Original Article

Opportunities and challenges of M-commerce in Bahrain

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ABSTRACT Many countries around the world have started using M-commerce (Mobile commerce) to enable users to fulfill some commercial services quickly and easily. Bahrain is one of those countries that uses M-commerce to facilitate commercial services and tries to enlarge its experience in this field. Research has shown that worldwide the mobile subscription numbers have increased yearly in addition to the yearly increase in mobile subscribers in Bahrain. The article will be focused on the number of customers that will be using M-commerce services when available. This article shows that M-commerce in Bahrain needs more efforts and time to reach a high level of development and gain customer trust and satisfaction.

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INTRODUCTION

Mobile phone is a clear proof of the advances in telecommunication that led to the development of most countries. Today, most people, even children, all around the world carry their mobile phones wherever they go. Therefore, mobile phone designers try to exploit this device as much as they can. Earlier, people used mobile phones just to receive calls and send text messages. However, with each passing day, designers have succeeded in attracting more users by continually improving this device. Nowadays, mobile phones are not just used for receiving phone calls or sending text messages, but are used to provide more service with

different features to its users. These services are part of mobile commerce (M-commerce).

Dogac and Tumer¹ defined Mobile commerce as ‘The buying and selling of goods and services through wireless handheld devices such as cellular telephones and personal digital assistants’. They stated that proliferation of mobile Internet devices is creating an unparalleled opportunity for M-commerce. Buying and selling goods and services by wireless handheld devices such as mobile phones and personal data assistants (PDAs) is one of the most common definitions of M-commerce; as shown in Figure 1, ‘M-commerce is a subset of E-commerce’.²

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Figure 1: E-business includes E-commerce and M-commerce.

There are many different examples of M-commerce services such as:

- Purchasing airline tickets
- Purchasing movie tickets
- Restaurant booking and reservation
- Hotel booking and reservation
- Mobile gambling
- Mobile banking

DEVELOPMENT OF M-COMMERCE

The number of mobile subscribers augments day by day in the world. Along with this increase, the services provided by mobile operators have also increased and developed. Earlier, the mobile was used as a communication device, just for making and receiving calls. When the Third Generation (3G) of mobile was introduced, people started using the mobile for many different

services, according to the services that are provided by the mobile operators. It is used now in shopping, paying bills, browsing the Internet, watching TV, banking transaction, brokerage and many other services. These and other services are the main reason for expanding the use of mobile and increasing the number of subscribers.³

3G includes capabilities and features such as:

- Enhanced multimedia (voice, data, video and remote control).
- Usability on all popular modes (cellular telephone, e-mail, paging, fax, video conferencing and web browsing).
- Broadband width and high speed (upwards of 2 Mbps).
- Roaming capability.

The numbers of people who own 3G mobile devices have increased dramatically with each passing year. Figure 2 shows the number of 3G mobile phone subscribers in the world from 2005 and the expected number till 2010.⁴

GROWTH OF M-COMMERCE GLOBALLY

Figure 3 shows the mobile phone subscription number in the world and the forecast for the current years. It is clear

Figure 2: 3G mobile phone subscribers worldwide, 2005–2010 (millions).

Figure 3: Worldwide mobile subscription numbers.

that the number continues to increase. At the end of 2009, it is expected to reach 4 billion subscribers.⁴ This shows how the growth in the mobile market and the mobile service requested by many new users are expanding rapidly.

The growth of mobile subscription leads to the growth of the revenues from M-commerce, and on the other hand develops and creates new services for the desiring users of this new commerce.

DRIVERS OF MOBILE COMPUTING AND M-COMMERCE

The development of mobile computer and M-commerce is driven by the following factors:⁵

1. *Widespread availability of mobile devices:* It is estimated that within a few years, about 70 per cent of cell phones will have Internet access. Thus, a potential mass market is available for conducting discovery. This growth enables developing countries to leapfrog to M-commerce.
2. *No need for a PC:* Because the Internet can be accessed via a smartphone or other Internet-enabled wireless device, there is no need for a PC to access the Internet. Furthermore, one needs to learn how to operate a PC, service it and replace it every few years to keep it up to date. Smartphones and other wireless devices obviate the need for a PC.
3. *The handset culture:* Another driver of M-Commerce is the widespread use of cell phones, which is becoming a social phenomenon, especially among the 15–25-year age group. These users will constitute a major force of online buyers once they begin to make and spend a large amount of money.
4. *Vendors push:* Vendors are also pushing M-commerce. Both mobile communication network operators and manufactures of mobile devices are advertising the many potential applications of mobile computing and M-Commerce so that they can sell new technologies, products and services to buyers.
5. *Declining prices and increased functionalities:* With the passage of time, the price of wireless devices is declining, and the per-minute pricing of mobile services is expected to decline by 50–80 per cent at the end of 2009.
6. *Improvement of bandwidth:* To properly conduct M-commerce, it is necessary to have sufficient bandwidth for transmitting text; however, bandwidth is also required for voice, video and multimedia. The 3G technology provides the necessary bandwidth at a data rate up to 2Mbps.

MOBILE APPLICATIONS IN FINANCIAL SERVICES

Mobile financial applications include banking, wireless payments and micro payments, wireless wallets, bill payment services, brokerage services, and money transfers.

Although many of these services are simply a subset of their wire-line counterparts, they have the potential to turn a mobile device into a business tool, replacing banks, ATMs and credit cards by letting a user conduct financial transactions with a mobile device, any time and from anywhere.⁶

Wireless electronic payment systems

Wireless payment systems transform mobile phones into secure, self-contained purchasing tools capable of instantly authorizing payment over the cellular network. In the United States, cell bucks offers mobile payment services to participating sports stadiums, which enables fans to purchase food, beverages and merchandise by cell phone and have it delivered to their seats.

Micro payments

If you were in Frankfurt, Germany, and took a taxi ride, you could pay the taxi driver using your cell phone. Electronic payments for small purchase amount (generally a few dollars or less) are called micro payments. The demand for wireless micro payments system is fairly high.

Mobile (wireless) wallets

An E-wallet is a piece of software that stores an online shopper's credit card numbers and other personal information so that the shopper does not have to reenter that information for every online purchase. In the recent past, companies such as SNAZ offered M-Wallet (mobile Wallet, also known as wireless 'valet') technologies that enabled cardholders to make purchases with a single click from their devices.

MOBILE SHOPPING, ADVERTISING AND CONTENT PROVIDING

Like E-commerce, M-commerce B2C applications are concentrated in the major areas – retail shopping (for products and services) advertising, and providing control for a fee.

Shopping from wireless devices

An increasing number of online vendors allow customers to shop from wireless devices. For example, customers who use Internet-ready cell phones can shop at certain sites such as mobile.yahoo.com, amazon.com. Shopping from wireless devices enables customers to perform quick searches, compare prices, use a shopping cart, order and view the status of their order using their cell phones or wireless PDAs. Wireless shoppers are supported by services similar to those available for wireless shoppers.

Targeted advertising

Knowing the current location of mobile users (using Global Positioning system) and their preferences or surfing habits, marketers can send user-specific advertising messages to wireless devices. Advertising can also be location-sensitive, informing a user about shops, malls and restaurants close to where a potential buyer is.

LESSONS FROM THE GLOBAL WORLD

1. *United States (US)*: In the United States, as shown in Table 1, the revenues from M-commerce in 2007 reached US\$58.4 billion, according to Jupiter Media Matrix research.⁷ This means more than double the revenues in 2006, which was \$29 billion. On the other hand, in the same research Jupiter Media Matrix estimated that by the end of 2011 the mobile payments transaction volume will reach \$7 billion and mobile banking fee will be worth \$1 billion.

Table 1: US-M-commerce revenues 2003–2007

Year	Total (US\$)
2003	2.1 billion
2004	5.7 billion
2005	13.1 billion
2006	29 billion
2007	58.4 billion

2. *Europe*: In Europe, where the penetration for mobile phones is very high, it is estimated that 45 million of them are 3G subscribers (3G, 2007). In some countries of Europe, the mobile users almost cover the population and some of them surpass the real population.
3. *Africa*: The growth of the mobile market in Africa has increased more than that in the other parts of the world. In the first quarter of 2007, it increased by 45 per cent, whereas worldwide it was just 24 per cent (WCIS, 2007). The total number of subscribers in Africa exceeded 200 million in the first quarter of 2007.
4. *Asia*: Asia itself presents more than a third of the mobile market in the world. China is the largest mobile market in the world in terms of the highest number of subscribers. On the other hand, the number of subscribers in Japan, the leading country in M-commerce in the world, is expected to grow to reach \$107.3 million at the end of 2010 (cellular news, 2007). In India, the revenue from M-commerce is estimated to surpass \$25 billion in 2011. The Indian mobile market is known as the fastest growing mobile market in the world, with compounded annual rate of 23 per cent, taking total connections to more than 462 million in 2011.⁸
5. *Australia*: In Australia, when the penetration level reached above 90 per cent in 2007,

the number of subscribers exceeded 20 million. Moreover, it is anticipated that the penetration level will go beyond 100 per cent in 2009, because as expected some users will have more than one mobile phone.⁹

DEVELOPMENT OF M-COMMERCE IN BAHRAIN

The number of mobile subscribers has increased steadily since 2005. At the end of Q2 2008, there were over 1.24 million mobile subscribers in the Kingdom of Bahrain. This includes both active prepaid and postpaid mobile subscribers, as shown in Figure 4.

The competition between service providers plays a major role in enhancing the current services and it is a main source of the entrance of other new services to the telecommunication markets. The Batelco and Zain are telecommunication companies working in Bahrain, providing 3G services and teleconferencing as part of the competition between these companies. These services changed the M-commerce services in Bahrain to a large degree.

M-COMMERCE SERVICES IN BAHRAIN

In many developing countries, mobile phone users use handsets for many services

Figure 4: Mobile subscribers in the Kingdom of Bahrain.
Source: TRA-Bahrain, 2008.

such as purchasing from retail stores, conducting personal banking, making travel reservations, viewing sports and news programs, and searching the web. In Bahrain, mobile operators offered many mobile services and some of these services are offered for the first time in the Middle East, such as 3G service and teleconferencing. This means that the development of mobile services in Bahrain is at a development stage. The main current mobile services provided by mobile operators in Bahrain are as follows:

- Multiparty conference
- Video call
- Chat services
- News services
- SMS to TV/Radio channels
- Auto fax and Data
- Mobile office
- Mobile Banking
- Weather News
- Internet
- Roaming
- Credit Transfer
- Missed call Alert
- Say it
- Tarjim
- Other services include SMS, MMS, Voice Messaging service, family and friends services and O-mobile

DEVELOPING M-COMMERCE IN BAHRAIN

There are several factors that have helped in the development and growth of M-commerce in Bahrain. These factors can have direct or indirect effects such as:

1. *World Trade Organization (WTO)*: WTO is an organization whose system assumes that the basis for joining the organization is negotiation, which leads to the removal of commercial obstacles between the member countries, in order to allow an easy and smooth-running flow of

trade. When Bahrain became a member of the WTO and opened its market to international investors, M-commerce and telecommunication sector developed and changed for the better.

2. *Bahrain Economic Development Board (EDB)*: EDB stands behind many strategic initiations such as the liberalization of Information communication Technology (ICT) sector and the existence of the telecommunication Regulatory Authority in Bahrain. EDB finds that there are clear business opportunities across legal, accountancy ICT and security-related services, especially those serving the financial services industry and engineering industries, in line with the booming construction and infrastructure sectors in Bahrain and beyond. For this reason, many investors are thinking seriously of investing in services that will definitely improve the current services and enhance the use of latest technologies involving M-commerce.

M-COMMERCE IMPLEMENTATION IN DIFFERENT SECTORS AND ORGANIZATIONS IN BAHRAIN

The M-commerce implemented in different sectors in Bahrain include the following:

1. *E-government*: E-government is an electronic system that enables citizens and businesses to gain access to government information and services using the Internet, telephone and other technology as they emerge on a 24-hour basis. It also presents the country that uses it with opportunities to move forward with higher quality, cost-effective government services and a better relationship between citizens and their government. The government of Bahrain started E-government, and the mobile or M-government will be part of

this project as stated in the E-government strategy.¹⁰ E-government authority declared that 'it has been taken in mind the ease and simplify the procedures for use of the services available through this gate, which will be accessed through the Internet, but will be extended to include multiple entry channels, such as telephones and other portable in the later stages'. This means that M-government will be part of the E-government plan, which has already been implemented.

2. *Finance sector:* The finance sector has benefited, as other sectors have, from the expansion and development of mobile services. Most of the banks have established mobile banking service, which allows their customers to use this service to check the account transaction and other process and services.
3. *Health sector:* Some of the private hospitals and clinics provide new services by mobile phone. When patients take appointments from these hospitals, they will automatically receive an SMS to notify and confirm the appointment. In addition, the service will notify the patient again 1 day before the appointment to remind the patient about it. This service is not available in all hospitals because it is new and under test.
4. *Car agencies:* Car agencies like Kanoo for Toyota cars try to get the benefit from M-commerce services and use mobile to generate for their customer some confidence services.
5. *Bulk SMS:* Other public and private organizations have started to send bulk SMS to citizens, informing them about certain activities and events. Bulk SMS is also used by some shopping centers and big companies as advertising for new offers or sales. Some ministers also use this service, such as the ministry of labor, to inform citizens about new job vacancies for those who are seeking jobs.

CONCLUSION AND RECOMMENDATIONS

The decision makers and M-commerce providers should take the following key success factors:

- Variety of services and their quality
- Service prices
- Handset prices
- Customer support
- Security of services
- Marketing and promotion
- Customer Awareness

The security of services could have a major impact on customers' behaviors and trust when using M-commerce services.

The most important recommendation that improves utilization of M-commerce is:

1. M-commerce should be implemented in different areas.
2. Mobile operators have to increase customer awareness about services of M-commerce by using SMS services.
3. Increasing the marketing channels for M-commerce services, especially the new ones, by using the most popular advertisement channels, such as the local TV, which are viewed by most of the citizens.

REFERENCES AND NOTES

- 1 Dogac, A. and Tumer, A. (2002) Issues in mobile electronic commerce. *Journal of Database Management* 13(1): 37–43.
- 2 Jelassi, T. and Enders, A. (2005) *Strategies for e-Business Creating Value through Electronic and Mobile Commerce*. London: Prentice Hall.
- 3 Agarwal, N., Wang, Z., Xu, Y. and Poo, D. (2007) *Factors Affecting 3G Adoption: An Empirical Study*. Proceedings of 11th Pacific-Asia Conference on Information Systems (PACIS 2007), Auckland, New Zealand, pp. 256–270, <http://aisel.aisnet.org/pacis2007/3/>.
- 4 Information for Development Program (InfoDev). (2007) ICT infrastructure and e-readiness assessment initiative, <http://www.infodev.org/ereadiness>, accessed 10 June 2009.
- 5 Turban, E., King, D., McKay, J. and Lee, J. (2007) *Electronic Commerce: A Managerial Perspective*. New Jersey: Pearson Prentice Hall.

- 6 Turban, E., King, D., Lee, J. and Viehland, D. (2004) *Electronic Commerce: A Managerial Perspective*. New Jersey: Pearson Prentice Hall.
- 7 Mobile Commerce: 2nd Generation of E-Commerce, <http://komar.cs.stthomas.edu/qm425/06s/Ker3.htm>, accessed 21 January 2012.
- 8 Reuters. (2007) Gartner sees rapid growth in Indian mobile market, <http://www.reuters.com/article/2007/07/18/idUSBOM9888120070718>, accessed 18 January 2012.
- 9 Budde. (2007) Australia – mobile communication – subscriber statistics, <http://www.budde.com.au/Research/Australia-Mobile-Communications-Subscriber-Statistics.html>, accessed 13 July 2009.
- 10 e-Government Authority (EGA). (2009) <http://www.ega.gov.bh/ar/index.php>, accessed 13 July 2009.