Chapter 47
User Acceptance and Mobile Payment Security

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ABSTRACT

There have been multiple studies detailing mobile payment and its market potential. There is a gap in the literature when it comes to the study of acceptance factors focusing on security and trust. The researchers asked which qualities of security have an influence on the acceptance of a mobile payment service provider. Therefore this study will focus on distinguishing security in two dimensions: objective and subjective security. Objective security represents the user's perception of existing technical safety mechanisms. Subjective security is intangible, based on the user's feelings and perception towards security (trust). The Technology Acceptance Model (TAM) was the theoretical model used in the study. About three hundred responses were collected using an online questionnaire. The study showed that despite the financial crisis banks are still the preferred providers for mobile payment services, where over 80% of the respondents would like to receive the service from a bank. In contrast, only 20% would like to receive such a service from a mobile phone producer. Additionally objective security does not substantially increase subjective security; hence the user trusts the provider rather than the technology itself.

1. INTRODUCTION

Using the mobile phone for payment has been described in the literature as a market with large growth potential, predicting transaction volumes of more than $37 billion by 2008 (Chen 2008). The total U.S. market potential can be regarded as the $3.7 trillion that Americans charged to their debit and credit cards in 2010 (The Economist 2011). Market insiders have even been describing the market possibilities as so large as to predict that credit cards may not exist anymore within the next five years and calling mobile payment the next internet revolution (Spiegel Online 2011).

Mobile payment has been in development since the 1990s (Andreoli 2008). The first commercial vendor offering services within the market was the startup company Paybox. The company failed in most countries, with the notable exception of Austria; reasons for the failure are said to have been high costs and cumbersome use (Georgi & Pinkl 2005). It seems that since then mobile payment has only been a matter of analysis for industry specialists and scientists; high growth rates were forecasted but never materialized (Bregulla 2011). Gartner lowered their forecast for mobile payment users and the number of transactions by 2014 (Shen 2011) in their latest study. In 2009, mobile payment accounted for only 0.05% of all non-cash payment transactions (Capgemini 2010). Therefore mobile payment still has not reached any significant market penetration (Bussmann 2010).

However, there are new pull factors from the market, as technological conditions continue to change. Specifically mobile couponing combined with smartphones and their fast mobile networks, enabling data collection after a transaction, show growth potential (Georgi & Pinkl 2005). What also helps is that the smartphone technology has become cheaper and gained in market share in combination with affordable mobile internet flat rates for the devices. Thousands of apps for mobile phone customers are being made available on the market so that practical functionality is offered to the customer, and companies can sell wherever the customer is. With this, mobile payment has a technological grounding to sustain itself on the market. In the past it has been argued that enhanced availability of mobile technology, independence of location and time and a complementary relationship with traditional payment services (e.g. cash payment) would be a key enabler for mobile payment (Mallat 2007).

There has been a lot of research on mobile payment in general; however, less in the area of adoption of mobile payment by end-users. There is certainly a gap looking at user adoption specifically when considering a combination of security and trust. Hence researchers asked which aspects of security have an influence on the acceptance of a mobile payment service provider.

The first part of this paper provides a background to the study conducted including a definition of the term mobile payment. The second part will focus on the methods used to establish user acceptance. The third part will detail an online survey of around 300 people that was conducted in order to investigate the security preferences of the consumers. Finally the results of the survey will be discussed and conclusions will be drawn.

2. BACKGROUND

The following section will define some terms about payment in general, before defining and giving a short overview of the application of mobile payment. The term payment is used to describe the settlement of a receivable of purchased goods and services, which happens by transferring the payment currency. So, the payment currency becomes a means of barter with a certain value. Payment currency can be cash, book money or digital money (Pousttchi 2008). Multiple forms of a transaction of payment currency are available, e.g. cash over the counter, direct debit, check, cards in the form of credit or debit cards, third party payment providers like Paypal and as well mobile payment. Some countries are developing towards a cashless society, both for economic reasons and payment simplicity (Judt, 2006; Godschalk, 2006). Cashless transactions exist as well outside of bank environments in the form of prepaid cards such as gift cards, phone cards (Pousttchi, 2005) or prepaid payment means in the internet such as Facebook credits and Bitcoins.

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