Week Two Review

- System Development
  - Investigate, analyze, design, implement, maintain and review
- Value chain
- Strategic information systems

Week Two Review

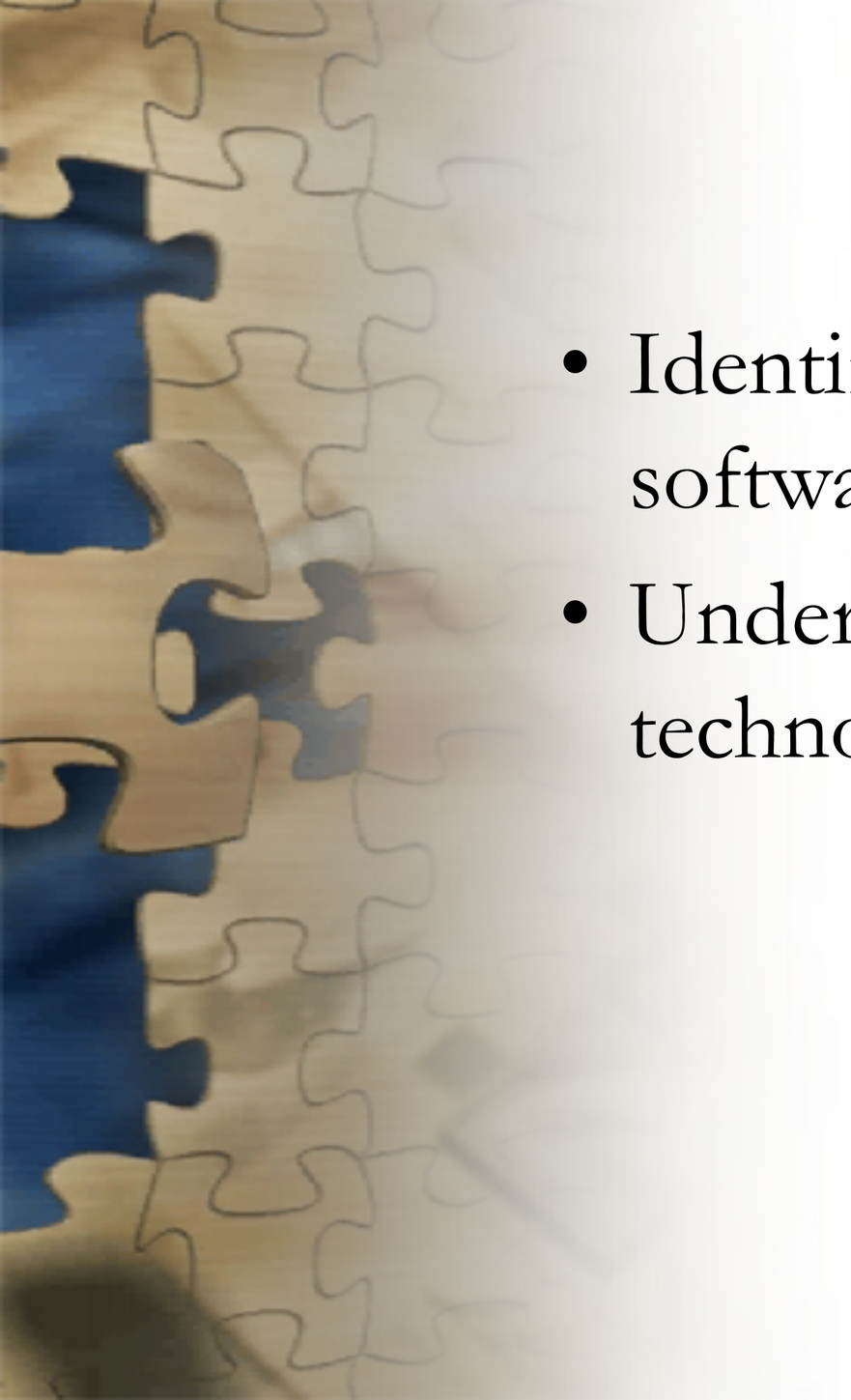
- Porter's five forces model
  - rivalry among existing competitors
  - threat of new entrants
  - threat of substitute products and services
  - bargaining power of buyers
  - bargaining power of suppliers

Week Two Review

- Strategies to achieve competitive advantage
- Global challenges to IS
  - Cultural; language; time and distance; infrastructure; currency; product and service; technology transfer; state, regional and national laws; trade agreements

Management Information System (MINSYST)

Week Three

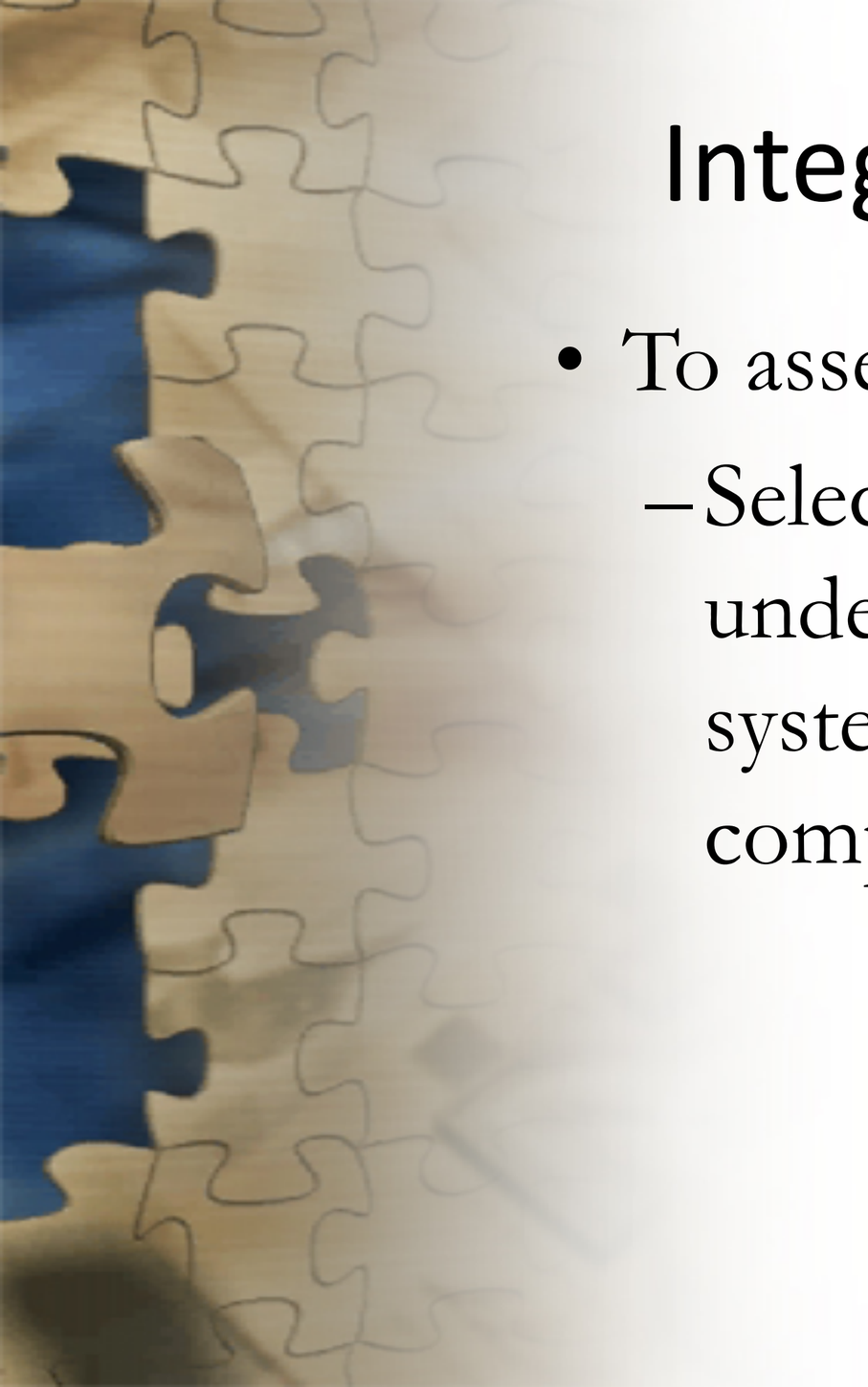


Objectives

- Identify the roles of essential hardware and software components of a computer system
- Understand the different applications of technology in information systems

Why learn about HW and SW?

- Organizations invest in hardware and software to:
  - Improve worker productivity
  - Increase revenue, reduce costs
  - Provide better customer service
- Managers are expected to know about business needs



Integrating the Power of Technology

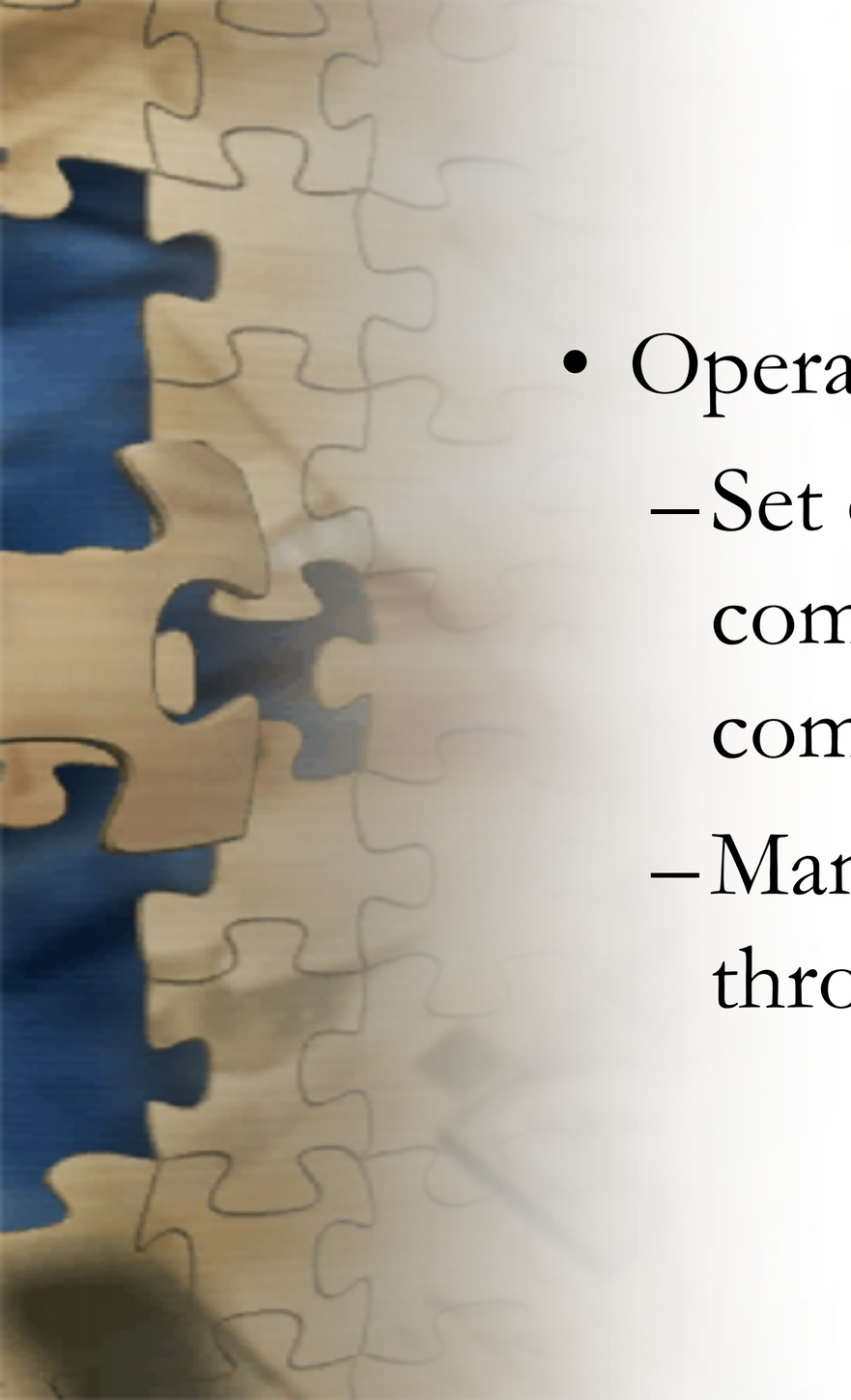
- To assemble an effective and efficient system:
  - Select and organise components while understanding the trade-offs between over-all system performance versus cost, control, complexity

Integrating the Power of Technology

- People involved in the selection should
  - Clearly understand current and future business needs to be able to make informed acquisition decisions

HW and SW Components

- Hardware
  - Physical components of a computer
  - Performs the input, process, output and storage activities of the computer
- Software
  - Programs that control the workings of the computer hardware

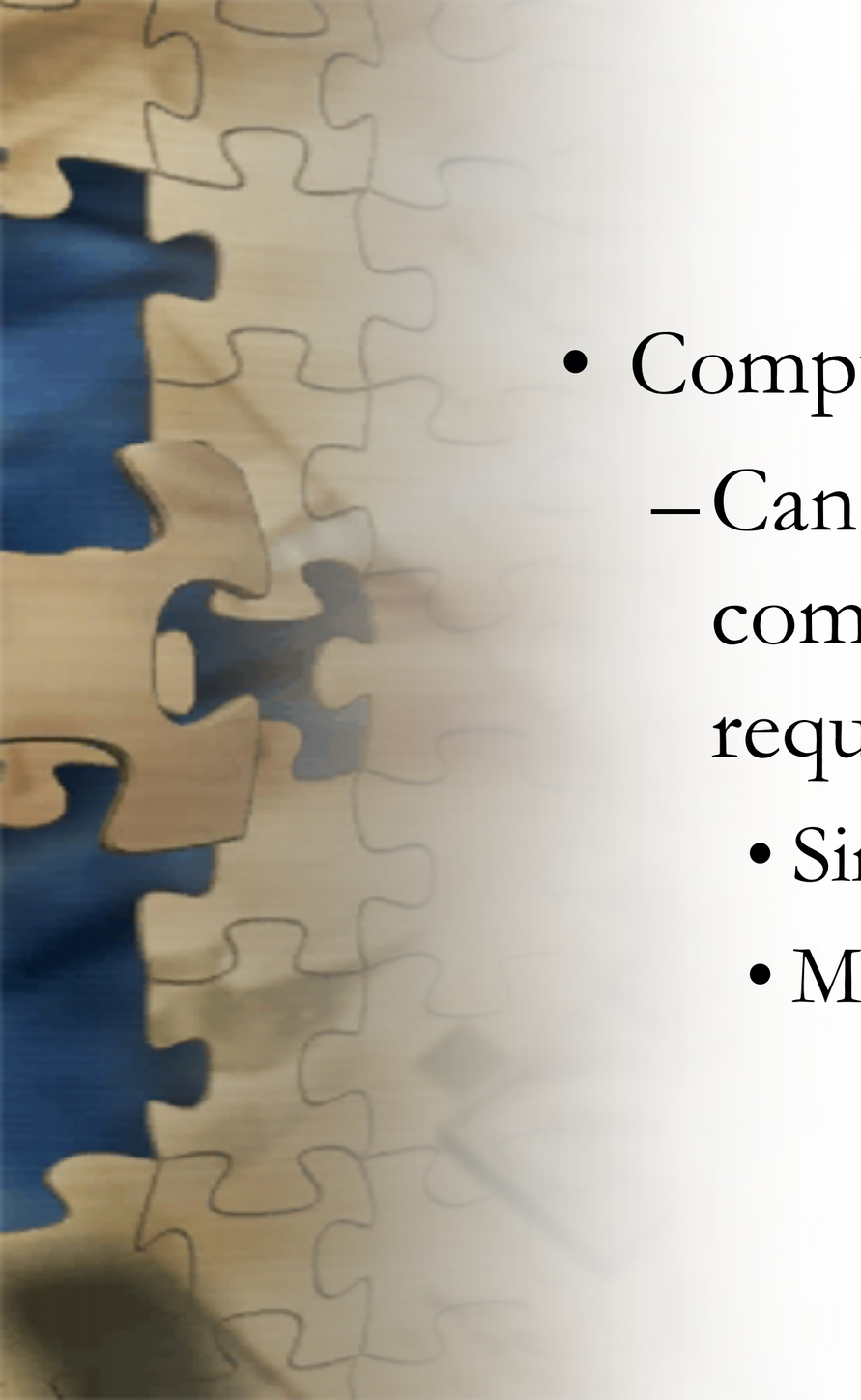


HW and SW Components

- Operating system (OS):
  - Set of computer programs that controls the computer hardware to support users' computing needs
  - Manages tasks to allocate computer resources through multitasking and time-sharing

HW and SW Components

- Application software:
  - Applies the power of the computer to solve problems and perform specific tasks



Computer System Types

- Computer systems:
  - Can range from desktop (or smaller) portable computers to massive supercomputers that require housing in large rooms
    - Single-user Computers
    - Multiple-user Computers

Green Computing

- Concerned with:
  - Efficient and environmentally responsible design, manufacture, operation, and disposal of IS-related products

Green Computing

- Goals:
  - Reduce the use of hazardous material
  - Enable companies to lower their power-related costs
  - Enable the safe disposal or recycling of IS-related products

Information Systems @ Work

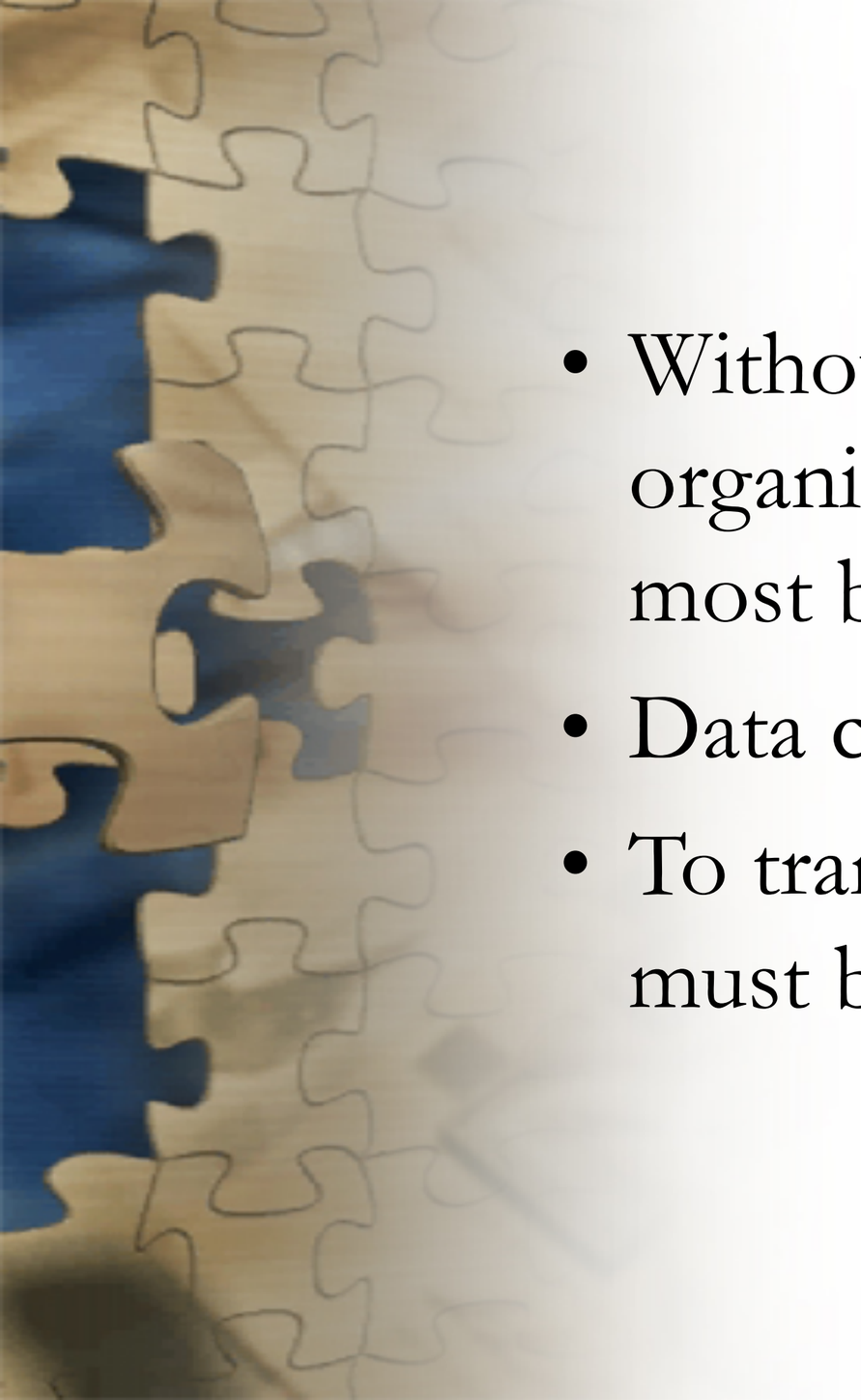
- Build Your Own
  - Why did Facebook build their own servers?
  - What are the advantages of building their own server?
  - Did this give Facebook a competitive advantage?
  - If yes, which of the five competitive forces does it gain an advantage?

Ethical & Societal Issues

- Software Controls Nuclear Power Plants
  - Discuss the pros and cons of buying off-the-shelf software and developing custom software

Why learn about database systems?

- *Database*
  - Organized collection of data
- *Database Management System (DBMS)*
  - Group of programs that manipulate databases
  - Provide interface between the database and its users and other application programs

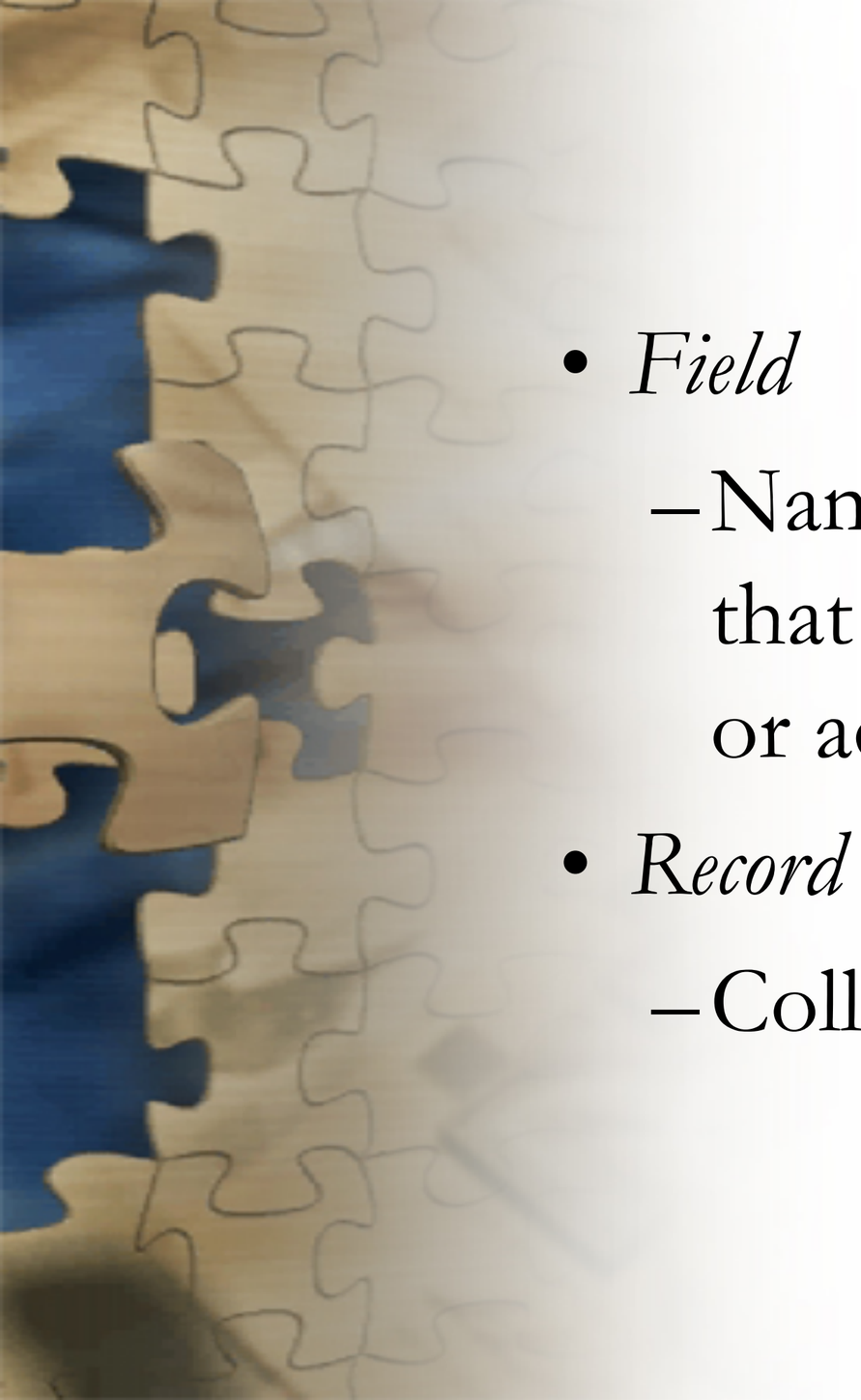


Data Management

- Without data and the ability to process it, an organization could not successfully complete most business activities
- Data consist of raw facts
- To transform data into useful information, it must be organised in a meaningful way

Hierarchy of Data

- *Bit*
  - Binary digit, 1 or 0
- *Byte*
  - Made up of eight bits
- *Character*
  - Basic building block of information



Hierarchy of Data

- *Field*
  - Name, number or combination of characters that describes an aspect of a business object or activity
- *Record*
  - Collection of related data fields

Hierarchy of Data

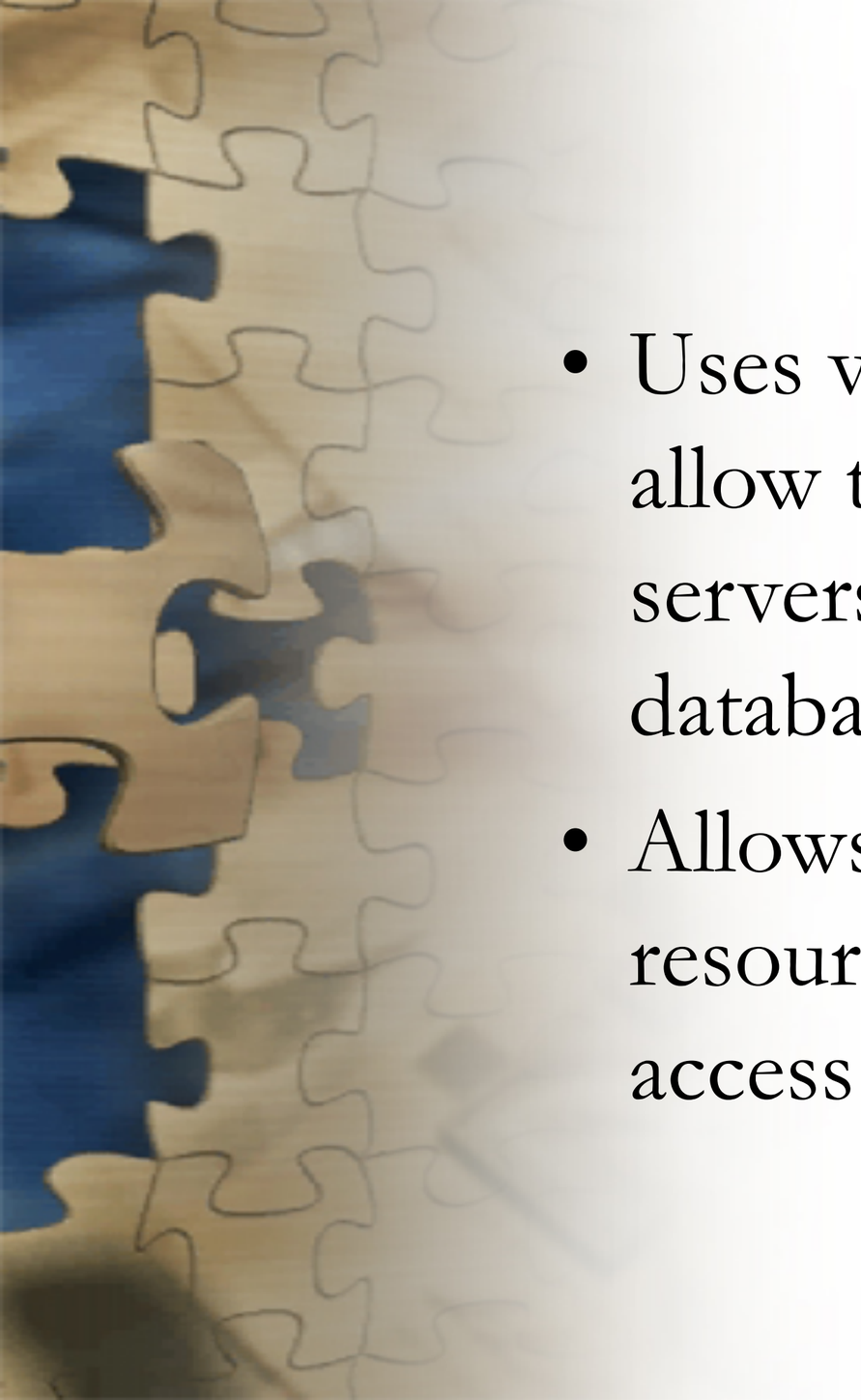
- *File*
  - Collection of related records
- *Databases*
  - Collection of integrated and related files

Database Approach

- *Traditional*
  - Each distinct operational system used data files dedicated to that system
- *Database*
  - Pool of related data is shared by multiple application programs

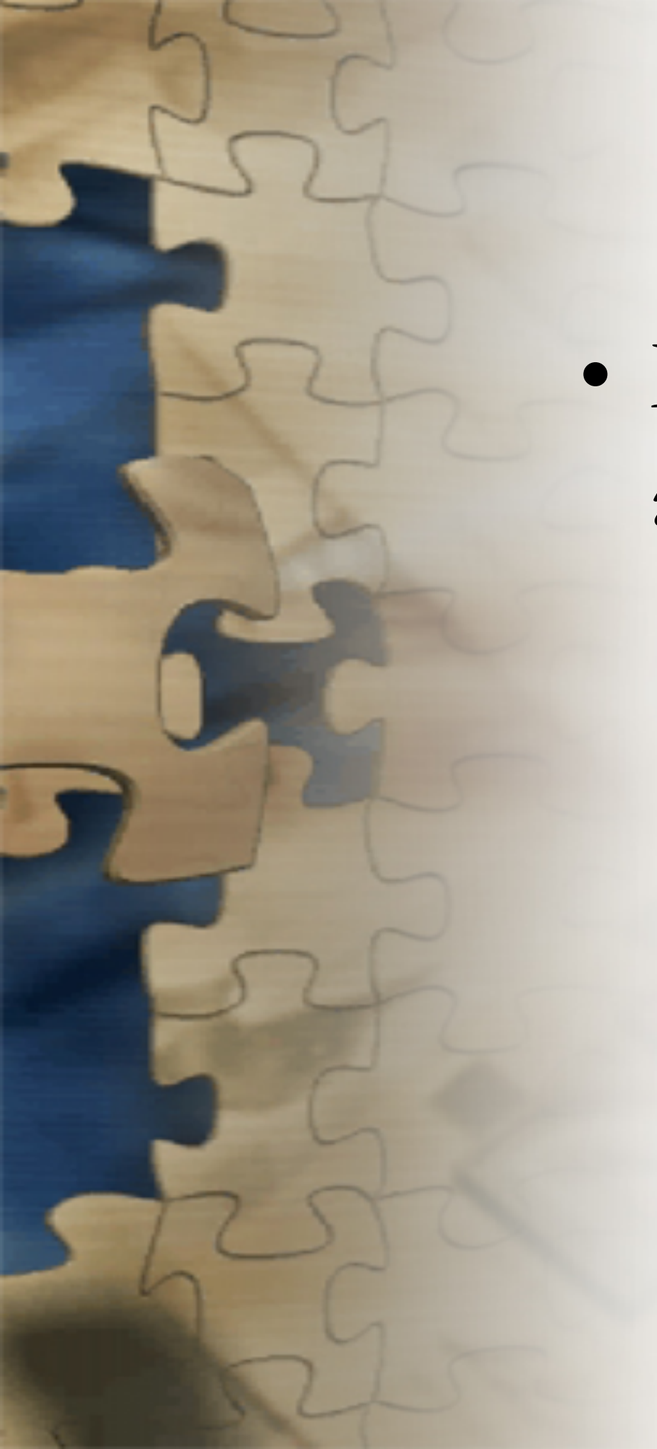
Database Administration

- *Database Administrator*
  - Works with users to decide the content of the database
  - Works with programmers as they build applications to ensure that their programs comply with DBMS standards and conventions
- *Data Administrator*
  - Responsible for defining and implementing consistent principles for a variety of data issues



Database Virtualization

- Uses virtual servers and operating systems to allow two or more database systems, including servers and DBMSs, to act like a single, unified database system
- Allows more efficient use of computing resources, reduce costs, and provide better access to critical information



Using DB with Other SW

- DBMSs can act as front-end or back-end applications
  - Front-end applications interact directly with people
  - Back-end applications interact with other programs or applications

Database Applications

- Big Data Applications
  - Deals with large amounts of unstructured data from various sources (e.g. Internet, photos, video, audio, social networks, sensors)

Database Applications

- Big Data Applications
  - Unstructured data can provide valuable information and insights to help the organization achieve its goals
  - Challenges: privacy, security

Information Systems @ Work

- Managing the Database: It Can't Stop
  - What was the main challenge that Vodafone faced as regards managing their 3,650 Oracle databases?
  - What are the benefits of implementing the Oracle Enterprise Manager?

Ethical & Societal Issues

- HanaTour Strengthens Database Security
  - Why is data security important?
  - What are the potential disadvantages of upgrading to the latest version of software?
  - What would be your choice: a new supplier with security experts or the current, long-standing supplier but who will outsource the expertise?

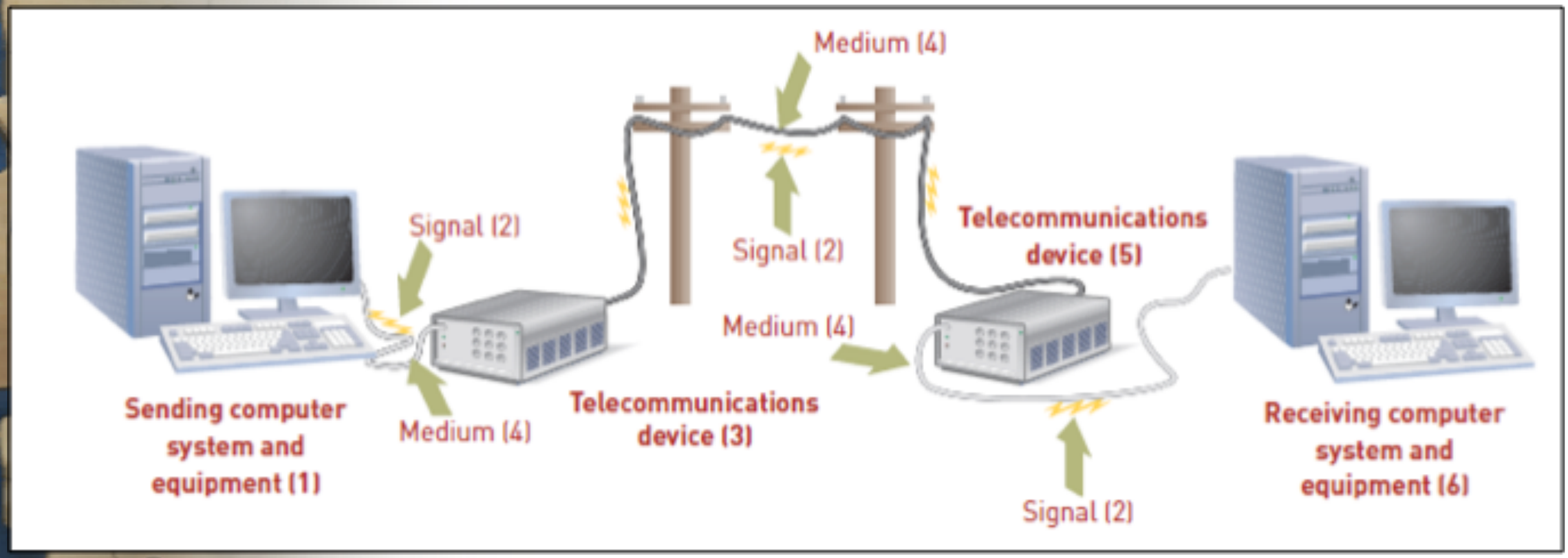
Why learn about telecommunications and networks?

- Among all business functions, supply chain management may use telecommunications and networks the most
- Regardless of chosen field or career, communications capabilities provided by telecommunications and networks will be needed

An Overview of Telecommunications

- *Telecommunications*
  - Electronic transmission of signals for communications
- *Telecommunications Medium*
  - Material or substance that carries an electronic signal to support communications between a sending and receiving device

An Overview of Telecommunications



Networks and Distributed Processing

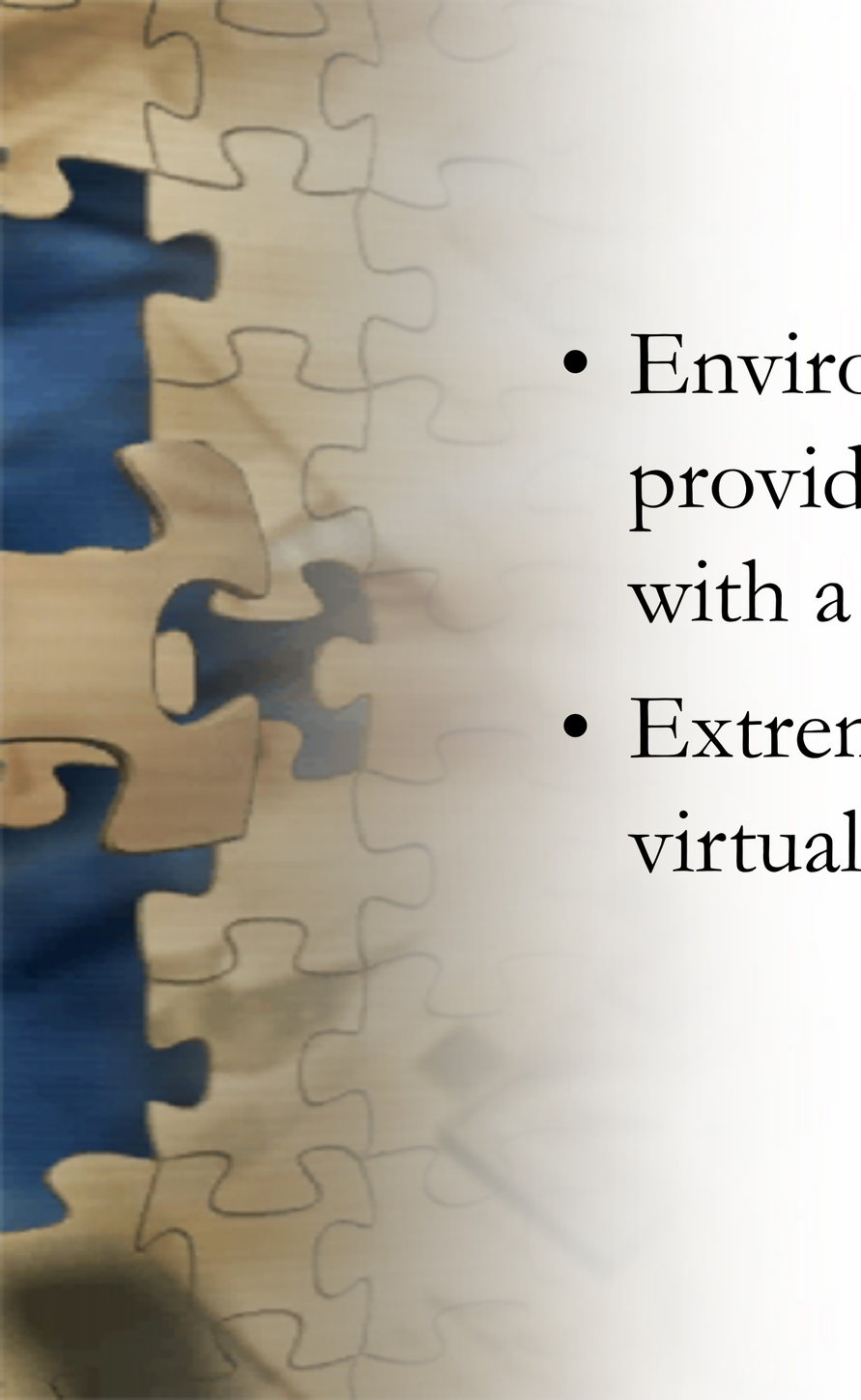
- *Computer Network*
  - Consists of communications media, devices, and software needed to connect two or more computer systems or devices
  - Can transmit and receive information to improve organizational effectiveness and efficiency

Networks and Distributed Processing

- *Distributed Processing*
  - *Centralized* - all processing occurs in a single location or facility
  - *Decentralized* - processing devices are placed at various remote locations
  - *Distributed* - processing devices are placed at various remote locations but are connected to each other via a network

Use and Function of the Internet

- *Internet* is the world's largest computer network
- How it works
  - *Internet Protocol (IP)* - set of rules to pass packets from one host to another
  - *IP Address* - 64-bit number that identifies a computer on the Internet
  - *Uniform Resource Locator (URL)* - web address that specifies the exact location of a web page



Cloud Computing

- Environment in which software and storage are provided as an Internet service and accessed with a Web browser
- Extremely scalable and often takes advantage of virtualization technologies

Cloud Computing

- Advantages
  - Businesses can save on system design, installation and maintenance
  - Employees can access corporate systems from any Internet-connected computer

Internet and Web Applications

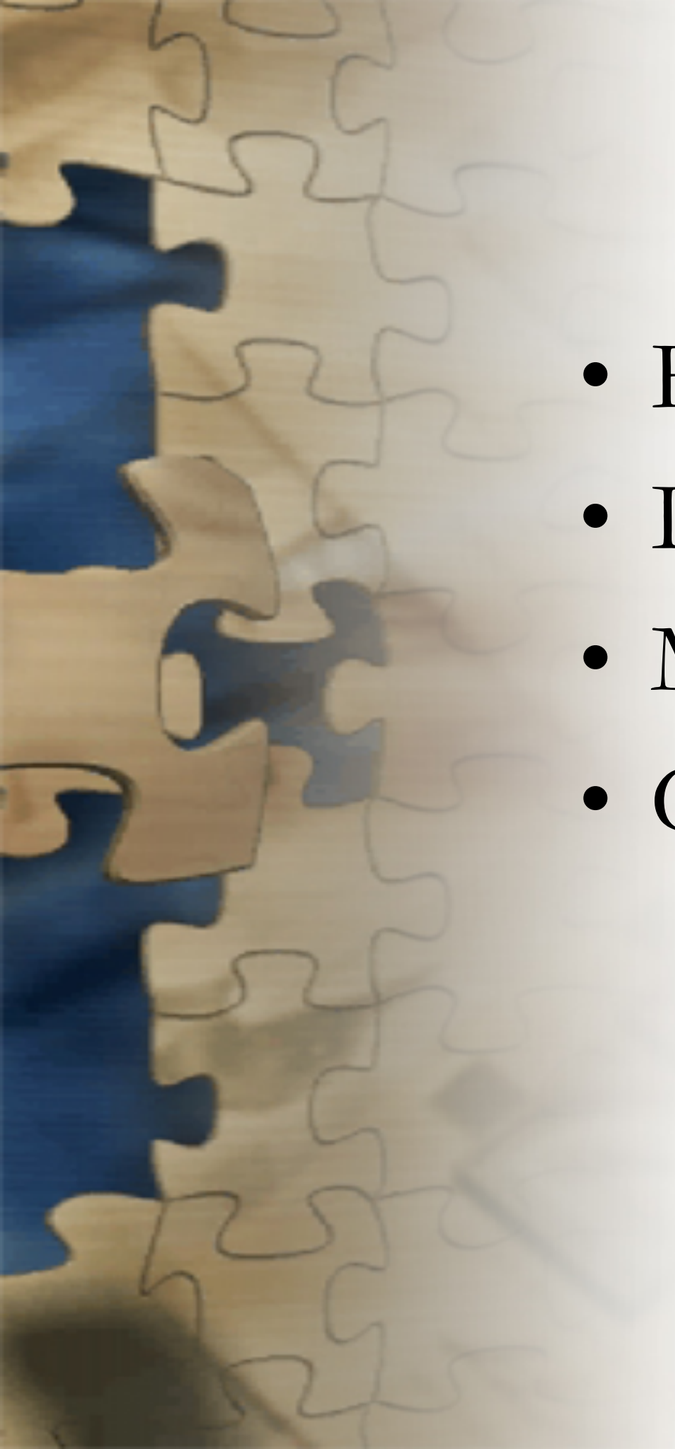
- Popular uses for the Internet and Web:
  - Publishing information
  - Assisting users in finding information
  - Supporting communication and collaboration
  - Building online community
  - Providing software applications
  - Providing a platform for expressing ideas
  - Delivering media of all types
  - Providing a platform for commerce
  - Supporting travel and navigation

Online Information Sources

- News and Opinion
- Education and Training
- Business Information
- Personal and Professional Advice and Support

Search Engines and Web Research

- Search Engine
- Wikipedia
- Wikimedia



Communication and Collaboration

- E-Mail
- Instant Messaging
- Microblogging
- Conferencing

Web 2.0 and the Social Web

- Web sites such as YouTube and Flickr allow users to share video and photos
- Epinions and many retail Web sites allow consumers to voice their opinions about products
- Some businesses are including social networking features in their products

Rich Internet Applications

- Rich Internet application
  - Software that has the functionality and complexity of traditional application software but does not require local installation and runs in a Web browser

Blogging and Podcasting

- Web log
- Blogger
- Blogging
- Podcast

Online Media and Entertainment

- Content Streaming
- Music
- Movies, Video and Television
- E-Books and Audio Books
- Online Games

Shopping Online

- E-tail Stores
- Online Clearinghouses, Web Auctions, Marketplaces
- www.eBay.com

Travel, Geolocation and Navigation

- Businesses that have a strong online presence:
  - Travel agencies
  - Resorts, airlines, cruise lines
  - All businesses associated with travel
- Google Maps

Information Systems @ Work

- Improved Insight via Clickstream Analysis
  - What are the benefits to the search engine company of having information on the search results?
  - How is clickstream analysis related to the competitive forces?

Ethical & Societal Issues

- Bringing High-Speed Internet to Poland
  - As a student, you almost certainly have Internet access all the time. If you did not have such access, what difficulties would you encounter?