Chapter VIII

Known By the Network:
The Emergence of Location-Based Mobile Commerce

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ABSTRACT

The use of mobile telecommunications devices for commercial transactions, coined mobile (m-) commerce, has been an emerging trend since the late 1990s. As the phenomenal growth of the Internet and mobile devices has continued unabated, the inevitable convergence of these two streams of technologies has occurred, promising a plethora of mobile data services to the handset user. Although these services have been considerably hyped in the media, and adoption has been somewhat patchy and limited, it does signal the emergence of a range of innovative value added services. With further developments in technology and markets, further services will appear, bringing new revenue streams. One potential area of m-commerce development is in location-based services (LBS). LBS are heralded as the next major class of value added services that mobile network operators can offer their customers. Using a range of network- and handset-based positioning techniques, operators will be able to offer entirely new services and improvements on current ones. Popular examples cited include emergency caller location, people or asset tracking, navigation, location-based information, or geographically sensitive billing. The purpose of this chapter is to examine the technologies, applications and strategic issues associated with the commercialisation of LBS. The chapter concludes with some predictions on the role of LBS in m-commerce.
INTRODUCTION

Since the technological convergence of the Internet and mobile telecommunications networks in the 1990s, the mobile Internet has brought the promise of significant changes in data communications. Separately, the Internet and mobile phone have witnessed extraordinary market penetration, and each is predicted to grow to 1 billion users by 2003-4 (IDC Research, 2001). Together, these technologies have created the platform for a raft of mobile data services, including business-to-consumer (B2C) applications for financial services, gaming, email and news, and business-to-business (B2B) applications for teleworking, logistics, field sales and after-sales servicing. Worldwide, revenues from mobile (m-) commerce—i.e., transactions over wireless telecommunications networks—are expected to exceed $200 billion by 2004 (Strategy Analytics, 2000).

In the emerging m-commerce economy, the knowledge of the position of a given service subscriber making a call is gaining particular interest among mobile operators who can, in turn, provide innovative location-based services (LBS), typically with the assistance of third parties such as service or content providers (see Barnes, 2002). Such ideas are not new. Location (l-) commerce has existed in a limited form for more than twenty years. The pioneers of location-based services were basic tracking services and automated vehicle location (AVL). In 2000, more than 100 companies were providing AVL products and services in the US (Airbiquity, 2000a). However, until recently, the specialised location-based industry survived as a niche market to both high-end businesses (such as trucking and freight) and well-to-do customers (via automobiles such as Lexus and BMW). Typically, high-priced devices required subscriptions to special location services, suppressing demand.

Large-scale commercialisation of location-aware services has only been recognized in the early 21st century, as a series of events and trends have begun to provide an environment that is conducive. Underlying the growth in commercial LBS markets are recent technological advancements (in handsets, networks and positioning technologies), regulatory change (including the removal of restrictions of satellite positioning technologies and mandates for emergency services), industry trends (particularly the need for new value-added services, mergers/acquisitions, and call-centre development) and emerging business opportunities (as a result of converging market conditions, e.g., the growth of LBS in Japan driven by the popular i-mode service). As a result, the door has been opened to a vast array of commercial applications, including those for emergency services, asset tracking, navigation, location-sensitive billing, and location-based information services. Indeed, the Strategis Group (2000) estimates that LBS could be worth $3.9 billion by 2004.

The purpose of this chapter is to examine the emerging l-commerce phenomenon. To this end, it analyses the technologies and applications involved with introducing the new wave of LBS (in sections 2 and 3, respectively). The chapter continues by exploring a value proposition model for services (section 4) and some of the core inhibitors (section 5). It also briefly explores some of the strategic business
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