Chapter IX

Usable M-Commerce Systems: The Need for Model-Based Approaches

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ABSTRACT

Mobile solutions are becoming more and more common in e-commerce and are giving rise to a new breed of m-commerce systems, which are characterized, among other things, by strong demands on usability. This chapter discusses new challenges and possible solutions for developing and evolving usable m-commerce systems, with focus on model-based approaches. We have experienced these new challenges through several research and industrial projects on mobile solutions, usability and model-based approaches over the last years. In this chapter, we apply our experience to the emerging m-commerce field. We summarize the main challenges on how model-based approaches can support
the development of usable m-commerce systems and indicate upcoming research issues in this very dynamic area. We argue that this research area is also timely, because the underlying technological infrastructure are just becoming sufficiently mature to make feasible research on personal, group and organizational issues, and not only on technical issues.

INTRODUCTION

Today, the PC is only one of many ways to access information resources. On one hand, traditional computing technology is becoming more mobile and ubiquitous and, on the other hand, traditional mass media are becoming richer as in interactive TV. Whereas information services related to interactive TV (iTV) and ubiquitous computing are projected to become prominent in a few years, mobile computing is the most important current market and technological trend within information and communication technology (ICT). For instance, it is projected by IDC that in 2004 there will be more mobile devices than PCs connected to the Internet. With the advent of new mobile infrastructures that provide higher bandwidth and constant connection to the network from virtually everywhere, it is predicted that the way people use information resources will be radically transformed.

According to Siau (2001), the essence of m-commerce is to reach customers, suppliers and employees regardless of where they are located and to deliver the right information to the right person(s) at the right time. To achieve this, a new breed of mobile information systems (Krogstie, 2001) must be developed. A lot of work has been reported on the technical aspects of mobile computing and thus on the technical aspects of m-commerce. Work has also been reported on the societal aspects of e-commerce and some of it directly on m-commerce. However, relatively little attention has so far been paid to the user side of m-commerce. The ability to develop and evolve usable m-commerce systems may become an even more critical success factor for enterprises in the next few years than is their ability to develop and evolve usable e-commerce systems today.

Research on business (information) systems has so far primarily dealt with the development and evolution of systems accessed through PCs and workstations. As mobile solutions are applied in more and more situations, new challenges will face those who develop and evolve business applications. This chapter summarizes some of the corresponding research challenges and points to how they can be addressed by model-based approaches.

The structure of this chapter is as follows: In the next section, we describe some of the specific characteristics of mobility. In section 3, we highlight some of the main differences between m-commerce systems and traditional information systems on the user, group, organizational, and inter-organizational level. In section 4 we summarize the resulting issues, research opportunities and future trends in how model-based approaches can be used to develop and evolve usable m-commerce