



**Chapter IV**

**Towards a Classification  
Framework for Mobile  
Location Services**

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**ABSTRACT**

*The emerging world of mobile commerce is characterized by a multiplicity of exciting new technologies, applications, and services. Among the most promising ones will be the ability to identify the exact geographical location of a mobile user at any time. This ability opens the door to a new world of innovative services, which are commonly referred to as Mobile Location Services (MLS). This chapter aims at exploring the fascinating world of MLS, identifying the most pertinent issues that will determine its future potential, and laying down the foundation of a new field of research and practice. The contribution of our analysis is encapsulated into a novel classification of mobile location services that can serve both as an analytical toolkit and an actionable framework that systemizes our understanding of MLS applications, underlying technologies, business models, and pricing schemes.*

**INTRODUCTION**

The term 'mobile era' as a characterization of the 21<sup>st</sup> century can hardly be considered as an exaggeration (Kalakota and Robinson, 2001). In times where

mobile phone penetration is well above the 50% mark in some countries, and has even surpassed fixed line penetration in a few cases (Nokia, 2001), it is not surprising that *wireless applications* are claiming much of the industrial, academic, and even popular media attention.

Mobile (or wireless) applications, despite potentially being very different in nature from each other, all share a common characteristic that distinguishes them from their wireline counterparts: they allow their users to move around while remaining capable of accessing the network and its services. With the ability of mobility, *location identification* has naturally become a critical attribute, as it opens the door to a world of applications and services that were unthinkable only a few years ago (May, 2001). The term *Mobile Location Services (MLS)* (or *Location Based Services – LBS*, as they are commonly referred to) has been coined to group together all those applications and services that utilize information related to the geographical position of their users in order to provide value-adding services to them.

MLS is perhaps the latest entrant to the world of mobile applications, and hence limited work to date has addressed its real potential and implications. For the most part, perhaps with the exception of a few in-car services, most MLS applications are still at a trial stage with service definitions, revenue models, pricing, and business relationships largely undefined (UMTS, 2001c). However, the market promises to be lucrative. According to the UMTS Forum, the worldwide size of the mobile location services market is expected to increase from US\$0.7 billion in 2003 to US\$9.9 billion in 2010 (UMTS, 2001b).

One of the main enablers of MLS proliferation in late years was the 1999 mandate of the US Federal Communications Commission (FCC) that, by October 2001, emergency services should be able to automatically position any citizen dialing 911 to within 125 meters in two-thirds of cases. The reasoning behind this mandate is that people who are injured or in some other need do not necessarily know exactly where they are, and hence the emergency services should be able to locate them in an automatic way so that help can be sent out to them. This has placed a legal obligation on mobile networks to support location identification provision in their service portfolio. Given this legal obligation, many network providers have seized the opportunity to design and implement further mobile location services that will commercially exploit the ability to know the exact geographical location of a mobile user.

From the consumer/citizen point of view, the peace of mind provided by a cellular phone that is capable of revealing their exact position in case of an emergency is usually welcomed. However, this is not necessarily the case when considering additional mobile location services, such as personalized mobile advertisements. The emergence of MLS has paved the way for innovative

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