor in personal information management systems. Journal of the American Society for Information Science, 46, 327–339.

Bierig, R., & Göker, A. (2006). *Time, location and interest: An empirical and user-centred study*. Paper presented at the Proceedings of the First International Conference on Information Interaction in Context. ACM, New York.

Blatt, K., & Gallagher, J. (2013). Mobile workforce: The rise of the mobilocracy. In P. Bruck & M. Rao (Eds.), Global mobile: Applications and innovations for the Worldwide mobile ecosystem. Medford, NJ: Information Today, Inc.

Bourdieu, P. (1990). The logic of practice. Stanford, CA: Stanford Univ. Press.

Brodkin, J. (2013). How mobile technology created a workforce that never stops working. Retrieved from http://arstechnica.com/information-technology/2013/08/how-mobile-technology-created-a-that-never-stops-working/

Buckland, M.K. (1991). Information as thing. Journal of the Association for Information Science and Technology, 42, 351–360.

Büscher, M. (2013). Nomadic work: Romance and reality. A response to Barbara Czarniawska's 'Nomadic Work as Life-Story Plot'. Computer Supported Cooperative Work (CSCW), 1, 16.

Byström, K., & Lloyd, A. (2012). Practice theory and work task performance: How are they related and how can they contribute to a study of information practices. Proceedings of the American Society for Information Science and Technology, 49(1), 1–5.

Chen, L., & Nath, R. (2008). A socio-technical perspective of mobile work. Information, Knowledge, Systems Management, 7, 41–60.

Ciborra, C. (2002). The labyrinths of information: Challenging the wisdom of systems, Oxford: Oxford University Press.

Ciolfi, L., & de Carvalho, A.F.P. (2014). Work practices, nomadicity and the mediational role of technology. Computer Supported Cooperative Work (CSCW), 23, 119–136.

Cool, C., & Spink, A. (2002). Issues of context in information retrieval (IR): An introduction to the special issue. Information Processing & Management, 38, 605–611.

Costas, J. (2013). Problematizing mobility: A metaphor of stickiness, non-places and the kinetic elite. Organization Studies, 34, 1467–1485.

Courtright, C. (2007). Context in information behavior research. Annual Review of Information Science and Technology, 41, 273–306.

Cousins, K.C., & Robey, D. (2005). Human agency in a wireless world: Patterns of technology use in nomadic computing environments. Information and Organization, 15, 151–180.

Cox, A.M. (2012). An exploration of the practice approach and its place in information science. Journal of Information Science, 38, 176–188.

Cox, A.M. (2013a). Information in social practice: A practice approach to understanding information activities in personal photography. Journal of Information Science, 39, 61–72.

Cox, A.M. (2013b). Practice Theory. In T.D. Wilson (Ed.), Theory in information behaviour research. Sheffield, UK: Eiconics Ltd.

Czarniawska, B. (2004). On time, space, and action nets. Organization, 11, 773–791.

Czarniawska, B. (2014). Nomadic work as life-story plot. Computer Supported Cooperative Work (CSCW), 23, 205–221.

D'Mello, M., & Sahay, S. (2007). "I am kind of a nomad where I have to go places and places"... understanding mobility, place and identity in global software work from India. Information and Organization, 17, 162–192.

Dal Fiore, F., Mokhtarian, P.L., Salomon, I., & Singer, M.E. (2014). "Nomads at last"? a set of perspectives on how mobile technology may affect travel. Journal of Transport Geography, 41, 97–106.

Davenport, E., & Cronin, B. (1998). Texts at work: Some thoughts on "jus† for you" service in the context of domain expertise. Journal of Education for Library and Information Science, 39, 264–274.

Davenport, T. (2013). Thinking for a living: How to get better performances and results from knowledge workers. Boston, MA: Harvard Business Press.

Davenport, T., & Prusak, L. (1998). Working knowledge: How organizations manage what they know. Boston, MA: Harvard Business School Press.

Davis, G. (2002). Anytime/anyplace computing and the future of knowledge work. Communications of the ACM, 45, 67–73.

de Carvalho, A.F., Ciolfi, L., & Gray, B. (2011). The making of nomadic work: Understanding the mediational role of ICTs. In M. Cruz-Cunha & F. Moreira (Eds.), Handbook of research on mobility and computing: Evolving technologies and ubiquitous impacts (pp. 381–396). Hershey, PA: IGI Global.

Dey, A., Kortuem, G., Morse, D., & Schmidt, A. (2001). Special issue on situated interaction and context-aware computing. Journal of Personal and Ubiquitous Computing, 5(1), 1–3.

Dourish, P. (2004). Where the action is: The foundations of embodied interaction. Cambridge, MA: MIT press.

Egyedi, T.M., Mehos, D.C., & Vree, W.G. (2009). *New perspectives on inverse infrastructures*. Paper presented at the Infrastructure Systems and Services: Developing 21st Century Infrastructure Networks, (INFRA), 2009 Second International Conference on.

Eisenhardt, K.M. (1989). Building theories from case study research. The Academy of Management Review, 14, 532–550.

Erickson, I., & Jarrahi, M.H. (2016). Infrastructuring and the challenge of dynamic seams in mobile knowledge work. Paper presented at the CSCW '16, San Fransisco, CA.

Erickson, I., Jarrahi, M.H., Thomson, L., & Sawyer, S. (2014). More than nomads: Mobility, knowledge work, and infrastructure. Paper presented at the European Group for Organizational Studies Colloquium, Rotterdam, The Netherlands.

Feldman, M.S., & Orlikowski, W.J. (2011). Theorizing practice and practicing theory. Organization Science, 22, 1240–1253.

Fulton, C. (2005). Hotdesking: A potential link in the e worker's information chain. In J. Krogstie, K. Kautz, & D. Allen (Eds.), Mobile information systems II (pp. 163–170). Berling, Germany: IFIP- Springer.

Gherardi, S. (2006). Organizational knowledge: The texture of workplace learning. Oxford, UK: Blackwell Publishing.

Gherardi, S. (2013). How to conduct a practice-based study: Problems and methods. Cheltenham, UK: Edward Elgar Publishing.

Giddens, A. (1984). The constitution of society: Outline of the theory of structuration. Cambridge, UK: Polity Press.

Giddens, A., & Pierson, C. (1998). Conversations with Anthony Giddens: Making sense of modernity. Cambridge, UK: Polity Press.

Goker, A., Myrhaug, H., & Bierig, R. (2009). Context and information retrieval. In A. Goker & J. Davies (Eds.), Information retrieval: Searching in the 21st century (pp. 131–157).

Grinter, R.E., & Eldridge, M.A. (2001). y do tngrs luv 2 txt msg? Paper presented at the ECSCW 2001, Bonn, Germany.

Harmer, B.M., & Pauleen, D.J. (2012). Attitude, aptitude, ability and autonomy: The emergence of 'offroaders', a special class of nomadic worker. Behaviour & Information Technology, 31, 439–451.

Hogan, T.P., & Palmer, C.L. (2005). "Information work" and chronic illness: Interpreting results from a nationwide survey of people living with HIV/AIDS. Paper presented at the Proceedings of the American Society for Information Science and Technology, Charlotte, NC.

Huizing, A., & Cavanagh, M. (2011). Planting contemporary practice theory in the garden of information science. Information Research Journal, 16, 497.

Huotari, M.L., & Wilson, T.D. (2001). Determining organizational information needs: The critical success factors approach. Information Research, 6, 6–3.

IBM. (2005). The mobile working experience, A European perspective. Retrieved from http://www-935.ibm.com/services/us/imc/pdf/g510-4029-mobile-working-experience.pdf

Johns, T., & Gratton, L. (2013). The third wave of virtual work. Harvard Business Review, 91, 66–73.

Johnson, J.D. (2003). On contexts of information seeking. Information Processing & Management, 39, 735–760.

Jones, W., Capra, R., Diekema, A., Teevan, J., Pérez-Quiñones, M., Dinneen, J., & Hemminger, B. (2015). 'For telling' the present: Using

the Delphi method to understand personal information management practices. Paper presented at the CHI 2015, Seoul, Republic of Korea.

Julien, H., Pecoskie, J.J., & Reed, K. (2011). Trends in information behavior research, 1999–2008: A content analysis. Library & Information Science Research, 33, 19–24.

Kakihara, M., & Sørensen, C. (2001). Expanding the 'mobility' concept. ACM SIGGroup Bulletin, 22, 33–37.

Kar, S. (2012). Mobile Workers Present New Security Challenges for the Cloud. Retrieved from http://siliconangle.com/blog/2012/04/02/mobile-workers-present-new-security-challenges-for-the-cloud/

Kari, J., & Savolainen, R. (2007). Relationships between information seeking and context: A qualitative study of internet searching and the goals of personal development. Library & Information Science Research, 29, 47–69.

Koehne, B., Shih, P.C., & Olson, J.S. (2012). Remote and alone: Coping with being the remote member on the team. Paper presented at the Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work, New York.

Kvale, S., & Brinkmann, S. (2009). Interviews: Learning the craft of qualitative research interviewing. Thousand Oaks, CA: Sage.

Lagunas, K. (2012). BYOD or Bust: Survey Results Report. Retrieved from http://blog.softwareadvice.com/articles/hr/byod-or-bust-survey-results-report-103212/

Lai, E. (2012). Average Mobile Worker Carries 3.5 Devices. Here's the Downside. ÜberTech. Retrieved from http://www.zdnet.com/article/average-mobile-worker-carries-3-5-devices-heres-the-downside/.

Lamming, M., Eldridge, M., Flynn, M., Jones, C., & Pendlebury, D. (2000). Satchel: Providing access to any document, any time, anywhere. ACM Transactions on Computer-Human Interaction (TOCHI), 7, 322–352.

Liegl, M. (2014). Nomadicity and the care of place—on the aesthetic and affective organization of space in freelance creative work. Computer Supported Cooperative Work (CSCW), 23, 163–183.

Lloyd, A. (2003). Information literacy the meta-competency of the knowledge economy? An exploratory paper. Journal of Librarianship and information Science, 35, 87–92.

Lloyd, A. (2005). Information literacy different contexts, different concepts, different truths? Journal of Librarianship and information Science, 37, 82–88.

Lloyd, A. (2009). Informing practice: Information experiences of ambulance officers in training and on-road practice. Journal of Documentation, 65, 396–419.

Lloyd, A. (2010a). Framing information literacy as information practice: Site ontology and practice theory. Journal of Documentation, 66, 245–258.

Lloyd, A. (2010b). Information literacy landscapes: Information literacy in education, workplace and everyday contexts. Oxford: Chandos.

Lloyd, A. (2014). Following the red thread of information in information literacy research: Recovering local knowledge through interview to the double. Library & Information Science Research, 36, 99–105.

Lloyd, A., & Williamson, K. (2008). Towards an understanding of information literacy in context implications for research. Journal of Librarianship and information Science, 40, 3–12.

Mazmanian, M., Orlikowski W. J., & Yates J. (2013). The autonomy paradox: The implications of mobile email devices for knowledge professionals. Organization science, 24(5), 1337–1357.

Maxwell, J.A. (2005). Qualitative research design: An interactive approach: An interactive approach. Thousand Oaks, CA: Sage.

McKenzie, P.J. (2003). A model of information practices in accounts of everyday-life information seeking. Journal of Documentation, 59, 19–40.

McKenzie, P.J. (2009). Informing choice: The organization of institutional interaction in clinical midwifery care. Library & Information Science Research, 31, 163–173.

Mervyn, K., & Allen, D.K. (2012). Sociospatial context and information behavior: Social exclusion and the influence of mobile information technology. Journal of the American Society for Information Science and Technology, 63, 1125–1141.

Middleton, C. (2008). Do mobile technologies enable work-life balance? Dual perspectives on BlackBerry usage for supplemental work. In D. Hislop (Ed.), Mobility and technology in the workplace (pp. 209–224). London: Routledge.

Moring, C.E., & Lloyd, A. (2013). Analytical implications of using practice theory in workplace information literacy research. Information Research, 18(3). Retrieved from http://www.informationr.net/ir/18-3/colis/paperC35.html#.V2ysohUrJhF

Morse, D.R., Armstrong, S., & Dey, A.K. (2000). The what, who, where, when, why and how of context-awareness. Paper presented at the CHI'00 Extended Abstracts on Human Factors in Computing Systems, The Hague, The Netherlands.

Myrhaug, H.I., & Göker, A. (2003). AmbieSense-interactive information channels in the surroundings of the mobile user. Paper presented at the 2nd International Conference on Universal Access in Human-Computer Interaction, Crete, Greece

Nicolini, D. (2009). Articulating practice through the interview to the double. Management Learning, 40, 195–212.

Nicolini, D., Gherardi, S., & Yanow, D. (2003). Toward a practice-based view of knowing and learning in organizations. In D. Nicolini, S. Gherardi, & D. Yanow (Eds.), Knowing in organizations: A practice-based approach. New York: ME Sharpe.

Olson, J.S., & Olson, G.M. (2014). How to make distance work work. interactions, 21, 28–35.

Olsson, M. (2005). Meaning and authority: The social construction of an 'author' among information behaviour researchers. Information Research, Retrieved from http://www.informationr.net/ir/10-2/paper219.html

Orlikowski, W.J. (2002). Knowing in practice: Enacting a collective capability in distributed organizing. Organization science, 13, 249–273.

Orlikowski, W.J., & Scott, S.V. (2008). Sociomateriality: Challenging the separation of technology, work and organization. The Academy of Management Annals, 2, 433–474.

Østerlund, C., & Carlile, P. (2005). Relations in practice: Sorting through practice theories on knowledge sharing in complex organizations. The Information Society, 21, 91–107.

PearnKandola. (2007). A Study: Understanding and Managing the Mobile Workforce. Cisco Systems. Retrieved from http://newsroom.cisco.com/dlls/2007/eKits/MobileWorkforce_071807.pdf.

Perry, M. (2007). Enabling nomadic work: Developing the concept of 'mobilisation work'. Paper presented at the ECSCW 2007 Workshop: Beyond Mobility: Studying Nomadic Work Limerick, Ireland.

Perry, M., & Brodie, J. (2006). Virtually connected, practically mobile. In E. Andriessen & M. Vartiainen (Eds.), Mobile virtual work – A new paradigm (pp. 97–128). Berlin, Germany: Springer.

Perry, M., O'hara, K., Sellen, A., Brown, B., & Harper, R. (2001). Dealing with mobility: Understanding access anytime, anywhere. ACM Transactions on Computer-Human Interaction (TOCHI), 8, 323–347.

Pilerot, O., & Limberg, L. (2011). Information sharing as a means to reach collective understanding: A study of design scholars' information practices. Journal of Documentation, 67, 312–333.

Postill, J. (2010). Introduction: Theorising media and practice. In B. Bräuchler & J. Postill (Eds.), Theorising media and practice (pp. 1–32). Oxford: Berghahn Books.

Rainie, H., & Wellman, B. (2012). Networked: The new social operating system. Cambridge, MA: MIT Press.

Reckwitz, A. (2002). Toward a theory of social practices a development in culturalist theorizing. European Journal of Social Theory, 5, 243–263.

Reuters. (2012). Ricoh tackles the challenge of mobile worker productivity. Retrieved from http://www.reuters.com/article/2012/09/06/idUS131742+06-Sep-2012+PRN20120906.

Rivera, G., & Cox, A. (2014). An evaluation of the practice based approach to understanding the adoption and use of information systems. Journal of Documentation, 70, 878–901.

Rossitto, C., Bogdan, C., & Severinson-Eklundh, K. (2014). Understanding constellations of technologies in use in a collaborative nomadic setting. Computer Supported Cooperative Work (CSCW), 23, 137–161.

Rossitto, C., & Eklundh, K.S. (2007). Managing work at several places: A case of project work in a nomadic group of students. Paper presented at the Proceedings of the 14th European Conference on Cognitive Ergonomics: Invent! Explore! ACM, New York.

Savolainen, R. (2006). Time as a context of information seeking. Library & Information Science Research, 28, 110–127.

Savolainen, R. (2007). Information behavior and information practice: Reviewing the "umbrella concepts" of information-seeking Studies. The Library Quarterly, 77(2), 109–132.

Savolainen, R. (2008). Everyday information practices: A social phenomenological perspective. Lanham, MD: Scarecrow Press.

Savolainen, R. (2009). Small world and information grounds as contexts of information seeking and sharing. Library & Information Science Research, 31, 38–45.

Schatzki, T. (1996). Social practices. Cambridge: Cambridge University Press.

Schatzki, T. (2001). Introduction: Practice theory. In T. Schatzki, K. Knorr-Cetina, & E. Von Savigny (Eds.), The practice turn in contemporary theory (pp. 1–14). London: Routledge.

Schatzki, T. (2005). The sites of organizations. Organization Studies, 26, 465–484.

Schilit, B., Adams, N., & Want, R. (1994). Context-aware computing applications. Paper presented at the First International Workshop on Mobile Computing Systems and Applications, Los Alamitos, CA.

Schmidt, A., Beigl, M., & Gellersen, H.W. (1999). There is more to context than location. Computers & Graphics, 23, 893–901.

Schmidt, K., & Simonee, C. (1996). Coordination mechanisms: Towards a conceptual foundation of CSCW systems design. Computer Supported Cooperative Work (CSCW), 5, 155–200.

Schultze, U. (2000). A confessional account of an ethnography about knowledge work. MIS Quarterly, 24, 3–42.

Schultze, U., & Boland, R.J. (2000). Knowledge management technology and the reproduction of knowledge work practices. The Journal of Strategic Information Systems, 9, 193–212.

Sørensen, C. (2011). Enterprise mobility: Tiny technology with global impact on work (Technology, work, and globalization). London: Palgrave Macmillan.

Sørensen, C. (2014). Enterprise mobility. Tiny technology with global impact on work. London, UK: Palgrave Macmillan.

Spinuzzi, C. (2012). Working alone together coworking as emergent collaborative activity. Journal of Business and Technical Communication, 26, 399–441.

Stebbins, R.A. (2001). Exploratory research in the social sciences (Vol. 48). Thousand Oaks, CA: Sage.

Strauss, A. (1988). The articulation of project work: An organizational process. The Sociological Quarterly, 29, 163–178.

Su, N., & Mark, G. (2008). Designing for nomadic work. Paper presented at the Seventh ACM Conference on Designing Interactive Systems, Cape Town, South Africa.

Suchman, L. (2007). Human-machine reconfigurations: Plans and situated actions. Cambridge, UK: Cambridge University Press.

Sundin, O., & Francke, H. (2009). Search of credibility: Pupils' information practices in learning environments. Information Research, 14, 6.

Tabak, E. (2014). Jumping between context and users: A difficulty in tracing information practices. Journal of the Association for Information Science and Technology, 65, 2223–2232.

Talja, S. (1997). Constituting "information" and "user" as research objects: A theory of knowledge formations as an alternative to the information man-theory. In P. Vakkari, R. Savolainen, & B. Dervin (Eds.), Information Seeking in Context, 67–80. London: Taylor Graham.

Talja, S., & Hansen, P. (2005). Information sharing. In A. Spink & C. Cole (Eds.), New directions in human information behavior (pp. 113–134). Berlin: Springer.

Talja, S., Keso, H., & Pietiläinen, T. (1999). The production of 'context' in information seeking research: A metatheoretical view. Information Processing & Management, 35, 751–763.

Talja, S., & McKenzie, P.J. (2007). Editors' introduction: Special issue on discursive approaches to information seeking in Context1. The Library Quarterly: Information, Community, Policy, 77, 97–108.

Tuominen, K., Savolainen, R., & Talja, S. (2005). Information literacy as a sociotechnical practice1. The Library Quarterly, 75(3), 329–345.

Urry, J. (2013). Mobile lives and materialities. In F.-X. de Vaujany & N. Mitev (Eds.), Materiality and space: Organizations, artefacts and practices (pp. 263). London, UK: Palgrave Macmillan

Veinot, T. (2007). "The eyes of the power company": Workplace information practices of a vault inspector1. Library Quarterly, 77, 157–179.

Vertesi, J. (2014). Seamful spaces: Heterogeneous infrastructures in interaction. Science, Technology & Human Values, 39, 264–284.

Widén, G., Steinerová, J., & Voisey, P. (2014). Conceptual modelling of workplace information practices: A literature review. Information Research, 19(4). Retrieved from http://www.informationr.net/ir/19-4/isic/isic08.html#.V2yv1hUrJhE

Appendix I : Summary of the semistructured interview protocol

1. What kind(s) of work do you do?
2. Can you describe who makes up your work-related network, inclusive of clients, colleagues, partners, and subordinates?
3. What are the types of information you need to seek to get your work done?
4. What does a typical day look like? What does an exceptional day look like?
5. Where do you get your work done?
6. Mobility of work:
   [Do you work on your commute?]
   [Do you work in an airport lounge?]
   [etc.]
7. What are some of the advantages to your work arrangement (compared to 9-to-5 jobs)?
8. What are some of the challenges of your work arrangement (compared to 9-to-5 jobs)? Does/How does your work affect your home life?
9. What special literacies/knowledge do you think you've developed as a mobile worker?
10. Technologies:
    [What are the primary technologies you use? e.g., computers, devices, peripherals; software, applications; service providers and purchased services]
    [What devices and applications do you use regularly?]
    [What applications do you use for task or time management?]
    [Is there any company policy or expectation in relation to the use of technologies or electronic resources/networks?]
11. Internet:
    [How do you get online? Do you often face any problems?]
    [How do you maintain connectivity?]
    [How big is your data plan on your phone?]
12. Information dealings:
    [How do you get access to your organization's electronic resources?]
    [How do you store and back-up information?]
    [What cloud services do you use?]
    [How do you connect digital and nondigital information?]
13. Social aspects of work:
    [How do you keep yourself socially engaged with other people and make yourself visible while working independently or remotely?]
    [Do you attend any network events?]
    [How do you connect with or keep in touch with other people?]
    [Do you use social media?]