ACS-1803 Introduction to Information Systems

Instructor: Trevor Nadeau

Systems that Span Organizational Boundaries

Lecture Outline 7-1

Learning Objectives

To describe the characteristics of six information systems that span the organizational, managerial, and executive levels: Functional Information Systems (Re-cap), Decision Support Systems (DSS), Expert Systems (ES), Office Automation Systems (OAS), Collaboration Technologies, and Global (Geographic) Information Systems

Office Automation Systems

Systems That Span Organizational Boundaries

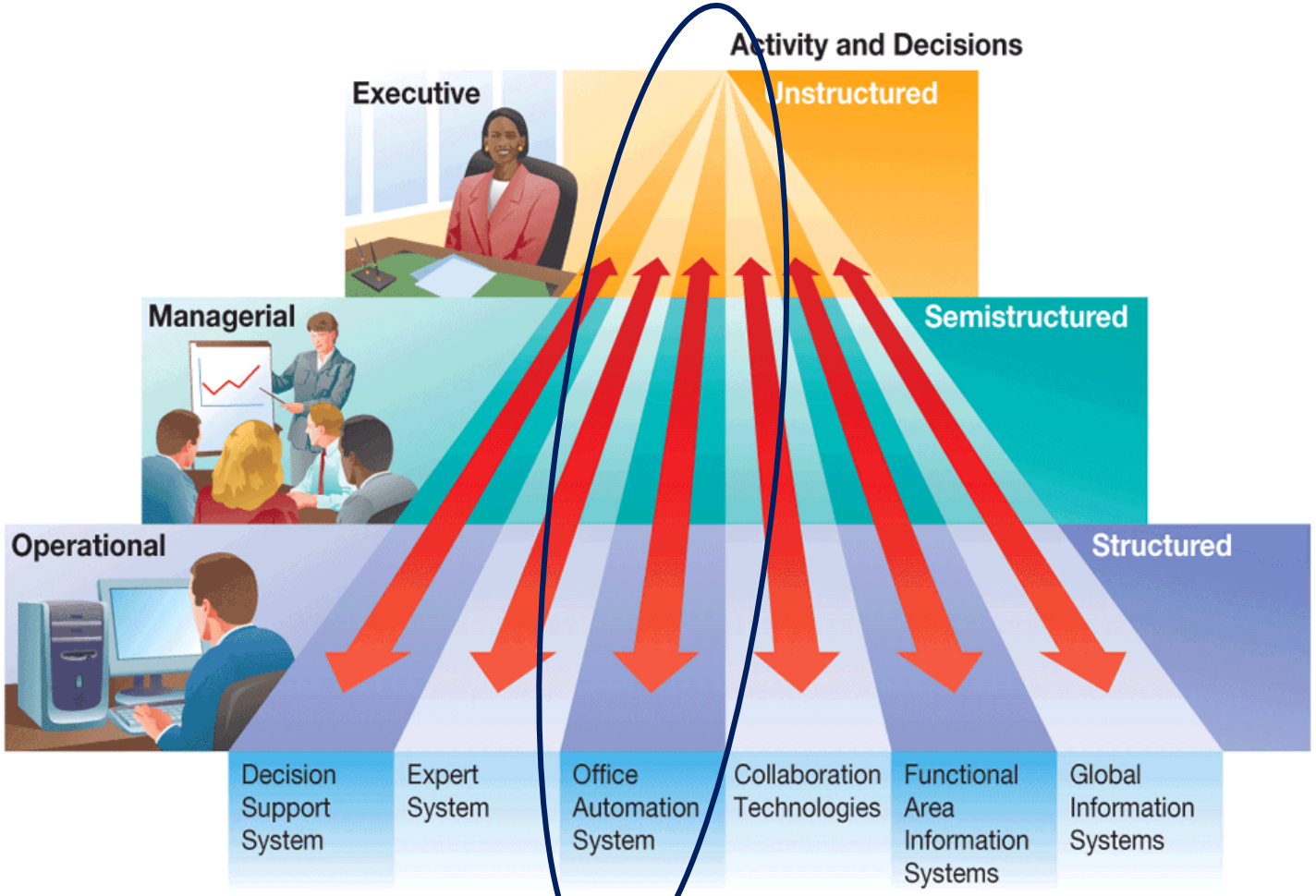

Figure 6.19 Organizational boundary-spanning information systems.

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Office Automation Systems

- Computerizing and integrating office tasks through technology
- Use different types of technologies
- Instead of 'number crunching', they may perform 'document crunching'

Office Automation

Collection of software and hardware used to increase productivity within the office setting through the collection, storage, manipulation of office information needed for accomplishing basic tasks and goals.

- Examples of Activities
  - Generate documents or business forms from data stored in other applications or databases
  - Generate presentations from external data
  - Automatically send emails to customers or groups
  - Create custom data entry mechanisms
  - Maintain and organize data stored in spreadsheets or databases
  - Create stand-alone programs to automate your office environment

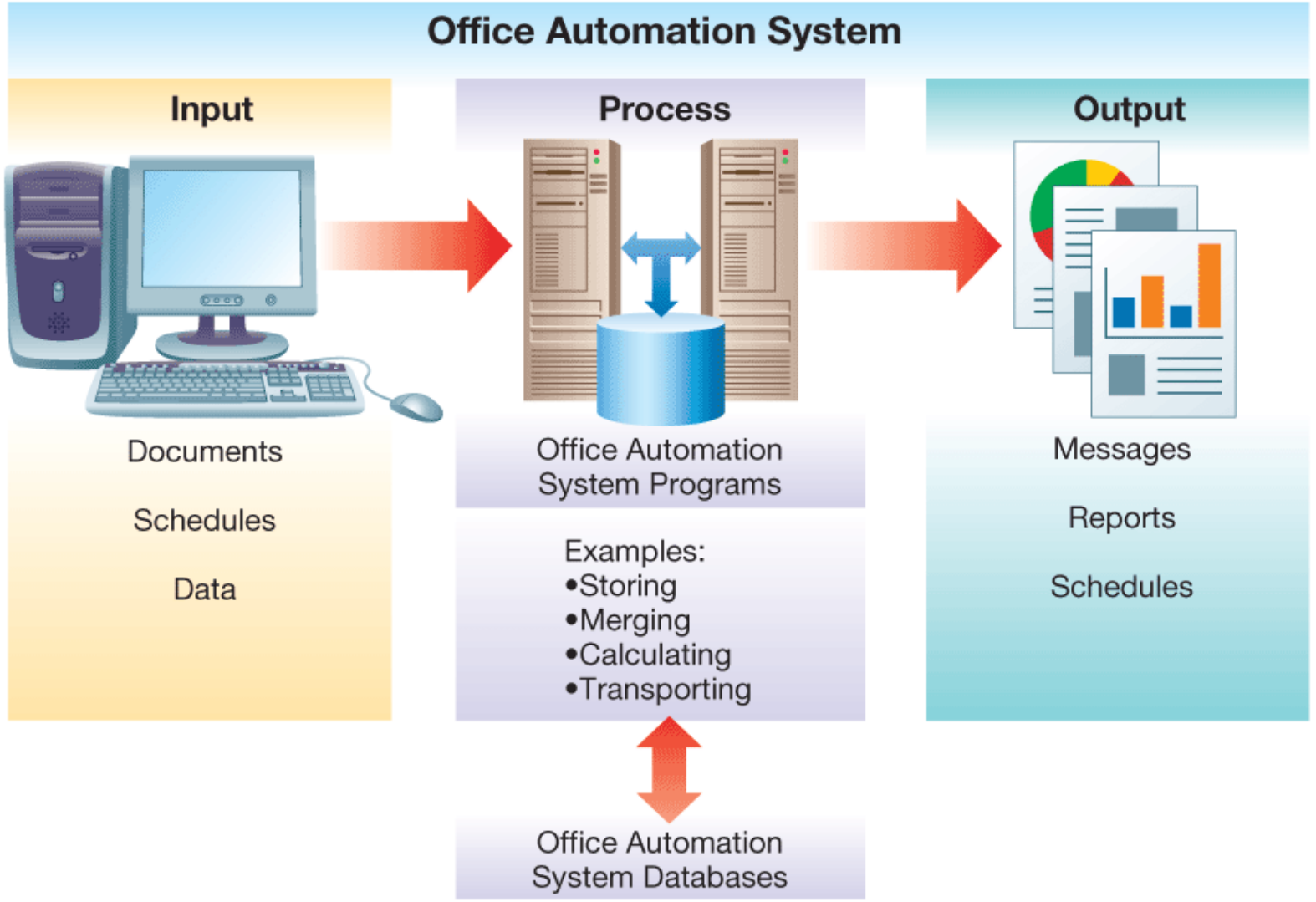
Office Automation Systems

- Other supported Activities
- Scheduling Resources
  - Examples: electronic calendars with resource management (equipment, facilities, etc.)
- Communicating
  - Examples: e-mail, voice mail, videoconferencing and groupware
- Imaging systems:
  - convert photographs and charts to a series of dots and transfer the dots in magnetic form to disk storage

Attributes of Office Automation

- The rapid growth of office automation systems can be attributed to:
  - Value of information and information explosion
  - Increase in office cost and need to improve office productivity
  - Availability of equipment and skills
  - Large number of organizations are being benefitted by office automation due to the following advantages related to the human resource information system.

System Architecture: Office Automation Systems



Geographic Information Systems (GIS)

Systems That Span Organizational Boundaries

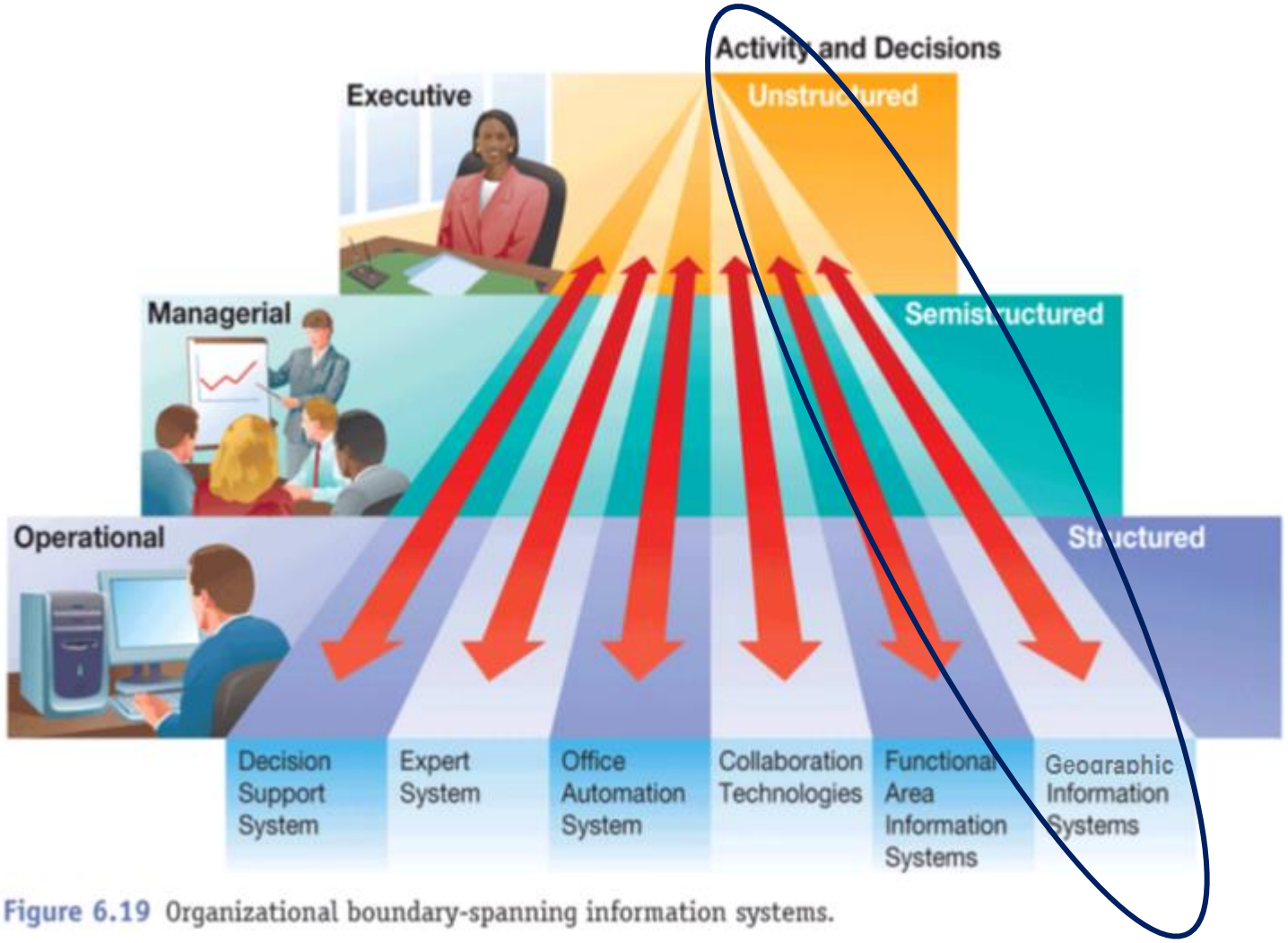


Figure 6.19 Organizational boundary-spanning information systems.

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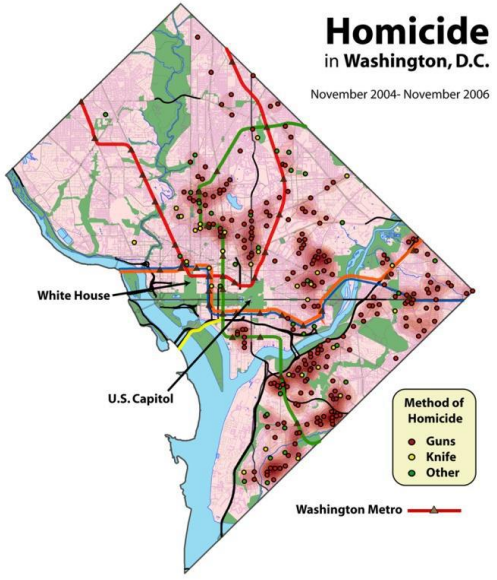
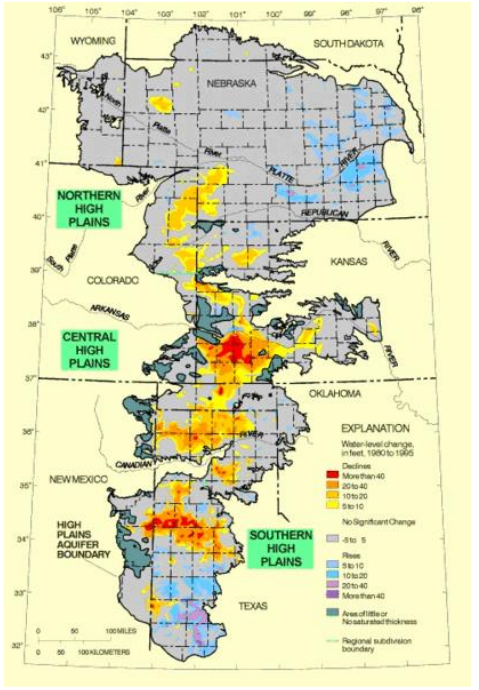
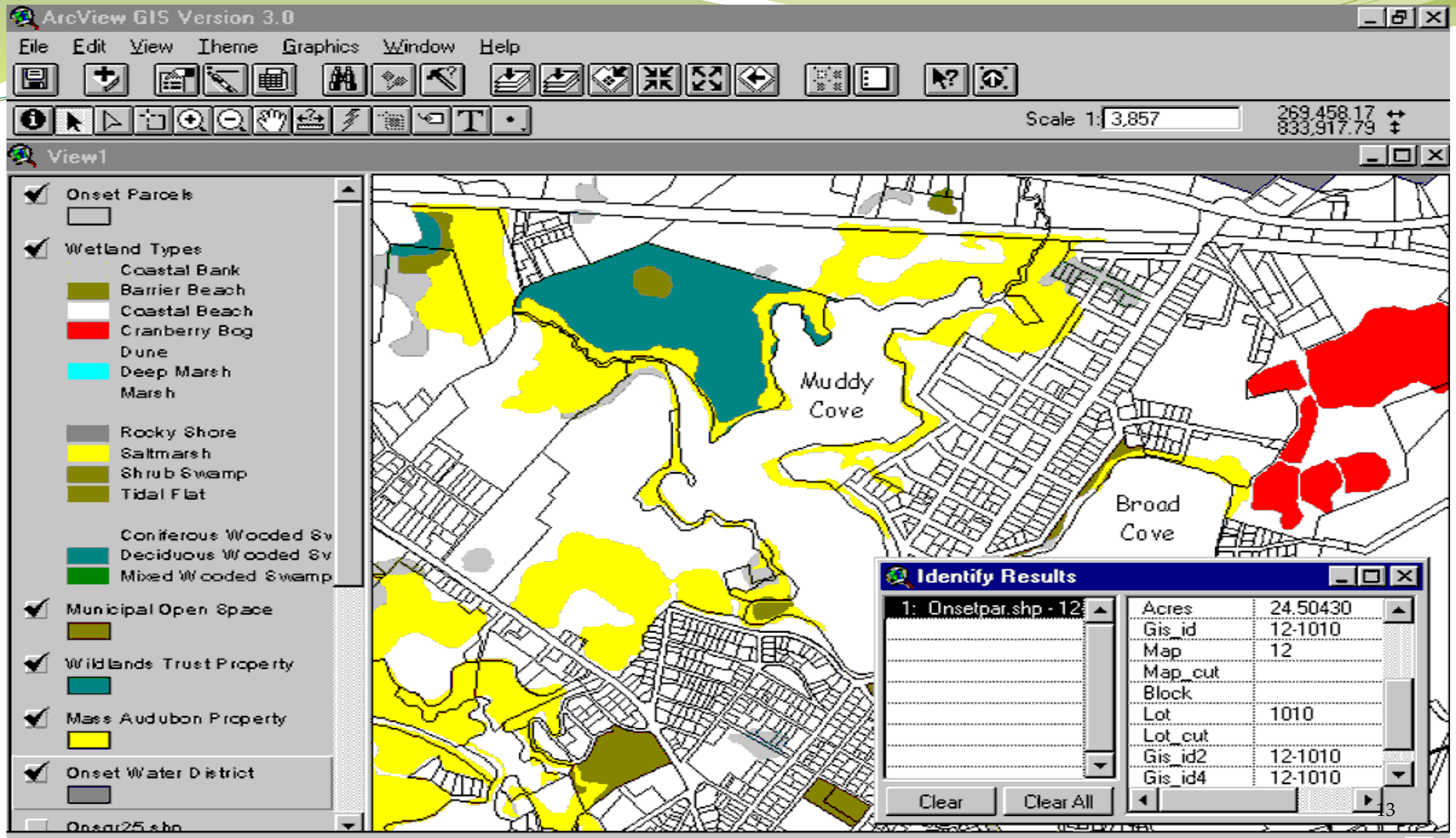
Geographic Information Systems

- **Geographic information system**: ties data to physical locations
- Represents data on a map in different formats
- May reflect demographic information in addition to geographic
- May use information from GPS satellites



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Cranberry Bog
Dune
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Rocky Shore
Saltmarsh
Shrub Swamp
Tidal Flat
Coniferous Wooded Sv
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Mixed Wooded Swamp
Municipal Open Space
Wildlands Trust Property
Mass Audubon Property
Onset Water District
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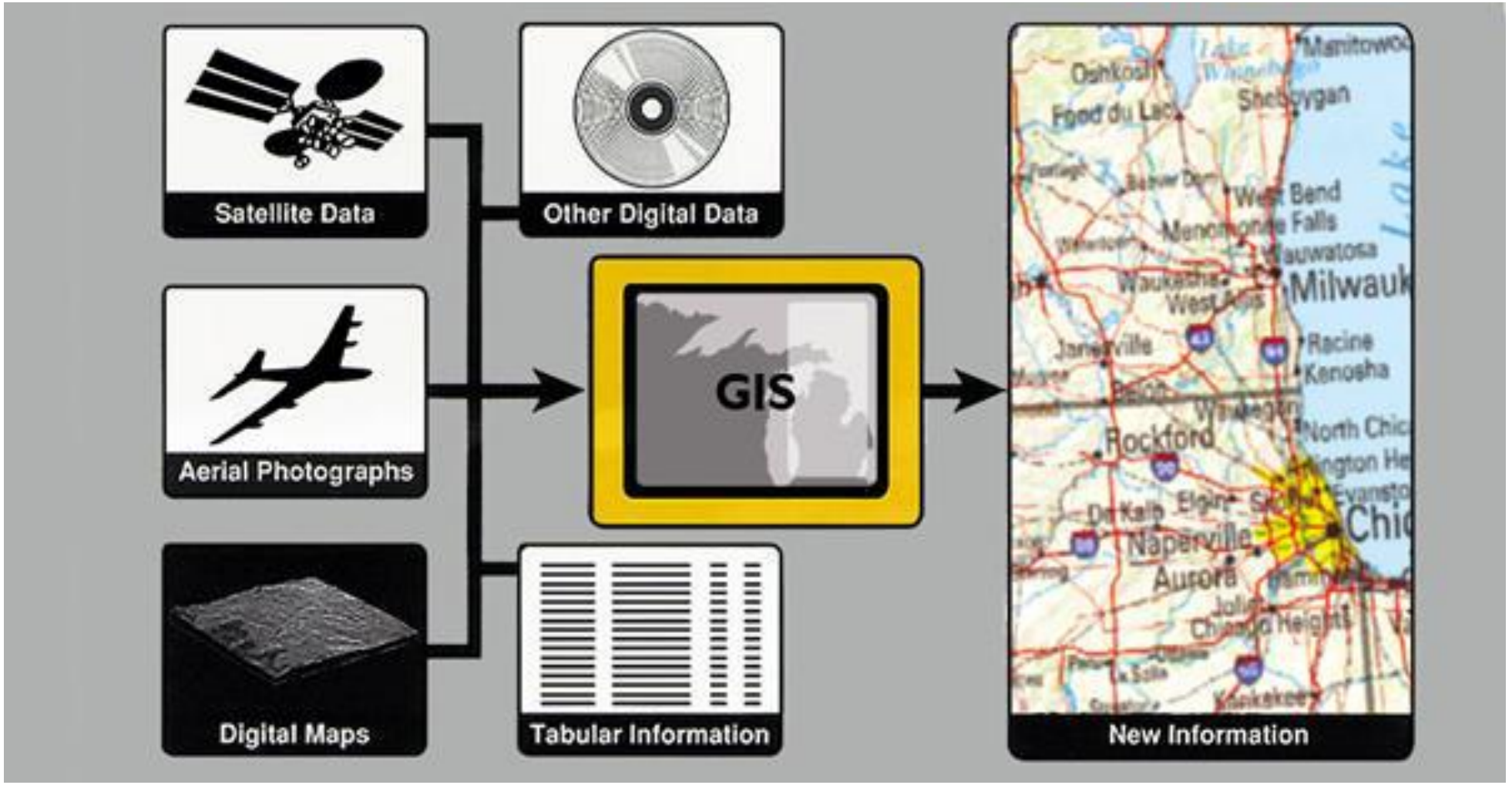
Geographic Information Systems

- Geographic information systems support organizations with answering the “Where” questions
  - delivery manager may want to know the shortest distance a truck can travel to deliver ordered goods
  - efficient routes for bussing school children
  - where to locate police stations
  - where to drill for oil
  - sales territories

Geographic Information Systems

- Typical GIS consists of:
  a) database of quantitative and qualitative data
  b) database of maps
  c) a program that displays the information on the maps
- Digitized maps are produced from satellite and aerial photography

Geographic Information Systems



GIS for Decisions

- Supermarket chain gets a system that shows population by age and income groups on map of city
  - Management can decide where to build their next store
- Police may have maps showing incidents of specific crimes in areas of City
  - Can decide how many police cars to deploy to different areas
- Government requires to identify where rainfall is located.
  - Comparing the rainfall information with other information, such as the location of marshes across the landscape, may show that certain marshes receive little rainfall. This fact may indicate that these marshes are likely to dry up, and this inference can help in making the most appropriate decisions about how to legislate about interactions with the marsh

GIS for Decisions

What is GIS?

A geographic information system (GIS) lets us visualize, question, analyze, interpret, and understand data to reveal relationships, patterns, and trends. Learn more.

Getting Started

- Top Five Benefits of GIS
- What Can I Do with GIS?
- The Geographic Approach
- Glossaries & Publications

Try GIS

Virtual Globe

Use ArcGIS Explorer (free) to combine your spatial data with free map services.

Superstorm Sandy Impacts

View areas impacted by Superstorm Sandy and associated demographic information. More Story Maps

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Collaboration Technologies

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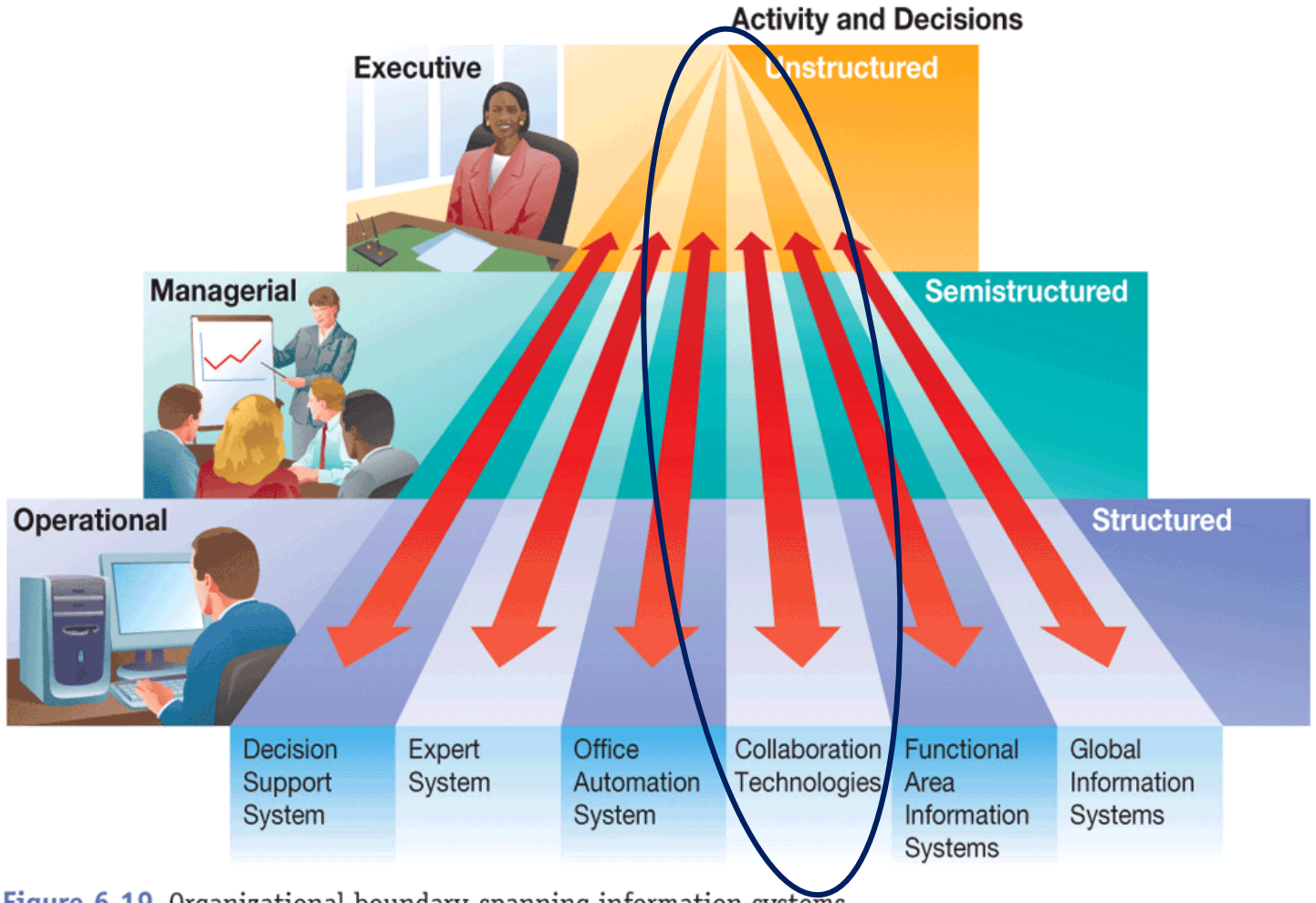

Figure 6.19 Organizational boundary-spanning information systems.

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Collaborative Information Systems

- Systems that allow groups of people achieve a common goal through enhancing and facilitating **communications and knowledge sharing**
- Use networking technologies to include teleconferencing, document sharing, data sharing, information sharing
  - E.g. Each member can submit ideas anonymously; it shows up on big screen to be discussed
- Can include group decision support systems
- This is considered "Green Technology" why?

Collaboration Technologies (Groupware)

- **Groupware/ Group Support Systems (GSS)** Software that enables people to work together more effectively

- **Supported Activities** These systems come in two types:
  - **Asynchronous Groupware** – Systems that do not require users to be on the system working at the same time, including: e-mail, newsgroups, workflow automation, group calendars, and collaborative writing tools
  - **Synchronous Groupware** – Systems that allow and support simultaneous group interactions including shared whiteboards, electronic meeting support systems, video communication systems

Collaboration Technologies

- **Videoconferencing** Software and hardware that allow parties to meet electronically with both picture and voice

- **Supported Activities**
  - **Stand-alone Videoconferencing**
    - High quality, typically very expensive systems using dedicated microphones, cameras and hardware
    - Can support meetings between several people and locations simultaneously
  - **Desktop Videoconferencing**
    - Lower quality, relatively inexpensive systems using a PC, small camera, and a microphone or telephone for voice communication
    - Allows two individuals to communicate from a desktop
  - **Telepresence Technology**
    - Higher Education – Telepresence Magic (Cisco)

Group Support Systems

- Group support system (GSS):
  - Software and Hardware to provide effective support in group decision making
  - Also called *group decision support system* or *computerized collaborative work system*

GSS Software (continued)

- GSSs use a number of tools, including:
  - E-mail, instant messaging (IM), and text messaging (TM)
  - Video conferencing
  - Group scheduling
  - Project management
  - Document sharing

GSS Alternatives

- Decision room:
  - Room that supports decision making
  - Decision makers are located in the same building
- Local area decision network:
  - Group members are located in the same building or geographic area
  - Group decision making is frequent

Collaborative Information Systems

- e.g., ThinkTank TM (http://www.groupsystems.com/)
  - Business collaboration tool (group decision support)
  - Brainstorming, organizing, prioritizing, evaluating, identifying and documenting your innovation process.
  - Can document presented ideas
  - Groups can be in one room or distributed over long distances

Examples – Collaborative Technology

- Service applications such as:
  - Professional Services - The Future Office (Microsoft)
  - Retail – The Future of Shopping (Cisco)
  - Banking – The Future of Banking (Microsoft)
  - Healthcare – The Future of Healthcare (Microsoft)
  - OPENPediatrics (IBM) – Hospitals Without Walls

Systems that Span Organizational Boundaries

End of Lecture 7