Kenyatta University

SCO 311: ELECTRONIC COMMERCE

BSc Computer Science Year 3 Semester 2

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Lecture 2: The Infrastructure of e-commerce

2.1. Structure of e-commerce organizations

1) Brick-and-mortar organizations
- Old-economy organizations (corporations) that perform most of their business off-line, selling physical products by means of physical agents

2) Virtual (pure-play) organizations
- Organizations that conduct their business activities solely online
- A **pure-play** business, such as Amazon or OLX, has an online presence only and uses the capabilities of the Internet to create a new business.

3) Click-and-mortar (click-and-brick or brick-and-click) organizations
- Organizations that conduct some e-commerce activities, but do their primary business in the physical world
- **Brick-and-click** businesses, such as Barnes and Noble, combine a physical presence with an online presence. These businesses use the Internet to supplement their existing businesses (5).

2.2. Major Types of E-Commerce

1. Business to business (B2B)
2. Business to consumer (B2C)
3. Consumer to consumer (C2C)
4. Mobile commerce (M-commerce)
5. Government e-commerce (B2G)
    - 5.1. Government to Business (G2B)
    - 5.2. Government to Citizen (G2C)

And Others

6. Consumer-to-Business (C2B).
7. Peer to peer (P2P)

2.2.1. Business to business (B2B)

- B2B e-commerce is simply defined as e-commerce between companies. It is the largest form (in monetary terms) of e-commerce.

- About 80% of e-commerce is of this type, and most experts predict that B2B e-commerce will continue to grow faster than the B2C segment. Business-to-business (B2B) online retailing has been witnessing strong growth due to the rapid migration of manufacturers and wholesalers from legacy systems to open, online platforms. As legacy systems involve the use of electronic data interchange, which is expensive and cumbersome to handle, B2B models will continue to move towards ubiquitous online platforms that allow buyers and sellers from anywhere in the world to transact goods and services with ease. In fact, the B2B online retail market is expected to reach double the size of the business-to-consumer (B2C) online market, generating revenues of 6.7 trillion USD by 2020 (4).
- The B2B market has two primary components: *e-frastructure* and *e-markets*. **E-frastructure** is the architecture of B2B, while **E-markets** are simply Web sites where buyers and sellers interact with each other and conduct transactions (1).
- It covers a broad spectrum of applications that enable an enterprise to form electronic relationships with its distributors, resellers, suppliers, customers, and other partners. By using B2B, organizations can restructure their supply chain and partnerships. (Turban)

2.2.2. Business to consumer (B2C)

- The most commonly discussed type of e-commerce is **Business-to-Consumer (B2C) e-commerce**, in which online businesses attempt to reach individual consumers. Even though B2C is comparatively small, it has grown exponentially since 1995, and is the type of e-commerce that most consumers are likely to encounter.

2.2.3. Consumer to consumer (C2C)

- Consumer-to-consumer e-commerce or C2C is simply commerce between private individuals or consumers.
- C2C e-commerce provides a way for consumers to sell to each other, with the help of an online market maker such as the auction site eBay.

- In C2C e-commerce, the consumer prepares the product for market, places the product for auction or sale, and relies on the market maker to provide catalog, search engine, and transaction-clearing capabilities so that products can be easily displayed, discovered, and paid for.

- This type of e-commerce comes in at least three forms:
  - **auctions** facilitated at a portal, such as eBay, which allows online real-time bidding on items being sold in the Web;
  - **peer-to-peer** systems, such as the Napster model (a protocol for sharing files between users used by chat forums similar to IRC) and other file exchange and later money exchange models; and
  - **classified ads** at portal sites such as OLX
- Consumer-to-business (C2B) transactions involve reverse auctions, which empower the consumer to drive transactions. A concrete example of this when competing airlines gives a traveller best travel and ticket offers in response to the traveller’s post that s/he wants to fly from New York to San Francisco.

2.2.4. Mobile Commerce (M-Commerce)

- Mobile commerce, or m-commerce, refers to the use of wireless digital devices to enable transactions on the Web.
- M-commerce involves the use of wireless networks to connect cell phones, handheld devices such Blackberries, and personal computers to the Web. Once connected, mobile

consumers can conduct transactions, including stock trades, in-store price comparisons, banking, travel reservations, and more.

Category	Description	Example
Business-to-consumer (B2C)	Businesses sell products or services to individual consumers.	Walmart.com sells merchandise to consumers through its Web site.
Business-to-business (B2B)	Businesses sell products or services to other businesses.	Grainger.com sells industrial supplies to large and small businesses through its Web site.
Business processes that support buying and selling activities	Businesses and other organizations maintain and use information to identify and evaluate customers, suppliers, and employees. Increasingly, businesses share this information in carefully managed ways with their customers, suppliers, employees, and business partners.	Dell Computer uses secure Internet connections to share current sales and sales forecast information with suppliers. The suppliers can use this information to plan their own production and deliver component parts to Dell in the right quantities at the right time.
Consumer-to-consumer (C2C)	Participants in an online marketplace can buy and sell goods to each other. Because one party is selling, and thus acting as a business, this book treats C2C transactions as part of B2C electronic commerce.	Consumers and businesses trade with each other in the eBay.com online marketplace.
Business-to-government (B2G)	Businesses sell goods or services to governments and government agencies. This book treats B2G transactions as part of B2C electronic commerce.	CA.gov procurement site allows businesses to sell online to the state of California.

Schneider, p.7.

2.2.5. Government e-commerce (B2G)

- Business-to-government (B2G) e-commerce can generally be defined as transactions with the government. The Internet is used for procurement, filing taxes, licensing procedures, business registrations, and other government-related operations.
- B2G networks provide a platform for businesses to bid on government opportunities which are presented as solicitations in the form of RFPs in a reverse auction fashion. Public sector organizations (PSOs) post tenders in the form of RFPs, RFIs, RFQs and suppliers respond to them.
- This kind of e-commerce has two features: first, the public sector assumes a pilot/leading role in establishing e-commerce; and second, it is assumed that the public sector has the greatest need for making its procurement system more effective.
- Web-based purchasing policies increase the transparency of the procurement process (and reduces the risk of irregularities).
- E-government. The use of e-commerce to deliver information and public services to citizens, business partners and suppliers of government entities, and those working in public sector. E-government application can be divided into three major categories; government-to-citizens (G2C), government–to–business (G2B), and government-to–government (G2G).

2.2.6. Consumer to Business e-commerce (C2B)

- In C2B e-commerce, the consumer prepares the product for market, places the product for auction or sale, and relies on the market maker to provide catalog, search engine, and transaction-clearing capabilities so that products can be easily displayed, discovered, and paid for.

- Consumer-to-business (C2B)14 e-commerce is between private individuals who use the Internet to sell products or services to organizations and individuals who seek sellers to bid on products or services.
- Examples: Elance (www.elance.com) is an example of C2B where a consumer posts a project with a set budget deadline and within hours companies and/or individuals review the consumer's requirements and bid on the project. The consumer reviews the bids and selects the company or individual that will complete the project. Elance empowers consumers around the world by providing the meeting ground and platform for such transactions.

2.2.7. Peer to peer e-commerce (P2P)

- Peer-to-peer technology enables Internet users to share files and computer resources directly without having to go through a central Web server. In peer-to-peer's purest form, no intermediary is required, although in fact, most P2P networks make use of intermediary "super servers" to speed operations.
- Since 1999, entrepreneurs and venture capitalists have attempted to adapt various aspects of peer-to-peer technology into Peer-to-Peer (P2P) e-commerce. To date there have been very few successful commercial applications of P2P e-commerce with the notable exception of illegal downloading of copyrighted music.
- Napster.com, which was established to aid Internet users in finding and sharing online music files, was the most well-known example of peer-to-peer e-commerce until it was put out of business in 2001 by a series of negative court decisions. However, other file-sharing networks, such as Kazaa and Grokster, quickly emerged to take Napster's place. These networks have also been subjected to legal challenge. For instance, in 2002, the Recording Industry of America, a trade organization of the largest recording companies, filed a federal lawsuit against Kazaa and Grokster for violating copyright law by enabling and encouraging members to exchange copyrighted music tracks without compensation to the copyright holders. The Supreme Court issued a decision in the case against the file-sharing networks in June 2005.

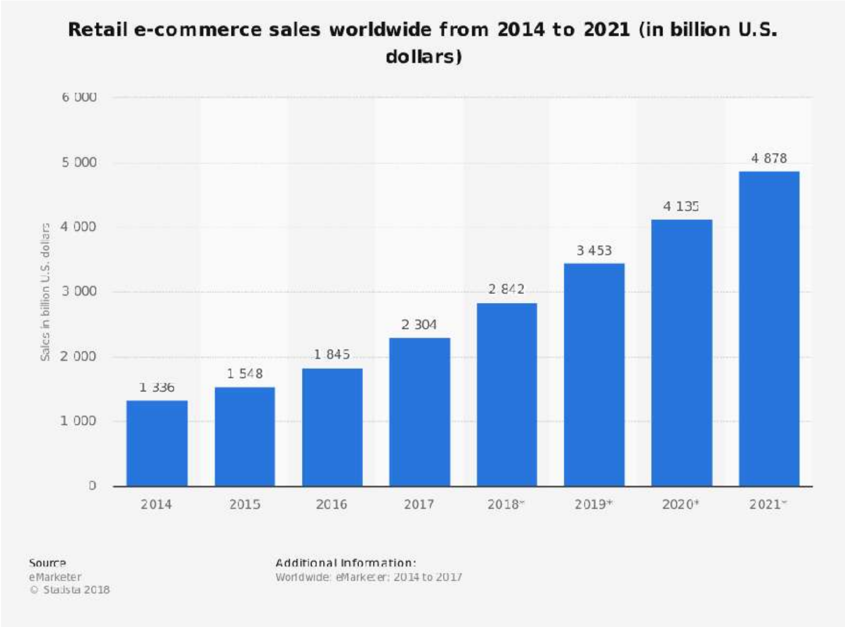
2.3. THE INFRASTRUCTURE OF E-COMMERCE

1. The Internet
2. Networking protocols (TCP, IP)
3. Routing
4. Domain names and URLs
5. Client/server computing

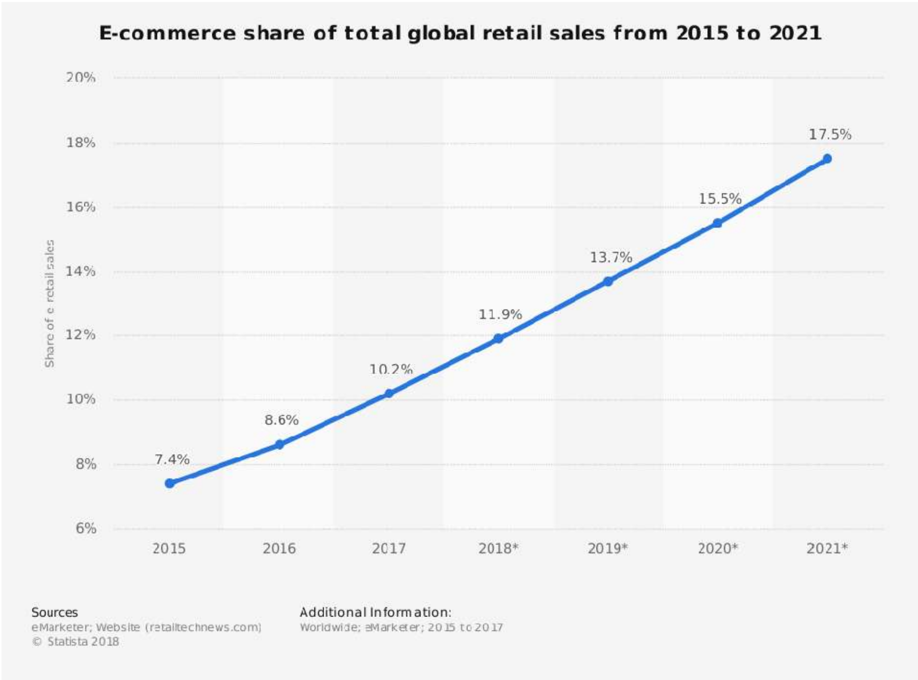
- The development and mastery of digital computing and communications technology is at the heart of the newly emerging global digital economy we call e-commerce. To understand the likely future of e-commerce, you need a basic understanding of the information technologies upon which it is built.
- E-commerce is above all else a technologically driven phenomenon that relies on a host of information technologies as well as fundamental concepts from computer science developed over a 50-year period. At the core of e-commerce are the Internet and the World Wide Web. Underlying these technologies are a host of complementary technologies—personal computers, local area networks, relational databases, client/server computing, and fiber optic switches, to name just a few.
- These technologies lie at the heart of sophisticated business computing applications such as enterprise-wide computing systems, supply chain management systems, manufacturing resource planning systems, and customer relationship management systems. E-commerce

relies on all these basic technologies—not just the Internet. The Internet—while representing a sharp break from prior corporate computing and communications technologies—is nevertheless just the latest development in the evolution of corporate computing and part of the continuing chain of computer-based innovations in business.

2.4. E-COMMERCE STATISTICS



https://amasty.com/blog/global-e-commerce-trends-and-statistics-2017-2018/

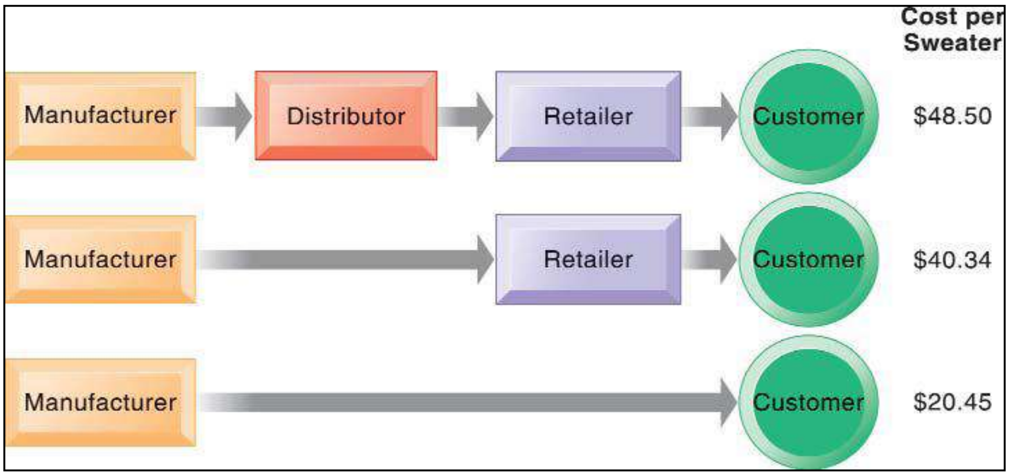


https://amasty.com/blog/global-e-commerce-trends-and-statistics-2017-2018/

2.5. Key Concepts in E-commerce: Digital Markets and Digital Goods in a Global Marketplace

- **Information asymmetry :** The car dealers used to have the upper hand regarding the cost of importing a car. Now the customer is able to obtain the same information
- **Disintermediation**: removing the middleman, has allowed many companies to improve their profits while reducing prices. Airline tickets.

The Benefits of Disintermediation to the Consumer (Laudon and Laudon,2012)



Notes compiled from

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