

# Chapter 18

## Systems Development Methodology for Mobile Commerce Applications: Agile vs. Traditional

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### **ABSTRACT**

*There are several systems development methodologies including traditional and agile methodologies being utilized in current systems development. However, it could be argued that when developing mobile commerce applications, suitable development framework should be investigated as these applications are utilized in different contexts from fixed ecommerce applications. This study identifies suitable system development methodology framework for mobile commerce applications. In order to achieve this aim, the practitioners from seven organizations were asked to provide information about their development methodologies by answering the questions regarding mobile commerce application development. The questions were opened and aimed to explore practitioner's perspectives on the development methodologies. From the practitioner's perspectives, it was found that there were several development methodologies being used in mobile commerce application development and these can be classified into two different development frameworks which are heavyweight/traditional and lightweight/agile methodologies. The suitable methodology framework for mobile commerce application development thus was identified.*

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## **INTRODUCTION**

Mobile commerce or commonly known as m-commerce, typically designates the use of wireless devices (particularly mobile phones) to conduct electronic business transactions, such as product ordering, fund transfer, and stock trading (Kalakota & Robinson, 2002). According to Liang, Huang, Yeh, and Lin (2007), mobile commerce refers to any transactions, either direct or indirect, via mobile devices, such as phones or personal digital assistants (PDAs). While many different definitions of mobile commerce exist in the literature (Turel & Yuan, 2006), these usually refer to e-commerce activities conducted through mobile devices such as mobile phones and personal digital assistants (PDAs).

Mobile commerce is viewed as the next generation e-commerce (Liang et al., 2007). With the rapid proliferation of mobile devices, including mobile phones, PDAs, and handheld computers, mobile commerce is widely considered to be a driving force for next generation e-commerce (Liang & Wei, 2004). It is therefore necessary to investigate how to design and develop mobile commerce applications to ensure the successfulness of their deployment. The power of m-commerce is primarily due to the anytime-anywhere connectivity of wireless devices, which provide enormous opportunities for business process innovation and location-sensitive services (Zwass, 2003). And with the increasing popularity of mobile appliances, the most effective means of providing these services in a wireless mobile environment should be found (Zhou, Islam, & Ismael, 2004). However, careful consideration should be taken when developing mobile commerce applications since they are utilized in different contexts from those typical e-commerce, they are mobility and portability.

There are several systems development methodologies including traditional and agile methodologies which are being utilized in current systems

development (Blum, 1996; Highsmith, 1999; Krutchen, 2001; Cao & Ramesh, 2007). However, based on the analysis of the related literature, it could be argued that existing development methodologies may not be suitable for mobile commerce applications as these applications are utilized in different contexts from typical e-commerce applications such as they are displayed on a small screen device, they are utilized in an unstable or movable environment and they need to be used in a secured environment to deliver financial transactions over mobile network (Varshney & Vetter, 2002; Tarasewich, 2003; Lee & Benbasat, 2004; Khalifa & Shen, 2008).

There were many research problems which were related to m-commerce applications and services that were raised by researchers. One of them was proposed by Varshney and Vetter (2002) who argued that there is a need for a research to identify strategies and methodology that carriers, vendors, providers, and managers can use in the development of m-commerce applications and services. Henceforth, this study attempts to partly tackle this issue by examining and investigating the suitable system development methodology framework for mobile commerce applications which carriers, vendors, providers, and managers can utilize. The system development methodology framework to be identified should conform to the most significant features of mobile technology, which are mobility and portability (Liang et al., 2007).

Ngai and Gunasekaran (2007), on the other hand, found that if considering the research published in the field of mobile commerce theory and research, it was revealed that the research in the field of development of m-commerce applications and guidelines is only 7.7% comparing to 30.7% in m-commerce behavioral issues (consumer behavior, acceptance of technology, and diffusion of technology), 29.2 in m-commerce economics, strategy and business models, 10.7% in m-commerce legal and ethical issues, and

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