

M-Commerce

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M-COMMERCE

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Preface

Commerce application deployment. Countries like Japan, South Korea, Singapore, and Hong Kong are adopting the mobile payment system enthusiastically. In Japan and South Korea, major wireless operators like NTT DoCoMo and SKTelecom have successfully implemented M-commerce. Japan has nearly 65% of mobile penetration and now mobile phones are also doubling up as 'mobile wallets' (cash and credit cards) combined with services such as GPS and location-based targeting, which are opening new market possibilities with new revenue streams.

M-commerce has the potential to provide huge satisfaction to end-users, generate business opportunities, and provide quick access. There are a number of technologies that enable mobile commerce such as infrared, SMS, interactive voice response, mobile scan and contactless chips. These technologies are transforming the mobile phone into a replacement for petty cash, and debit and credit cards; here the payments are charged either through the mobile phone bill or to the bank account.

Despite all the hype, M-commerce has still not gained speed in the country. The overriding hype and expectation has kind of built a wall around M-commerce. The prevalent assumption is that this service is for the elite, which is not the case. Another area which needs to be dealt with is the issue of security and reliability. The Indian user is still not comfortable with the idea of giving away his debit or credit card number over the phone. Also, security is a major concern for M-commerce to flourish. There are a number of payment options for people such as cheque pick-up, cash on delivery, etc., so the number of people actually paying through cards is not very significant. Security is not a concern technologically; it is just a matter of the mindset that needs to be changed. There are ways such as tamper-proof digital certificates to authenticate the identity of users, for example PIN or passwords. Biometrics such as voice recognition is another area, which can be used to offer greater protection.

Although in a nascent stage, a number of players have ventured into the Indian M-commerce segment. Online Mobile provides services such as movie ticket booking through its voice systems. Paymate has tied up with Citibank to provide SMS-based M-commerce services and Jigrahak has launched a payment platform called "NGpay" for online mobile shopping, to name a few. Telecom service providers such as Reliance and Airtel have been providing services such as bill payments, railway and airline ticket booking, etc. To sum it up, it is evident that the opportunity is immense and mobile commerce can be seen as a potential revenue driver for the industry players. The possibilities are innumerable. Once the pace is set, M-commerce will become the way of life on mobile.

This book is an effort to explain the concept of M-commerce, its growing adaptation, the various hurdles due to which its usage has not gained the momentum, in India. This book can be used as elementary reading as far as M-commerce is concerned. Glossary is included in the last part of this book, which gives the idea about the technical jargons used throughout this book.

— Dr. Shiney Chib

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CHAPTER – 1

M-COMMERCE — AN OVERVIEW

LEARNING OBJECTIVE

This chapter of the book focuses on the basic concept of M-commerce. The motive is to elucidate the readers the fundamentals of M-commerce concept. The readers go through:

- Introduction
- M-commerce — The Concept
- M-commerce — Customer's View
- M-commerce — Provider's View
- M-commerce — Benefits
- Characteristics of Wireless vs. Wired
- M-commerce vs. E-commerce
- Summary
- Study Questions

INTRODUCTION

M-commerce is defined as 'the ability to purchase goods anywhere through a wireless Internet-enabled device. Primary mobile communication exists through web-enabled wireless phones.

It can also be defined as:

- *"Providing E-commerce in a mobile context."*
- *"Using mobile technology to sell or buy items, access business information, conduct a transaction, perform supply chain or demand chain functions."*

Mobile Commerce refers to wireless electronic commerce used for conducting commerce or business through a handy device like cellular phone or ¹Personal Digital Assistant (PDA). It is also said that it is the next generation wireless E-commerce that needs no wire and plug-in devices. Mobile commerce is usually called as '**M-commerce**' in which user can do any sort of transaction including buying and selling of goods, asking any services, transferring ownership or rights, transacting and transferring money by accessing wireless internet service on the mobile handset itself. The next generation of commerce would most probably be mobile commerce or M-commerce. Presuming its wide potential reach, all major mobile handset manufacturing companies are making ²WAP (Wireless Application Protocol) enabled smartphones and providing the maximum wireless internet and web facilities covering personal, official and commerce requirement to pave the way for M-commerce that would later be very fruitful for them.

M-commerce has several major advantages over its fixed counterparts because of its specific inbuilt characteristics such as ubiquity, personalization, flexibility and distribution. Mobile commerce promises exceptional business market potential, greater efficiency and higher fruitfulness. Thus it is not surprising that mobile commerce is emerging much faster than its fixed counterpart. M-commerce is more personalized than E-commerce and thus needs a gentle approach to appraise M-commerce applications.

NOTE: PDA-*The PDA has an electronic visual display enabling it to include a web browser, but some newer models also have audio capabilities, enabling them to be used as mobile phones or portable media players.*

² *Wireless Application Protocol (WAP) is an open international standard for application-layer network communications in a wireless-communication environment. Most use of WAP involves accessing the mobile web from a mobile phone or from a PDA. A WAP browser provides all of the basic services of a computer-based web browser but simplified to operate within the restrictions of a mobile phone, such as its smaller view screen. Users can connect to WAP sites: websites written in, or dynamically converted to, WML (Wireless Markup Language) and accessed via the WAP browser.*

The difference between E-commerce and M-commerce is that E-commerce is limited to PC users with an Internet Connection. With M-commerce moving to an SMS platform among other things, M-commerce is open to almost the entire mobile population. An important barrier to M-commerce is the state of mobile networks today because there is a risk of transactions not maturing due to poor networks. For M-commerce an ecosystem between application developers, financial institutions, and mobile phone networks is required, for its effective utility. Simplicity is the key to proliferation of M-commerce coupled with the idea of developing trust with audiences.

Now a days the cell phone, on its own or in conjunction with an organizer is used for much more than simply making phone calls. It also acts as a flexible terminal for a huge range of applications. So the availability of information (weather forecasts, economic data, news), e-shopping, e-ticketing, e-banking and e-brokerage is greater than ever before, regardless of time or place. The WAP (Wireless Application Protocol) and ³WML (Wireless Markup Language) open standards mean the Internet's innovative solution strategies can now be applied to mobile telephony too.

Mobile Commerce (also known as M-commerce, M-commerce or U-commerce, owing to the ubiquitous nature of its services) is the ability to conduct commerce, using a mobile device e.g. a mobile phone (or cell phone), a PDA, a Smartphone while on the move, and other emerging mobile equipment, like dash top mobile devices. In an academic definition it is characterized in the following terms:

M-COMMERCE — THE CONCEPT

"Mobile Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated or completed by using mobile access to computer-mediated networks with the help of an electronic device." This definition provides for a differentiation of Mobile Commerce from other related fields such as Electronic Commerce, Electronic Business and Mobile Business. M-commerce is at a very early stage. It's about purchase and sale of goods and services through the mobile with the use of a financial institution. Purchase and sale of ⁴VAS content cannot be classified as M-commerce.

³ **NOTE:**WML-Wireless Markup Language, based on XML, is a markup language intended for devices that implement the Wireless Application Protocol (WAP) specification, such as mobile phones, and preceded the use of other markup languages now used with WAP, such as HTML/XHTML..

⁴ **NOTE:** Mobile value-added services (VAS) are those services that offer differentiation and the ability for mobile operators to charge a premium price. Mobile VAS include non-voice advanced messaging services such as **SMS**, MMS etc.

"M-commerce is the use of mobile devices to communicate, inform, transact and entertain using text and data via a connection to public and private networks." (Lehman Brothers)

"The core of mobile E-commerce is the use of a terminal (telephone, PDA, PC device or custom terminal) and public mobile network (necessary but not sufficient) to access information and conduct transactions that result in the transfer of value in exchange for information, services or goods." (Ovum)

"Business-to-consumer transactions conducted from a mobile device." (J.P. Morgan)

"E-commerce over mobile devices." (Robinson-Humphreys)

"Mobile Commerce refers to any transaction with monetary value that is conducted via a mobile telecommunications network." (Durlacher)

"The use of mobile handheld devices to communicate, interact via an always-on high-speed connection to the Internet." (Forrester)

"The use of wireless technologies to provide convenient personalized and location-based services to your customers, employees and partners." (Mobilocity)

MobileInfo.com's Definition

MobileInfo.com definition is closer to that of Ovum. It defines M-commerce as "Any electronic transaction or information interaction conducted using a mobile device and mobile networks (wireless or switched public network) that leads to transfer of real or perceived value in exchange for information, services or goods.

Typical Examples of M-commerce are:

- Purchasing airline tickets
- Purchasing movie tickets
- Restaurant booking and reservation
- Hotel booking and reservation

"Mobile Commerce is any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device." This definition provides for a differentiation of Mobile Commerce from other related fields such as Electronic Commerce, Electronic Business and Mobile Business.

The Different Areas that Come Under M-commerce

- (a) **Travel and Ticketing** – convenience is the key. Mobiles are and will reiterate their time saving devices.
- (b) **Movie Ticketing**
- (c) **Bill payments** – making payments to utility and service companies.
- (d) **Merchant Transactions/Retail Transactions** – Mobile and Internet transactions over the Internet is difficult as of now due to low speed of the Internet.
- (e) **Money Transfer** – transfer from person to person through a financial intermediary.

The difference between E-commerce and M-commerce is that, E-commerce is limited to PC users with an internet connection. With M-commerce moving to an SMS platform among other things, M-commerce is open to almost the entire mobile population.

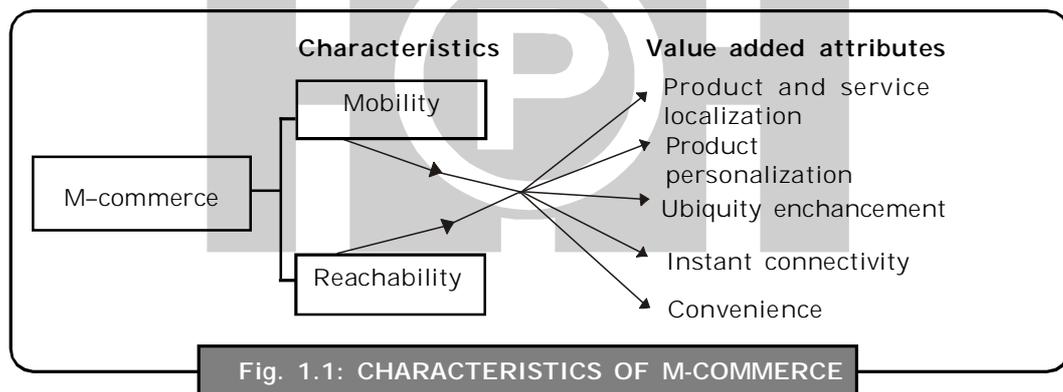


Fig. 1.1: CHARACTERISTICS OF M-COMMERCE

Mobile commerce is generally known as, any E-commerce done in a wireless environment, especially via the Internet

- Can be done via the Internet, private communication lines, smart cards, etc.
- Creates opportunity to deliver new services to existing customers and to attract new ones.

M-COMMERCE — CUSTOMER'S VIEW

Mobile Commerce is Explained from the Customer's Point of View as Follows:

- The customer wants to access information, goods and services any time and in any place on his mobile device.
- He can use his mobile device to purchase tickets for events or public transport, pay for parking, download content and even order books and CDs.
- He should be offered appropriate payment methods. They can range from secure mobile micropayment to service subscriptions.

M-COMMERCE — PROVIDER'S VIEW

Mobile Commerce is Explained from the Provider's Point of View as Follows:

- The future development of the mobile telecommunication sector is heading more and more towards value-added services. Analysts forecast that soon half of mobile operator's revenue will be earned through mobile commerce.
- Consequently operators as well as third party providers will focus on value-added services. To enable mobile services, providers with expertise on different sectors will have to cooperate.
- Innovative service scenarios will be needed that meet the customer's expectations and business models that satisfy all partners involved.

M-COMMERCE — BENEFITS

The Benefits from Mobile Commerce Includes:

- Internet offerings are easier and more convenient to access.
- It offers considerable flexibility when conducting business.
- It offers intense customer orientation and high customer loyalty, and this is due to innovative service strategies.
- It offers lower transaction and personnel costs, which is due to the widespread automation.

CHARACTERISTICS OF WIRELESS VS. WIRED

- **Ubiquity:** The use of wireless device enables the user to receive information and conduct transactions anywhere, at anytime.
- **Accessibility:** Mobile device enables the user to be contacted at virtually any time and place. The user also has the choice to limit their accessibility to particular persons or times.
- **Convenience:** The portability of the wireless device and its functions from storing data to access to information or persons.
- **Localization:** The emergence of location-specific based applications will enable the user to receive relevant information on which to act.
- **Instant Connectivity (2.5G):** Instant connectivity or “always on” is becoming more prevalent with the emergence of 2.5 G networks, GPRS or EDGE. Users of 2.5 G services will benefit from easier and faster access to the Internet.
- **Personalization:** The combination of localization and personalization will create a new channel/business opportunity for reaching and attracting customers. Personalization will take the form of customized information, meeting the users’ preferences, followed by payment mechanisms that allow for personal information to be stored, eliminating the need to enter credit card information for each transaction.
- **Time Sensitivity:** Access to real-time information such as a stock quote that can be acted upon immediately or a sale at a local boutique.
- **It reaches the destination server:** And has to cover the same path again in reverse to complete the trip. There are many physical links (hops), wireless and wired line, between the end user’s client application software and the information server. There are also several pieces of software involved, many of which featuring queuing (i.e., they are asynchronous).
- “M-commerce in its true form is the ability to charge an amount of currency to a mobile phone either by applications like Mobilcash or Near Field Communications, the amount to be charged is actually taken from the Mobile device’s account or preloaded ⁵RFID chip”

⁵ **NOTE: RFID:** Radio-frequency identification (RFID) is the use of an object (typically referred to as an RFID tag) applied to or incorporated into a product, animal, or person for the purpose of identification and tracking using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader.

M-COMMERCE VS. E-COMMERCE

Separating Mobile Commerce From Electronic Commerce

Table 1.1: Difference between E-commerce and M-commerce		
<i>Technology</i>	<i>E-commerce</i>	<i>M-commerce</i>
Device	PC	Smartphone's, pagers, PDAs,
Operating System	Windows, Unix, Linux	Symbian (EPOC), PalmOS, Pocket PC, proprietary platforms.
Presentation Standards	HTML	HTML,WML,HDML, i-Mode
Browser	Microsoft Explorer, Netscape	Phone.com UP Browser, Nokia browser, MS Mobile Explorer and other micro browsers
Bearer Networks	TCP/IP & Fixed Wire line Internet	GSM, GSM/GPRS, TDMA, CDMA, CDPD, paging networks

Frequently M-commerce is represented as a "subset of all E-commerce" thus implying that any E-commerce site could and should be made available from a wireless device. Such conclusions are misleading. M-commerce should be recognized as a unique business opportunity with its own unique characteristics and functions, not just an extension of an organization's Internet-based E-commerce channel. Of course, there are similarities between E-commerce and M-commerce from being able to purchase a product or service in a "virtual" vs. a build and mortar environment.

SUMMARY

In this chapter, you have gone through the concept of M-commerce. After going through the chapter, be sure the following facts are well versed:

- Concept and definition of M-commerce
- Explanation of M-commerce with respect to customer's point of view and provider's point of view.
- Characteristic, benefits and application area of M-commerce.
- Characteristic of Wireless vs. Wired
- Differences between M-commerce and E-commerce.

STUDY QUESTIONS

1. Explain the concept of M-commerce.
2. How M-commerce is defined with different perceptives?
3. What are the different characteristics of M-commerce?
4. Explain the concept, benefits and application of M-commerce.
5. List the differences between Wireless and Wired services.
6. Differentiate M-commerce with E-commerce.

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