

MOBILE COMMERCE: A REVIEW

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ABSTRACT

As the power of wireless increases, it provides various opportunities for improving services to customers. In today's era, mobile commerce or M-Commerce has entered almost all the aspects of Business organizations like finance, retails, services, telecommunications and information technology services. This paper discusses the concept of Mobile Commerce. It looks at how the technology of Mobile Commerce has facilitated new business trends. After this there is detailed description of applications of M-Commerce, its advantages & disadvantages. In last finally it throws light on the challenges that are faced by M-Commerce.

Keywords

M- Commerce, E- Commerce, Security, Privacy

INTRODUCTION

M-Commerce- M-Commerce, also known as Mobile Commerce, is the ability of buying and selling goods and services through the use of mobile devices like Cellular Telephone, tab and PDA's. It is also known as next generation E-Commerce that needs no wire and plug in devices. "Mobile Commerce refers to any transaction with monetary value that is conducted via a mobile telecommunications network." (Durlacher)

Mobile phones impose different constraints than desktop computers. But they also open the door to a treasure of new applications and services. They follow you wherever you go, making it possible to look for a nearby cafeterias, stay in touch with friends, or pay for the items. So the mobility is the primary driving force behind mobile commerce, or mCommerce. With the rapid increase in Smartphone access across the globe, mobile commerce has gained increasing acceptance by the users.

Mobile Commerce is completely different from overall mobility and mobile applications as it provides customers with the ability to buy products by using mobile devices.

Despite of huge popularity of mobile commerce, it is yet in the preliminary stage and can be further develop in all the fields, which can affect the human life.

1. APPLICATIONS OF M-COMMERCE

Mobile Commerce has gained increasing reception amongst various sections of society in the last few years. Mobile services have registered remarkable growth in past years and M-Commerce is slowly but surely showing signs of a healthy growth. Following are the some of the applications of M-Commerce:

- **Entertainment--** Entertainment has always played a crucial role in Internet applications and is probably the most popular application for youth. Mobile commerce makes it possible to download games, images, music, video files at anytime and anywhere, and it also makes on-line games much easier to access and play.

- **Mobile Ticketing-** M-Commerce facilitates Mobile Ticketing. By this user is able to use their tickets immediately by presenting their phones at the venue. By utilizing the B CODE technology or NFC1 technology we could use the mobile phone as a means of receiving E-Tickets. B CODE technology consists of sending text SMS which is scan able from the mobile phone display screen through the related set. So by receiving the chosen SMS, the ticket is practically received and we could present the mobile phone to the scanning machine at the ticket receipt spot.
- **Location Based Services-** Mobile Commerce transactions also provide location based services. These include-
 - Local Offers
 - Local Maps
 - People Tracking and Monitoring
 - Local Weather
- **Inventory Tracking and Dispatching:** Today Just-in-time delivery is the utmost requirement for the success of any business. Mobile commerce allows a business to keep track of its mobile inventory and make time-definite deliveries, thus enhancing customer service, decreasing inventory and improving a company's competitive edge.
- **Mobile Banking-** Banks and other financial institutions influence the use of M- commerce by allowing the customers not only to access the account information, but also facilitates other transactions like purchasing stocks, paying the bills, remitting money via mobile phones and other mobile devices.
- **Health Care:** M-Commerce can help to reduce the high cost of health care. By using the technology of mCommerce, physicians and nurses can remotely access and update patient records immediately. This improves productivity and efficiency, reduces clerical overheads, and enhances service quality. Mobile technologies such as PDAs, Laptops or Tablet PCs can be of great value in hospitals and healthcare facilities by allowing better access to critical information.
- **Traffic:** The passengers in the vehicles and the pedestrians all are mobile objects, ideal clients of mobile commerce. Also, traffic control is usually a major problem for many metropolitan areas. Using the technology of mCommerce, the flow of traffic can be improved in many ways. For example, a mobile handheld device ,having the capabilities of a GPS, can determine the driver's exact position, giving directions, and advising on the current status of traffic in the area. A traffic control center could also monitor and control the traffic according to the signals sent from mobile devices in the vehicles.
- **Commerce:** Commerce is the exchange or buying and selling of merchandise on a large scale involving the transportation of goods from one place to another. It is enhanced by the convenience and ubiquity conveyed by mobile commerce technology. For example, mobile users can check their bank accounts and perform account

balance transfers without needing to go to a bank, consumers can reserve the tickets or pay bills fee by using their mobile phones.

- **Enterprise Resource Planning (ERP):** In the coming mobile commerce era, users will be able to have access to the right resources and work as efficiently as possible whether they are traveling, meeting a customer or working at some remote location with their ERP systems. Many ERP vendors are currently researching for means to provide mobility to ERP users. They attempt to connect employees to their work more effectively than ever before by enabling mobile phones and other wireless devices to become a new kind of tool to flawlessly exchange information, automate data entry and perform various transactions anywhere, anytime.

2. BENEFITS OF MOBILE COMMERCE

The use of E-commerce is provided only when the user is at his/her own home or workplace or in any other location where he/she can access media such as Internet or TV while M-commerce merely need the Mobile-phone. However this doesn't mean that M-commerce is limited to ordinary applications like reading E-mail or reporting. Below are some of the advantages of M-commerce:

1. Increase efficiency.
2. Decrease transaction cost.
3. Flexible Accessibility.
4. Simplify Business Processes.
5. Spontaneous decisions.
6. Location and Time Independent.
7. Reduce time consumption.
8. Providing wider reach.
9. Much Convenient.
10. Personally owned smart phones reduce IT training.

3. LIMITING FACTORS OF M-COMMERCE

Besides all the above mentioned advantages, M-Commerce has the following limitations:

1. Lack of Standards.
2. Weak processors.
3. Limited memory.
4. Small screens, poor resolutions.
5. WAP and SMS limited to small numbers of characters and text.
6. Limited graphics.
7. Less functionality for mobile internet over mobile phones and existing generation of handhelds than for mobile computers.
8. Difficult to learn User Interface.
9. Limited Bandwidth.
10. Cost of establishing mobile and wireless broadband infrastructure.
11. Security of data moved across some mobile and wireless networks.
12. Poor data entry.
13. Health problems- microwaves can cause damage to DNA.
14. Addiction in teenagers.

4. CHALLENGES IN M-COMMERCE

Though M-Commerce is blessing for everyone, but there are some challenges to it as well. The high prices of mobile services together with the slow access speed have not helped to add to the shine of the mobile environment. Some of the key challenges are as discussed below.

Lack of Awareness - Comparatively there is less consumer awareness regarding the value of M-Commerce, because currently only a few M-Commerce application are existing, although the number has begun to increase.

Security Problems- The biggest worry of a user is the safety and reliability of business transactions over a wireless connection. Users will engage in mCommerce only if they trust that the transactions made through their devices are secure.

Security of data transmissions and commerce being conducted by wireless devices is a great concern for businesses and individuals today. A prerequisite for the success of M-Commerce applications is the legal recognition and non disputability of any transactions. The mobile digital signature can resolve this problem.

New smart cards, available for wireless communications applications, will enable secure transactions via the Internet. The wireless identity module (WIM) will guarantee a new level of security by giving mobile Internet users the ability to safeguard their transactions through encryption and digital signatures. The card offers two forms of protection: client-to-server authentication using ultra long keys, and the ability to generate the digital signature required to secure the application.

One of the advantages of smart card IDs is that they are extremely hard to copy. To crack a private key stored in a smart card or guess its value based on a corresponding public key is very difficult. A PIN code is added as an extra security measure to avoid abuse if the card gets stolen or lost. An ordinary ID card can only be used for identification, while a smart-card-based ID card can also be used to digitally sign documents and transactions in a non repudiated way. However, the security measures typically implemented with a wireless application delivery approach can add to the costs and make the computing system more complex to administer and use.

Lack of Simple and Standardized Payment Mechanism- There is no equivalent of the Credit Card or ATM offering an easy way to make payments through mobile phones in India. But many countries like USA and Japan have developed Mobile Payments which directly increase the use of M-Commerce.

Distortion between Service Providers and Network Operators - On the Internet, any provider who conforms to the Net's standards can put an application online without anyone's permission- on mobile networks, providers have to work with private network operators. At present, there are many small service providers who must depend on a relatively few large mobile network operators to reach customers. Because of this imbalance, the operators capture the biggest share of the revenues generated by value-added services.

Diverse Atmosphere- The most crucial challenge for service providers is that they must develop applications for multiple networks and a wide range of devices. According to Vanu Bose, chief executive officer (CEO) of Vanu Inc., whereas there are only two major Web browsers for PCs, in the world of mobile phones there are multiple operating systems with

multiple browsers, so that same application can look completely different on different screens. As we know, without standardization, developing m-commerce applications can be unaffordable for the customers.

Wireless Constraints--Developing content for wireless devices requires rethinking the Web experience. Wireless content developers need to begin from the ground up, developing content for these new devices. Wireless devices also tend to be monochromatic, so images do not render well. Keyboards are difficult to use. Wireless devices tend to have limited CPU, memory, and battery life. Developers and designers need to find new, intuitive navigational techniques to overcome these constraints.

Content developers need to develop with these motives in mind. Rather than just translating a content-rich site into WML, developers need to think in terms of surgical access to content and drilling-down capabilities to detailed information in the site .

Wireless User Behavior--Wireless users will not be expected to "surf the Web" in the traditional sense. This is due to the viewing and input constraints of using a wireless device and the relative inconvenience of performing any but the most straightforward, time-critical tasks. More likely, wireless users are expected to use their devices to execute small, specific tasks that they can take care of quickly, such as finding the time of local events, purchasing tickets, looking up news, or checking e-mail.

Infrastructure for Wireless Internet--Currently, the infrastructure to handle smart cards is not generally established. Most industry analysts believe that smart cards will eventually become mainstream for paying in shops and on the Internet, together with a PC. In many countries, smart ID cards will also become fairly wide-spread. One of the problems is that the cost for shops, banks, companies, homes, and PC owners to convert to smart cards makes the process fairly slow.

Privacy--Privacy is another issue not resolved by the growth of m-commerce. The new connectivity of consumers to the Internet is a great convenience for consumers, but it also comes at a price. The price is the value of privacy that individuals lose, as they become hooked-up to the Internet. One part of privacy is that the development of smart cards for use with cell phones is convenient for consumers wanting to buy or sell. However, much personal data is enclosed on the card, and it could be used for the wrong purposes.

Many cell phones can be equipped with a global positioning chip that can identify the location of the user. This new technology would be good for emergencies but could also be used against the individual for monitoring purposes or other activities. These are issues that still need to be addressed and have been downplayed by current technology developers. Privacy is one of several issues that complicate the long-term timetable for developing location-based m-commerce.

CONCLUSION

With the blast of smart phones, tablets, 3G services and the acceptance of unlimited data service plans, M-Commerce provides business owners the opportunity to easily connect with their customers in real time wherever and whenever they might be. We can finally conclude that M-Commerce is basically a benediction for everyone. No doubt, it too has some disadvantages and challenges, but one cannot deny from

the benefits of M-Commerce that has shortened the gaps between everyone.

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