Review Questions : Ch 10

1. What are the unique features of e-commerce, digital markets, and digital goods?

1.1 Name and describe four business trends and three technology trends shaping e-commerce today.

List several business and technology trends shaping e-commerce today.
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1.2 List and describe the eight unique features of e-commerce.

1. E-commerce technology is **ubiquitous**, meaning that it is available just about everywhere a computer can connect to the Internet.
2. It has **global reach**, permitting commercial transactions to cross cultural and national boundaries far more conveniently and cost effectively than is true in traditional commerce.
3. It operates according to **universal standards** shared by all nations around the world, whereas most traditional commerce technologies differ from one nation to the next.
4. It provides information **richness**, enabling an online merchant to deliver to an audience of millions complex and rich marketing messages with text, video, and audio in a way not possible with traditional commerce technologies, such as radio, television, or magazines.
5. It is **interactive**, meaning it allows for two-way communication between merchant and consumer and enables the merchant to engage a consumer in ways similar to a face-to-face experience but on a much more massive, global scale.
6. It increases **information density** (the total amount and quality of information available to all market participants).
7. It permits **personalization and customization**: Merchants can target their marketing messages to specific individuals by adjusting the message to a person’s name, interests, and past purchases.
8. **Social technology** enables user content creation and distribution and supports social networks.
1.3 Define a digital market and digital goods and describe their distinguishing features.

Digital markets are said to be more “transparent” than traditional markets. The Internet has created a digital marketplace where millions of people are able to exchange massive amounts of information directly, instantly, and for free. Information asymmetry is reduced. Digital markets are very flexible and efficient, with reduced search and transaction costs, lower menu prices, and the ability to change prices dynamically based on market conditions. Digital markets provide many opportunities to sell directly to the consumer, bypassing intermediaries, such as distributors or retail outlets. Other features include delayed gratification, price discrimination, market segmentation, switching costs, and network effects.

Digital goods are goods that can be delivered over a digital network and include music, video, software, newspapers, magazines, and books. Once a digital product has been produced, the cost of delivering that product digitally is extremely low. New business models based on delivering digital goods are challenging bookstores, publishers, music labels, and film studios that depend on delivery of traditional goods.
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2. What are the principal e-commerce business and revenue models?

2.1 Name and describe the principal e-commerce business models.

1. **E-tailer**: Sells physical products directly to consumers or individual businesses.
2. **Transaction broker**: Saves users money and time by processing online sale transactions and generates a fee each time.
3. **Market creator**: Provides a digital environment where buyers and sellers meet, search for and display products, and establishes prices for those products; it can provide online auctions and reverse auctions.
4. **Content provider**: Creates revenue by providing digital content, such as digital news, music, photos, or video over the Web.
5. **Community provider**: Provides an online meeting place where people with similar interests can communicate and find useful information.
6. **Portal**: Provides an initial point of entry to the Web along with specialized content and other services.
7. **Service provider**: Provides Web 2.0 applications such as photo sharing, video sharing, and user-generated content as services. Provides other services such as online data storage and backup.
2.2 Name and describe the e-commerce revenue models.

There are six e-commerce revenue models:

1. **Advertising** revenue: Generates revenue by attracting a large audience of visitors who can then be exposed to advertisements. It’s the most widely used revenue model in e-commerce.
2. **Sales** revenue: Companies derive revenue by selling goods, information, or services to customers.
3. **Subscription** revenue: A Web site offering content or services charges a subscription fee for access to some or all of its offerings on an ongoing basis.
4. **Free** revenue: Basic services or content are free while advanced or special features cost extra.
5. **Transaction fee** revenue: A company receives a fee for enabling or executing a transaction.
6. **Affiliate** revenue: Sites that steer customers to an affiliate business receive a referral fee or percentage of the revenue from any resulting sales.
3. How has e-commerce transformed marketing?

3.1 Explain how social networking and the “wisdom of crowds” help companies improve their marketing.

Networking sites sell banner, video, and text ads; sell user preference information to marketers; and sell products such as music, videos, and e-books. Corporations set up their own social networking profiles to interact with potential customers and “listen” to what social networkers are saying about their products, and obtain valuable feedback from consumers. At user-generated content sites, high-quality video content is used to display advertising. Online communities are ideal venues to employ viral marketing techniques.

Creating sites where thousands, even millions, of people can interact offers business firms new ways to market and advertise products and services, and to discover who likes or dislikes their products. In a phenomenon called “the wisdom of crowds” some argue that large numbers of people can make better decisions about a wide range of topics or products than a single person or even a small committee of experts. In marketing, the wisdom of crowds concept suggests that firms should consult with thousands of their customers first as a way of establishing a relationship with them, and second, to better understand how their products and services are used and appreciated. Actively soliciting customer comments builds trust and sends the message to customers that the company cares what they are thinking and that customer advice is valuable.
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3.2 Define behavioral targeting and explain how it works at individual Web sites and on advertising networks.

Behavioral targeting refers to tracking the click-streams of individuals for the purpose of understanding their interests and intentions, and exposing them to advertisements which are uniquely suited to their behavior. Ultimately, this more precise understanding of the customer leads to more efficient marketing and larger sales and revenues. Behavioral targeting of millions of Web users also leads to the invasion of personal privacy without user consent.

Behavioral targeting takes place at two levels: At individual Web sites and on various advertising networks that track users across thousands of Web sites. Most e-commerce Web sites collect data on visitor browser activity and store it in a database. They have tools to record the site that users visited prior to coming to the Web site, where these users go when they leave that site, the type of operating system they use, browser information, and even some location data. They also record the specific pages visited on the particular site, the time spent on each page of the site, the types of pages visited, and what the visitors purchased. Firms analyze this information about customer interests and behavior to develop precise profiles of existing and potential customers.
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4. How has e-commerce affected business-to-business transactions?

4.1 Explain how Internet technology supports business-to-business electronic commerce.

Business-to-business transactions can occur via a company Web site, net marketplace, or private exchange. Web sites make it easy to sell and buy direct and indirect goods over the Internet, compare suppliers, products, and prices, and even find out how others feel about the product. Further, supply chain linkages through intranets and extranets can support JIT, reduce cycle times, and other practices of continuous improvement. Because of the ease and efficiencies brought by the Internet, business-to-business participants can save a significant amount of money and time.
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4.2 Define and describe Net marketplaces and explain how they differ from private industrial networks (private exchanges).

A net marketplace is a single digital marketplace based on Internet technology linking many buyers to many sellers. The net marketplace is an important business model for B2B e-commerce because some net marketplaces serve vertical markets for specific industries and other net marketplaces serve horizontal markets, selling goods that are available in many different industries. Also, net marketplaces can sell either direct goods or indirect goods. Net marketplaces are more transaction-oriented and less relationship-oriented than private industrial networks.
5. What is the role of m-commerce in business, and what are the most important m-commerce applications?

5.1 List and describe important types of m-commerce services and applications.

1. **Location-based services**: Users are able to locate restaurants, gasoline stations, local entertainment, or call a cab.
2. **Banking and financial services**: Users can manage their bank accounts, checking account balances, transfer funds, and pay bills using their cell phones.
3. **Wireless advertising**: Cell phones provide another avenue for advertisers to reach potential customers. Cell phone service providers can sell advertising on phones.
4. **Games and entertainment**: Users can download video clips, news clips, weather reports, live TV programs, and short films designed to play on mobile phones.
5. **Personalized services**: Services that anticipate what a customer wants based on that person’s location or data profile, such as updated airline flight information or beaming coupons for nearby restaurants.
5.2 Describe some of the barriers to m-commerce.

M-commerce represents a tiny fraction of all online purchases because wireless mobile devices can’t display merchandise very well. Mobile phones have tiny keyboards, small screens, and slow data transfer speeds. Many merchants don't yet offer m-commerce specialties like in-store, immediate coupons or discounts. Therefore, m-commerce lacks the ubiquity, richness, and reach of traditional online e-commerce. M-commerce will benefit from interoperable payment systems for wireless devices and faster wireless networks to support more data-rich communications.
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6. What issues must be addressed when building an e-commerce Web site?

6.1 List and describe each of the factors that go into the building of an e-commerce Web site.

1. Remain aware of the main areas that require decisions.
2. Form a team of individuals who possess the skill sets needed to make key decisions about technology, site design, and the social and information policies that will be applied at the site.
3. Managers must make decisions about hardware, software, and telecommunications infrastructure.
4. Customer demands should drive technology choices.
5. The technology should enable customers to find what they want easily, view the product, purchase it, and then receive it quickly from warehouses.
6. The site design must be carefully considered.
7. A project plan should then be developed.
6.2 List and describe four business objectives, four system functionalities, and four information requirements of a typical e-commerce Web site.

1. Display goods (objective) using a digital catalog (system functionality) for dynamic text and graphics catalog (information requirements).
2. Provide product information (objective) using a product database (system functionality) to provide a product description, stocking numbers, and inventory levels (information requirements).
3. Execute a transaction payment (objective) using a shopping cart/payment system (system functionality) to provide secure credit card clearing (information requirements).
4. Understand marketing effectiveness (objective) using a site tracking and reporting system (system functionality) to provide the number of unique visitors, pages visited, products purchased, and identified by the marketing campaign (information requirements).
6.3 List and describe each of the options for building and hosting e-commerce Web sites.

1. Completely hosting and building the site in-house
2. Completely outsourcing the hosting and building functions
3. Hosting the site in-house and outsourcing the building function
4. Building the site in-house and outsourcing the hosting function
1. What is the role of knowledge management and knowledge management programs in business?

1.1 Define knowledge management and explain its value to businesses.

Knowledge management is the set of processes developed in an organization to create, gather, store, maintain, transfer, apply, and disseminate the firm's knowledge. Knowledge management promotes organizational learning and incorporates knowledge into its business processes and decision making. As the textbook points out, knowledge management enables the organization to learn from its environment and incorporate this new knowledge into its business processes. Knowledge management helps firms do things more effectively and efficiently, and cannot be easily duplicated by other organizations. This “in-house” knowledge is a very valuable asset and is a major source of profit and competitive advantage.
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1.2 Describe the important dimensions of knowledge.

1. **Knowledge is a firm asset**: An intangible asset; requires organizational resources; experiences network effects as its value increases as more people share it.

2. **Knowledge has different forms**: Can be either tacit or explicit; involves know-how, craft, and skill; involves knowing how to follow procedures; involves knowing why, not simply when, things happen.

3. **Knowledge has a location**: It’s a cognitive event involving mental models and maps of individuals; has both a social and an individual basis of knowledge; is “sticky, situated, and contextual.

4. **Knowledge is situational**: It’s conditional; it’s related to context.
1.3 Distinguish between data, knowledge, and wisdom and between tacit knowledge and explicit knowledge.

1. **Data** by itself has no meaning but is the first step in the creation of knowledge.
2. **Knowledge** includes concepts, experience, and insight that provide a framework for creating, evaluating, and using information.
3. **Wisdom** is the collective and individual experience of applying knowledge to the solution of problems.
4. **Explicit knowledge** is knowledge that has been documented whereas
5. **tacit knowledge** is the expertise and experience of organizational members that has not been formally documented
2. What types of systems are used for enterprise-wide knowledge management and how do they provide value for businesses?

2.1 Define and describe the various types of enterprise-wide knowledge management systems and explain how they provide value for businesses.

Enterprise-wide knowledge management systems are general-purpose, firmwide efforts that collect, store, distribute, and apply digital content and knowledge. These systems include capabilities for searching for information, storing both structured and unstructured data, and locating employee expertise within the firm. They also include supporting technologies such as portals, search engines, collaboration tools, and learning management systems. Structured knowledge systems provide databases and tools for organizing and storing structured documents, whereas semistructured knowledge systems provide databases and tools for organizing and storing semistructured knowledge, such as e-mail or rich media.
2.1 Define and describe the various types of enterprise-wide knowledge management systems and explain how they provide value for businesses.

**Knowledge network systems** provide an online directory of corporate experts in well-defined knowledge domains and use communication technologies to make it easy for employees to find the appropriate expert in a company. Some knowledge network systems go further by systematizing the solutions developed by experts and then storing the solutions in a knowledge database as a best-practices or frequently asked questions (FAQ) repository. Often these systems include group collaboration tools, portals to simplify information access, search tools, and tools for classifying information based on a taxonomy that is appropriate for the organization.

**Intelligent techniques** help discover patterns and apply knowledge to discrete decisions and knowledge domains. It uses tools like data mining, neural networks, experts systems, case-based reasoning, fuzzy logic, genetic algorithms, and intelligent agents (bots) to capture individual and collective knowledge and to extend their knowledge base.
2.2 Describe the role of the following in facilitating knowledge management: Portals, wikis, social bookmarking, and learning management systems.

1. **Portals** provide access to external sources of information like news feeds and research, as well as to internal knowledge resources along with capabilities for email, chat/instant messaging, discussion groups, and videoconferencing.

2. **Wikis** provide a central repository for all types of corporate data that can be displayed in a Web browser, including electronic pages of documents, spreadsheets, and electronic slides. They can embed e-mail and instant messages. Even if wikis are changed, the software tracks the changes and provides tools for reverting to earlier versions.

3. **Social bookmarking** lets users save bookmarks to Web pages on a public Web site and tag these bookmarks with keywords. The bookmarks can be shared with co-workers, managers, customers, suppliers, and business partners.

4. **Learning management systems** provide tools for the management, delivery, tracking, and assessment of various types of employee learning. These systems provide value to the business by reducing the time and cost to acquire and utilize knowledge and by providing knowledge for higher-quality decisions.
3. What are the major types of knowledge work systems and how do they provide value for firms?

3.1 Define knowledge work systems and describe the generic requirements of knowledge work systems.

Knowledge work systems (KWS) are specialized systems for engineers, scientists, and other knowledge workers that are designed to promote the creation of knowledge and to ensure that new knowledge and technical expertise are properly integrated into the business. These systems reflect the special needs of knowledge workers. In this day and age, knowledge work is critical to most organizations, and in some organizations knowledge work systems produce strategic advantage or the knowledge that enables their company to keep up with others who are trying for strategic advantages.

KWS must have adequate computing power to handle the specialized tasks and complex calculations, provide easy access to external databases to support research, and present a user-friendly interface. KWS software uses intensive graphics, analysis, document management, and communications capabilities. These capabilities can increase the productivity of highly paid knowledge workers. KWS often run on workstations that are customized for the work they must perform. Computer-aided design (CAD) systems and virtual reality systems, which create interactive simulations that behave like the real world, require graphics and powerful modeling capabilities. KWS for financial professionals provide access to external databases and the ability to analyze massive amounts of financial data very quickly.
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3.2 Describe how the following systems support knowledge work: CAD, virtual reality, augmented reality, and investment workstations.

**CAD systems** automate the creation and revision of designs using computers and sophisticated graphics software. Benefits include the production of more sophisticated and functional designs, reducing the time required to produce designs, reducing expensive engineering changes, preparing fewer prototypes, and facilitating the tooling and manufacturing process.

**Virtual reality systems** have visualization, rendering, and simulation capabilities. This type of system uses interactive graphics software to create computer-generated simulations that are so close to reality that users believe they are participating in a real world. The users actually feel immersed in the computer-generated world. Virtual reality provides educational, scientific, and business benefits.

**Augmented reality** is related to virtual reality and enhances visualization by providing a live direct or indirect view of a physical real-world environment whose elements are augmented by virtual computer-generated imagery. The user remains grounded in the real physical world, and the virtual images are merged with the real view to create an augmented display.

**Investment workstations** are computer systems that access and manipulate massive amounts of financial data to manage financial trades and portfolio management. In addition to massive amounts of data, financial data are produced so quickly that specialized, very powerful systems are necessary to keep up with the rapid speed of finance and financial changes.
4. What are the business benefits of using intelligent techniques for knowledge management?

4.1 Define an expert system, describe how it works, and explain its value to business.

Expert systems are an intelligent technique for capturing tacit knowledge in a very specific and limited domain of human expertise. These systems capture the knowledge of skilled employees in the form of a set of rules in a software system that can be used by others in the organization.

Expert systems model human knowledge as a set of rules that collectively are called the knowledge base. The strategy used to search through the collection of rules and formulate conclusions is called the inference engine. The inference engine works by searching through the rules and “firing” those rules that are triggered by facts gathered and entered by the user.

Expert systems help organizations make high-quality decisions with fewer people. They are used in discrete, highly structured, decision-making situations where expertise is expensive or in short supply.
4.2 Define case-based reasoning and explain how it differs from an expert system.

Case-based reasoning (CBR) uses descriptions of past experiences of human specialists, representing them as “cases” and storing them in a database for later retrieval when the user encounters a new case with similar parameters. The system searches for stored cases similar to the new one, locates the closest fit, and offers the solution to the old case for use with the new case. If the new case fits the solution, it is added to the case database. If not, the case will be added with a new solution or explanations as to why the solution did not work. CBR differs from expert systems in that it captures the knowledge of the organization rather than a single expert, and the knowledge is captured as cases rather than if-then rules. Also, expert systems work by applying IF-THEN-ELSE rules against a knowledge base whereas CBR represents knowledge as a series of cases. With case-based reasoning, the knowledge base is continuously updated by the users.
4.3 Define a neural network and describe how it works and how it benefits businesses.

Neural networks are usually physical devices (although they can be simulated with software) that emulate the physiology of animal brains. Neural networks are used for solving complex, poorly understood problems for which large amounts of data have been collected. They find patterns and relationships in massive amounts of data that would be too complicated and difficult for a human being to analyze. Neural networks “learn” patterns from large quantities of data by sifting through data, searching for relationships, building models, and correcting over and over again the model’s own mistakes.

In a neural network, the resistors in the circuits are variable, and can be used to teach the network. When the network makes a mistake, i.e., chooses the wrong pathway through the network and arrives at a false conclusion, resistance can be raised on some circuits, forcing other neurons to fire. Used after a false conclusion, intervention teaches the machine the correct response. If this learning process continues for thousands of cycles, the machine learns the correct response. The simple neurons or switches are highly interconnected and operate in parallel so they can all work simultaneously on parts of a problem. Neural networks are very different from expert systems where human expertise has to be modeled with rules and frames. In neural networks, the physical machine emulates a human brain and can be taught from experience.
4.4 Define and describe fuzzy logic, genetic algorithms, and intelligent agents. Explain how each works and the kinds of problems for which each is suited.

Fuzzy logic is a rule-based AI technology that tolerates imprecision by creating rules that use approximate or subjective values and incomplete or ambiguous data. Fuzzy logic represents more closely the way people actually think than traditional IF-THEN rules. For example, if we all agree that 120 degrees is hot and -40 degrees is cold, then is 75 degrees hot, warm, comfortable, or cool? The answer is fuzzy at best and cannot be programmed in an IF-THEN manner. Japan's Sendai subway system uses a fuzzy logic system to control acceleration so it will operate more smoothly.

Genetic algorithms (adaptive computation) are a variety of problem-solving methods that are conceptually based on the method that living organisms use to adapt to their environment (process of evolution.) Genetic algorithms control the generation, variation, adaptation, and selection of possible problem solutions using genetically-based processes. As solutions alter and combine, the worst ones are discarded and the better ones survive to go on and produce even better solutions. Genetic algorithms are particularly suited to the areas of optimization, product design, and the monitoring of industrial systems. Organizations can use genetic algorithms to minimize costs and maximize profits and schedule and use resources efficiently. Genetic algorithms are ideal when problems are dynamic and complex and involve hundreds of variables or formulas. For example, General Electric used a genetic algorithm to help them design a jet turbine aircraft engine that required the use of about 100 variables and 50 constraint equations.
4.4 Define and describe fuzzy logic, genetic algorithms, and intelligent agents. Explain how each works and the kinds of problems for which each is suited.

Intelligent agents are software programs that use a built-in or learned knowledge base to carry out specific, repetitive tasks for an individual user, business process, or software application. By watching the user of a program or system, an intelligent agent may customize the software system to meet the user’s needs, reducing software support costs. Intelligent agents can be used as wizards to help users do or learn how to perform a given task. Intelligent agents can be used to carry out “smart” searches of the database, data warehouse, or the Internet, reducing search costs and avoiding the problems of misdirected searches. Agent-based modeling applications model consumer, stock market, and supply chain behavior.
1) Online ________ marketing is like traditional word-of-mouth marketing except that it is spread via online communities.
Answer: viral

2) ________ are also known as expertise location and management systems.
Answer: Knowledge network systems
Real life Question

1. You have been hired by a small architectural firm interested in implementing a knowledge management system. What features do you think would be of most benefit to them?

Your answers will vary. The ability to store structured documents, such as plans, blueprints; collaboration tools, the ability to reference up-to-date local or national building codes, a system for storing case studies, best practices, and corporate standards. Also of importance is a knowledge work system or CAD to aid in engineering and design.
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