

MOBILE COMMERCE IN MODERN BUSINESS ERA

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Abstract: Mobile Commerce is the division of e-commerce, which includes all e-commerce transactions, carried out using a mobile device (hand held). This paper deals with the relevance and potential role that M-Commerce can take part in the expansion of business environment. At present, in India, there are more than 394.99 million in 2019 mobile users and the Smartphone industry in India is a growing market with around 36 percent of all Indian mobile users expected to own a Smartphone by 2018. The global Smartphone penetration forecast shows that around 50 percent of mobile users worldwide are projected to own a smart device by 2018. About 323 million people in India accessed the internet through their mobile phones in 2016, which corresponds to about 24.3 percent of the country's population. Both figures are forecast to increase in the coming years, with projections to amount to 524.5 million and around 37.4 percent respectively in 2021. It is also increasing day by day Therefore, mobile commerce has very vital role in modern business. In the today s technology world, we can say that, without mobile, we could not live comfortably. Similarly, in business, without mobile commerce, it is impossible to survive in the competitive commerce world.

Keywords: Mobile commerce, Products, Service, Payments

1. INTRODUCTION

Mobile Commerce is known as M-Commerce. M-commerce are used to buy and sell goods by using the wireless devices like cell phones, personal digital assistants and other hand held devices that have operated with Internet access. By using m- commerce we can access advanced mobile applications and high-speed services and we can use this devices remotely, anywhere, at any time. We can use the same hand held device for both Telecommunications and for bill payment and account evaluation. M-commerce is an advanced technology of e-commerce. The time and space limitation are removed and we can access any time we need. Through m-commerce, we can improve the wide range of productivity. In short, Mobile commerce is defined as the buying and selling of products and services through the use of wireless mobile devices. M-commerce is considered the next generation of e-commerce and this particular technology will allow users to shop through Internet without a plug-in terminal.

2. DEFINITION OF MOBILE COMMERCE

"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"- Webagency, 2001.

3. HISTORY

Mobile commerce was born in 1997 when the first two mobile-phones enabled Coca Cola vending machines were installed in the Helsinki area in Finland. The machines accepted payment via SMS text messages. The first mobile phone-based banking service was launched in 1997 by Merita Bank of Finland, also using SMS. In 1998, the first sales of digital content as downloads to mobile phones were made possible when the first commercial downloadable ringtones were launched in Finland by Radiolinja (now part of Elisa Oyj).

Two major national commercial platforms for mobile commerce were launched in 1999: Smart Money in the Philippines, and NTT DoCoMo's i-Mode Internet service in Japan. I-Mode offered a revolutionary revenue-sharing plan where NTT DoCoMo kept 9% of the fee users paid for content, and returned 91% to the content owner. Mobile-commerce-related services spread rapidly in early 2000. Norway launched mobile parking payments. Austria offered train ticketing via mobile device. Japan offered mobile purchases of airline tickets.

The first conference dedicated to mobile commerce was held in London in July 2001. The first book to cover mobile commerce was Tomi Ahonen's M-profits in 2002. The first university short course to discuss mobile commerce was held at the University of Oxford in 2003, with Tomi Ahonen and Steve Jones lecturing. As of 2008, UCL Computer Science and Peter J. Bentley demonstrated the potential for medical applications on mobile devices.

4. ADVANTAGE OF MOBILE COMMERCE

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.

They are explained as follows:

Ubiquity

The use of wireless device enables the user to receive information and conduct transactions anywhere, at any time.

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, Security depending on the specific end user device, the device offers a certain level of inherent security.

The following list summaries the Disadvantages of M-Commerce:

- Mobile devices offer limited capabilities (such as limited display). Between mobile devices these capabilities vary so much that end user services will need to be customized accordingly.
- The heterogeneity of devices, operating systems and network technologies is a challenge for a uniform end user platform.
- For this reason, standardization bodies consisting of telecommunication companies, device manufacturers and value added service providers integrate their work.
- Mobile devices are more prone to theft and destruction. The communication over the air interface between mobile device and network introduces additional security threats.

Areas / Uses of M-Commerce

In the current commerce industry, mobile commerce or M-Commerce has been entered in finance, services, retails, and telecommunication and information technology services. In these sectors, M-Commerce is not only being widely accepted but also it is being more used as a popular way of business/ commerce.

Finance Sectors

Mobile Commerce works vastly in finance sector including all big and major financial institutes, banks, stock market and share Brokers. Whenever any user needs money or wants any sort of banking and finance related services, he/she can access the services or register services via voice calling or via Short Message Services (SMS). WAP based mobile handsets allow the user to access the official website of the institute.

User can transact money or transfer money, or pay the bill from its bank account using mobile commerce facilities. Banks also provide round the clock customer care services, which can be used any time through voice calling. Some customer care services are also provides non-voice services on mobile that is known as instant-alert facility.

While in the stock market, the user can access the stock market quotes and get in live touch with current trading status on its mobile in two forms either voice (Customer Assistance) or non-voice (SMS alerts) or both. The share broker sends market trends and tips of trading on their clients' mobile. Also broker can suggest the appropriate stock for intra-day trading to their users.

Telecommunication Sectors

Mobile has played a giant role in communication technology through its versatility and superiority. The ubiquity and easy usage has further made it extremely popular across the globe. It has already surpassed the fixed phone in the world. Software platform is essential for operating any mobile and this tool has revolutionized the communication world because of its functioning as a small computer. The booming popularity has forced the corporate world to develop a new commerce platform that can reach to masses. Mobile commerce has attracted massive traffic because of its unique characteristics. The user can change the service of any financial institute or banks if gets better product and service or user is unsatisfied with the service of the subscribing company. Besides this several bills can be paid using mobile and user can also check the available balance, the status of cheques, and the status of requested processing and customer care support.

5. SEVERAL DEALINGS CAN BE HANDLED THROUGH MOBILE PHONES

Service / Retail sectors

Service and Retail sectors are also among the leading sectors, which have nurtured most from mobile commerce. M-Commerce has proved a major boon for these sectors. Several business dealings no matter how big or small are being finalized on the mobile phone. Customer would be able to book the order, can hire carrier/courier services and above all could also pay the dues related to it through mobile.

Information Sector

After the bursting of dotcom bubble, e-commerce has gone downwards to hell. But the evolution of mobile commerce has again worked as ambrosia for them. A separate sector has been evolved to exercise on this field for the IT experts. The webmasters have skillfully exploited this new area of IT-enabled commerce. In the IT field, mobile commerce has been used massively to deliver financial news, stock updates, sports figures and traffic updates and many more onto a single handheld device 'mobile'.

6. PRODUCTS AND SERVICES AVAILABLE THROUGH M-COMMERCE

Mobile ticketing

Tickets can be sent to mobile phones using a variety of technologies. Users are then able to use their tickets immediately, by presenting their phones at the venue. Tickets can be booked and cancelled on the mobile device with the help of simple application downloads, or by accessing the WAP portals of various travel agents or direct service providers.

Mobile vouchers, coupons and loyalty cards

Mobile ticketing technology can also be used for the distribution of vouchers, coupons, and loyalty cards. These items are represented by a virtual token that is sent to the mobile phone. A customer presenting a mobile phone with one of these tokens at the point of sale receives the same benefits as if they had the traditional token. Stores may send coupons to customers using location-based services to determine when the customer is nearby. It is very simple commerce method.

Content purchase and delivery

Currently, mobile content purchase and delivery mainly consists of the sale of ringtones, wallpapers, and games for mobile phones. The convergence of mobile phones, portable audio players, and video players into a single device is increasing the purchase and delivery of full-length music tracks and video. The download speeds available with 4G networks make it possible to buy a movie on a mobile device in a couple of seconds.

Location-based services

The location of the mobile phone user is an important piece of information used during mobile commerce transactions. Knowing the location of the user allows for location based services such as:

- Local map
- Local weather
- Local discount offers
- Tracking and monitoring of people

Information services

A wide variety of information services can be delivered to mobile phone users in much the same way as it is delivered to PCs. These services include:

- Financial records
- Sports scores
- News
- Traffic reporting
- Stock quotes
- Emergency Alerts
- Location Based Notifications

Customized traffic information, based on a user's actual travel patterns, can be sent to a mobile device. This customized data is more useful than a generic traffic-report broadcast, but was impractical before the invention of modern mobile devices due to the bandwidth requirements.

Mobile banking

M-banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transactions remotely using a mobile device such as a Smartphone or tablet. Unlike the related internet banking it uses software, usually called an app, provided by the financial institution for the purpose. Mobile banking is usually available on a 24-hour basis. Some financial institutions have restrictions on which accounts may be accessed through mobile banking, as well as a limit on the amount that can be transacted. Mobile banking is dependent on the availability of an internet or data connection to the mobile device. Transactions through mobile banking depend on the features of the mobile banking app provided and typically includes obtaining account balances and lists of latest transactions, electronic bill payments, remote check deposits, P2P payments, and funds transfers between a customer's or another's accounts. Some apps also enable copies of statements to be downloaded and sometimes printed at the customer's premises.

From the bank's point of view, mobile banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch for non-cash withdrawal and deposit transactions. Mobile banking does not handle transactions involving cash, and a customer needs to visit an ATM or bank branch for cash withdrawals or deposits. Many apps now have a remote deposit option; using the device's camera to digitally transmit cheques to their financial institution. Mobile banking differs from mobile payments, which involves the use of a mobile device to pay for goods or services at the point of sale or remotely, analogously to the use of a debit or credit card to effect an EFTPOS payment.

Mobile Storefront

The E-commerce app is a quick way for an independent merchant to show an up-to-date product listing that points the app user to an online store. This type of solution is particularly useful when the merchant has a well-defined user base that he/she wants to keep updated with new products. The buy button can be replaced for an email link so the app user can directly contact the app creator requesting a new product or making comments about a specific listing. An electronic storefront is an e-commerce solution for merchants who want to host a website that advertises their products or services and for which consumer transactions are generated online. The reinvention of the mobile phone as a touch sensitive handheld computer has for the first time made mobile commerce practically feasible. 'According to ABI Research, mobile is going to get a lot bigger in the e-commerce market. The research firm is predicting that in 2015, \$119bn worth of goods and services will be purchased via mobile phone.'

Mobile brokerage

Stock market services offered via mobile devices have also become more popular and are known as Mobile Brokerage. They allow the subscriber to react to market developments in a timely fashion and irrespective of their physical location. Traditional investing has experienced a revolution due to the rise of the e-brokerage industry, which enables investors to use the Internet to conduct secure trading. Two factors are contributing to the enormous growth of online investing. First, the Internet gives ready access to raw data. Second, investment houses can offer transactions at lower prices than traditional methods by eliminating the need for brokers or financial advisers.

The online brokerage industry has yet to attract mainstream investors, who represent 85 percent of the retail investment community. These investors prefer a combination of brokerage services, including not only online trading, but also financial advice and guidance. Still, despite initial resistance, nearly every major investment firm offers trading with the click of a mouse. By 2003, it is estimated that about \$3 trillion will be held in online brokerage accounts. The survival of brokerage firms may depend on how quickly they identify future customers.

Auctions

An auction is a process of buying and selling goods or services by offering them up for bid, taking bids, and then selling the item to the highest bidder. The open ascending price auction is arguably the most common form of auction in use today. An auction is a process of buying and selling goods or services by offering them up for bid, taking bids, and then selling the item to the highest bidder. The open ascending price auction is arguably the most common form of auction in use today. Participants bid openly against one another, with each subsequent bid required to be higher than the previous bid. An auctioneer may announce prices, bidders may call out their bids themselves (or have a proxy call out a bid on their behalf), or bids may be submitted electronically with the highest current bid publicly displayed. In a Dutch auction, the auctioneer begins with a high asking price for some quantity of like items; the price is lowered until a participant is willing to accept the auctioneer's price for some quantity of the goods in the lot or until the seller's reserve price is met. While auctions are most associated in the public imagination with the sale of antiques, paintings, rare collectibles and expensive wines, auctions are also used for commodities, livestock, radio spectrum and used cars. In economic theory, an auction may refer to any mechanism or set of trading rules for exchange.

Mobile browsing

Using a mobile browser a WWW (World Wide Web) browser on a mobile device customer can shop online without having to be at their personal computer. Many mobile marketing apps with geo-location capability are now delivering user-specific marketing messages to the right person at the right time.

Mobile purchase

Catalog merchants can accept orders from customers electronically, via the customer's mobile device. In some cases, the merchant may even deliver the catalog electronically, rather than mailing a paper catalog to the customer. Consumers making mobile purchases can also receive value-add up selling services and offers. Some merchants provide mobile web sites that are customized for the smaller screen and limited user interface of a mobile device.

In-application mobile phone payments

Payments can be made directly inside of an application running on a popular Smartphone operating system, such as Google Android. Analyst firm Gartner expects in-application purchases to drive 41 percent of app store (also referred to as mobile software distribution platforms) revenue in 2016. In-app purchases can be used to buy virtual goods, new and other mobile content and is ultimately billed by mobile carriers rather than the app stores them. Ericsson's IPX mobile commerce system is used by 120 mobile carriers to offer payment options such as try-before-you-buy, rentals and subscriptions.

Mobile marketing and advertising

In the context of mobile commerce, mobile marketing refers to marketing sent to mobile devices. Companies have reported that they see better response from mobile marketing campaigns than from traditional campaigns. The primary reason for this is the instant nature of customer decision-making that mobile apps and websites enable. The consumer can receive a marketing message or discount coupon and, within a few seconds, make a decision to buy and go on to complete the sale - without disrupting their current real-world activity.

Research demonstrates that consumers of mobile and wire line markets represent two distinct groups who are driven by different values and behaviors, and who exhibit dissimilar psychographic and demographic profiles. What aspects truly distinguish between a traditional online shopper from home and a mobile on-the-go shopper? Research shows that how individuals relate to four situational dimensions- place, time, social context and control determine to what extent they are ubiquitous or situated as consumers. These factors are important in triggering m-commerce from e-commerce. As a result, successful mobile commerce requires the development of marketing campaigns targeted to these particular dimensions and according to user segments.

Mobile Media

Mobile media is a rapidly changing field. New technologies, such as Worldwide Interoperability for Microwave Access, (WiMax), act to accelerate innovation in mobile commerce. Early pioneers in mobile advertising include Vodafone, Orange, and SK Telecom. Mobile devices are heavily used in South Korea to conduct mobile commerce. Mobile companies in South Korea believed that mobile technology would become synonymous with youth life style, based on their experience with previous generations of South Koreans. "Profitability for device vendors and carriers hinges on high-end mobile devices and the accompanying killer applications," said Gibran Burchett.

Payment Methods

Consumers can use many forms of payment in mobile commerce, including:

- **Contactless payment** for in-person transactions through a mobile phone (such as Apple Pay or Android Pay). In a system like EMV, these are interoperable with contactless credit and debit cards.
- **Premium-rate** telephone numbers, which apply charges to the consumer's long-distance bill
- **Mobile-Operator Billing** allows charges to be added to the consumer's mobile telephone bill, including deductions to pre-paid calling plans

Credit cards and debit cards

- Some providers allow credit cards to be stored in a phone's SIM card or secure element
- Some providers are starting to use host card emulation, or HCE (e.g. Google Wallet and Soft card)
- Some providers store credit card or debit card information in the cloud; usually in tokenized. With tokenization, payment verification, authentication, and authorization are still required, but payment card numbers don't need to be stored, entered, or transmitted from the mobile device.

Micropayment services

A micropayment is a financial transaction involving a very small sum of money and usually one that occurs online. A number of micropayment systems were proposed and developed in the mid-to-late 1990s, all of which were ultimately unsuccessful. A second generation of micropayment systems emerged in the 2010s. While micropayments were originally envisioned to involve very small sums of money, practical systems to allow transactions of less than 1 USD have seen little success. One problem that has prevented the emergence of micropayment systems is a need to keep costs for individual transactions low, which is impractical when transacting such small sums even if the transaction fee is just a few cents.

Stored-value cards

Frequently used with mobile-device application stores or music stores (e.g. iTunes). A stored-value card is a payment card with a monetary value stored on the card itself, not in an external account maintained by a financial institution. This means no network access is required by the payment collection terminals as funds can be withdrawn and deposited straight from the card. Like cash, payment cards can be used anonymously as the person holding the card can use the funds. They are an electronic development of

token coins and are typically used in low value payment systems or where network access is difficult or expensive to implement, such as parking machines, public transport systems, and closed payment systems in locations such as ships or within companies.

Stored-value cards differ from debit cards, where money is on deposit with the issuer, and credit cards which are subject to credit limits set by the issuer and are connected to accounts at financial institutions. Another difference between stored-value cards and debit and credit cards is that debit and credit cards are usually issued in the name of individual account holders, while stored-value cards may be anonymous, as in the case of gift cards. Stored-value cards are prepaid money cards and may be disposed when the value is used, or the card value may be topped up, as in the case of telephone calling cards or when used as a fare card.

The term closed-loop means the funds and or data are physically stored on the token or card in the form of binary-coded data. This is unlike crypto currencies or payment cards where data is maintained on the card issuer's computers. Like payment cards, value can be accessed using a magnetic stripe, chip or radio-frequency identification (RFID) embedded in the card; or by entering a code number, printed on the card, into a telephone or other numeric keypad.

Mobile Device Shopping Trends

Mobile applications serve as a means to ensure positive user experience, seamless interaction, and increased revenues for e-commerce. According to Design Rush report, mobile applications are expected to generate \$189 billion by 2020. Moreover, a study by Forrester shows that mobile devices will be leveraged to facilitate over \$1 trillion in sales in 2018.

7. IMPACT ON EMPLOYMENT

E-commerce helps create new job opportunities due to information related services, software app and digital products. It also causes job losses. The areas with the greatest predicted job-loss are retail, postal, and travel agencies. The development of e-commerce will create jobs that require highly skilled workers to manage large amounts of information, customer demands, and production processes. In contrast, people with poor technical skills cannot enjoy the wages welfare. On the other hand, because e-commerce requires sufficient stocks that could be delivered to customers in time, the warehouse becomes an important element. Warehouse needs more staff to manage, supervise and organize, thus the condition of warehouse environment will be concerned by employees.

8. IMPACT ON CUSTOMERS

E-commerce brings convenience for customers as they do not have to leave home and only need to browse website online, especially for buying the products which are not sold in nearby shops. It could help customers buy wider range of products and save customers' time. Consumers also gain power through online shopping. They are able to research products and compare prices among retailers. Also, online shopping often provides sales promotion or discounts code, thus it is more price effective for customers. Moreover, e-commerce provides products' detailed information; even the in-store staff cannot offer such detailed explanation. Customers can also review and track the order history online.

E-commerce technologies cut transaction costs by allowing both manufactures and consumers to skip through the intermediaries. This is achieved through by extending the search area best price deals and by group purchase. The successes of e-commerce in urban and regional levels depend on how the local firms and consumers have adopted to e-commerce. However, e-commerce lacks human interaction for customers, especially who prefer face-to-face connection. Customers are also concerned with the security of online transactions and tend to remain loyal to well-known retailers. In recent years, clothing retailers such as Tommy Hilfiger have started adding Virtual Fit platforms to their e-commerce sites to reduce the risk of customers buying the wrong sized clothes, although these vary greatly in their fit for purpose. When the customer regret the purchase of a product, it involves returning goods and refunding process. This process is inconvenient as customers need to pack and post the goods. If the products are expensive, large or fragile, it refers to safety issues.

9. DISTRIBUTION CHANNELS

E-commerce has grown in importance as companies have adopted pure-click and brick-and-click channel systems. We can distinguish pure-click and brick-and-click channel system adopted by companies.

- Pure-click or pure-play companies are those that have launched a website without any previous existence as a firm.
- Bricks-and-clicks companies are those existing companies that have added an online site for e-commerce.
- Click-to-brick online retailers that later open physical locations to supplement their online efforts.

10. TYPES OF DIGITAL CHANNELS

E-commerce may take place on retailers' Web sites or mobile apps, or those of e-commerce marketplaces such as on Amazon, or Tmall (Taobao Mall), from AliBaba. Those channels may also be supported by conversational commerce, e.g. live chat or (chatbots) "ChatterBot" on Web sites. Conversational commerce may also be standalone such as live chat or chatbots on messaging apps and via voice assistants.

11. RECOMMENDATION

The contemporary e-commerce trend recommends companies to shift the traditional business model where focus on "standardized products, homogeneous market and long product life cycle" to the new business model where focus on "varied and customized products". E-commerce requires the company to have the ability to satisfy multiple needs of different customers and provide them with wider range of products. With more choices of products, the information of products for customers to select and meet their needs become crucial. In order to address the mass customization principle to the company, the use of recommender system is

suggested. This system helps recommend the proper products to the customers and helps customers make the decision during the purchasing process. The recommender system could be operated through the top sellers on the website, the demographics of customers or the consumers' buying behavior. However, there are 3 main ways of recommendations: recommending products to customers directly, providing detailed products' information and showing other buyers' opinions or critiques. It is benefit for consumer experience without physical shopping. In general, recommender system is used to contact customers online and assist finding the right products they want effectively and directly.

12. CONCLUSION

Now-a-days, Cellular phones have become so popular that many businesses are beginning to use mobile commerce as a more efficient way to communicate with their customers. In order to exploit the potential mobile commerce market, mobile phone manufacturers such as Nokia, Ericsson, Motorola, and Qualcomm are working with carriers such as AT&T Wireless and Sprint to develop WAP enabled smart phones. Using Bluetooth technology, smart phones offer fax, e-mail, and phone capabilities all in one, paving the way for m-commerce to be accepted by an increasingly mobile workforce. IBM and other companies are experimenting with speech recognition software as a way to ensure security for m-commerce transactions. More recently, brick and mortar business owners, and big-box retailers in particular, have made an effort to take advantage of mobile commerce by utilizing a number of mobile capabilities such as location based services, barcode scanning, and push notifications to improve the customer experience of shopping in physical stores. By creating what is referred to as a 'bricks & clicks' environment, physical retailers can allow customers to access the common benefits of shopping online (such as product reviews, information, and coupons) while still shopping in the physical store. This is seen as a bridge between the gaps created by e-commerce and in-store shopping, and is being utilized by physical retailers as a way to compete with the lower prices typically seen through online retailers. Thus, the future of m-Commerce seems extremely bright because several experiments are going on to introduce the upgraded version of mobile likely to emerged with the evolution of 4G mobile technology.

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