

# Chapter 3

## Quality Evaluation of B2C M-Commerce Using the ISO9126 Quality Standard

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### ABSTRACT

*Business to Consumer M-commerce applications, are data-intensive, user-driven, and have increasing needs for accessibility, efficiency, adaptivity, portability and competitiveness. However, their design process still lacks a systematic quality control method. In this chapter we explore m-commerce quality attributes using the external quality characteristics of the ISO9126 software quality standard. Our goal is to provide a quality map of a B2C m-commerce system so as to facilitate more accurate and in detail quality evaluation. The result is a new evaluation framework based on decomposition of m-commerce services to three distinct user-software interaction patterns and mapping to ISO9126 quality characteristics.*

### INTRODUCTION

A significant advance in the on-line business arena is the advent of mobile services, which are becoming a reality for enterprises and users alike. New technologies in mobile networking and mobile device hardware primarily and mobile software secondarily have permitted the realization of the

vision of a mobile web. Or at least they promise to realize it; The first steps have already been made with commercially successful mobile services flourishing and promises for even more impressive attempts are on the way. There is an enthusiasm in business, academia and users for mobile services, and this enthusiasm is the impetus for not only the research of the novel but for the adaptation of the old (Bouwman et al., 2008).

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E-commerce, in the form of Business to Consumer transactions is one of the primary business successes of the WWW. It is only natural that enterprises sought to increase their market share by moving to the mobile Web as well. Mobile-commerce (m-commerce) systems are being developed at an increasing rate in recent years. As a business process, m-commerce can be viewed as particular type of e-commerce (Coursaris, 2002) and refers to transaction with monetary value that is conducted via a mobile network. When users conduct m-commerce such as e-banking or purchase products, they do not need to use a personal computer system. Indeed, they can simply use some mobile handheld devices such as Personal Digital Assistants (PDA) and mobile phones to conduct various e-commerce activities. In the past, these mobile devices or technologies were regarded as a kind of luxury for individuals. However, this situation has changed. Technology has driven the growth of the mobile services industry thus creating a new opportunity for the growth of m-commerce (Ngai, 2007; Huang et al., 2007). Location-based services are also attracting the attention of the business world (Junglas, 2007).

Focusing on B2C services (Business to Consumer services), this uniqueness is both a blessing and a curse. Being user-intensive, it is absolutely imperative that the software satisfies mobile user needs; mobile commerce user needs are, in many perspectives different than Internet-based e-commerce user needs mainly because the access medium is different. Thus, the quality of the software itself, that is the satisfaction of implied and non-implied user needs, is of primary importance. To date, most research efforts focus on Quality of Service which deals mostly with low-level network attributes (Ghinea & Angelides, 2004).

The research on the quality of B2C m-commerce systems is a new and challenging task; especially the quality of mobile commerce systems as it is perceived by the end-user is only now becoming a research issue. However providers of mobile services and mobile hardware have

always paid attention to ergonomics and usability. Google's Android platform is an approach that aims to attract the novice user and actually increase the total target group of advanced mobile services by creating new users (Android, 2009). Usability is not the only dimension of software quality. According to ISO standards, there are many dimensions to software quality that need to be satisfied. A user perspective, rather than a developer perspective, of quality is important (Hong et al., 2008).

The quality of software is a principle concern to end-users and developers as well. It is increasingly difficult to evaluate diverse software such as m-commerce. The later provides a wealth of different services, different in the sense that different technologies and user-service interaction patterns are used. By identifying these differences in the level of basic services it becomes easier to apply different evaluation methods that are suitable for each case. Such a method would permit a detailed quality evaluation with an increased practical impact. After all, different software artefacts should be evaluated with methods focusing on their uniqueness. Having these in mind, one of the main questions posed is how to identify these differences and how to cluster the services according to them. Another problem that has to be dealt with is that a formal evaluation method should be used in order to provide a concise solution. It is with the above observation that this chapter examines the quality attributes of m-commerce systems adopting the ISO9126 software quality standard (ISO, 2001). ISO9126 is a general standard for software quality that is user-driven. Because of its generality, it can be applied to any kind of software. In order for it to be practical however it must be seen in the light of a specific application domain. Adopting and adapting ISO 9126 for specific domains is not new and not foreign to the standard itself (Losavio, 2004; Cote, 2005). A usual approach is to enhance the hierarchical and (by design) open scheme to include more attributes suitable for a domain (Stefani & Xenos, 2008).

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