Management of e-commerce and m-commerce

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Objectives

- To describe e-commerce system concepts
- To critically analyze examples and cases of e-commerce systems
- To describe systems and technology in m-commerce
- To examine some of the applications in m-commerce

Course Perspective

- View e-commerce and m-commerce from an information systems perspective (not from a marketing or other business function perspective)
- Information system: A socio-technical system that processes data and provides information to support the operations and management of an organization
- Components of information system:
  - Information technology (IT): computer and communications hardware and software
  - Human resources: personnel and procedures
  - Stored data, information, knowledge
- Purpose of information system: to provide information to support:
  - Business activities the provide goods and services to customers (operations)
  - Management decision making at operational, tactical, and strategic levels

Course Perspective

- Information systems are essential for all businesses
- Information systems supports all business functions: accounting, finance, marketing, POM, HR
- Information systems supports different levels of business: individual, workgroup, organization, multiple organizations
- Information systems can be domestic or global
- Many types of information systems:
  - Transaction processing system (TPS)
  - Management information system (MIS)
  - Decision support system (DSS)
  - Expert system (ES)
  - Executive support system (ESS)
  - Knowledge management system (KMS)
  - Electronic commerce system

Agenda

E-commerce:
1. E-commerce: Characteristics and functions
2. E-commerce: Case study
3. E-commerce: European analysis
M-commerce:
4. M-commerce: Characteristics and functions
5. M-commerce: Technology
6. M-commerce: Applications

Lecture 1
Electronic commerce: Characteristics and functions

Objectives:
- To review basic electronic commerce concepts
- To describe electronic commerce systems
- To describe the main functions of electronic commerce systems
Electronic commerce: Definition

(Turban et. al.):
Electronic commerce (e-commerce) is the process of conducting business activities related to (potential) business transactions through communications networks, especially the Internet.
- Business activity related to business transaction:
  - Business relationship management
  - Product search and comparison
  - Product information presentation and promotion
  - Purchase transaction management
  - Product delivery
  - Post-purchase customer support
  - Other

E-commerce: Dimensions

Model of e-commerce dimensions (Choi, et al.)
- Process dimension: process of conducting commerce
  - Physical
  - Digital (virtual, electronic)
- Product dimension: form of goods or services
  - Physical
  - Digital (virtual, electronic)
- Delivery dimension: method of delivery of product
  - Physical
  - Digital (virtual, electronic)
- 2x2x2 matrix

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E-commerce: Business models

E-commerce business models (Rappa):
- Brokerage: brings buyers and sellers together and facilitates transactions (eTrade)
- Advertising: provides (free) content (e.g., news) and (free) services (e.g., e-mail) mixed with advertising messages (Yahoo!)
- Infomediary: collects and sells information to other businesses (NYTimes)
- Merchant: wholesaler or retailer (e-tailer) of goods and services (Amazon)
- Manufacturer: manufacturer or producer of goods that sells directly to customers (Flowerbud)

E-commerce: Business models

E-commerce business models (Rappa):
- Affiliate: provides click-through purchase opportunities at sites where people may be surfing (BeFree)
- Community: provides special (free) services especially for users who visit regularly (ExpertCentral)
- Subscription: provides value-added content to users who pay for access (Wall Street Journal)
- Utility: provides services on a metered usage or pay-as-you go approach (FatBrain)
### E-commerce: Types

Types of e-commerce classified by the nature of the transaction:
- **Business-to-business (B2B)** - Cisco
- **Business-to-consumer (B2C)** - Amazon
- **Consumer-to-consumer (C2C)** - eBay
- **Consumer-to-business (C2B)** - Priceline
- **Peer-to-peer (P2P)** - Gnutella
- **Business-to-employee (B2E)** - SFSU intranet
- **Government-to-citizen (G2C)** - US Postal Service

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### E-commerce system definition

An electronic commerce (e-commerce) system is an information system that processes data and provides information to support the operations and management of an organization’s electronic commerce activities.

- **Operations**: advertising, selling, order entry, inventory control, order fulfillment, billing, customer support, etc.
- **Management**: customer targeting, advertisement management, sales analysis, credit management, etc.

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### E-commerce system functions

#### Product presentation
- Presents product to customer before purchase through the user interface (browser)
- Information presented:
  - Product advertisements
  - Product information/specifications/features
  - Product views
    - 2D or 3D
    - Single or multiple views
    - Figure modeling (apparel)
    - Sample presentation (music, software, books)
- Features:
  - Language selection
  - Search tool
  - Customization for user preferences
- Electronic catalog: database of information about products; linked to inventory system for product data integrity

#### Order entry
- Allows customer to place order for selected products
- Information about each product ordered is added to electronic shopping cart for customer
- Electronic shopping cart: database of information on products ordered by customer
- Function is linked to inventory system for product availability information
- Function requires access to customer database to update and use customer data

#### Electronic payment
- Provides ability for customer to pay for order
- Payment options:
  - Online payment (credit or debit card)
  - COD (collect on delivery)
  - Check (before delivery)
  - Invoice (after delivery)
- Security important in electronic payment
  - Should have secure Web site for payment (e.g., SSL)
- In B2B, electronic funds transfer (EFT) can be used for payment
- Function is linked to external payment authorization system
- Function is linked to accounts receivable system, financial accounting system
<table>
<thead>
<tr>
<th>E-commerce system functions: Order fulfillment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Delivers product to customer</td>
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<tr>
<td>• Delivery can be digital for some products</td>
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<tr>
<td>- Music</td>
</tr>
<tr>
<td>- Software</td>
</tr>
<tr>
<td>- Information</td>
</tr>
<tr>
<td>• Delivery must be physical for other products</td>
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<tr>
<td>- Apparel</td>
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<tr>
<td>- Manufacturing components</td>
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<tr>
<td>• Function is linked to warehouse and shipping systems for physical delivery</td>
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<thead>
<tr>
<th>E-commerce system functions: Customer service</th>
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<tbody>
<tr>
<td>• Provides assistance to customer related to purchase process</td>
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<tr>
<td>- Before purchase: questions about product</td>
</tr>
<tr>
<td>- During purchase: questions about use of e-commerce system</td>
</tr>
<tr>
<td>- After purchase: order tracking; exchange or return of product</td>
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<tr>
<td>• Options:</td>
</tr>
<tr>
<td>- Customer service FAQs</td>
</tr>
<tr>
<td>- Customer service (toll-free) telephone number</td>
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<tr>
<td>- Customer service e-mail</td>
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<tr>
<td>- Customer service chat</td>
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<th>E-commerce system functions: Product support</th>
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<tr>
<td>• Provides assistance to customer related to use of product after receipt of product</td>
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<tr>
<td>- Initial set-up, installation, operation</td>
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<tr>
<td>- On-going maintenance</td>
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<tr>
<td>- Warranty or non-warranty repair or replacement</td>
</tr>
<tr>
<td>• Options:</td>
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<tr>
<td>- Product support FAQs</td>
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<th>E-commerce system functions: Data acquisition</th>
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<td>• Captures data during the customer interaction with the system</td>
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<td>• Data stored in data warehouse</td>
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<td>• Customer preference data acquired from product presentation function as customer searches for products</td>
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<tr>
<td>• Customer order data acquired from order entry function when customer orders products</td>
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<tr>
<td>• Privacy of customer should be guaranteed when data is acquired (privacy statement)</td>
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<td>• Data used for marketing research purposes</td>
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<tr>
<th>E-commerce system functions: Data analysis</th>
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<tr>
<td>• Analyzes data in data warehouse</td>
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<td>• Uses statistical techniques (data mining)</td>
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<td>- Identify trends</td>
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<td>- Identify relationships</td>
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<tr>
<td>• Results presented to management for decision-making purposes</td>
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<th>E-commerce system functions: Service businesses</th>
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<tr>
<td>• Basic model is designed for businesses that sell products (B2C or B2B)</td>
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<tr>
<td>• Does the model apply in service businesses?</td>
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<td>• Service businesses:</td>
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<tr>
<td>- Banks</td>
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<td>- Travel companies (hotels, airlines)</td>
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<td>- Security brokers</td>
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<td>- Educational institutions</td>
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<td>- Other</td>
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### E-commerce system functions: Service businesses

- E-commerce systems of service businesses require similar functions
- System must have these capabilities:
  - Service presentation/description: customer identifies desired service
  - Service order: customer places order for service
  - Electronic payment: customer pays for service
  - Service fulfillment: service is provided to customer; can be electronic
  - Customer service: service related to customer order
  - Service support: support for customer after receiving service
  - Data acquisition
  - Data analysis

### E-commerce system cases

- How well do actual e-commerce systems fit this model?
- Are there functions of e-commerce systems that are not found in this model?