Chapter 8

Modeling the Dynamics of Emerging Mobile Data Services Markets

Arthur Lee Gilbert, Nanyang Technological University, Singapore
Hilda Han Mei Ian, Nanyang Technological University, Singapore

ABSTRACT

Like the Internet, a critical mass is essential in recovering the initial costs of development and deployment of mobile data services (MDS). Thus, MDS deployment must create new value and generate new behaviors in specific social contexts over time. Some behaviors of interest include making decisions to acquire the enabling technology, learning to use it, applying it, and then, by word-of-mouth, encouraging others to join in. This chapter examines the evolving MDS phenomenon and recommends a multimodal approach to research in emergent MDS markets based on recent findings. This work draws on field research by Nanyang Business School’s Information Management Research Center (IMARC) focused on the application of innovation diffusion theory to market segmentation. The authors also describe the enabling technology and applications, discuss the value propositions, and propose a model to segment the MDS market.
THE MOBILE DATA SERVICES PHENOMENON

A mobile data service (MDS) requires transmitting value-added data over networks connected to mobile devices such as cell phones or PDAs. MDS applications deliver content or enable transactions while users are on the move. In addition to messaging, currently popular MDS applications for individual subscribers include e-mail, downloading ring tones and logos, and various types of games. Emerging applications include banking, entertainment, payments, vehicle tracking, accessing and downloading data to aid navigation or shopping, remote sensing, and Web surfing. Corporate uses include tracking mobile assets and extending intranets to personnel working in the field. Public service applications include payment for parking and transport, monitoring health status, and access to medical records in emergencies (Holmes, 2001). Table 1 illustrates current MDS applications.

Although competing technologies such as Bluetooth and 802.11x wireless local area networks also carry mobile data traffic, the cellular phone system—today’s most comprehensive mobile data network in every community—is the focus of this chapter. In all current digital mobile phone systems, voice is carried over switched circuits as a digital signal. GSM networks use a relatively slow signaling channel to carry short message service (SMS) traffic and other data applications. With general packet radio service (GPRS) or enhanced data GSM environment (EDGE) upgrades to GSM, data flows over the more efficient packet-switched protocol. In the emerging third-generation (3G) networks, fax and data traffic will flow at far higher rates (Held, 2001).

Industry analyst (2003) believe SMS will peak in 2004 and be eclipsed by newer data and messaging services running in 3G environments. SMS is a store-and-forward messaging utility with delivery confirmation. Although the original message limit was 160 characters, concatenation and data compression techniques enable delivery of longer messages. Interconnection among SMS servers and other facilities such as e-mail and the Internet allows interoperability.

Table 1: Typical MDS applications

<table>
<thead>
<tr>
<th>Relationship-oriented</th>
<th>Process-oriented</th>
<th>Knowledge-oriented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health monitoring</td>
<td>Shipment tracking</td>
<td>Mobile access to documents</td>
</tr>
<tr>
<td>Comparison shopping</td>
<td>Vehicle tracking</td>
<td>Personal productivity tools</td>
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<tr>
<td>Entertainment, games,</td>
<td>Facilities management</td>
<td>Merchandising and sales</td>
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<tr>
<td>In-car navigation and</td>
<td>Asset tracking</td>
<td>Scheduling meetings</td>
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<tr>
<td>Investment portfolio tracking</td>
<td>Inventory management</td>
<td>Technical support and repair</td>
</tr>
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</table>

Adapted from Keen and Mackintosh 2001

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