

# UNIT 1

## Introduction to E-Commerce

(7 Hours) — MIS and E-Business (CACS301)

---

### 1.1 Introduction to E-Commerce — Definitions and Concepts

Electronic Commerce (EC or e-commerce) refers to the process of buying, selling, transferring, or exchanging products, services, or information through computer networks, primarily the Internet. It covers a broad range of activities including online shopping, electronic funds transfer, supply-chain management, Internet marketing, online transaction processing, and automated data collection systems.

In its broadest sense, EC includes not only the buying and selling of goods but also servicing customers, collaborating with business partners, conducting e-learning, and carrying out electronic transactions within an organization.

#### Example 1.1 — Everyday E-Commerce

A student purchases a textbook on an online bookstore, pays through a digital wallet, and receives a download link — this single transaction demonstrates ordering, payment, and delivery all conducted electronically, the essence of EC.

### Defining E-Business

E-Business is a broader concept than e-commerce. While EC focuses specifically on buying and selling transactions over networks, e-business encompasses the entire range of activities that support those transactions — servicing customers, collaborating with business partners, conducting electronic internal processes, and managing the organization through digital means. In short, EC is a subset of e-business.

| Aspect   | E-Commerce (EC)                     | E-Business                                          |
|----------|-------------------------------------|-----------------------------------------------------|
| Scope    | Buying and selling over networks    | All business processes conducted electronically     |
| Focus    | Transaction-oriented                | Process- and relationship-oriented                  |
| Includes | Online sales, e-payment, e-auctions | EC + internal operations, CRM, SCM, e-learning      |
| Example  | Placing an order on a shopping site | Running the entire enterprise using digital systems |

## Pure Versus Partial Electronic Commerce

EC transactions can be classified according to the degree of digitization involved in three dimensions: the product or service being sold, the process by which it is made or delivered, and the delivery agent or intermediary. When all three dimensions are digital, the transaction is pure EC; when any dimension remains physical, it is partial EC.

| Dimension | Physical (Brick-and-Mortar)       | Digital (Pure EC)                |
|-----------|-----------------------------------|----------------------------------|
| Product   | A physical book, a car            | An e-book, downloadable software |
| Process   | Manual ordering, physical payment | Online ordering, e-payment       |
| Delivery  | Courier, postal service           | Instant download, streaming      |

*Note: Buying a physical book online (digital process, physical product and delivery) is partial EC — commonly called brick-and-click commerce — while downloading an e-book directly is pure EC.*

## EC Framework

A useful way to view e-commerce is as a structure supported by people, public policy, marketing and advertising, support services, and business partnerships — all resting on a common technology infrastructure of hardware, software, and networks. Together these pillars enable EC applications such as e-tailing, e-auctions, e-banking, and e-learning.

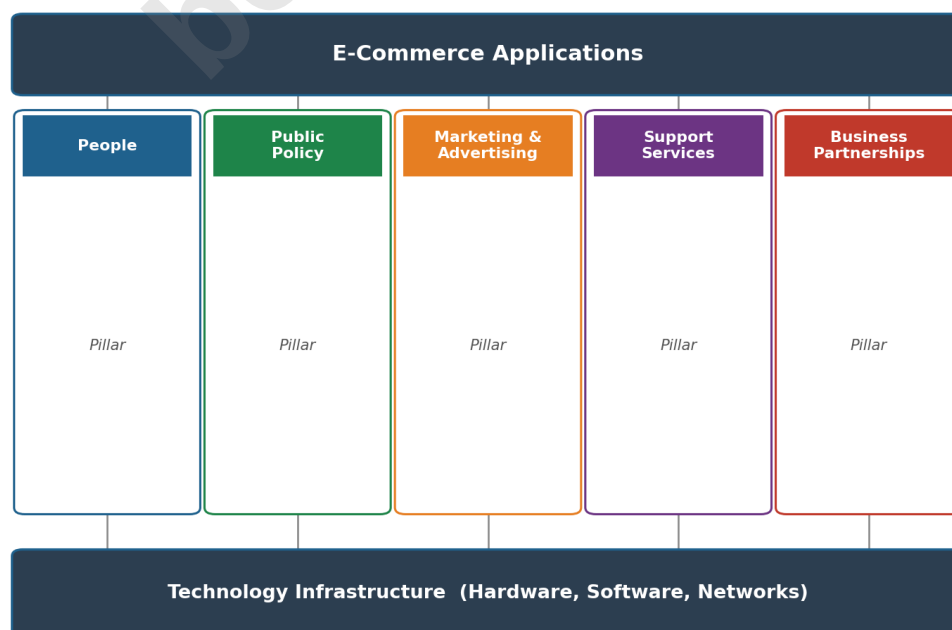


Figure 1.1 — A general framework for Electronic Commerce (adapted from Turban).

- People: buyers, sellers, intermediaries, information-systems specialists, and other employees.
- Public policy: legal and regulatory issues such as taxation, privacy protection, and consumer rights.
- Marketing and advertising: like any other business, EC usually requires marketing support.
- Support services: payment, logistics, content creation, and security services.
- Business partnerships: joint ventures, affiliate marketing, and exchanges occur throughout the EC field.

## Classification of E-Commerce

EC transactions are commonly classified by the nature of the participants involved on either side of the transaction.

| Type             | Full Form              | Description / Example                                           |
|------------------|------------------------|-----------------------------------------------------------------|
| B2B              | Business-to-Business   | Manufacturer ordering raw materials from a supplier's portal    |
| B2C              | Business-to-Consumer   | A retail company selling directly to individual shoppers        |
| C2C              | Consumer-to-Consumer   | Individuals selling used goods to one another, e.g. classifieds |
| C2B              | Consumer-to-Business   | A freelancer bidding for a project posted by a company          |
| B2G              | Business-to-Government | A firm supplying goods/services under a government tender       |
| G2C              | Government-to-Citizen  | Online renewal of a citizenship or tax certificate              |
| M-Commerce       | Mobile Commerce        | Transactions conducted through mobile/wireless devices          |
| Intrabusiness EC | Within an organisation | Internal exchange of goods, services, or information            |

## Benefits of E-Commerce

E-commerce delivers benefits to organizations, consumers, and society as a whole, which is one reason for its rapid worldwide growth.

| Beneficiary   | Key Benefits                                                                                                             |
|---------------|--------------------------------------------------------------------------------------------------------------------------|
| Organizations | Global market reach, lower operating and inventory costs, faster transaction cycles, improved supply-chain relationships |
| Consumers     | 24x7 access, wider product choice, price comparison, doorstep delivery, personalized offers                              |

| Beneficiary | Key Benefits                                                                                                                                                                                |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Society     | Enables remote work reducing traffic and pollution, allows people in developing regions to access goods and services, and lowers the prices of many products so more people can afford them |

## Electronic Markets

An electronic market (e-marketplace) is an online space where buyers and sellers meet to exchange goods, services, money, or information. Sellers list their offerings, buyers search and compare, and transactions are settled electronically. Examples range from large business-to-consumer marketplaces to specialized business-to-business exchanges that match industrial buyers with suppliers.

## Role of Internet and Web in E-Commerce

The Internet provides the global network backbone that connects buyers, sellers, and intermediaries, while the World Wide Web provides the interface — websites, hyperlinks, and multimedia content — through which EC activities are actually carried out. Together they eliminate geographic barriers, reduce communication costs, enable real-time information exchange, and support secure payment processing, all of which make modern e-commerce possible.

## Limitations and Barriers of E-Commerce

Despite its advantages, several technical and non-technical limitations continue to restrict the growth of EC.

| Category      | Limitations / Barriers                                                                                                                                                                                                      |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technical     | Lack of universally accepted security standards, insufficient telecommunications bandwidth in some regions, software development tools still evolving, integration difficulty with existing (legacy) systems                |
| Non-technical | Security and privacy concerns among users, lack of trust in unfamiliar sellers, resistance to change from traditional buying habits, legal and taxation uncertainties, and high cost of building and maintaining EC systems |

## Social Networks and Social Network Services

A social network is a social structure made up of individuals or organizations connected by one or more types of interdependency such as friendship, common interest, or business relationship. A Social Network Service (SNS) is an online platform that builds and reflects these social

networks, allowing members to create profiles, share content, and interact with one another.

- Social commerce: the use of social networking platforms to support buying and selling activities, such as product recommendations shared among friends.
- Community building: businesses use SNS to build brand communities and gather direct customer feedback.
- Viral marketing: content spreads rapidly through social connections, lowering the cost of reaching new customers.
- Customer service: many organizations now handle queries and complaints directly through social-media channels.

### **Key Takeaways — Section 1.1**

- ✓ E-commerce is the buying, selling, and exchanging of goods, services, or information over networks; e-business is broader and covers all digitally-enabled business processes.
- ✓ EC transactions may be pure (all three dimensions digital) or partial (brick-and-click).
- ✓ The EC framework rests on a technology infrastructure supported by people, public policy, marketing, support services, and business partnerships.
- ✓ Common EC categories include B2B, B2C, C2C, C2B, B2G, and G2C.
- ✓ EC benefits organizations, consumers, and society, but technical and non-technical barriers still limit its adoption.
- ✓ Social networks and SNS platforms have become an important channel for social commerce and customer engagement.

## 1.2 M-Commerce

### Concept, Scope, Attributes, and Benefits

Mobile commerce (m-commerce) refers to e-commerce transactions conducted through wireless, handheld devices such as smartphones and tablets, using mobile networks to connect with the Internet. It is essentially e-commerce carried out in a wireless environment, allowing users to conduct transactions anytime and from virtually any location.

- **Scope:** m-commerce covers mobile shopping, mobile banking, mobile ticketing, mobile entertainment, and location-based services delivered through cellular or wireless networks.
- **Ubiquity:** services can be accessed anywhere, anytime, without the user needing a fixed access point.
- **Reachability:** people can be reached at any time through their mobile devices, and can likewise reach services on demand.
- **Convenience:** handheld devices are portable, always powered on, and simple to use for quick transactions.
- **Localization / personalization:** knowledge of a user's physical location allows services and advertisements to be tailored to that location.

#### Example 1.2 — M-Commerce in Practice

A commuter uses a banking app on a smartphone to transfer funds while waiting for a bus, and immediately afterward receives a location-based coupon for a nearby coffee shop — illustrating both the convenience and localization attributes of m-commerce.

#### Benefits of M-Commerce

| Beneficiary | Benefits                                                                                                                         |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|
| Consumers   | Anytime-anywhere access, faster transactions, location-aware offers, mobile payment convenience                                  |
| Businesses  | Wider customer reach, real-time engagement, reduced transaction-processing costs, new revenue streams through mobile advertising |

### Location-Based M-Commerce

Location-based m-commerce (also called location-based commerce, l-commerce) uses a mobile device's geographic position — determined through GPS, cell-tower triangulation, or Wi-Fi positioning — to deliver commercial content and services relevant to that specific location. This allows businesses to send targeted promotions, provide navigation assistance, and offer proximity-based discounts to users as they move through the physical world.

## M-Commerce Infrastructure

Delivering m-commerce services requires a layered technical infrastructure, starting from positioning technology at the base and rising through wireless networks, mobile devices, and middleware, up to the user-facing applications at the top.

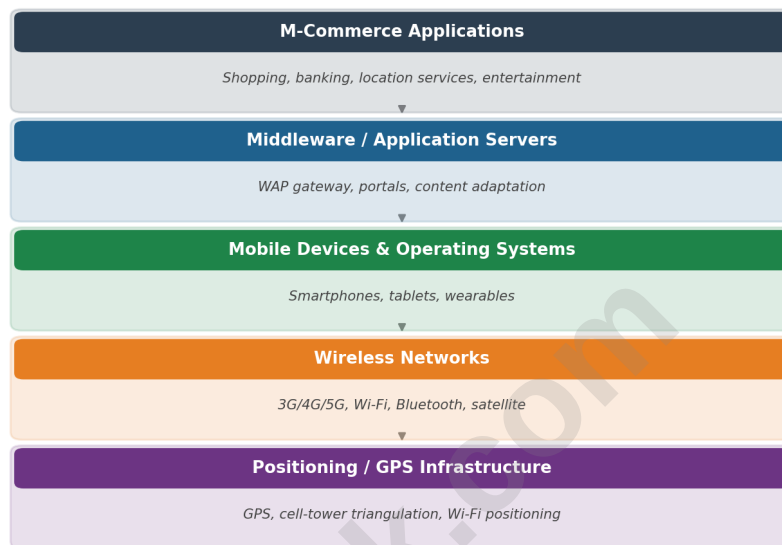


Figure 1.2 — Layered infrastructure supporting M-Commerce services.

- **Positioning / GPS infrastructure:** establishes the device's location using satellite, cell-tower, or Wi-Fi-based positioning methods.
- **Wireless networks:** 3G/4G/5G cellular, Wi-Fi, and Bluetooth carry data between the device and service providers.
- **Mobile devices and operating systems:** smartphones, tablets, and wearables running platforms capable of running m-commerce applications.
- **Middleware / application servers:** WAP gateways and content-adaptation servers that reformat content for different device screens and capabilities.
- **M-commerce applications:** the user-facing layer — mobile shopping, banking, entertainment, and location services.

## Location-Based Services and Applications

Location-Based Services (LBS) are information or entertainment services that make use of the geographical position of a mobile device to provide relevant content. LBS form the foundation of many practical m-commerce and l-commerce applications.

| Application Area       | Example Use                                                      |
|------------------------|------------------------------------------------------------------|
| Navigation & mapping   | Turn-by-turn directions, real-time traffic updates               |
| Proximity marketing    | Push notifications for nearby store discounts or offers          |
| Emergency services     | Locating a caller automatically during an emergency call         |
| Fleet & asset tracking | Real-time tracking of delivery vehicles or shipments             |
| Social check-in apps   | Sharing one's current location with friends or followers         |
| Location-based games   | Games where gameplay is tied to the player's real-world location |

### Illustration — Choosing Between EC and M-Commerce Delivery

**Scenario:** A supermarket chain wants to send a discount coupon to shoppers who are physically near one of its outlets, valid only for the next hour.

**Solution:** This scenario is best solved through location-based m-commerce, not conventional web-based EC, because it depends on real-time knowledge of the customer's current physical location together with the ubiquity and reachability of a mobile device — attributes a desktop-based EC channel cannot provide.

### Key Takeaways — Section 1.2

- ✓ M-commerce is e-commerce conducted over wireless, handheld devices, characterized by ubiquity, reachability, convenience, and localization.
- ✓ Location-based m-commerce (l-commerce) uses a device's position to deliver targeted, context-relevant services.
- ✓ M-commerce infrastructure is layered: positioning technology, wireless networks, mobile devices, middleware, and applications.
- ✓ Location-Based Services support navigation, proximity marketing, emergency response, asset tracking, and social and gaming applications.

— End of Unit 1 —