

# Chapter 111

## Mobile Technology for Knowledge Management

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### INTRODUCTION

IT support for knowledge management (KM) is a widely discussed issue. Whereas an overemphasis on technology is often criticized, the general consensus is that a well-balanced combination of technical and social approaches can be a rewarding departure (Alavi & Leidner, 1999). The usage of knowledge management systems (KMSs) (i.e., information systems including for example data warehouse techniques and artificial intelligence tools) is seen as a factor that can beneficially support different KM processes (Frank, 2001; Wiig, 1995). Due to the fact that an increasingly large proportion of work is not conducted in the context of stationary workplaces anymore, it becomes necessary to make KMSs available

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to those mobile workers (Rao, 2002; Sherman, 1999). Considering the different technological infrastructure in the stationary, as well as the mobile context, a KMS that so far is only available at a stationary workplace cannot simply become mobile without any changes. Further, the aspect of mobility implies specific design requirements for KMS. Taking together the rapid developments in the field of technology, allowing more and more mobile processes to be potentially supported through mobile KMS, as well as the current social and occupational developments, resulting in more mobile workplaces and business processes (Gruhn & Book, 2003), the relevance of mobile KM can be expected to increase in the future.

Once the focus is shifted away from the superordinate process perspective and addresses the design and development of applications to support mobile knowledge workers, technology and its use by human actors turns out as a major factor that has to be considered. The multiplicity

of devices as well as the variety of KM applications, combined with technological and human limitations, all affect the development of mobile KMS. This article aims at addressing important design requirements pointing to different directions that need further research. By doing so, the goal is to put not too much emphasis on technological issues, but rather to introduce the relevant mobile technology and provide a basis for the further discussion of mobile technology usage in the context of KM.

## **BACKGROUND**

Taking into account the wide range of literature available in the field of KM, the aspect of mobility as such is comparably under-researched so far. The same is true for the use of mobile information and communication devices in the context of KM. Studies on workplaces usually focus on stationary characteristics (Churchill & Munro, 2001). To approach the issue of mobile technology in the context of KM, input has to be taken from several different disciplines, including the area of computer-supported cooperative work (CSCW), which has been dealing for some time with the potential of mobile devices to support human decision-making and interaction processes is a comprehensive source. Further, literature dealing with mobile commerce can deliver some input as well. Finally, organization and work studies can contribute insights, especially when it comes to the wider context of mobile KM. In the following, relevant trends concerning the aspects of knowledge work and mobility are presented, and by doing so the basis for the further discussion is laid.

### **Knowledge Work**

Knowledge work is, like many other types of work, influenced by development of an increasingly mobile workforce. Due to changes in work processes and structures as well as the adoption

of information and communication technology (ICT), workplaces become increasingly mobile. In this context, not only dependent workers but also independent knowledge workers—freelancers—have to be considered, as their number is dramatically increasing (Kakihara & Soerensen, 2002b). This new form of worker is backed by ICT, allowing mobile workers to coordinate their interactions and communicate with other parties involved. This group of knowledge workers is also referred to as (digital) “nomads” (Soerensen, 2002; Hardless, Lundin, & Nuldén, 2001) or “post-modern professionals” (Kakihara & Soerensen, 2002b). The first term conveys the two characteristic properties of those workers. Firstly, they use ICT to connect and coordinate; secondly, they are on the move for a considerable amount of their working time.

### **Mobility**

The concept of mobility can be seen from different points of view, which have to be addressed in order to develop a common understanding of mobile knowledge work. Literature is providing several different perspectives of mobility. Traditionally, mobility is considered as being geographically without constraints. Kakihara and Soerensen (2002a) however extend that view by focusing on the aspect of human interaction and provide a differentiation between three aspects of mobility. *Spatial* mobility refers not only to the geographical mobility of humans, but also to the mobility of objects and symbols. With the Internet they are no longer bound to a certain space, but are available regardless of their location. *Temporal* mobility pertains to the opportunities of ICT to enable asynchronous communication and thus frees the user from the restrictions of time. *Contextual* mobility serves next to spatial and temporal mobility as a major factor influencing human action. For the purpose of this article, we are focusing on that aspect of mobility that can be considered as spatial mobility, as this factor is most relevant

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