



MOBILE COMMERCE IN THE LINE OF E-COMMERCE: EMPHASIZING SECURITY MATTERS AND SOLUTIONS- A CONCEPTUAL OVERVIEW

**P. K. PAUL^a, A. BHUIMALI^b, R. SENTHAMARAI^{c,*} and
D. CHATTERJEE^d**

^aFBAS, Indian Institute of Engineering Science and Technology [IIEST],
Shibpur- An Institute of National Importance, HOWRAH, WEST BENGAL

^bVice Chancellor, Raiganj University, RAIGANJ, WEST BENGAL

^cHOD, Department of Computer Applications, AVIT, VM University (T.N.) INDIA

^dVice Chancellor, Seacom Skills University, BOLPUR, WEST BENGAL

ABSTRACT

Mobile is today one of the important name in our life. Initially it was treated as a device for voice communication. But days are gone when it derived only as a vocal communication device. Today mobile is treated more than that, today it is device for text, messaging, audio and video communication. Today it is comes as multimedia device where one can view details from opposite side. Several business opportunities are possible with mobile. The business opportunities and possibilities with mobile make a new domain called mobile commerce or M-commerce in short. This paper is talks about mobile commerce; including its need and benefits in contemporary market. Paper also touches security issues related to mobile commerce and also find out some possible solutions from M-commerce threats.

Key words: M-Commerce, Information technology, Information science, Mobile, Mobile commerce, E-Commerce, E Business, Cell phone, IT Age, Mobile security, Security solutions.

INTRODUCTION

A new type of communication service has emerged during the last decade i.e. called Mobile Commerce or M-Commerce in short. The advancement of Telecom and Mobile Technologies changes entire arena of mobile; thus commercial happenings was started; which is now reach to billion of dollar market. M-Commerce is actually the Commercial activities involves of all kind of business and even electronic transaction with the help of mobile phones or cell phones. As per data of Internet Telecommunication Union, 2007 the

* Author for correspondence; E-mail: prancloud@outlook.com, prantoshkpaul@gmail.com

gross Mobile User are more than 2, 168 million. Thus, after Internet now we are suffering from Mobile Fever. So many newer Mobile phones with value added services. Apart from Business to Customers, Mobile Commerce or M-Commerce is able to Business to Business performance. The advancement of Telecom and Information Technologies introduced so many value added services to the common people; thanks to Mobile.

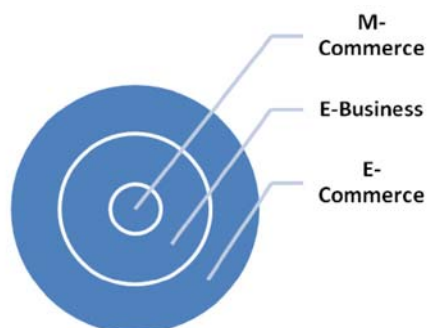


Fig. 1: Showing M-Commerce and its larger stakeholders

Objectives

The main aim and objective of this study is includes but not limited to as follows:-

- To learn basic about Mobile Commerce or M-Commerce; its characteristics and features in contemporary age;
- To find out wider benefit and facilities of M-Commerce;
- To learn basic about M-Commerce and Modern Business opportunities;
- To find out main threats and security issues related to M Commerce or Mobile Commerce;
- To learn about possible solution of M-Commerce security and future potentials;
- To take historical overview on M-Commerce and about M-Decade.

M Commerce: Basics

M-Commerce or Mobile Commerce now gives million of Dollars. Like E-Commerce and E Business; M-Commerce is also provide several Business Opportunities over phone. M-Commerce is using not only for profit making venture and activities but also in non profit making task and ventures. Today so many sector are using Mobile Phones for business or service; these sector are includes Health, Education, Tourism, Marketing and

Business, Commerce, Service Sector, Government and so on. M-Commerce is treated as smaller gradient of E-Business [and E-Business is smaller subset of E-Commerce]. Internet really changes entire arena of mobile and thus day by day new services are coming.

M-Commerce: Wider benefits

M-Commerce provide us so many opportunities which includes some general services like- Ringtone download, Photo and Video File Transfer, Music Download and Game Download, E-Mail Services, Internet and Search Services and GPS services and so on. Apart from download, today Location Based Services [GPS] are also increasing around the world. Today all kind of transaction by the Mobile Phones; like Mobile Banking, Mobile Trading are fall under the category of M-Commerce. Though general services are also indirectly fall under the category of M-Commerce. Providing message and service information to the customer is also called served.

It proves organized personal and company's needed data and thus helps organizations. All type of transaction now days possible with mobile thus; they may treated as M-Commerce. Purchasing house, Land, TV and Appliances are fall under this category.

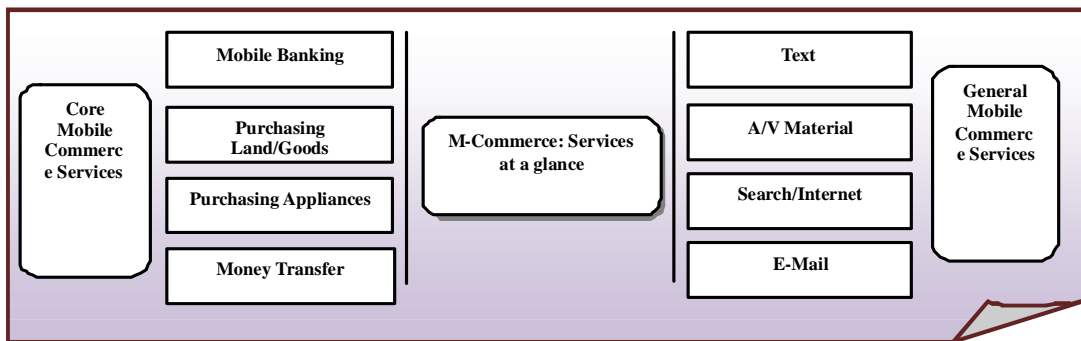


Fig. 2: Depicted general and value added services of M-commerce

M-Commerce and security

It is right that, the expansion of internet and allied technologies provide us so many opportunities to business but it reflects so many challenges and these challenges are mainly deals with security. Now look some aspects on M-Commerce security.

The first problem of M-Commerce is, security related to networking technologies and second one is, layer related security issue. Now talks about Networking Technology related problems, briefly. GSM is stands for Global System Mobile; this is the most advance

and popular communication platform. This is popularized first in Europe and now most popular around the world than CDMA technologies due to its cheapest benefits. In 1990's GSM was first introduced but initially the services was not good as it suffer to urn automatically with out computer facilities. But due to advancement of technologies the general services of GSM changed and transform new way; after introduction of SMS, wireless application protocol, HSCSD and GPRS setting. But for service it also arise some security challenges and these are:-

- IMSI Confidentiality;
- IMSI Confidentiality regarding physical linkages;
- Connection less user data confidentiality;
- Signal related information element confidentiality.

Another important problem in M-Commerce may arrive during wireless systems. In Wireless Local Area Network or WLAN mobile security problem may be there. This problem mainly arises during default mode WLAN. The better solution for this is IEEE invented WEP or Wired Equivalent Privacy for problems related to Authentication to project the association to an AP, integrity Protection to MAC frames, Confidentiality to MAC frames.

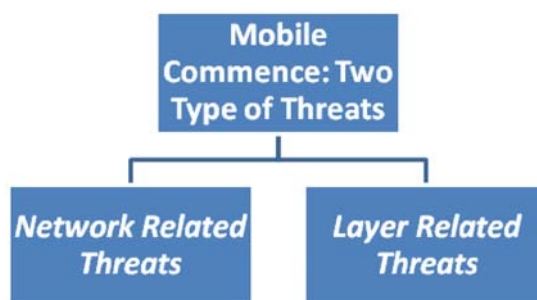


Fig. 3: Showing two main types of threats of mobile commerce

Apart from Security issues related to Networking Technologies, problems are also in Layer Security Transportation. These including security wire logic and Technology SMS and packet data service.

Solutions of M-commerce security

There are several things may be adopted for M-commerce; which includes but not limited to:-

- Using secret and robust password for Mobile Commerce or M-Commerce transaction;
- Use of antivirus to save data and future operation form the mobile or allied devices;
- User may use inactivity lock; this is useful in web browser, in such services providers automatically logs out user data;
- Use of USSD may also benefited; because this is needed to make sure about all type of transaction and security issues;
- Use Mobile Commerce or M-Commerce service only in own mobile is another solution;
- Change of password, time to time is an another way to escape from mobile security threats;

Findings

- M-Commerce or Mobile Commerce are one of the important business platform after E-Commerce and E-Business;
- Customers are still not aware about Mobile related threats;
- Person who is not using internet on mobile may also fall under Mobile Security through Bluetooth and value added services;
- Though M-Commerce first initiated in 1997 in Finland, but now more than 2,168 million users uses this unique and wonderful device.

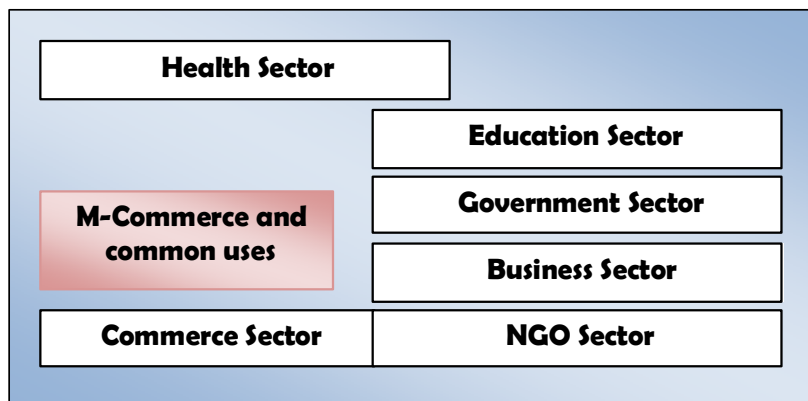


Fig. 4: Depicted the wider area of M-Commerce: The reason of M-Decade

Suggestion

- M-Commerce, E-Commerce and other developer need to very much aware about M-Commerce threats and need to take prerequisite depending upon need;
- User need to aware about M-Commerce threats and need to upgrade security matter time to time;
- It is essential to use WEP, USSD, and inactivity lock depending upon need.

CONCLUSION

Mobile Banking is now-a-days very much popular. Everyday thousand and thousand transaction deals by each banks. Therefore, it is essential that, apart from mobile manufactures and user; banking agencies should initiate step on Mobile Banking securities. Still some sectors are not using non banking services of M-Commerce or Mobile Phones but there are huge potentialities in such sector. So, they can use for better information exchange, these sector are Government Agencies, NGO, Social Work departments and so on.

REFERENCES

1. R. Tiwari, S. Buse and C. Herstatt, (Sept.–Oct. 2006), From Electronic to Mobile Commerce: Opportunites Through Technology Convergence for Business Services (PDF). Asia Pacific Tech Monitor (New Delhi (India) **23(5)**, 38-45. Retrieved August 23 (2010).
2. Harold, Dory (2012), Theories of Mobile Commerce Apps Development, Troutman, Marci; Timpson, Steve (Fall 2008), Effective Optimization of Web Sites for Mobile Access: the transition from eCommerce to mCommerce, J. Interactive Advertising, **9(1)**, 65-70. ISSN 1525-2019. Retrieved August 23 (2010).
3. Jordan, Jim, New Arena Service Testing Delivery to Your Seat, Herald Leader (2008).
4. P. K. Paul, Information Science (IS) Education: Challenges, Issues and Opportunities in Indian Context, Int. J. Mathe. Engg. Computers, **3(2)**, 87-93, ISSN-2230-8911 (2012).
5. P. K. Paul, Information Science and its Increasing Scope and Utilization in Geo Sciences for sophisticated Sustainable Development, Int. J. Neural Networks Applicat., ISSN-0974-6048, **3(2)**, 85-89 (2012).

6. P. K. Paul, Information Science (IS) and Information Technology (IT): Fundamentals Emphasizing Comparative Study, *Int. J. BSP [IJBSP]*, **3(1)**, ISSN-0975-8186, 33-37 (2012)
7. F. Reichman, Notched Cards, In R. Shaw (Ed.), *The state of the library art*, New Brunswick, NJ: Rutgers, The State University, Graduate School of Library Service, **4(1)**, 11-55(1961).
8. S. Sharma, Gutiérrez, Jairo Alberto, An Evaluation Framework for Viable Business Models for m-Commerce in the Information Technology Sector, *Electronic Markets*, *Int. J. Networked Business*, **20(1)**, 33-52 (Spring 2010). doi:10.1007/s12525-010-0028-9. ISSN 1422-8890.

Accepted : 04.05.2016