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# TABLE OF CONTENTS

## INFORMATION TECHNOLOGY

1. Pricing Issues in Mobile Payments: A Case Study  
   *Irene C L Ng*  
   1 - 14

2. Culture and E-Commerce Adoption: A Modified TAM  
   *Adam Dillip Mutum, Ainin Sulaiman*  
   15 - 23

3. Exploiting Web Aggregation within Tourism Information Systems  
   *Nor Adnan Yahaya, Goh Poh Gin, Chan Wai Choon*  
   24 - 32

4. Developing Trust toward Electronic Commerce Transaction among the Young Malay Generation.  
   *Mohd. Sazili Shahibi, Zaharuddin Ibrahim, Zaitun Abu Bakar*  
   33 - 42

5. Understanding Consumers' Adoption of Technology: A Case of Internet Retail Transactions across Micro-Ethnic Cultures  
   *Lennora Puti*  
   43 - 54

6. Characteristics of E-Banking Adopters and Types of Products Used  
   *Ainin Sulaiman, Lim Chew Hee, Alice Lee*  
   55 - 64

7. Executive Support Systems for Asian Business Managers: Suitability and Functionality  
   *Abdul Manaf Bohari*  
   65 - 71

8. SMS Voting: A New Form of M-Commerce?  
   *Abdul Razak Ibrahim, Ainin Sulaiman, Ezlika Ghazali, Noor Ismawati Jaafar*  
   72 - 79

9. Towards The Readiness of Mobile Commerce (M-Commerce) in Malaysia  
   *Farawahida Mohd @ Abu Bakar, Salyani Osman*  
   80 - 94

10. Text Mining in Message Boards Environment  
    *Chia Tze Huey*  
    95 - 100

11. Financial Software Usage By U.S Small Business  
    *Hadley Leavell, Geetha Subramaniam*  
    101
SMS VOTING: A NEW FORM OF M-COMMERCE?

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INTRODUCTION

In the information age, it is difficult to deny the presence of many technological inventions that science has brought into our lives. Perhaps one of the most advanced technologies that have been introduced is the wireless technology. Advances in this technology have prompted the expansion of e-commerce. Previously e-commerce is carried out through Internet connections. Today, having an Internet connection is longer a pre-requisite for anyone to conduct e-commerce. E-commerce can now be conducted through wireless devices such as mobile phones and personal digital assistants (PDA), pagers, notebooks and even automobiles. This is commonly known as mobile e-commerce or m-commerce. Many researchers (Singh 2000, Keng Siau, Lim and Shen 2001, among others) have indicated that the m-commerce will be a major way of doing business transactions. The increase usage of m-commerce is significantly due to the anytime and anywhere connectivity of wireless device (Liang and Wei 2004) and the mobile phones seems to be among the most popular wireless devices in most countries, developed or otherwise as it is more affordable compared to the other devices.

In Malaysia for instance, there are 14.6 million mobile phone subscribers, an addition of 3.5 million new users from the previous year. From those 3.5 million new subscribers, 1.55 million were signed up in the final three months of the year. This is the highest-ever addition for a quarter since mobile phones were introduced in the country more than ten years ago Sidhu (2005). Mobile phones are basically used as information delivery purposes and can be used for email and web browsing (Little, 2001). According to Frolick and Chen (2004), there are three information delivery protocols, namely the Wireless Application Protocol (WAP), General Packet Radio Service (GPRS) and Short Messaging Service (SMS). SMS is more popular as it is the cheapest among three (Frolick and Chen 2004). Many businesses are using them to send messages to their customers (Thayer 2002). Another trend which is emerging in Malaysia is the use of SMS to participate in game shows and contests organized by the media stations in collaboration with telecommunication providers.

This paper begins by describing the various definitions of m-commerce. Next the features, usage, protocol, drivers and challenges of m-commerce will be discussed. Based on the discussion, the research framework and methodology that will be used to conduct an empirical study will be illustrated.

What is M-Commerce?
From the review of literature, it was observed that there is no standard definition of mobile commerce. Nevertheless, we notice that most literature relates m-commerce to the
use of wireless devices, particularly mobile phones, also known as hand phones or handset (Liang & Wei 2004, Frolick and Chen 2004, KengSiau, Lim and Shen, 2001, Shih & Shim, 2002) to conduct business transactions electronically, such ordering product, fund transfer and stock trading (Coyle, 2001; Gebauer & Shaw, 2004; Haque 2004).

Some professionals define m-commerce as any form of mobile communication with the customer. However, there are others who feel that some form of monetary gain should be achieved. For example, Leung & Antypas (2001) defined M-commerce as both “content delivery (notification & reporting) and transactions (purchase and data entry) on mobile devices”. Another term used for m-commerce is “wireless E-commerce”. This is due to the fact business activities often leverage the existing internet technologies and infrastructure (Frolick & Chen, 2004).

Various attempts have been made to define mobile business and mobile commerce. For example, Mylonopoulos & Doukidis (2003) proposed that mobile business is defined as an ecosystem of individuals and business actors, in given historical socioeconomic contexts, engaging in multiple successive technological frames through a learning process of co-creating new experiences of social interaction with the use of wireless and mobile technologies. This definition emphasizes the evolutionary character of mobile business, acknowledges the multiplicity of involved stakeholders, and gives precedence to the social interactions among them as constitutive force of mobile business.

**Features of M-Commerce**

Following the discussion above, we can conclude that the main difference between e-commerce and m-commerce is that m-commerce uses the wireless technology, particularly mobile devices such as handphones and PDAs. Hence, M-commerce features are not present in e-commerce. The two features are mobility and reachability (Turban et al 2004). Mobility refers to portability. In other words mobile device owners can carry their mobile devices wherever they go and can initiate real time contact wherever they are whereas reachability means that mobile device owners can be reached by another mobile owners regardless of wherever they are. Both mobility and reachability consists of several features, among them are ubiquity, flexibility and convenience, localization (dissemination) and personalization (KengSiau, Lim and Shen, 2001, Clarke 2001, Baldi and Thaung 2002). We will explain each feature in the following paragraphs.

Ubiquity allows companies to contact their customers at anytime and anywhere and the customers can receive whatever information they want regardless of wherever they are. According to Clarke (2001) among the applications that mobile users can use are news, sports scores, stock prices, travel information and weather. Different mobile users need different types of information, services and applications, thus companies must be able to personalized information, services and applications according to their requirement. M-commerce permits companies such form of personalization in applications such as advertising, database development and knowledge management system.

One of the main reasons why M-commerce is on the rise is because it provides flexibility and convenience to the mobile owners. For example, users do not need to be in the same room or in a physical location to conduct business or carry out their daily transactions. Applications such as video conferencing, mobile payment system and m-banking allows frees them from being in the office, payment counters and banks respectively. On the
other hand, many businesses are using m-commerce as it permits them to transmit data and information within a specific geographical area. For example, businesses can send coupons or sales promotions (discounts) information via mobile devices to all mobile users in a specific location thus covering a larger consumer population more effectively and efficiently.

M-Commerce Usage and Application
According to Leung and Antypass (2001), m-commerce can enhance business efficiency by distributing information to the workforce remotely and by offering new channels on which to interact with customers. In addition, mobile technology can automate and streamline business processes, may increase productivity, lower operational cost, increase customer satisfaction and improve decision making (Varshney et. al 2002). To consumers, M-Commerce applications offer exceptional convenience and access to information. For example, in China, the government sells lottery tickets directly to individuals' mobile phones that completely bypass the retailers (Friesen 2002). Furthermore, the technology enhances consumers' bargaining power by diminishing the information irregularity between buyers and sellers.

Wireless devices are proliferating as new tools to support m-payment and micro payments. An interesting example of M-commerce involves individuals purchasing soft drinks from vending machines utilizing a mobile handset (Johnson 2002). In some European cities, one's mobile phones can be used to not only find the nearest parking space, but also to pay for it. AT & T Wireless has released an M-wallet feature that allows subscribers to add purchases to their monthly bills or charge them to a credit card (Smith 2002). Kalakota and Robinson (2001) suggest that entertainment applications such as digital music and games complement mobile devices. Varshney et. al (2000) present similar arguments that people still enjoy entertainment while on the move. According to Anckar and L'Incau (2002), entertainment needs are generally characterized as spontaneous in nature especially in mobile settings.

M-Commerce Protocols
For the M-commerce effort to be effective, an organization must select an appropriate way to deliver information wirelessly. In general there are three (3) most common M-commerce protocols that can deliver information wirelessly. The first one is Wireless Application Protocol (WAP) (Rasinghani, 2001) which is specifications that allow mobile users to do activities such as read e-mail and access database instantly over the Internet. Although WAP has gained popularity among mobile telephone users because of its existing Internet technology and ease of deployment, it tends to be rather slow because it was not originally designed for broadband communication. In addition, WAP can also be expensive (Frolick and Chen, 2004).

The second protocol is the General Packet Radio Service (GPRS). It is a new non-voice value added service that allows information to be sent and received across a mobile telephone network. GPRS is not related to GPS (the Global Positioning System), a similar acronym that is often used in mobile contexts. GPRS, like the Internet uses a TCP/IP stack in the phone to send data in high speed packets which makes it much faster than the WAP (Garfinkel, 2002).

The third M-commerce protocol is the Short Messaging System (SMS) (Frolick and Chen, 2004). It is a digital cellular network feature that lets you send short text and
numeric messages to and from digital cell phones, cell phones and e-mail addresses, as well as cell phones and public SMS messaging gateways on the Internet. SMS can be used for push marketing effectively where for example customers can receive discount coupons instantly while going shopping in departmental stores (Thayer, 2002).

M-Commerce Drivers

The question that we should address is why is m-commerce flourishing? An attempt to answer this question has led us to identify several drivers of m-commerce. Among the reasons are as explained. In China, the rapid diffusion of mobile technology is influenced by several factors such as government economic reform and technology policy, innovation in pricing, cheaper connections and higher bandwidths (Kshetri and Cheung 2002). In addition, there is a widespread of mobile devices usage, particularly the handphones in most countries, developed or otherwise (Hague 2004). For example in Malaysia, there are now 14 million people with handphones (Sidhu 2005) while in China it is estimated to be 200 million (CellularOnline 2003). To conduct m-commerce one does not need to use a personal computer (PC) as they can use wireless devices to access the Internet. Before the existence of wireless devices, to access the Internet one needs to use a PC which is not very cheap to own. Wireless devices especially the handphones are comparatively much cheaper to purchase. Furthermore, the cost is also declining making it even more affordable. In fact the handphone has become part of a culture especially among the younger generations (Madell and Muncer 2004).

RESEARCH FRAMEWORK

Following the literature discussed earlier, we can conclude that mobile devices particularly the mobile phone, or more commonly known as handphone or handset is among the most popular wireless device among the Malaysian public as it is more affordable compared to the other devices such personal digital assistant and laptops. This is evident from the increase in number of users by thirty percent in the last couple of months. The handphone is a useful means of communication and of late the short messaging system (SMS) is gaining momentum and popularity among the Malaysian public. SMS is not only used for communication with friends and families but also to participate in contests and shows organized by media stations, for example, Akademi Fantasia by ASTRO and Malaysian Idol by 8TV. These programmes introduced last year was said to have received high participation among viewers and many of the media stations have indicated that they intend to host several more of these programmes. The main characteristic of these programmes is that they allow viewers to cast their vote (for example, which is the best) via SMS. This is a new m-commerce application and it would be interesting to discover the business model and the impact it has on businesses especially the media stations and telecommunications providers.

From the review of literature, it was observed that there are not many researches conducted to study this m-commerce application, particularly in Malaysia. Furthermore, most studies on m-commerce focused on m-commerce in general (Hague 2004). This study intends to focus on mobile phones. Mobile phone is chosen as the topic of research as it is hot topic and will be so for some time (Dobrowolski, Nicholas and Raper 2000). Nevertheless, it was noticed that there are many studies conducted pertaining to mobile phones but most studies on mobile phones focused on characteristics, profiling, usage, challenges and impact to individuals. This study aims to provide an overview of SMS
voting in Malaysia. In an effort to achieve this aim, several research questions were formulated. The questions are as follows:

✓ What is SMS voting?
✓ Which programmes use the SMS voting concept?
✓ What is the current trend of SMS voting?
✓ Who participate in the SMS voting?
✓ What drives them to participate?
✓ What are the operational process involved in the model?
✓ What are the challenges that SMS voters, media stations and telecommunications provider face?
✓ What is the impact of SMS voting model to the handphone owners, media stations and telecommunications provider

![Diagram of SMS Voting](image)

**Figure 1: Research Framework**

Based on the research questions, the following objectives were developed.

✓ To describe SMS voting concept or model
✓ To describe programmes that uses the SMS voting model in Malaysia
✓ To examine the trends of SMS voting
✓ To identify characteristics of SMS voters
✓ To determine the drivers of SMS voting
✓ To describe the operational process involved in the SMS voting model
✓ To determine the challenges faced by the media operators, telecommunication providers and handphone owners
✓ To discuss the impact of SMS voting on the society and telecommunications industry

**Research Paradigm**

There are two (2) major research paradigms. The first paradigm is idealist, in that it aims to obtain an understanding of the phenomena (Smith, 1983). Ontologically, this school of thought sees all things as "becoming". Constructivist ontology is grounded in the belief that reality is not discovered, rather that it is constructed by the actor's mind (Schwandt, 1994). Since constructivist ontology explains the nature of reality in terms of the actor's constructed meaning, interpretivist epistemology becomes the way to understand the relationship between subjects and object (Guba and Lincoln, 1994). This paradigm sees reality as dependent on the mind.
Subscription to an interpretive epistemology that assumes a "subject-subject relationship concept" (Smith, 1983) has the consequence that the researcher would be subject and object of research at the same time. Thus, the researcher would become the main research instrument in gaining information on how and why actors' behave in a particular way. Indeed, to obtain understanding of the actors' reality or 'fact', the researcher has to plunge into actors' mind by feeling, hearing, and observing how the actors' interpret what is occurring in the context of the particular act (Schwandt, 1994). Smith (1983) argues that belief determines what will count as fact. Therefore, a methodology in which the researcher collects information from within would be qualitative research.

The second paradigm is the realist, which assumes that reality is apprehendable and independent from the knower (Smith, 1983). Therefore, ontologically the positivistic school of thought sees reality as 'being' rather than 'becoming'. This approach is prevalent in physical in physical sciences, since a researcher can maintain distance from the real object of study, such as electron. Furthermore, empirical epistemology becomes the way to know a subject-object relationship. As a consequence, a quantitative approach that relies on equations and statistical modelling will be the methodology used to test hypothesis. This assumes that the object of the study can be objectively measured and controlled using particular instrument.

The current study follows the second research paradigm: positivist ontology, empiricism epistemology and quantitative methodology. The reason for the research paradigm is that the construct in this research model can be objectively measured and observed.

Research Process
The research is comprised of several sequential steps to follows:
Step 1: Literature review
This stage aims to identify potential key variables from past research and to produce research objectives and research questions. This will be done by reviewing literature from journals, books proceedings, working paper and other secondary sources.

Step 2: Research model, hypothesis and questionnaire design
The construct obtained from the previous stage will be used to develop the research model, and then the model will be used to develop the research hypothesis. Based on the research hypotheses, a tentative questionnaire will be formed.

Step 3: Pilot test
The tentative questionnaire will be piloted in two phases to enhance content validity. Feedback from the pilot testing will be used to produce the actual questionnaire.

Step 4: Data Collection
Samples will be collected from survey of consumer using mobile commerce. 1,000 respondents will be selected using stratified systematic sampling. Samples will be collected from North, South, East, West and Central of Peninsular Malaysia. The samples will be inclusive of rural and urban consumers.

Interviews will also be conducted with service providers such as Maxis, Celcom and DiGi. The service providers will provide insight into the study as mobile voting processes will be examined in more detail.
Step 5: Data analysis
Data will be analysed to produce descriptive statistics, test construct validity and reliability. A treatment of multivariate statistics will enhance better understanding of data produced from the research.

Step 6: Interpretation of findings
Based on statistical data, test results and literature review, the findings will be interpreted.

CONCLUSION

Mobile commerce seems to be picking up gradually and its usage has extended even to the masses including Malaysia. This paper is conceptual in nature and is looking at one form of mobile commerce which is SMS voting. It acts as a basis for the empirical research which will be carried out in near future.

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