THE USAGE OF MOBILE COMMERCE (M-COMMERCE) IN SMALL AND MEDIUM BUSINESSES IN THAILAND

การใช้ระบบธุรกิจเคลื่อนที่ของธุรกิจขนาดกลางและขนาดย่อมในประเทศไทย

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ABSTRACT

The purpose of this study is to study the usage of mobile commerce (M-Commerce) by small and medium businesses (SMEs) in Bangkok, Thailand. The samples of this study consist of 200 small businesses. The questionnaires were sent to small and medium businesses and responded by top management level of these organizations because they are most likely to be the one who make the final decisions about technology adoption and implementation in business. The study attempts to find the extent of m-commerce usage by SMEs in Thailand, reasons of adoption m-commerce in businesses, and the most important business application of m-commerce. The findings find that there are 62% of m-commerce adopters in the businesses, the most given reason are the company support the hardware and technology device, and the most important applications of m-commerce are customer service and information management.

KEYWORDS : Technology, Adoption, Small and medium businesses, Mobile commerce, Decision making

บทคัดย่อ

วัตถุประสงค์การวิจัยครั้งนี้จัดทำขึ้นเพื่อศึกษาการใช้ระบบธุรกิจเคลื่อนที่ (Mobile Commerce) ของธุรกิจขนาดกลางและขนาดย่อมในประเทศไทย (SMEs) โดยที่กลุ่มตัวอย่างที่ใช้ในการวิจัยครั้งนี้ ได้แก่ บริษัทขนาดกลางและขนาดย่อมที่อยู่ในประเทศไทย จำนวนทั้งหมด 200 บริษัท ซึ่งจะเป็นระดับผู้บริหารขึ้นไปที่จะทำการตอบแบบสอบถามเนื่องจากกลุ่มนี้เป็นผู้มีอำนาจในการตัดสินใจในการนำเอาเทคโนโลยีมาใช้ในธุรกิจ ซึ่งการศึกษาจะมุ่งหาคำตอบในเรื่องของสัดส่วนการใช้ระบบธุรกิจเคลื่อนที่ในภาคธุรกิจในปัจจุบัน เหตุผลของการตัดสินใจใช้ระบบธุรกิจเคลื่อนที่ และ สิ่งที่ผู้ประกอบการใช้งานบนระบบธุรกิจเคลื่อนที่ จากผลการวิจัยสรุปได้ว่า ธุรกิจขนาดกลางและขนาดย่อมในประเทศไทยนั้นได้นำระบบธุรกิจเคลื่อนที่มาใช้ถึงร้อยละ 62 โดยเหตุผลของนำมาระบบธุรกิจเคลื่อนที่มาใช้เนื่องจากว่าทางองค์กรได้ให้การสนับสนุนการใช้งานทางด้านเทคโนโลยีสำหรับธุรกิจ และโดยมากจะเป็นการใช้งานในด้านของการให้บริการลูกค้า และ การจัดการทางด้านข้อมูล

คำสำคัญ : เทคโนโลยี การนำมาใช้ ธุรกิจขนาดกลางและขนาดย่อม เอ็ม คอมเมิร์ส การตัดสินใจ

Introduction

In a new global and knowledge economy, there is a high competition among the organizations to attract customers. In the 21st century, the world of business is smaller than ever before. In such a competitive environment, businesses must constantly explore new technologies, innovations, and services in order to respond to evolving markets, technology and economic conditions. The growth of the technology, especially the Internet, has created a new interest in the information technology development and business strategy.

With the technology, m-commerce, emerging companies ask themselves the same question that was asked at the onset of e-commerce. Why should we invest in the technology? New technology such as m-commerce takes companies beyond the benefits of the Internet. Typically, m-commerce generally refers to the use of mobile devices such as smart phones, which is a regular mobile phone integrated with business organizer functions, and personal digital assistants (PDA) phone, which is a PDA integrated phone functions, to conduct electronic business transactions and allow the mobile worker to work on the road and stay connected with business to collect and evaluate data in order to make better decisions more quickly. The device is improved to provide a faster speed in communication anytime and anywhere through a wireless, Internet-enabled device, and without the use of a computer.

The handheld market has been on a rapid growth path since the mid-1990s. In addition, the potential for commercial use in the U.S. appears to be increasing; approximately 70% of all handhelds are purchased by consumers and 30% by enterprises (Portal, 2003). In Japan, the value of mobile phone-based commerce raised 23% in 2007 to 1,146.4 billion yen, and it is likely to rapidly and continually expand its trend (Jiji Press English News Service, 2008). In Thailand, where mobile technology is very fast growing, almost 80% of its population owns a mobile telephone (Niramansakun, 2007). Additionally, Research and Market (2008) forecasts that the number of total subscribers in Thailand will rise from 62.6 million in 2008 to 71.0 million in 2010 while the wireless penetration level will reach 90.2% in 2010.

Network operators also are interested in the trend towards converging technology since they have seen a huge opportunity about mobile services. M-commerce is expected to experience a substantial growth regarding rapid of mobile device adoption and its advantages such as working wirelessly, and anytime-anywhere connectivity. Convergence of telecommunications and information technologies has revolutionized the way that peoples use these technologies (Haque, 2004). The technology has been increasingly delivered through broadband mobile medium known as 2.5G (second and a half generation of mobile technology), which is an evolution from 2G to 3G technology because the technology offers faster and wider range of more advanced services while achieving greater network capacity including wide-area both wireless voice and data at the same time (Ahonen, Kasper and Melkko, 2004). The third generation (3G) of mobile is the evolution of existing mobile networks, having potential growth opportunities in the market which will affect the way of doing business (Wallage, 2008).

Additionally, many researches in technology adoption show that small and medium businesses, as important members of the economic, have adopted technology to increase business performance (CommerceNet, 2003 and Internetworldstat, 2009). However, the adoption of technology by SMEs is generally slower than larger organization because SMEs tend to have simple organizational structure and lack financial resources (Chau, 1994; Glynn & Koenig, 1995; Montazemi,

1988).

Nevertheless, unlike other technologies that require a large technology investment, the handheld technology has plenty of models to choose from at prices to suit any budget, allowing the business to remain competitive in their industries without requiring them to invest a huge budget on IT. Therefore, the purpose of this study is to explore the extent of the use of the m-commerce in small and medium businesses in Thailand, emphasized four main research questions.

Research question 1: What are the key characteristics of the adoption of m-commerce in small and medium businesses in Thailand?

Research question 2: What are the key reasons of m-commerce usage in Thai small and medium businesses?

Research question 3: What is the most important business application of m-commerce in small and medium businesses in Thailand?

Related Literatures

The explosive growth of penetration and usage of mobile devices, including mobile phone, smart phone, personal digital assistants (PDAs), ultra mobile personal computer (UMPC), and other handheld devices, is regarded as a driving force for m-commerce, which is the next wave of electronic commerce (E-Commerce). People may think that e-commerce is the evolution of the way to do business, and the e-commerce has moved beyond first-to-market players and real-time information. However, mobility technology is a practical extension of the digitalized commerce on how people work and what they will be required to do business today.

According to Radar (2002), 10% of workers in the United States use a mobile tool such as PDAs for business purposes. Many workers spend more than 20% of their time away from their desks (Hulak, 2002). The growth in the business sector increased in 2004, with a worldwide sales increase by 12% in the business segment (Arnfield, 2004). Many industries are realizing the value of using mobile technology and the advantages of incorporating the handheld computers into various business applications.

In the healthcare industry, the m-commerce has been adopted, having the potential to effectively minimize the time of processing data by retrieving patient information, medical information, treatment information, recording patient history, prescribing medication, and providing a link to the hospital's finance dept for billing and financial administration (Tschopp & Geissbuhler, 2001). Psychiatrists are using more smart phones and PDAs for their treatment purposes. Furthermore, using a wireless and voice response PDA, a doctor can record the patient's history, send instruction and medicine information of patients, send blood test's request to the lab, send prescription's request to the pharmacy, and send bills to patients and/or insurance companies—— all in a simple click without transporting or human errors (Tschopp & Geissbuhler, 2001; Saywell, 2003).

In the education sector as well, the technology in the school and university is not only used to improve education but also to train students to be accustomed to advanced technology. For example, students are required to use PDAs to access the syllabus or class assignments before classes begin. Students have to communicate with the teachers by beaming at a kiosk in the schools to get homework assignments (Dean, 2000). According to Saywell (2003), some medical schools also require their students to use PDAs to monitor patient care, retrieve patient records and access anatomical diagrams. Many scholars believe that the use of the handheld devices improved methods of learning because of the mobility capability. The mobile learning allows students to retrieve existing information

and access information in school databases and access to the Internet anytime and anywhere (Freise, 2001).

For the use in business, the technology enables businesses to provide effective customer relationships, real-time data processing, and remote organization (Blankenship, 2002). For example, sales managers access their latest billing, project, resources management, and customer information on a mobile device integrated with wireless capability (BusinessObject, 2002). Another example is the response of a supply chain manager having an exception alert, which is a product delayed to a facility. The company integrated with m-commerce technology will be able to track the transportation of the product and notify the appropriate people in the supply chain immediately so they can adjust production schedules (McCullagh, 2000). Some companies are accepting payment by short message (SMS) payment system (Kerwin, 2008). For example, with m-commerce, some companies have begun to use short messages (SMS) in promotional offerings to customers. Additionally, wireless Application Protocol (WAP) allows companies to make an online catalog for their products and services so that mobile users and customers can access to the Internet by delivering web information and catalog from their mobile devices.

Research Methodology

The research design is drawn from quantitative research methodology. This quantitative research is used to explore the extent of the use of the m-commerce in small and medium businesses in Thailand.

The purpose of descriptive statistics is to provide a structured depiction of the characteristics of a data set. In this study, the target population of this study is the small and medium businesses located in Bangkok, Thailand. According to Hair, Anderson, Tatham, and Black (1992), the sample sizes from as low as 50 to 400 are appropriate. Consequently, the total sample for this study consists of 200 sample small and medium businesses. Furthermore, the sampling technique used in this study is the convenience sampling. The participants in this study are voluntary and anonymous. The survey is responded by top management level because they are most likely to be the one who makes the final decisions about technology adoption and implementation in business. To collect the data, two methods are used: (a) personal contact, and (b) self-administered survey.

Since the paper aims to investigate the usage of m-commerce in small and medium businesses, the frequency, percentage and means are used to answer the research questions.

Results

A total of 166 usable questionnaires are obtained. The study finds that the adoption rate of the m-commerce used in business as of the 166 of responses, 103 (62%) adopt m-commerce and used in their works, while 63 (38%) are non m-commerce adopters (Table 1).

Table 1 Frequency Distribution of Respondents by M-Commerce Usage

M-Commerce Usage	Frequency	Percentage
Yes	103	62.0
No	63	32.0
Total	166	100.0

A distribution in nine different categories regarding types of business can break down as shown in table 2, 27.15% of the businesses sampled are in retailer, 20.5% of the businesses sampled are in wholesale, 19.9% of the businesses sampled are in manufacturer, and 3.0% of

the businesses sampled are in financial and transportation.

The breakdown of the sampled SME businesses by the approximate companies' total revenue shows that most of SME businesses have total revenues around 1 — 10 million baths (38.6%), while 4.2% reports their total revenue are over 40 million baths (Table 3).

Table 2 Breakdown of Sample by Business Classification

Business Type	Frequency	Percentage
Retailer	45	27.1
Wholesaler	34	20.5
Manufacturer	33	19.9
Food and restaurant	16	9.6
Construction	12	7.2
Agriculture	9	5.4
Tourism	7	4.2
Financial	5	3.0
Transportation	5	3.0
Total	166	100.0

Table 4 presents the frequency of m-commerce in their work. Most of respondents report that their m-commerce usage is over 5 times per day (35%), while 1.9% report their m-commerce usage to be less than once a week.

Table 5 presents how long the users have been using m-commerce in their work. 33% report that they have been using m-commerce for six months to one year: 32% report that they have been using m-commerce for one to two years, while only 1.2% report that they started using m-commerce for one to three months.

Table 3 Approximate Companies' Total Revenue

Approximate Revenues	Percentage
< 1 million	36.7
1 — 10 millions	38.6
10.01 — 20 millions	10.8
20.01 — 30 millions	7.8
30.01 — 40 millions	1.8
> 40 millions	4.2

Table 4 Frequency of M-Commerce in Their Work

M-Commerce Usage	Frequency	Percentage
Less than once a week	2	1.9
A few times per week	7	6.8
Many times per week	26	25.2
Once a day	32	31.1
More than 5 times per day	36	35.0
Total	103	100.0

Table 5 Length of m-commerce usage

Length	Frequency	Percentage
1 — 3 months	2	1.9
3 — 6 months	13	12.6
6 — 12 months	34	33.0
12 — 24months	33	32.0
> 24 months	21	20.4
Total	103	100.0

The breakdown of the reason of using m-commerce in their work shows that the most of m-commerce users, 40.8% report their reason of using m-commerce to be their companies support on hardware and device, 33% report their reason of using m-commerce to be their companies' support on the cost of connection service, and 16.3%

report their reason of using m-commerce to be their companies policy respectively (Table 6).

Table 6 Reason of Using M-Commerce

Approximate Revenues	Percentage
Company's policy	16.3
Company's support on hardware and device	40.6
Company's support on cost of connection/service	33.0

Additionally, the study reveals the overall of the most important business applications of m-commerce used in Thai SME businesses. Generally, customer service application is the most important application used in Thai small businesses. Information management and communication are the second and third most important applications (Table 7).

Table 7 Ranking of Most Frequently Used M-Commerce Applications

Applications	Mean	Standard deviation	Ranking
Customer service	2.9320	1.64055	1
Information management	3.7476	1.87197	2
Communication	3.7573	2.05544	3
Financial	3.7767	1.97003	4
Business transaction	3.9709	1.99242	5
Supply chain	4.6214	1.98581	6
Advertising	5.2524	1.49979	7

Discussion

Derived from the findings, it contributes to a general aspect (the extent of the usage) m-commerce usage in Thai SMEs. Unquestionably, m-commerce represents a radical innovation in both technological and commercial sense.

The results of this study show that about 62% of the Thai SME businesses have adopted m-commerce. Although most of them have been using the m-commerce just over a year, they access the m-commerce more than five times a day, which is significantly high frequently usage. The first research question in this study addresses the issue of applications using the m-commerce. The experimental results present that the most important m-commerce application used in the Thai SME businesses are involved in customer service (mean = 2.9320), followed by information management (mean = 2.7476), communication (mean = 3.7573), financial (mean = 3.7767), business transaction (mean = 3.9709), supply chain (mean = 4.6214), and advertising (mean = 5.2524). However, with high standard deviation of the values, it may indicate that the data can spread out over a large range of values.

Moreover, that suggested the diffusion is in the stage of early majority. According to Rogers (1995), this

group can be listed as deliberate, interact frequently with peers, not opinion leaders, but important link in system, willing but no leading, and plentiful (1/3 of total system). Therefore, these characteristics should be taken into consideration in this stage of diffusion.

The company should enhance its support's policy to meet the increasing numbers of m-commerce usage by providing its hardware, device, and budget. Also, companies should enhance their employees' perception by integrating the companies' network at their workplaces. Companies should encourage their employees to relate their past experience with traditional methods to using the mobile access tool and a communication tool in business practices.

An emphasis should be placed on the role of image in the diffusion process. The persuading opinion of leaders is another critical as well to adopt the m-commerce to do their jobs. According to Avirutha (2006), many people use technology gadgets to enhance their personal or business's image. They agree that the reason of using the PDA is affected on their business's image in positive way.

It is also critical to emphasize the strategic advantage of mobile commerce. Many companies use m-commerce technology to provide of mobile search and advertising. This is a cost-effective model to drive traffic to any new m-commerce site (Business Wire, 2007). However, mobile technology is a double-edge sword. It opens the door for outside competition to communicate right to the consumers, but that door remains open for those who are willing to compete all around the world. For those businesses that are not looking beyond the traditional trading, there is a much larger marketplace that becomes accessible. There will be business challenges unique to today business.

The finding also can be implied that using m-commerce is to interact with the decision process at multiple points in time with varying effect are very important since the purpose of using the m-commerce are about the interactive business functions. According to the result, we can see that there are many business people are moving forward to adopt the technology in order to provide a responsive time with a better quality in service. Furthermore, the most important applications used in m-commerce are generally about interaction (customer service, information or data management, and communication).

Therefore, a practical implication is that the m-commerce marketers may need to take another look at the segmentation strategies based on consumer cognition and psychology because of the increasing in cyber-marketplace. Furthermore, because of its interactivity, connectivity, and globalization, the e-commerce may not be longer a final solution; the m-commerce has rendered such concepts as geographical location, social-economic status, and time-use patterns largely useless as the basis for designing marketing plans, plus mobility. In the technology era the consumers are gaining more and more autonomy and bargaining power. If today-marketers want to appeal to their customers, they must know what the latter think and like. In other words, successful consumer relation management should be based on an in-depth understanding of consumer's demands in faster and better ways to respond.

For instance, a customer goes to a shopping mall regularly with his/her cell phone, a marketer need to do something by looking for such individual's needs. The marketer may consider sending their advertising or promotion on the customer's cell phone to attract his/her attention. Another medium that can be used to get in touch with the customer is to use electronic kiosk allowing customers to beam (Receiving) information to their phone

via Bluetooth technology. As well as, business can collect customers' information and preference at the same time based of customers' requested information.

In conclusion, the findings may be benefited for technology vendor, venture capitalists, and firms looking for mobile strategies since it show that the numbers of m-commerce usage is no longer at the beginning stage, and it tends to continually growing. To adopt m-commerce by businesses, costs and benefits must be considered in terms of potential returns. The technology offers benefits for a wide range of business processes. However, investing on technology requires a huge budget; thus, a proper select technology from at prices to suit a company's budget, allowing the business to remain competitive in their industries without requiring them to invest a huge budget on IT.

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