

A Survey on Mobile Applications and Methods of Payments

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Abstract- A mobile application is defined as a software application, a wireless service or a mobile service that can be either pushed to user's handheld wireless devices or downloaded and installed, over the air, on these devices. An application which resides in the mobile phone or which is accessed or used by a mobile phone over any channel such as SMS, MMS, GPRS, Voice, DTMF. Two types of mobile applications can be accessed by wireless devices, the first type is Browser-Based. A Browser-Based application is an application that is accessed through the use of the mobile device's web browser. Browser-Based applications are coded with the use of a markup language. Second type is Native Applications. Native applications are those applications that are found entirely on the mobile device. These applications have their own runtime environment for execution. Mobile services to users, e.g. purchasing train tickets via mobile telephone or transferring money from the bank account. Individual services of similar nature can be bundled into an application, e.g. Mobile Ticketing or Mobile Banking.

Keywords – Mobile banking, Mobile Ticketing, Mobile Marketing, Mobile Services.

I. INTRODUCTION

An Overview of Mobile Applications: The applications are described briefly in the following:

Mobile Banking- This application makes it possible to complete bank related transactions, e.g. checking account status, transferring money and selling stocks, via mobile devices, independent of the current user location .Mobile

Entertainment: On the one hand, this application contains services that provide the user digital data with entertainment value on mobile devices, e.g. ring-tones, music and videos. On the other hand it opens an array of interactive services, e.g. betting, gaming, dating and chatting.

Mobile Information Services- This term refers to mobile services that provide subscribers with content of informational character. Examples of such services are news updates of any nature (finance, politics, sport etc.), traveling formation, access to search engines and Mobile Office (e-mails, appointments etc.).Mobile Marketing:

This term refers to services based on mobile communication technologies that provide firms with new, innovative instruments, e.g. to increase sale, win and retain customers, improve after-sales services, build and sustain a positive and modern image/brand and carry market research. Mobile devices serve thereby as simple and relatively inexpensive channels of interaction .Mobile Shopping: This application bundles services that allow for mobile processing of transactions involving purchase of goods of daily use. The user can purchase (mostly standardized)

products by choosing them from catalogue accessible from a mobile device. The products need not be of digital nature.

Mobile Ticketing- All services that must be paid for, before a lawful utilization can take place, are suitable for Mobile Ticketing, e.g. travelling in public transport, entry to a cultural event or cinema. This application ensures that the user can purchase a right to utilization/entry (ticket) via a mobile device, replacing the conventional paper ticket. The ticket is sent in digital form to the mobile device.

Telematics Services-Telematics is an artificial term referring to innovative technologies that link telecommunication technologies with informatics (information technologies). The transport segment has been the primary area of this application, which is also known as Intelligent Transport System(ITS). The main services are navigation systems, remote diagnosis as well as access to other mobile applications such as Mobile Entertainment, Mobile Content/Office, Mobile Banking and Mobile Shopping.

Mobile Commerce Applications	
Application	Examples of Offered Services
Mobile Banking	Mobile Accounting Mobile Brokerage Mobile Financial Information
Mobile Entertainment	Mobile Gaming Download of Music and Ring Tones Download of Videos and Digital Images Location-based Entertainment Services
Mobile Information Services	Current Affairs (Financial, Sport and other News) Travel Information Tracking Services (Persons and Objects) Mobile Search Engines and Directories Mobile Office
Mobile Marketing	Mobile Couponing Direct (context-sensitive) Marketing Organisation of Mobile Events Mobile Newsletters
Mobile Shopping	Mobile Purchasing of Goods and Services
Mobile Ticketing	Public Transport Sport- and Cultural Events Air- und Rail-Traffic Mobile Parking
Telematics Services	Remote Diagnosis and Maintenance of Vehicles Navigation Services Vehicle Tracking and Theft Protection Emergency Services

Table 1: Mobile Commerce services & applications

II. PAYMENT MECHANISMS FOR UTILISING MOBILE SERVICES

Having described various Mobile Commerce applications, it is imperative to have a look at the payment mechanisms required for a ailment of these applications. There are a number of such mechanisms, which are introduced in the following:

Payment by credit card- In this method the charges for services are billed against the credit card of the subscriber. The subscriber can inform the service provider about his credit card number, e.g. via WAP interface.

Payment against invoice- The subscriber may register himself with the provider and get an invoice for the services that he utilizes. The invoice may be paid by the subscriber manually or the provider may be entrusted with a standing order for direct debit against subscriber's bank account.

Payment by a prepaid card: The subscriber may buy a prepaid card sold by the provider. Any utilisation of offered services is billed against the prepaid card until the amount on the card is exhausted. *Payment by premium SMS:* The subscriber may send an SMS to a certain number. This SMS costs a fixed, pre-determined amount that is collected by the network carrier on behalf of the service provider. In Germany pre66 Mobile Applications & Methods of Payment SMS numbers usually begin with the prefix 0190 and generally cost anywhere between €0.19 and €2.99.

Payment via telephone bill- A comfortable way of paying for mobile services is payment via the monthly telephone bill that the network carrier, e.g. T-Mobile, sends to each subscriber. The carrier may collect the amount on behalf of the provider, against a certain service charge. For example-Mobile and Vodafone have started an alliance to offer such services to business partners for amounts not exceeding €10.

Mobile Payment- The term "Mobile Payment" refers to payments that are made via mobile hand-held devices in order to purchase goods and services.⁴⁸ Mobile Payment services usually act as intermediary between consumer and vendor. Prominent examples of such services are "Mobile Wallet", a service by T-Mobile and "m-pay" by Vodafone. It is a hybrid form of payment that combines elements from other methods of payment, e.g. credit cards, prepaid cards, invoicing and telephone bills. Both, the consumer, generally a mobile phone subscriber of the concerned network carrier, and the vendor, get themselves registered with the payment service. Each subscriber gets an individual PIN to authenticate himself via WAP or SMS, in order to make payments for his purchases. The advantage for the subscriber lies in the fact that he does not need to get himself registered with each individual vendor. The vendor, on the other hand, does not need to worry about the credit-worthiness of individual customers. He may also hope to attract customers who would have liked to pay by mobile means but who were not willing to register themselves with him.

There have been extensive studies, about the viability of Mobile Payment, which have generally confirmed the acceptability of such methods amongst consumers. In the following we introduce the findings of a representative study by Khodawindiet al. [2003] carried out by the University of Augsburg and involving about 4,400 participants. Over 80% of survey participants were willing to accept Mobile Payment (payment via mobile, electronic devices). An overwhelming majority (96%) of the willing participants gave "privacy of personal data" as one of the reasons for their decision. Other cited reasons were "simplicity of the method" (93%) and "less or no transaction costs" (92%). The transaction costs seem to be an important criterion for the acceptability, as over 37% of the surveyed persons were willing to use Mobile Payment only if it had no transaction costs, another 19% were willing to pay up to €2.50 yearly fees for utilizing such services, a further 36% up to €5. The study further found out that Mobile Payment is preferred primarily for smaller amounts ("micropayments"). There is no clear cut definition of the term micro payments; opinions range from €2.50 to €10. Nonetheless, over 71% of the participants of the Augsburg study were willing to make use of Mobile Payment for amounts between €2.50 and €50.

It may however be contended that the Mobile Payment methods have come to enjoy acceptability, paving way for Mobile Commerce applications. The limitation of micro payments must, however, be kept in mind while designing an application. Mobile Payment is sometimes also described as being a part of Mobile Banking, see for instance Mustafa et al. [2002, p. 358].⁴⁹ This perception, however, seems to be somewhat misleading. Though Mobile Payment is generally employed to pay for goods and services ordered via mobile devices, it may as well be employed for purchasing goods and services that are neither ordered nor delivered via mobile devices. Because of this broader applicability it does not seem appropriate to confine Mobile Payment to the narrower scope of Mobile Commerce.

While Mobile Payment is thought to play a key role in the acceptance and success of Mobile Commerce by providing a convenient, uncomplicated and secure method of payment [Khodawindi et al., 2003, pp. 1-2], its scope is broad and transcends that of Mobile Commerce as defined for the purpose of this study. Mobile Payment provides a vital infrastructural foundation to Mobile Commerce and should thus be regarded as a component of Mobile

Business. In accordance with this logic the issue of Mobile Payments here not dealt with any further. This study is focused on viability of mobile applications in the banking sector.

III. CONCLUSION

In this paper we depicted mobile various mobile applications and methods of mobile payment. We have studied different types of service of mobile applications and noticed that the drawbacks and advantages of every application and payment methods.

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