

## Chapter 4.25

# Consumer and Merchant Adoption of Mobile Payment Solutions

**Niina Mallat**

*Helsinki School of Economics, Finland*

**Tomi Dahlberg**

*Helsinki School of Economics, Finland*

### ABSTRACT

*As payments by mobile phones are an enabling technology, the adoption of mobile payments is believed to significantly influence the successful emergence of electronic and mobile commerce. In recent years, several mobile payment solutions have been launched, including the Mobipay in Spain, Moxmo in The Netherlands, M-pay in UK, and Pan-European SimPay. With the exception of mobile service purchases, however, consumer and merchant acceptance of these solutions has remained marginal. We discuss consumer and merchant adoption of mobile payments and suggest drivers and barriers for this adoption. We also describe potential mobile payment application areas and identify areas in which mobile payments have the highest and lowest possibility to succeed. The information is based on extensive*

*research conducted among Finnish consumers and merchants. The relevance of the results to other markets also is considered briefly in the discussion section of this chapter.*

### INTRODUCTION

Proliferation of mobile telephony during the 1990s and the success of mobile content services, such as ringtones and logos, raised high expectations for mobile commerce. Mobile commerce is a form of electronic commerce, where at least one part of the transaction is conducted via a mobile device, mainly a mobile phone. The differences between mobile and electronic commerce lie in access device and network technologies, use experience, and use contexts. While e-commerce is conducted through stationary desktop and

portable laptop computers and requires basic PC and Internet literacy, the most common devices for m-commerce are mobile phones and PDAs. These mobile devices enable transactions anytime and anywhere, require limited technical understanding, and are more personal in nature, because they commonly are used by single users, who keep the devices with them most of the time (Lyytinen & Yoo, 2002; May, 2001). On the other hand, the small size of devices and slower wireless networks limit data display, input, and transfer, as compared to e-commerce environments.

To serve the needs of the developing new mobile commerce arena, banking and telecom industries, among others, have developed mobile payment solutions. The list of applications handled by current mobile payment solutions include vending, ticketing, purchase of mobile content services (e.g., ringtones, logos, news, mobile games, etc.), electronic banking, peer-to-peer fund transfers, purchases on the Internet, and purchases of goods and services in the physical world. The most common way to make a mobile purchase is to call or send an SMS to a premium-rate service number or to send a service request to a mobile Internet site. The purchase is then charged via a monthly mobile phone bill or, in the case of prepay subscribers, deducted from a call credit. Other charging alternatives are mobile credit card billing, debiting a separate mobile account, and debiting a bank account. In Japan, the latest mobile payment solutions utilize RFID and other wireless and contactless (e.g., smart card) technologies (NE Asia online, 2004).

Since both electronic and mobile commerce environments currently lack prevailing and standardized global payment solutions, especially for micro-payments, mobile payments have the possibility to become a solution for this payment problem. For widespread acceptance and value to users, however, mobile payment solutions should be adopted in physical retailing, as well, not just on Internet and mobile networks.

To better understand mobile payment adoption, we conducted an empirical research focusing on the following three research questions: (1) Are consumers and merchants aware of mobile payment solutions? (2) What factors increase or inhibit the adoption of mobile payment solutions? (3) Which applications do consumers and merchants perceive most suitable for mobile payments? Our research draws from information systems adoption and acceptance theories, such as Diffusion of Innovations (Moore & Benbasat, 1991; Rogers, 1995) and Technology Acceptance Model (Davis, 1989; Davis et al., 1989). Empirical data were collected in 2003 among Finnish consumers and merchants with a qualitative and quantitative approach. The qualitative consumer study included focus group interviews with 46 consumers and a quantitative survey with 672 valid consumer responses. The qualitative merchant study included 15 individual merchant interviews and the quantitative study a survey with 143 valid responses. The merchants contacted represent various sectors in Finnish B2C business.

## **KNOWLEDGE AND EXPERIENCE IN MOBILE PAYMENT SOLUTIONS**

The adoption of a new innovation goes through a five-stage process: (1) knowledge, (2) attitude, (3) decision, (4) implementation, and (5) confirmation (Rogers, 1995). Awareness and knowledge are necessary preconditions for adoption. Therefore, the amount of knowledge people have of an innovation is an important predictor of the likelihood of adoption. Furthermore, research on technology diffusion has found that user experience in terms of trials or use of previous similar technologies is an important predictor of adoption (Agarwal & Prasad, 1999; Rogers, 1995; Taylor & Todd, 1995). We investigated both the awareness and the experiences of consumers and merchants about mobile payments and the level of knowledge the groups have about these new innovations.

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