Chapter 5.28
The Sociotechnical Nature of Mobile Computing Work:
Evidence from a Study of Policing in the United States

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ABSTRACT

In this article we discuss the sociotechnical nature of mobile computing as used by three policing agencies within the United States. Mobile devices, access, and service was provided via a third-generation wireless network to a focal application, Pennsylvania's ***J***ustice ***NET***work (JNET), a secure Web-based portal connecting authorized users to a set of 23 federated criminal justice and law enforcement databases via a query-based interface. In this study we conceptualize mobility and policing as a sociotechnical ensemble that builds on the social-shaping of technology perspective and the tradition of sociotechnical theorizing, focusing on the co-design of work practices and technologies to support work. Drawing from the social informatics tradition, we turn a critical, empirical, and contextual lens on the practices of mobility and work. Our analysis of the data leads us to observing that the social and the technical are still considered separately in the context of mobile work. This simple view of social and technical as related, but distinct, often leads to problems with collecting and interpreting evidence of ICT-based systems' design and use. We further note that this over-simplification of sociotechnical action is likely to continue unless more viable analytic approaches are developed and the assumptions of the current techno-determinist approaches are challenged more explicitly.

INTRODUCTION

One of the many alluring possibilities of mobile computing is that people will be able to access computing resources while on the move. In organizational contexts, mobile computing (or mobility as we refer to it here) engenders scenarios of increased productivity through instant access to computing resources at any time from anywhere. Here we explore the sociotechnical nature of this envisioned future for mobility. In the social informatics tradition, we turn a critical, empirical, and contextual lens on the practices of mobility (Kling, 1999, 2000; Sawyer & Eschenfelder, 2002).

We first explain why policing is an appropriate domain in which to explore mobility and work. We then conceptualize mobility as a sociotechnical ensemble. In subsequent sections we lay out the research, outline our data collection and analysis, and then present and discuss seven findings. We conclude by focusing on implications regarding sociotechnical analysis.

Why Focus on Policing?

There are at least three reasons why policing is an appropriate domain for studying mobility. First, police officers' work has always been highly mobile. It is also knowledge-intensive and pervasive (for more on this, see Manning, 2003). Second, there continues to be great interest in using ICT to better support police officers' information needs. For example Manning (1996), in his study of cellular phone take-up among police, reported on the long-standing disparity between police officers' information needs and the abilities of the ICT used to provide them that information.[1] Third, policing and criminal justice have long been a focus of academic study; that provides us with extensive literature on police work, the social norms, informal and formal organizational governance mechanisms, and an understanding of their technological basis (see Manning, 1977; Klockars & Mastrofski, 1991; Manning, 2003)[2].

Current research findings provide contrary views as to whether the take-up of ICTs is driving the organization and structure of police departments, or if it is the reverse (Manning, 2003; Lin, Hu, & Chen, 2004; NASCIO, 2003; Taylor, Epper, & Tolman, 1998). Evidence is clear that the uptake of new computer-based systems and uses of mobile technologies (beyond the nearly omnipresent radio communications suite in most cars and with most police officers in the U.S.) is accelerating in the U.S. (Nunn, 2001). Partly, this attention comes in response to the country's increased attention to Homeland Security (Rudman, Clarke, & Metzel, 2003), though efforts to improve policing through advanced computing pre-date current attention (Northrup, Kraemer, & King, 1995). The limited functionality and advanced age of many criminal justice and police systems further magnify this attention (Brown, 2001).

Contemporary research also suggests that police are open-minded about new technologies (wireless and otherwise) and generally view favorably the potential of new technologies to change policing (Nunn & Quinet, 2002; Lin et al., 2004). In fact, the evidence shows that most police departments across the United States have one- to three-year plans either to implement wireless technology or have already implemented some form of wireless technology (Dunworth, 2000). To support these efforts, both the United States departments of Homeland Security (DHS) and Justice (DoJ) provide a range of grants to support information technology innovations in police departments throughout the nation. In addition, there is funding by local jurisdictions and a variety of other sources, including internally generated revenue, such as fines, to support technological innovation.