M-COMMERCE

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 ABSTRACT: _The term M-Com is originally coined by Kevin Duffey in 1997. M-Com refers to the use of wireless handheld devices, such as mobile phones and laptops, palmtops, tablets, PDAs etc. to conduct commercial transactions online. M-Com in India is likely to jump to 45-50% in 2018. In the next three years, m-com will be the order of the day. QR based payments are already popular. Companies are likely to evolve a standard code that will work across the nation. QR code is already functional globally. We can execute B2B, B2C transaction through m-com._
 In M-Com we can include:
purchases on mobile web and apps;
mobile payments;
mobile money transfers and m-banking;
and mobile financial services.

Key Words: M-Com, PDAs, m-Banking, QR code

TOPIC

FULL PAPER
INTRODUCTION
With the growing momentum of wireless revolt and M-Commerce bang, it is evident that mobile devices are becoming a critical component of the new digital economy. The transactions are rapidly transitioning from fixed locations, to anytime, anywhere and anyone. New forms of mobile technologies are rapidly transforming the marketplace. Optimists are of the opinion that the new world economy will witness the transition of mobile devices from a simple communication device to a payments mechanism.
Objectives of study:
- ✓ To study the impacts of M-Commerce in Indian economy.
- ✓ To study the role of Technology in M-Commerce.
- ✓ To find out the ways to overcome hurdles in the implementation of a cashless system by using M-Commerce.
- ✓ To study the impacts of M-Commerce on society.

Methodology:
The study is descriptive in nature and secondary sources of information like websites, browser and books are used to draw conclusions.
DESCRIPTION OF THE STUDY
M-Commerce Services
M-Commerce is an emerging discipline involving applications, mobile device, middleware, and wireless networks. While most of prevailing eCommerce application can be altered to run a wireless environment, M-Commerce also involves many more new applications that become possible only due to the wireless infrastructure. These applications include mobile financial services, user and location specific mobile advertising, mobile inventory management, wireless business re-engineering, and mobile interactive games. Furthermore, to device wireless constraints, M-Commerce would also be impacted by the dependability of wireless infrastructure.
M-Commerce existing and futures possible application include:
Mobile banking service (check account information, money transfer)
Mobile trade service (stock quotes, selling/buying)
Credit card information (account balance)
Life insurance account information (account information, money transfer)
Airline (online reservation, mileage account check)
Travel (online reservation, timetables)
Concert ticket reservation (online or telephone booking)
Sales (online books, CDs)
 Entertainment (games)
 News/information (headline, sports, weather, horse racing information, business,
 technology, regional)
 Database, application (yellow pages, dictionary, restaurant guide)
 Location based application (area information and guides)
Market Segments
M-Commerce can be B2B (business to business), P2P (person to person) or B2C (business to customer) oriented just like eCommerce. The scope of this paper is on the B2C model. In the B2C area, M-Commerce is still in its early stages. This is due to the limitations of contemporary, intermediate technologies such as WAP, and to the relative lack of compelling contents and services. Certain B2C services (e.g. online banking) may charge a small monthly free, but it is similar to that of comparable offline service (e.g., maintenance fee for checking accounts) and are waived under certain circumstances (e.g., if a minimum balance criterion is met), hence monetary cost is not a constraint on B2C E-Commerce acceptance.

M-Payments Marketplace

M-Commerce involves measures of M-Payments (Mobile Payments) defined as payments carried out via mobiles. The highest state of security has to be implemented in these measures in order to ensure full reliability from the customers in the system. Predominantly, M-Payments can be used for M-Commerce, E-Commerce and in the real world. In the real world, it is the number of mobile phones that makes them a promising payment device. In 2000, trade via handy, pager and handheld has created revenues of EUR 1.3 billion in Europe and is expected to rise to EUR 3.8 billion in 2003 (BITKOM). By this estimate by 2005, data traffic is likely to be more important than voice traffic. Similar research by Andersen estimates that the European mobile content market size could range between EUR 7.8 billion to EUR 27.4 billion in 2006, with a median forecast of EUR 18.9 billion.

Protocols and Technologies in Use

No new special network standard is needed to carry out M-Payment transactions. M Payments are therefore carried out through existing networks, which could be Cellular networks (GSM/2,5G/3G), Wireless LAN (IEEE 802.11 protocol), Bluetooth and Infrared (IrDA). The most important technologies for M-Payment connectivity are: SIM Application Toolkit (SAT), WAP/WTLS/WIM, Voice and Manufacturer specific Applications SAT is a technology that allows configuring and programming the SIM card. The SIM card comprises simple application logic that is capable to exchange data with the SMSC, to carry out M-Payment transactions. The specific mobile operator provides the application logic and is responsible of providing the SIM card. Phones equipped with a WAP-browser are able to exchange data with a webserver. Data is transmitted via wireless application protocol and the networks are GSM, 2.5G or 3G. WTLS is a layer in the WAP stack and is the wireless edition of the SSL 3.0 in a reduced scale. WTLS can provide secure connections for transferring confidential data. WIM is a module for storing data in the mobile device and is usually used in relation to WAP transactions. WIM is used with WTLS transaction to guard permanent, typically certified, private keys. The WIM stores these keys and performs operation using these keys. The end-user can via a normal phone call state his credit card number to the merchant that transfers the funds via interface provided by a PSP. A voice response system at the payment service provider can also call the end-user and guide him through a payment procedure. Voice recognition can also be used as an authentication tool for payment settlement. The mobile phone manufacturers can choose to install native applications, which in interaction with one of the above technologies enables M-Payment opportunities.

Success Factors

There are six main actors involved in a Mobile Payment System (MPS), Financial service providers (FSP), Payment service providers (PSP), Merchants, End-users, Network service Providers (NSP) and Device Manufacturers. These are further divided in users and system providers. There are different critical success factors and requirements considering the involvement of different actors.

Critical Success Factors An important means of getting a successful MPS, is obtaining acceptance from all the participants in the network and thereby achieving a critical mass. By comprehensive study from several authors success factors are identified: -

Ease of use, Security, Comprehensiveness, Expenses and Technical Acceptability.

New M-Payment Method

Considering the above exposed features of J2ME we propose a new M-Payment protocol that has the HTTP protocol as bearer. Due to the fact that SSL is still not supported in MIDP specification, the encryption, signing and certificate verification is managed at application level using the BC-API third party classes.

The protocol is executed in the following manner:

1. The merchant's computer issues a financial message that is encrypted and signed. Over secure Internet connection, (over SSL) the FSP receives the message.

2. The FSP verifies the source, signs, encrypts and redirects the message to the designated mobile user.

3. The user receives the message and verifies the source. If the source is the FSP gateway, the procedure continues otherwise it terminates. Afterwards the user enters PIN (or password) which is used to decrypt the encrypted private key stored in the persistent record store. Then the message is encrypted by asymmetric algorithm with session secret and sent to the FSP.

4. The encrypted message is sent to the FSP. It validates the message source.

5. The FSP validates the signature. Then a request is send to the bank's information server to begin transaction from customers to merchant's account. In other scenarios the transfer of funds is from one account to another in the mobile operator's network. These accounts could be prepaid or postpaid, that involves additional procedures for validation and clearing.

6. The FSP is acknowledged after successful transfer of funds.

7. The merchant receives notification.

8. The user receives receipt in digital manner.

The industries influenced by m-commerce include:

- Financial services, that require mobile banking (when consumers use their cell phones to access their accounts and pay their bills) as well as brokerage services, which displays stock quotes and trading conducted from the mobiles.

- Telecommunication Services, in which service changes, bill payment and account reviews can all be conducted from the same mobile phone.

- Service/retail, as consumers are given the capability to place and pay for orders on-the-internet.

- Information services, which include the availability reliable financial news, sports figures and traffic updates to a single mobile phone.

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