Chapter 6: Mobile commerce

Email: tridang@hcmut.edu.vn
Website: http://tridang.info
Objectives

• Overview of mobile commerce
• Classification
• Retail pricing in mobile commerce
Overview

• What is mobile commerce?
  • M-commerce is the buying and selling of goods and services through wireless handheld devices
  • M-commerce is the process of paying for services using a mobile phone or personal organizer
  • M-commerce is the use of mobile devices to communicate, inform transact and entertain using text and data via a connection to public and private networks
  • Don't mistake m-commerce for the technologies underlying it!
Overview

- M-commerce has **all** of the following characteristics:
  - Involve *communication* (one-way or two-way) between human(s)/object(s) and human(s)/object(s)
  - At least one of the participants must be *mobile*
  - The communication must be kept *continuously* when at least one party move from one location to another
  - The communication signals must be carried by *electromagnetic* waves, without direct sensory perception of the signals
  - At least one seek to *benefit economically* from the communication in the short or long run
Overview

- Comparison between m-commerce and e-commerce

<table>
<thead>
<tr>
<th>Factor</th>
<th>E-commerce</th>
<th>M-commerce</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Product</td>
<td>Service</td>
</tr>
<tr>
<td>Information provided</td>
<td>Static information and data</td>
<td>Dynamic location-based data</td>
</tr>
<tr>
<td>Device</td>
<td>PC</td>
<td>Mobile phone</td>
</tr>
<tr>
<td>User location</td>
<td>Hard to find</td>
<td>Readily available</td>
</tr>
<tr>
<td>Screen size and memory</td>
<td>Medium</td>
<td>Small</td>
</tr>
<tr>
<td>Role of network operator</td>
<td>Small</td>
<td>Large</td>
</tr>
<tr>
<td>Access medium</td>
<td>Wired</td>
<td>Wireless</td>
</tr>
</tbody>
</table>
Overview

• Advantages
  • Offers many payment options
  • Push advertising, direct marketing
  • More efficient and extensive service offered
  • The Internet is going mobile

• Disadvantages
  • Expensive cost
  • Small screen
  • Slow speed
  • Limited message length
  • Hard to fill data
  • Security problems on mobile platform

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## Classification

- Classification of m-commerce applications

<table>
<thead>
<tr>
<th>Class of Applications</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile financial applications (B2C, B2B)</td>
<td>Banking, brokerage, and payments for mobile users</td>
</tr>
<tr>
<td>Mobile advertising (B2C)</td>
<td>Sending user-specific and location-sensitive advertisements to users</td>
</tr>
<tr>
<td>Mobile inventory management (B2C, B2B)</td>
<td>Location tracking of goods, boxes, troops, and people</td>
</tr>
<tr>
<td>Proactive service management (B2C, B2B)</td>
<td>Transmission of information related to distributing components to vendors</td>
</tr>
<tr>
<td>Product locating and shopping (B2C, B2B)</td>
<td>Locating/ordering certain items from a mobile device</td>
</tr>
<tr>
<td>Wireless reengineering (B2C, B2B)</td>
<td>Improvement of business services</td>
</tr>
<tr>
<td>Mobile auction or reverse auction (B2C)</td>
<td>Services for customers to buy or sell certain items</td>
</tr>
<tr>
<td>Mobile entertainment services (B2C)</td>
<td>Video-on-demand and other services to a mobile user</td>
</tr>
<tr>
<td>Mobile office (B2C)</td>
<td>Working from traffic jams, airport, and conferences</td>
</tr>
<tr>
<td>Mobile distance education (B2C)</td>
<td>Taking a class using streaming audio and video</td>
</tr>
<tr>
<td>Wireless data center (B2C, B2B)</td>
<td>Information can be downloaded by mobile users/vendors</td>
</tr>
<tr>
<td>Mobile music/music-on-demand (B2C)</td>
<td>Downloading and playing music using a mobile device</td>
</tr>
</tbody>
</table>

Classification

- Classification based on space-time coordinate
- Space and time are valuable resources
- How space affects economic values of products/services?
  - Distribution cost, real-estate, programmers’ salaries, etc.
- How time affects economic values of products/services?
  - Waiting time for product delivery, medical check at hospitals, be the early customers to get killer products (e.g. iPhone 6S), etc.
Classification

• Mapping of activities into space-time coordinate
  • The degree that the activity is constrained in space
    • High: e.g. watching football live in the stadium
    • Low: e.g. reading newspaper
  • The degree that the activity is constrained in time
    • High: e.g. taking a course at HCMUT
    • Low: e.g. taking an online course
Classification

Space-Time Matrix: Activities in a World Without Mobile Technologies

- Flexible
  - Buying books from an electronic network
  - Sending and receiving email
  - Consulting with a stock broker

- Constrained
  - Attending a show-and-tell at a museum exhibit
  - Checking on the status of a delivery truck
  - Checking on the status of a vending machine
  - Morning shower
  - Lunch
  - Attending a football game
  - Watching a football game on TV

The “L-pattern” of activities

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Classification
Classification

• Another classification of m-commerce applications
  • Is it time critical?
  • It is location critical?
  • It is controlled by provider or receiver?
• There are 8 groups of m-commerce applications based on the above classification
## Classification

### A Taxonomy of M-Commerce Applications

<table>
<thead>
<tr>
<th>Dimension 1</th>
<th>Dimension 2</th>
<th>Dimension 3</th>
<th>Category</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location sensitive</td>
<td>Time critical</td>
<td>Initiated/controlled by recipient or user</td>
<td>I</td>
<td>Information services&lt;br&gt;Wireless updates sought on traffic conditions en route to the airport&lt;br&gt;Event information and direction&lt;br&gt;Product information sought inside retail outlet (scanning bar codes)&lt;br&gt;Safety services&lt;br&gt;Emergency/roadside assistance services&lt;br&gt;Billing services&lt;br&gt;Cell phone-based payment authorization to activate a specific vending machine&lt;br&gt;Logistic network management services&lt;br&gt;Performance monitoring and real-time routing of truck fleet using onboard sensors and satellite-based sensing/communication systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiated/controlled by provider or network</td>
<td>II</td>
<td>Limited-time coupon announcements broadcast by geographically proximate retail stores&lt;br&gt;Global Positioning Systems (GPS) that track a child’s position and notify parents when he or she moves out of a designated electronic fence</td>
</tr>
<tr>
<td>Time noncritical</td>
<td></td>
<td>Initiated/controlled by recipient or user</td>
<td>III</td>
<td>Mapping a geographical area using GPS-based systems&lt;br&gt;Directions and information about retail outlets—mobile Yellow Pages</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiated/controlled by provider or network</td>
<td>IV</td>
<td>Satellite-based agricultural yield mapping and management services</td>
</tr>
<tr>
<td>Location insensitive</td>
<td>Time critical</td>
<td>Initiated/controlled by recipient or user</td>
<td>V</td>
<td>Wireless stock quote request&lt;br&gt;Participation in a virtual auction via a wireless interface&lt;br&gt;Stock price alert provided by a personal investment adviser&lt;br&gt;Alerts on a limited-time promotional airline fare</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Initiated/controlled by provider or network</td>
<td>VI</td>
<td>Wireless access to digital music libraries&lt;br&gt;Shopping and price comparison over wireless media&lt;br&gt;User-controlled downloads of cellular phone software&lt;br&gt;Remote update of software for satellites and planetary probes</td>
</tr>
</tbody>
</table>
Retail pricing

- Retail markets are divided into regions within which one seller is in a quasi-monopolistic position.
Retail pricing

• Price discrimination and mobile prices
  • Profits are maximized when marketers are able to implement some form of first-degree price discrimination
  • When prices are public, first-degree price discrimination is difficult to implement
  • Mobile prices: can be communicated to specific consumers with great precision
  • In particular, a mobile consumer may be offered a unique price that is communicated through his or her mobile device
  • Because consumers’ locations and time are available, other kinds of price discrimination are also applicable

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Retail pricing

- Retail competition in a mobile world
End of chapter 6