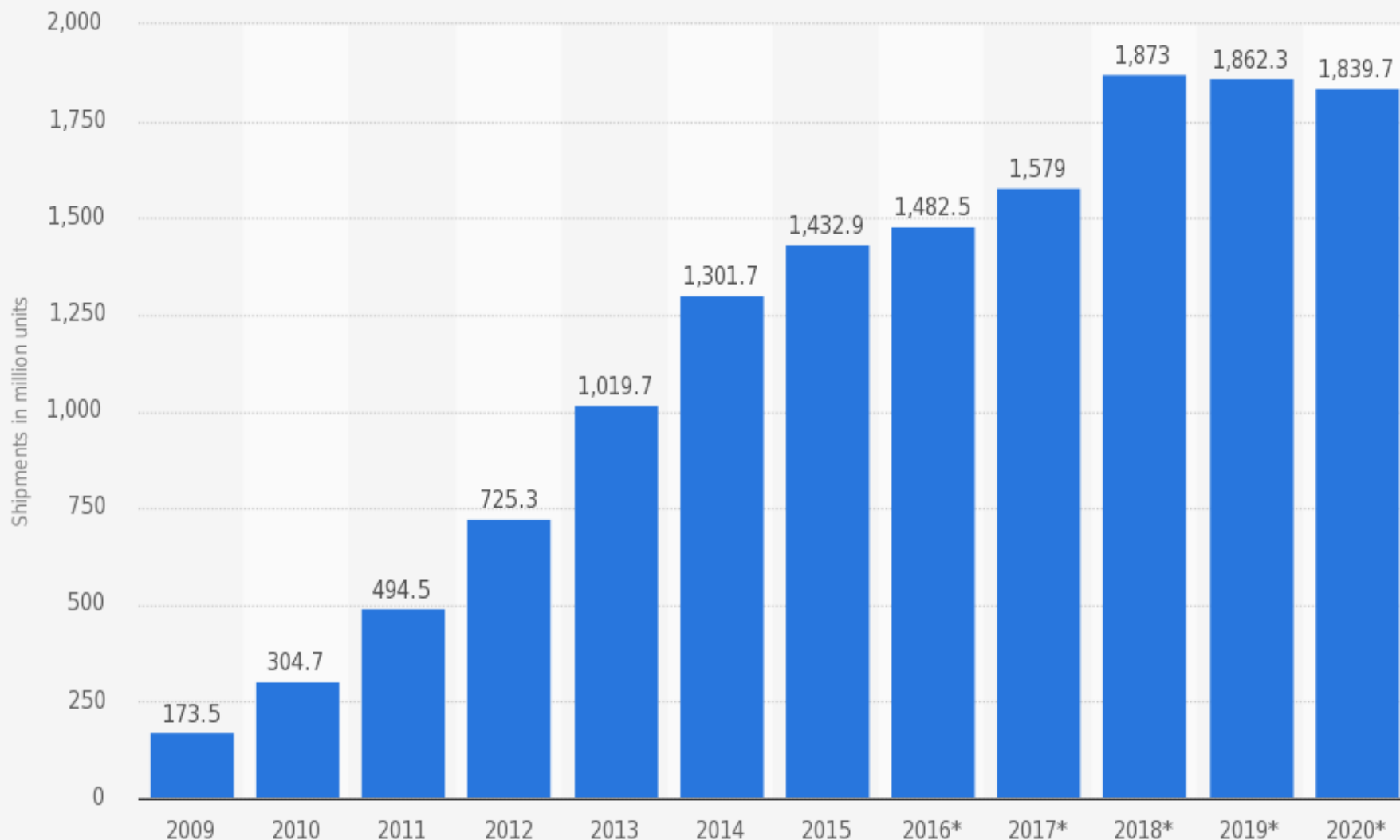# Chapter 6

Mobile Commerce
and Ubiquitous Computing
Technology of E-Business

Learning Objectives

1. Discuss the value-added attributes, benefits, and fundamental drivers of m-commerce.

2. Discuss m-commerce applications in banking and financial services.

3. Describe enterprise applications.

4. Describe consumer and personal applications of m-commerce including entertainment.

5. Understand the technologies and potential applications of location-based m-commerce.
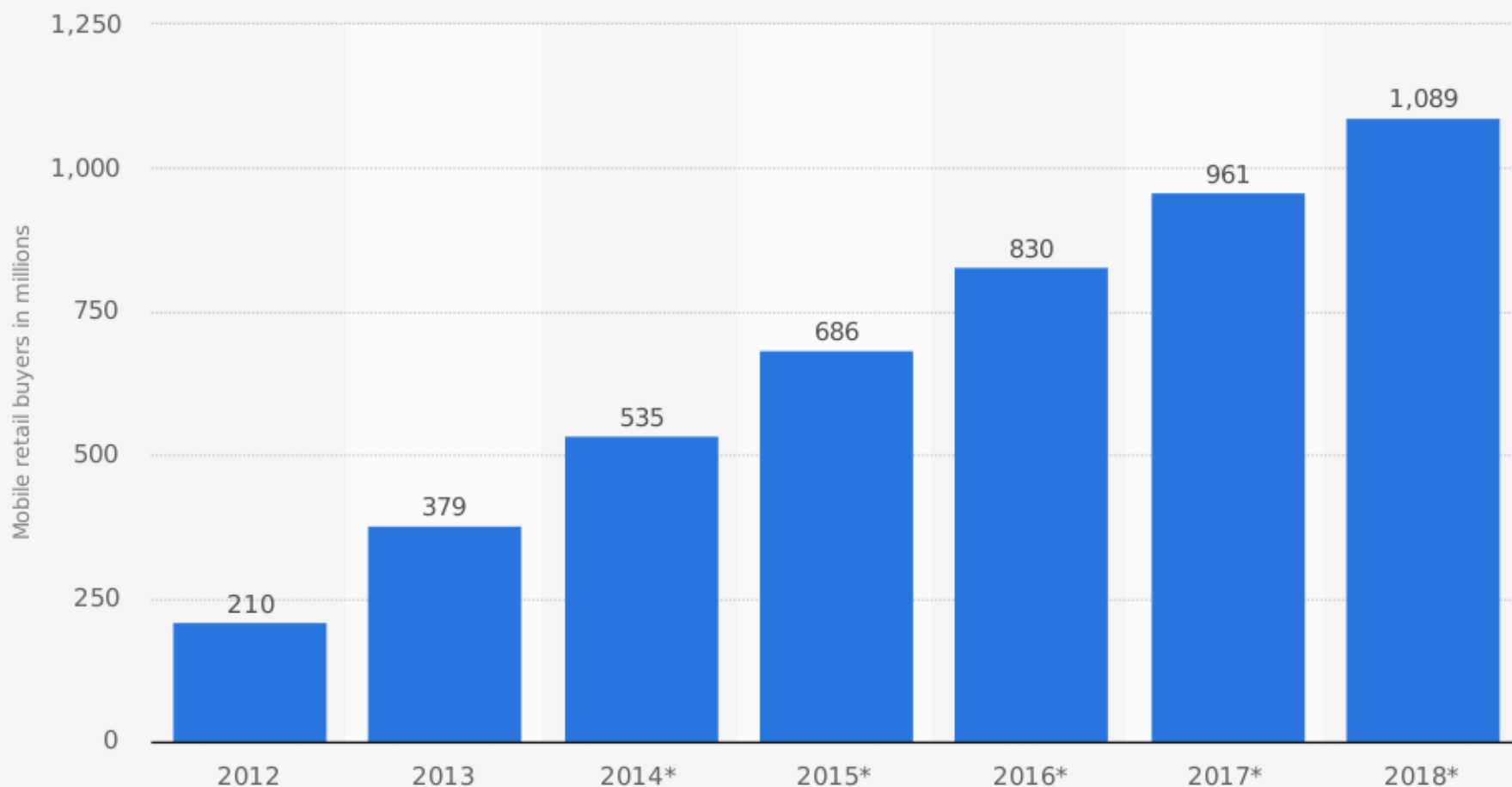
Global smartphone shipments forecast from 2010 to 2020 (in million units)*

Shipments in million units

Year	Shipments
2009	173.5
2010	304.7
2011	494.5
2012	725.3
2013	1,019.7
2014	1,301.7
2015	1,432.9
2016*	1,482.5
2017*	1,579
2018*	1,873
2019*	1,862.3
2020*	1,839.7

statista ⤢

Global number of mobile retail commerce buyers from 2012 to 2018 (in millions)

Mobile retail buyers in millions

Year	Buyers
2012	210
2013	379
2014*	535
2015*	686
2016*	830
2017*	961
2018*	1,089

statista

Mobile Commerce: Concepts

- **Mobile Commerce (m-commerce; m-business)**

  Any business activity conducted over a wireless telecommunications network or from mobile devices.

  - Can be done via the Internet, private communication lines, smart cards, etc.
  - Creates opportunity to deliver new services to existing customers and to attract new ones

M-Commerce: Attributes

- **Ubiquity**—easier information access in real-time
- **Convenience**—devices that store data and have Internet, intranet, extranet connections
- **Interactivity**—Mobile systems allow for fast and easy interactions (e.g., via Twitter, tablets, or smartphones).
- **Personalization**—preparation of information for individual consumers
- **Localization of products and services**—knowing where the user is located at any given time and match service to them

Mobile Commerce: Drivers

- **Drivers of m-commerce**
  - Widespread availability of devices ()
  - No need for a PC
  - Handset culture
  - Vendors' push
  - Explosion of E-Commerce in general
  - Improved price/performance
 - Improvement of bandwidth

Mobile Commerce: Applications

- **The four business needs of m-commerce**
  1. **Field mobility** – the support of the mobile workforce
  2. **Fleet mobility** – the support of vehicles in order to minimize downtime and increase effectiveness, efficiency, and utilization
  3. **Warehouse management** – the improvement of the operations inside warehouses
  4. **Direct store delivery (DSD) route accounting** – the increased usefulness by conducting predelivery activities (e.g. by texting information about a new shipment from the shipper to the receiver).

EXHIBIT 6.2 — M-Commerce Applications and Their Classifications
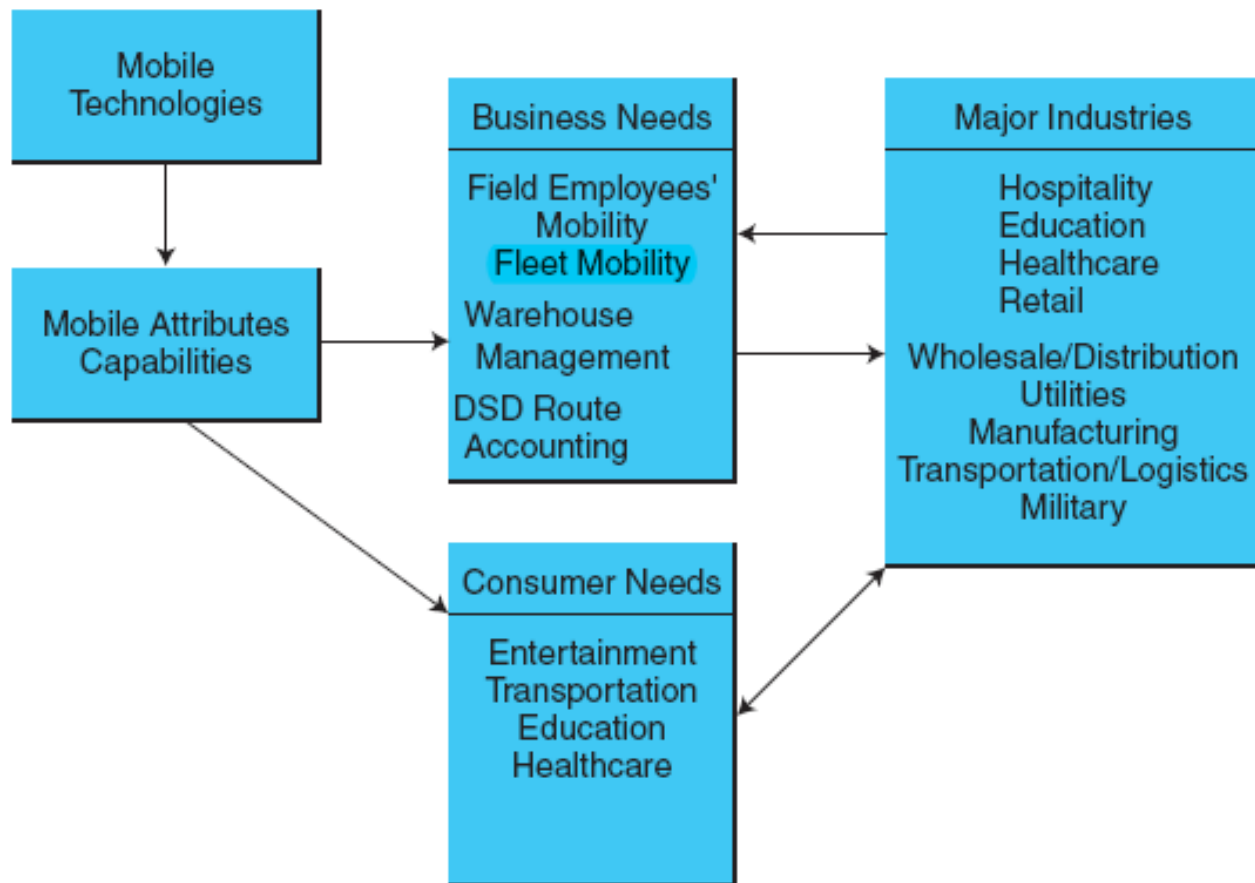
Mobile Commerce: Benefits

- **The benefits of m-commerce**
  - Benefits for Organizations
  - Benefits for Individuals and Customers
  - Other Benefits

Benefits for Organizations

- Increases sales due to ease of ordering by customers from anywhere, anytime.
- Allows location-based commerce for more sales and revenue.
- Provides an additional channel for advertising and distribution of coupons (wider reach).
- Increases customers' loyalty.
- Improves customer satisfaction through real- time apps.
- Enables many enterprise applications

Benefits for Organizations (Cont.)

- Facilitates CRM and collaboration.
- Reduces employee training time and help desk resources.
- Improves time utilization and productivity of mobile employees.
- Expedites information flow to and from mobile employees.
- Delivers digitized products and services directly to mobile devices.
- Reduces order-lead-time and fulfillment cycle.
- Allows for lower, competitive pricing.

Benefits for Individuals and Customers

- Allows e-commerce from any place, anytime.
- Assists in shopping by providing real time information and other shopping aids.
- Helps organization of and communication while travelling.
- Expedites banking and financial services.
- Provides rich media entertainment anytime and anywhere.

Benefits for Individuals and Customers (Cont.)

- Facilitates the finding of new friends and where about of existing ones.
- Provides a choice of mobile devices for transactions.
- Increases affordability over the cost of using desktop computing in some countries.

Mobile Financial Applications

- **Mobile banking**

  Performing banking activities such as balance checks, account transactions, payments, credit applications, etc., via a mobile device

- **Other financial-related mobile applications**
  - Mobile Stock Trading (i.e. Yahoo Finance, Robinhood)
  - Real Estate

Mobile Financial Applications

- **M-wallet (mobile wallet)**
  - a wireless wallet that enables cardholders to make purchases with a single click from their wireless devices

Using apple pay

Use your phone instead of a card at the ATM

Mobile Enterprise Solutions

- **Defining mobile enterprise**
  - **mobile enterprise**

    Application of mobile computing inside the enterprise (e.g., for improved communication among employees)
- **The framework and content of mobile enterprise applications**
  - The sales application
  - The support application
  - The service application
  - mobile worker

    Any employee who is away from his or her primary work space at least 10 hours a week or 25 percent of the time

Mobile Enterprise Solutions

- Mobile Capture: Mobilize Your Business Processes

Mobile Enterprise Solutions

Benefits of

Mobile Workforce Support

- Sales force automation
- Field force automation
- Mobile office applications
- Mobile CRM (e-CRM)
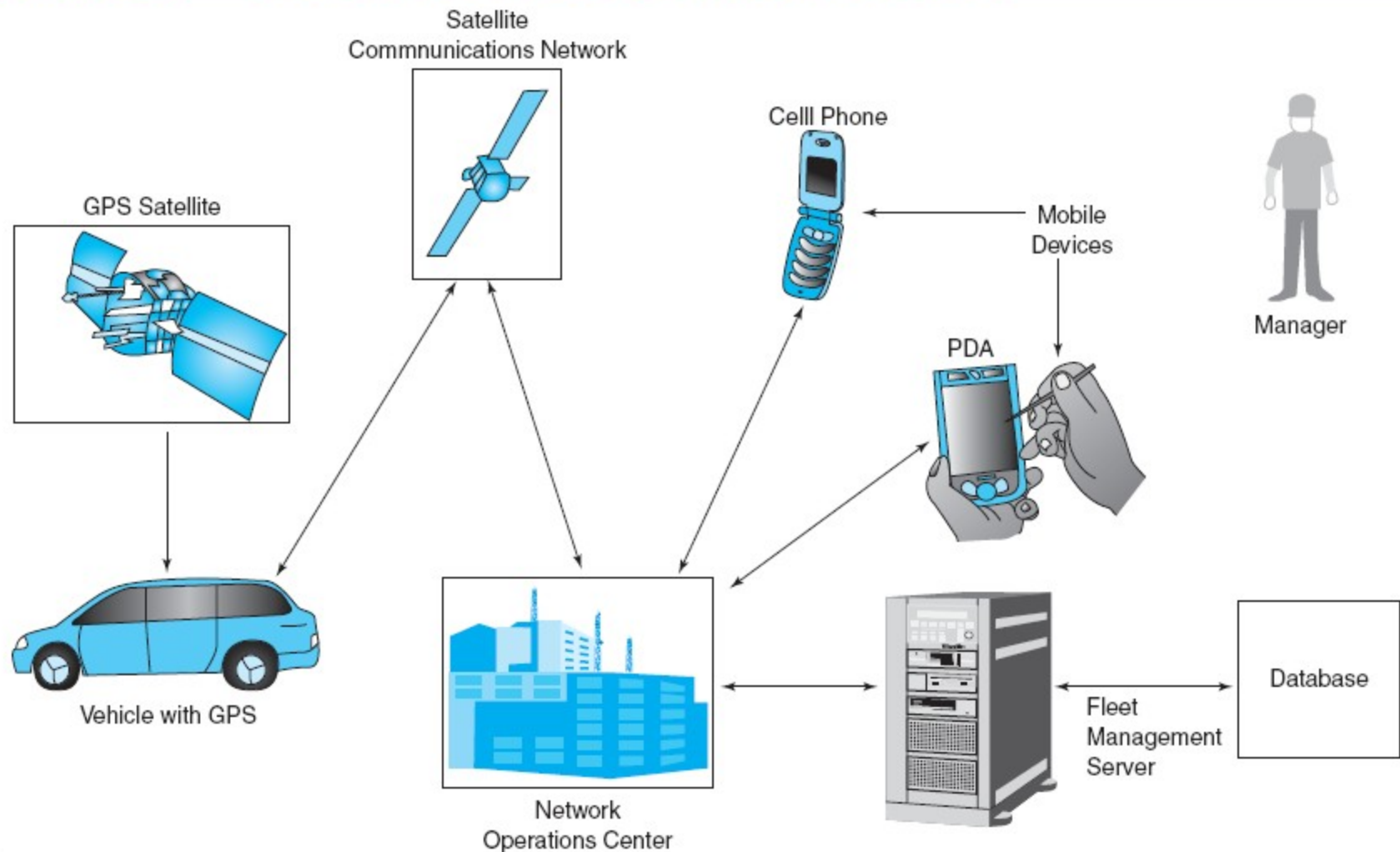
Challenges of

Mobile Workforce Support

- Network coverage gaps and interruptions
- Internetwork roaming
- Device and network management
- Bandwidth management

Mobile Enterprise Solutions

- **Fleet and transportation management**
  - Fleet Maintenance
  - Tracking People and Vehicles
  - Transportation Management

EXHIBIT 6.6   The Process of Locating Vehicles

Mobile Entertainment

- **mobile entertainment**

  Any type of leisure activity () that utilizes wireless telecommunication networks, interacts with service providers, and incurs a cost upon usage

- **Mobile music and video providers**

- **Mobile games**
  - **Hurdles for Growth**

- **Mobility and sports**

Mobile Consumer Services

- **Service industry consumer applications**
  - Health Care
  - Hospitality Management
  - Public Safety and Crime Prevention
  - Other Industries

Location-Based Mobile Commerce

- **location-based m-commerce (l-commerce)**

  Delivery of m-commerce transactions to individuals in a specific location, at a specific time

- **real-time location system (RTLS)**

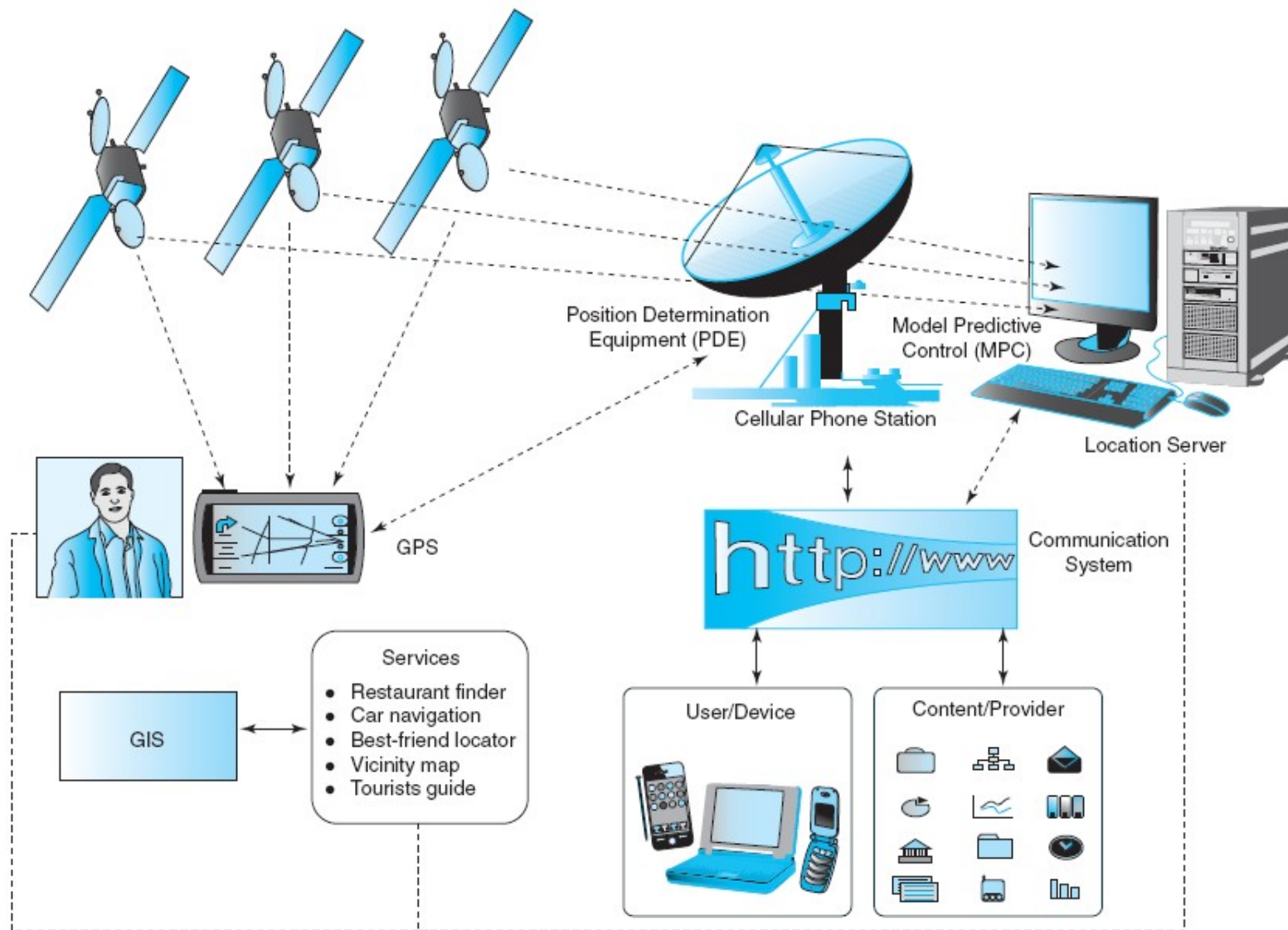 Systems used to track and identify the location of objects in real time

Location-Based Mobile Commerce

- **L-Commerce infrastructure**
  - Mobile devices
  - Communication network
  - Positioning component
  - Service or application provider
  - Data or content provider

EXHIBIT 6.7   LBS Components Creating a System

Position Determination Equipment (PDE)

Model Predictive Control (MPC)

Cellular Phone Station

Location Server

GPS

Communication System

Services
- Restaurant finder
- Car navigation
- Best-friend locator
- Vicinity map
- Tourists guide

GIS

User/Device

Content/Provider

Location-Based Mobile Commerce

- **Location-Based Data**
  - Locating
  - Navigating
  - Searching
  - Identifying
  - Event checking

What are Location Based Services?

Location-Based Mobile Commerce

- **location-based service (LBS)**

  An information service accessible from and to mobile devices through a mobile network utilizing the ability to make use of the geographical position of the mobile device to deliver a service to the user

  - **automatic vehicle location (AVL)**

    A means for automatically determining the geographic location of a vehicle and transmitting the information to a request

  - **social location-based marketing**

    Marketing activities that are related to social behavior and are related to social networking activities

Examples of Location-Based Services

- For the mobile user, some examples of location-based services are:
- Requesting the nearest business or service, such as an ATM or restaurant.
- Receiving alerts, such as notification of a sale on gas or warning of a traffic jam
- Finding a buddy

Barriers to location-based m-commerce

- lack of GPS in mobile phones
- accuracy of devices
- the cost–benefit justification
- limited network bandwidth
- invasion of privacy

Q & A