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## A Survey on Mobile Commerce

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**Abstract:-** Mobile commerce or M-Commerce is a term used for transaction conducted by mobile equipment like mobile phones, personal digital assistants (PDAs) for social and financial activities using wireless internet services. It is an extension of electronic commerce. Durlacher (1999) defines m-commerce as “any transaction with a financial value that is conducted via a mobile telecommunication network.” It is used to buy tickets, reservations, paying premium, buying gifts and recharging mobile etc. In spite of M-Commerce is subset of Ecommerce it has many advantages like accessible at any place, more secure and suitable. M-commerce could be particularly important in India, where only a small fraction of the population currently has either a bank account or a credit card. Several problems will have to be overcome if m-commerce is to emerge as a viable option for the country’s entire population. These barriers include Lack of consciousness, Concerns about security, Lack of a simple, standardized payment mechanism, discrepancy between service providers and network operators, diverse environment, Lack of high speed connections. This article undertakes a thorough examination of the conceptual background and existing regulatory framework of this relatively new business field, in order to provide a efficient and inclusive understanding of M-Commerce, including its utilities for both consumers and service-providers, so as to make them aware of the new business opportunities arising out of this convergence. For this purpose an overview of modern mobile services is also provided.

**Keywords:-** M. commerce, Application, Payment Methods, Technology, Barrier

## 1. Introduction

The term Mobile commerce or m-commerce is defined as any direct or indirect transactions with a financial value conducted by wireless networks.

**Mobile Commerce**, or m-Commerce, is about the applications and services that are becoming available from Internet-compatible mobile devices[1]. It consists of new technologies, services and diverse type of business models. It is pretty different from conventional e-commerce. Using mobile services, users can send or receive electronic mails, download any audio and video, shop for goods and services, play interactive games, buy and sell stocks, book any tickets, locate your friends, conduct financial and banking transactions and so on. One of the main benefit of using m-commerce services is that we can access or do our different task from anywhere, anytime globally .Mobile phones

implements very different constraints than computers. But they also open the gate to new applications and services. They track you wherever you go, making it possible to look for a close by restaurant, stay in touch with social group, or pay for items at a store. As the whole world finds its way into our purses or pockets, the devices we use to contact it are becoming more personal too. Already now days, mobile phones know the phone numbers of our acquaintances and colleagues. They are starting to follow our location. Tomorrow, they will substitute our wallets and credit cards. One day, they may very well turn into intellectual assistants competent of anticipating many of our wishes and desires, such as robotically arranging for taxis to come and pick us up after company meetings or providing us with summaries of important news and mail left by colleagues. But, for all these changes to ensue, main issues of interoperability, usability, protection, and secrecy still need to be overlook.[3]

Individual mobile services of similar nature can be grouped into an application, e.g. Mobile Ticketing or Mobile Banking. In the following Figure we present a concise impression of diverse m-commerce applications.[2]

## 2. MOBILE APPLICATIONS

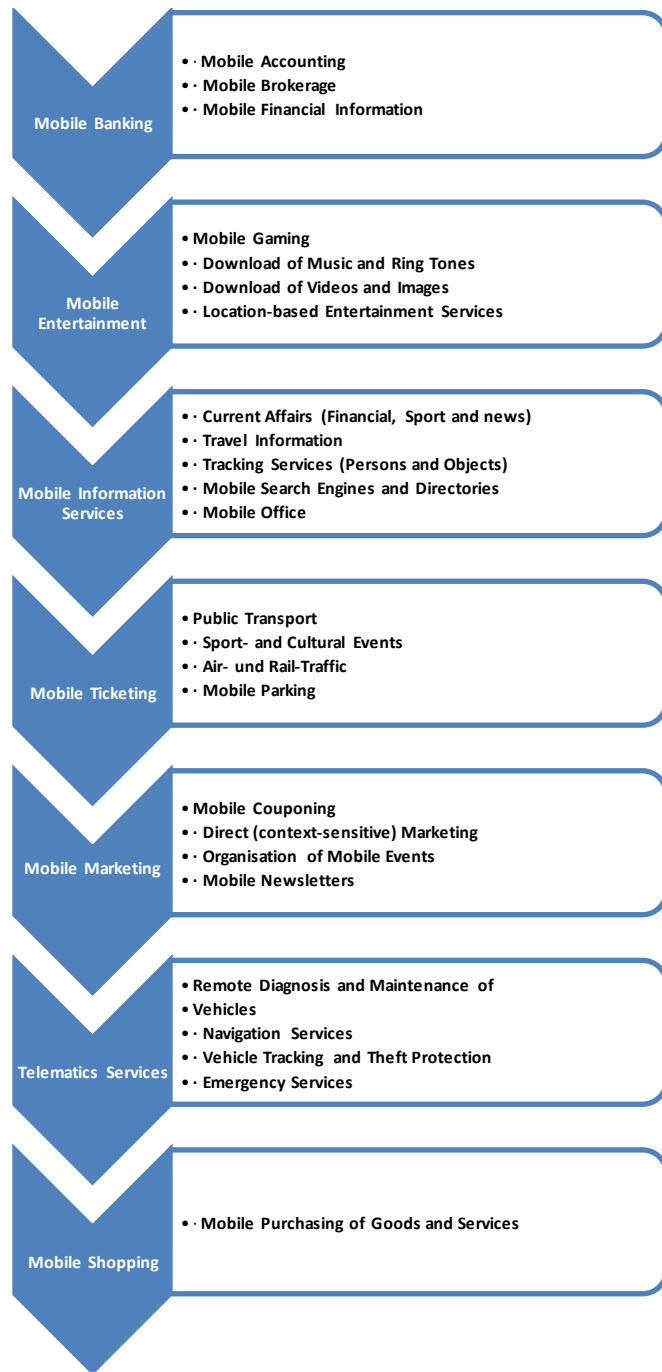


Figure:-1

**Mobile Banking:** This application helps to complete bank-related transactions, e.g. scrutiny account status, transferring money and selling stocks, by mobile phones independent of the current user location.

**Mobile Entertainment:** This application contains services that offer the user digital data with entertainment value on mobile devices, e.g. ringtones, music and videos. On the other hand it opens an collection of interactive services, e.g. betting, playing online games and conversation.

**Mobile Information Services:** This term refers to mobile services that supply subscribers with content of informational nature. Examples of such services are news updates of any nature (finance, politics, sport etc.), voyage information, access to e-mails, appointments etc.

**Mobile Marketing:** This term refers to services that based on mobile communication technologies that provide firms with new, modern methods like to increase sale, create and maintain customers, improve after-sales services, build and sustain a positive and modern image or brand and carry market research. Mobile devices serve thereby as simple and relatively economical channels of communication.

**Mobile Shopping:** This application bundles services that allow for mobile processing of transactions relating purchasing of goods of daily use. The user can purchase or sale (mostly standardised) products by choosing them from a list accessible from a mobile tool.

**Mobile Ticketing:** All services that must be paid for, before a legal utilisation can take place, are suitable for Mobile Ticketing, e.g. travelling in public transportation, entry to a cultural event or watching movies. This application ensures that the user can

purchase a right to entry (ticket) through a mobile device, replacing the old paper ticket. The ticket is sent in digital form to the mobile device.

**Telemetric Services:** Telemetric is an synthetic term that refers to modern technologies that link telecommunication technologies with informatics. The transportation segment has been the primary area of this application, which is also recognized as Intelligent Transport System. 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.

### 3. PAYMENT METHODS FOR UTILISING MOBILE SERVICES

Having described various M-Commerce applications, it is essential to have a look at the payment mechanisms required for access of these applications. There are a number of such method which are as follow:[4]

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

**Payment against bill:** The subscriber may register himself with the provider and get an invoice for the services that he or she used. The subscriber may pay the invoice either manually or entrust the provider with a order for direct debit against customer 's bank account.

**Payment by a prepaid card:** The subscriber may buy a prepaid card sold by the supplier. Any utilization of accessible services is billed against the prepaid card until the amount on the card is finished.

**Payment by SMS:** The subscriber may send a SMS to a certain number. This SMS costs a flat, pre-determined amount that is collected by the network transporter on behalf of the service provider.

**Payment via telephone bill:** A easy way of paying for mobile services is payment through the monthly telephone bill that the network transporter sends to each subscriber. The transporter may collect the amount on behalf of the provider, against a certain service charge.

**Mobile Payment:** The word "Mobile Payment" means that expenditure are made through mobile devices in order to purchase goods and services. Mobile Payment services usually act as mediator between consumer and the vendor. well-known examples of such services are Mobile Wallet. It is a combination form of payment that combines elements from other methods of payment, e.g. credit cards, prepaid cards, invoicing and telephone bills. Both, the consumer and the seller, get themselves registered with the payment service. Each user gets an individual PIN to validate himself in order to make payments for his trading. The advantage for the customer depend on the fact that he does not need to get himself registered with each individual vendor. The seller, on the other hand, does not need to be concerned about the credit-worthiness of the individual customer.

### Emerging Technologies for Mobile Commerce

The recognition of 2G and 3G mobile networks as well as the high market transmission of mobile devices have created great demands for developing innovative applications in the region of mobile commerce .M-Commerce deals with trading of goods, services, and including related activities like marketing and payment transactions over a mobile network and hence follows similar purposes as E-Commerce in the fixed Internet. However, M-Commerce is dealings between different type of people and services that are very dissimilar from those from the E-Commerce area. Services are

accessed through mobile devices with numeric keypads and small displays area with low resolution and hence screening items, moving between websites, entering website's address or filling forms are not as easy as when made from a PC or a notebook. In addition, mobile customers do not want to be disturbed while being occupied in a certain situation, for example, during a meeting or while driving a car. Rather, they want to shift service interactions to quiet times, for example, when waiting for a train. Due to these reasons, service interfaces as well interaction and transaction patterns for M-Commerce cannot be simply adopted from the E-Commerce area, but must be built from the scratch by utilizing new and emerging technologies. In order to make M-Commerce a success and achieve a high degree of customer acceptance, the mobile services must be designed to be as convenient as possible and to serve the customer under consideration of her current situation.[11]

Main technologies that can be used for satisfying these demands are positioning, barcodes and Radio Frequency Identification Tags (RFIDs).

**Positioning** is used by customers which is GPS receivers which in the near future will become a important feature of mobile devices. It is especially suited for attracting the people's attention to nearby shopping opportunities in the framework of mobile marketing and advertising.

**Barcodes** on the other hand, can be scanned by each inbuilt camera of mobile devices and can be used on the spot when the customer wants to get additional information about a tangible product as well as for making buying and selling.

**RFIDs** follow similar goals, but require that devices are equipped with dedicated radio technology.

## **Barriers affecting mobile commerce implementation**

Mobile commerce (mCommerce) is huge and growing quickly. However there are issues inherent in mobiles which are affecting mCommerce adoption. In our recent study into mCommerce we found these barriers were centered around three key issues:[6]

### **Security**

Most of our participants worried about the possibility of having their phones hacked or infected by viruses; issues that could lead to their personal or card details being intercepted. They felt more exposed than when using their PC's. Whether the 'lack' of security on mobiles is real or visible there are steps you can take to dispel user's fears. Icons that represent security like padlocks or a security accreditation like 'Veri sign' are simple ways of doing this. Such methods are unexpectedly bare.

### **Screen size**

The size of the screen makes it difficult to understand the detail of some products, such as clothes and furniture. Consequently, many of our participants expressed unwillingness to complete purchases of such items if they were unfamiliar with them. Screen sizes are gradually improving as is their quality but if you are selling a product which is visually complex try to help your customer. Have good zoom features for any images or an option to send images to a desktop to view on a larger scale.

### **Connectivity**

The study also identified a significant level of unwillingness amongst users due to a worry that something might go wrong in the middle of a transaction. Consumers are less likely to engage in transactions that involve payment while on the go because of the fear of "have I paid or haven't I?" This

problem is one of the more difficult to plan for as phone connections are never 100% reliable. However, there is no reason you cannot explain this. If you are concerned about losing your connection halfway through payment, don't worry! We will let you know if payment went through - A simple notification would be enough. If you want to find out more about mCommerce you can find the full report. Also, if you know of or have experienced any issues that have affected your mobile shopping experience.

### **Concluding Remarks**

The above paper has shown that m-commerce applications and wireless devices are developing rapidly, one will take forward the other one towards empowering modernization, flexibility and power in them. There are a number of business opportunities and extraordinary challenges of bringing forth viable and strong wireless technologies ahead for fully realizing the huge strength of m-commerce in this Internet era and thereby meeting both the basic requirements and advanced prospect of mobile users and providers. Developing "anytime, anywhere" mobile services presents a challenge and an opportunity for the seller from different industries. Other services such as Mobile Banking are more interesting for specialized firms such as banks and other financial enterprises. More specifically, a vast field of business opportunities is about to be created for technology providers who could offer mobile solutions to the service providers. Wireless devices keep on to change rapidly. While no one is quite sure what the ultimate wireless device(s) will be, there is definitely a need to ensure that devices can function with one another. There is also the necessity for a truly global wireless communication structure with high bandwidth to satisfy the needs of wireless and m-commerce applications. The establishment of a wireless infrastructure costs a great deal, and there will be many difficulties for the companies in the way for m-commerce, but the long-term prediction looks good for the companies that

survive. Positioning, barcodes and RFID are key technologies for easing the dealings between mobile customers and m-commerce application systems, to introduce new interaction and advertisement patterns, and to serve customers under concern of their current situation. However, these technologies will only gain acceptance if the privacy of customers is not violated in that the data derived by them is used for other purposes than it was initially collected for or misused in another, criminal sense. Furthermore, such services must be designed in a way that consumers do not feel harassed by incoming advertisement messages. They should be delivered to a customer only if they are in accordance with her interest profile, and it must be possible to conveniently cancel a subscription either permanently or temporarily. A major challenge in this context is also the development of privacy protection mechanisms, for example, privacy constraints for defining how to use and process a customer's personal data or techniques, which allow to hide a customer's true identity from certain actors participating in the supply chain of an M-commerce application system.

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