

M-COMMERCE ADOPTION AND PERFORMANCE IMPROVEMENT: PROPOSING A CONCEPTUAL FRAMEWORK

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Abstract

The emerging growth of mobile commerce is enabled by the convergence of rapid growth in internet and mobile communication which was adopted by both business and individual. The purpose of this paper is to provide a conceptual framework on mobile commerce adoption by business actors and impact to their competitiveness using the basic theory of Technology Acceptance Model (TAM), a common model used by many researchers in the evolution of developed theories and models based on different knowledge discipline to predict, explain and understand the adoption of a new/introduced product or technology by individual or organization. The proposed model uses business factors and individual factors as key elements influencing the m-commerce adoption. Business factors are represented by Five Forces Porter, while individual factors are represented by users' profile; perceive cost; security and convenience; and social influence. Theoretically, the technology adoption should give impact on the improvement of creativity and innovation, and ultimately business performance.

Keywords: *Competitiveness, M-Commerce, Technology Acceptance Model, Porter's Five Forces, Business Performance*

INTRODUCTION

The emerging growth of mobile commerce is enabled by the convergence of rapid growth in internet and mobile communication. In Indonesia, where the wireless internet penetration is much higher than fixed internet penetration (Informa, 2013) and device price is getting cheaper (IDC, 2013) will push the utilization of m-commerce in the market, and if compare to e-commerce, m-commerce provides opportunities and benefits for both service providers and users with less investment in establishing and developing the service. The utilization of m-commerce will involve the utilization of personal devices (i.e. smartphone, tablet, and other personal devices). This conceptual paper will analyze the determinant factors from both business and individual perspectives.

This paper provides a conceptual framework on the determinant factors on m-commerce adoption and the link between m-commerce adoption and the impact on competitiveness from business perspective (business performance).

Mobile Commerce

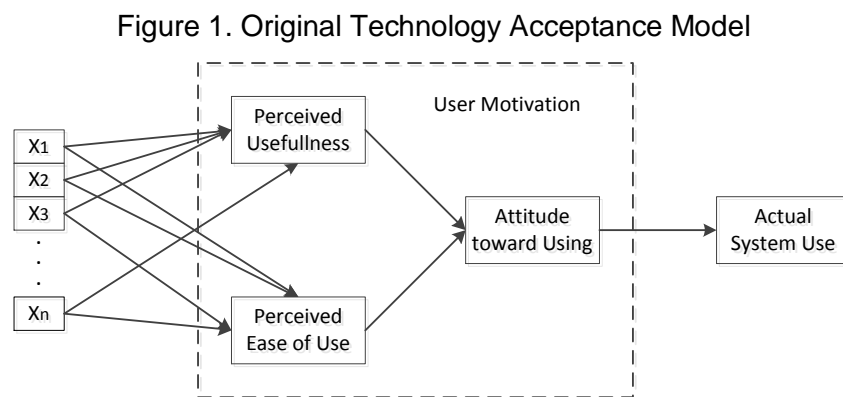
Mobile commerce is a further development of e-commerce with different principle on mobility. E-commerce is defined as an electronic exchange of information, goods, service and payment through internet (Schulze & Baumgartner, 2001; Efraim et al., 2004) and world wide web (Nickerson, 2001) plus internal business itself and interaction between business-to-business (B2B), and business-to-consumer (B2C) (Payne, 2002) include advertising activities, marketing, delivery and payment (Laudon et al., 2006). Principally is the utilization of internet and related technology to support commercial activities (Jessup & Valacich, 2006).

Mobile commerce as a further development on mobility side of e-commerce is defined by Ericsson (2010) as a trusted transaction service through mobile device for good and service exchange among consumer, trader, and financial institution. As long as the transaction or the flow of money is done by mobile device, it will be categorized as mobile commerce.

Technology Acceptance Model (TAM)

A theory and model on technology acceptance was introduced by Ajzen & Fishbein (1980) using psychology approach known as Theory of Reasoned Action (TRA), Ajzen (1991) made a further development of this model into Theory of Planned Behavior (TPB). Based on TRA model, Davis (1985) introduced Technology Acceptance Model (TAM). This model has been adopted by many researchers since it was introduced in order to measure the user acceptance on any new introduced technology (Ma et al., 2004).

Davis (1989) introduced Technology Acceptance Model(TAM) with a background of recent development on computer technology and its adoption by organization and any conducted research could not explain the resistance or acceptance on a new system. He proposed that user motivation could be explained by the following factors: perceive ease of user, perceived usefulness and attitude toward using with a hypothesis that the intention behavior is a main factor that will affect the actual system use. Somehow, this intention is influenced by two main perceptions which are perceive usefulness and perceive ease of use. These two factors were affected by the characteristic of system design represented by external variables as presented in Figure 1.



Source: Ma et al. (2004)

Business Factors

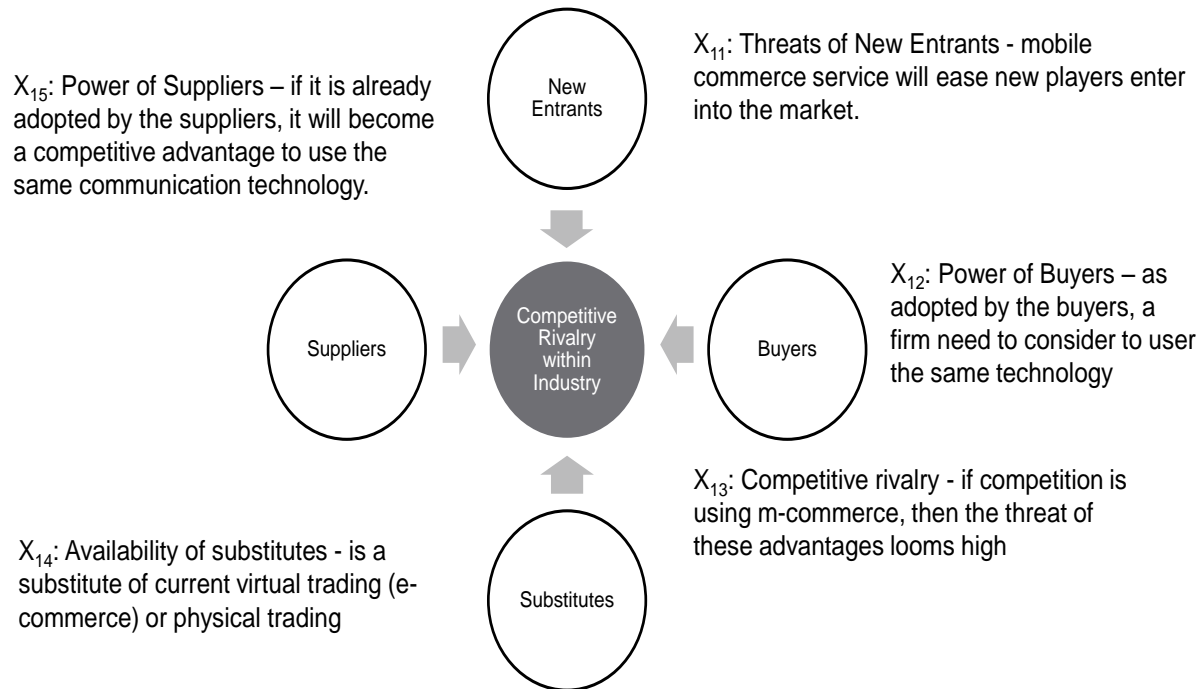
To define the business factors that will influence an individual/organization in technology adoption decision, this paper proposes Five Forces Porter as the key variables.

Five Forces Porter

In order to secure their advantage in the market place, five competitive forces were those that organizations needed to heed Porter's (1979). This will include the threat of new entrants, bargaining power of customers, bargaining power of suppliers, threat of substitute products or services and jockeying among current customers. A firm need to put a plan of action in a strategy against these forces, positioning the firm with their capabilities to provide the best strategy over the competitive forces, influence the balance through strategic moves in order to improve the company's position, and anticipate shifts in the factors underlying the forces and responding to them (Porter 1979).

In the context of mobile commerce adoption, the following considerations need to be taken by the firm as can be seen in the Figure 2:

Figure 2. Competition Forces on M-Commerce Adoption



Individual Factors

Based on literature review, we highlighted some issues need to be addressed in the further research as follow:

User Profile

Research by Zhang (2009) on how China consumer was influenced to adopt m-commerce using the revision of Technology Acceptance Model (rTAM). The additional variables that he put into the model are past adoption behavior, education, age, gender and occupation. He predicts that user profile will give significant impact to adoption behavior. Islam (2011) proposes gender and different age group as variables need to be added in future research.

Perceived Cost

Khalifa et al. (2008), combine the variables of Theory of Planned Behavior (TPB) which are subjective norm and self-efficacy into Technology Acceptance Model (TAM). Five external variables identified on the research were perceived cost, privacy, security, efficiency, and convenience. A cross-sectional survey study to B2C respondents in Hong Kong was performed to test the research model. Islam (2011) in his research on m-commerce adoption in Bangladesh by mobile users used the variable of perceived cost, comprehensive and updated information, security and convenience as key factors on m-commerce adoption.

Social Influence

The social influence is determined by how any human society use any new system and how it is perceived by an individual for making improvements in their living condition and status (Sadia, 2011) and most people uses any system or services because of the opinion of others or by observing different people in different situations (Davis et al., 1989)

In conclusion, all these literatures emphasize the following issues need to be addressed in the next research such as:

1. The importance to prove that mobile internet adoption will give impact to business performance.
2. Specific communities and product of mobile commerce services
3. Importance of some external variables to be included in the technology acceptance model such as: competition pressure, gender and level of education, perceived cost, perceived security and convenience, and social influence

Security and Convenience

These variables were raised by Khalifa (2009), Islam (2011), and Yu et. al (2013) on their research in examining the m-commerce adoption. Security refers to the safety of exchanged information (Khalifa, 2009) especially on sensitive personal info (Yu et.al, 2013) such as credit card number, address, and phone number, while convenience refers to the extent to which m-commerce makes easier for customers to conduct transactions compare to traditional way (Khalifa, 2009).

Actual Use

This section is to confirm the actual usage of m-commerce determined by above mentioned key factors. The following questions will be answered by the technology adopters, such as:

- Y₄₁: Is there any of m-commerce service that they use?
- Y₄₂: If the answer to the question Y₄₁ is yes, then how long they have use this services?

Creativity and Innovativeness

Firms' strategy by adopting a specific technology will affect to the innovativeness and performance of the firm (Najib, 2011). It is also important to isolate the innovation from any other variables beside technology adoption; it needs an intermediary outcome to bridging the technology adoption and innovativeness which is creativity (Choi, 2002). In order to understand an organization performance, we need to correlate it with intermediary outcomes. In this case,

creativity is an important variable to understand the effectiveness and sustainability of an organization as a seed of innovativeness. Individual creativity improvement will generate new ideas and at the end will improve the innovativeness (Lin, 2007). Hence, creativity is an avoidable variable in measuring organization performance. Creativity variable can be measured by user's intention in creating new ways or process, while innovativeness can be measured by number of new product, new process, and new marketing way in delivering their services.

Based on actual use of m-commerce on business activities, the technology adopters should answer the following questions:

- Y₅: Is m-commerce usage creates eagerness on creating new things upon adoption?
- Y₆₁: Is there any product introduced after technology adoption?
- Y₆₂: Is there any process after technology adoption?
- Y₆₃: Is there any introduction of new marketing way after technology adoption?

Business Performance

Khalifa et. al (2008) states that It is necessary to find out what is the actual usage of this technology and also need to identify what will be the benefit of the user after adopting this technology. Swilley (2007) states the necessary of prove that a technology adoption will affect to the organization performance.

How to measure business performance? Bourne & Neely (2003); Kaplan & Norton (1996) measure business performance in two streams which are revenue growth and productivity strategy. Real usage of new technology as well as the impact on the operational should answer the following questions:

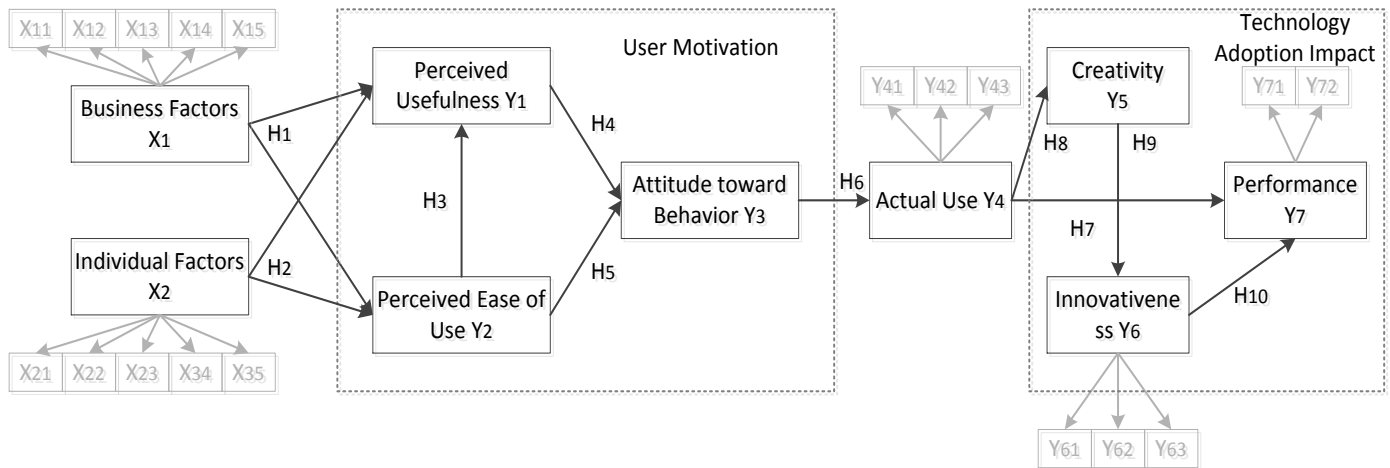
- Z₂₁: Is it impacted to broaden revenue mix?
- Z₂₁: Does it improve operating efficiency?

PROPOSED THEORETICAL FRAMEWORK

In the development stages of this theory, TAM was aimed to explain the acceptance of new technology at introduction level. Respondents were gathered in a lab to examine their acceptance level on new introduced technology such as new word processor, new feature on operating system, etc. In the next research, this model was used to examine the acceptance of a relatively new technology/product but already used in daily life such as home appliance, and medical equipment. TAM was developed to examine the technology acceptance at individual level, but some scholars also use this model to assess the acceptance of a new technology at organization level. In the case of small to medium scale organization, individual leadership could dominate the direction of corporate business strategy include technology adoption.

The proposed theoretical framework will modify current model of Technology Acceptance Model (TAM) developed by Davis (1989) by using competition forces as key determinants in the decision on adopting m-commerce by the business actors. This model will measure the impact on business performance by adding the following variables into the framework as presented in Figure 3.

Figure 3. Conceptual framework



To assess the technology adoption based on aforementioned determinants, the following hypothesis are postulated:

Technology Acceptance on m-commerce

- H₁ : Business factors have positive impact to m-commerce adoption directly and indirectly
- H₂ : Individual factors have positive impact to m-commerce adoption directly and indirectly
- H₃ : Perceived ease of use has a positive impact to the perceive usefulness of m-commerce adoption
- H₄ : Perceived usefulness has a positive impact to m-commerce adoption directly and indirectly
- H₅ : Perceived ease of use has a positive impact to m-commerce adoption directly and indirectly
- H₆ : Users' intention on m-commerce has a positive impact to actual use

Impact on technology adoption to the business performance

- H₇ : M-commerce adoption has a positive impact to business performance
- H₈ : M-commerce adoption has a positive impact to users' creativity

H₉ : Creativity on m-commerce adoption has a positive impact to users' innovativeness

H₁₀ : Users' innovativeness by m-commerce adoption has a positive impact to business performance

CONCLUSIVE REMARKS

This paper tends to explore the competition factors influence the acceptance criteria of the m-commerce; with an intent to proposed a conceptual framework, in line with some recommendation from previous studies that an empirical study shall be conducted to some specific products/services in specific industries (i.e. fashion or gadget) (Yu et. al, 2013) with more heterogeneous respondents (Zhang, 2009) with visibility to business performance post adoption (Khalifa et. al, 2009) (Swilley, 2007) to reveal the characteristics of specific communities in adopting new technology as well as the impact to their business performance.

Based on the past studies literature review about the different factors effecting the m-commerce adoption, this paper suggest that the supporting industry along the value chain (infrastructure provider, device manufacturer and retailer, and application developer) should try to make their services better by creating an ecosystem of mobile internet transaction in general. The three main pillars in internet ecosystem are telecommunication network infrastructure, device penetration, and supported by application. By bringing those together, it will make the internet transaction (m-commerce) become easier and useful. This will increase the awareness about those services and will push their customer loyal to their services in accepting and adopting the m-commerce technology for a long term period. These stakeholders also need to campaign the benefit of m-commerce adoption to increase the customer awareness. Community based approach is another primary consideration in deploying m-commerce service as social influence is significantly affected the acceptance of technology. Individual or organization which has intention to adopt this technology should assess the projected benefit and ease of use of m-commerce in their business.

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