III. Review of IT and IS

Information Technologies

- **Software technologies**
  - ❑ Including operating systems and DBMS
  - ❑ MS Words improves the quality of management reports
  - ❑ Window XP controls operation of a computer
  - ❑ JDK provides platform for developing web application

- **Hardware technologies**
  - ❑ Mobile phone support mobile data transfer
  - ❑ 802.11 provides the standard for wireless local area networks
  - ❑ USB flash memory provides an alternative way to store information

Information Technologies

- **System development**
    - Object-oriented development
    - Component-based development
    - Unified modeling language

- **Other technologies**
    - Artificial Intelligence
    - Parallel processing architecture
    - Optimization algorithm

Information Technologies

- Bar code scanner (IO)
- Overhead project (IO)
- Camera (IO)
- Telephone (IO, Com.)
- FAX machine (IO, Com.)
- Computer (Terminal)
- Calculator (Calculation)
- Palm/PDA (IO, DB)

- Mobile phone (Com.)
- Optic fibers (Com.)
- Virtual private network (Com.)
- Internet (Com)
- Web technology (System)
- Mobile agent (System)
- Rational Rose UML (Development)

Information Technologies

- **Prog. Lang.**
  - Assembly
  - C/C++
  - Java
    - JavaScript
    - Java Servlet/Applet
    - Java Network Programming
  - Visual Basic/VBScript
  - Perl
  - HTML/DHTML/XML

- **Operating Systems**
  - MS Window
  - Unix
  - Linux
- **Database System**
  - IBM DB2
  - MS Access
  - Oracle
  - Sybase
  - MySQL
  - MS SQL Server

Information Technologies

- The world is moving. So, many new technologies are coming.
  - Mobile computing
  - Cloud, fog and edge computing
  - P2P networks (BT, Gnutella, SKYPE)
  - Biometric
  - Blockchain platforms
  - Autonomic computing

- Search IBM.COM for more

Information Technologies

- **Mobile Computing**
  - A type of computing model in which the computers can be networked together even the computers are moving anywhere.
  - How to connect? How to share resource?

- **Autonomic computing**
  - A type of computing model in which the system is self-healing, self-configured, self-protected and self-managed.

Information Technologies

- **Cloud Computing**
  - 2000: Application service providers
  - Service-oriented
    - Software as a service
    - Platform as a service
    - Infrastructure as a service
    - AI as a service
  - Scalable virtual machine and virtual memory
  - Dynamic, scalable, flexible payment
  - Amazon Web Services, Google Cloud, Microsoft Azure, Tencent Cloud, Alibaba Cloud

Information Technologies

■ Cloud, fog and edge Computing

Source: https://erpinnews.com/fog-computing-vs-edge-computing
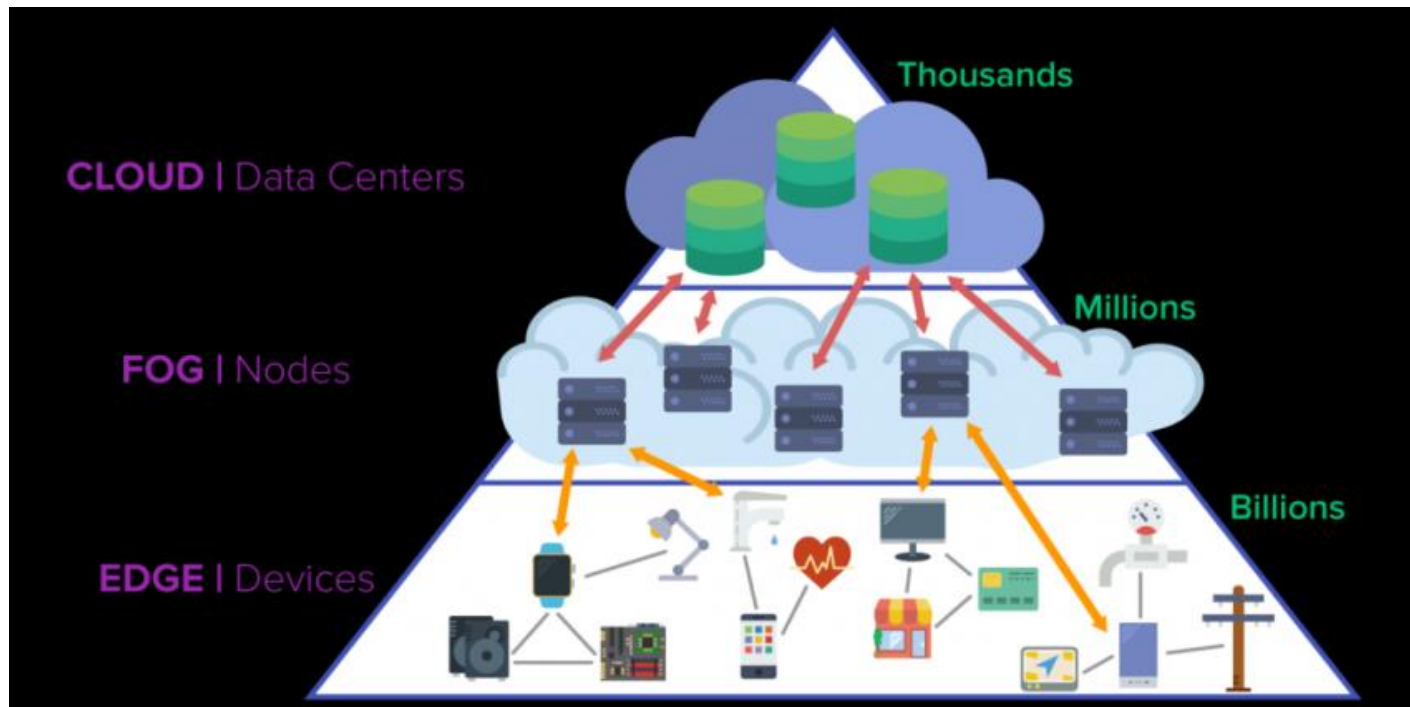
Information Technologies

- **Each technology has its own limitation**
  - Security problems (Microsoft Windows versus Linux)
  - Programming difficulties
  - Training – programmer or user
  - Version problem
  - User account support
  - Maintenance and Support
  - Licensing fees

Information Technologies

- Development team should have *enough knowledge* to select the appropriate technologies for the system.

- Does a development team should learn all these technologies, such as Java, Ajax, RSS Feed, Python, SQL, R, etc.? Yes!

- The members of a development team should have fundamental knowledge on every information technology.

Types of Information Systems

- **By management level (Conventional Approach)**
  - ❑ Transaction processing system (operational)
  - ❑ Management information system
  - ❑ Decision support system
  - ❑ Executive information system (Strategic)
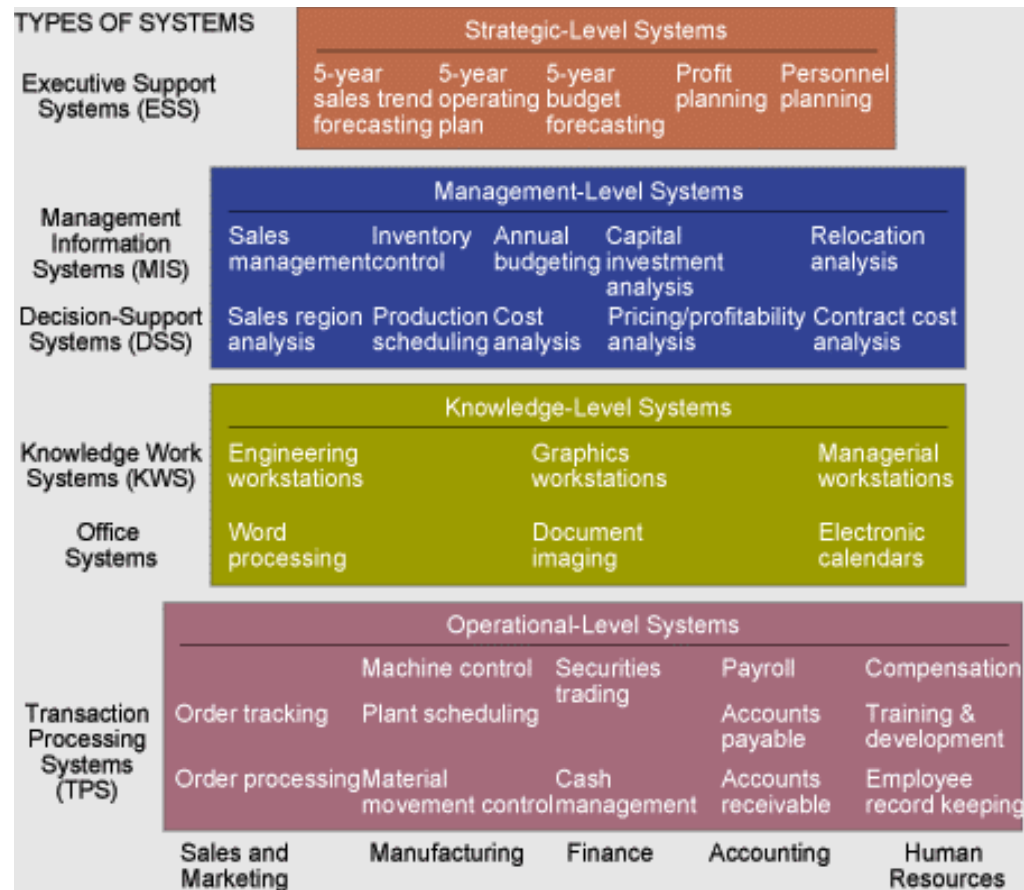- **Education levels of the users?**

Types of Information Systems

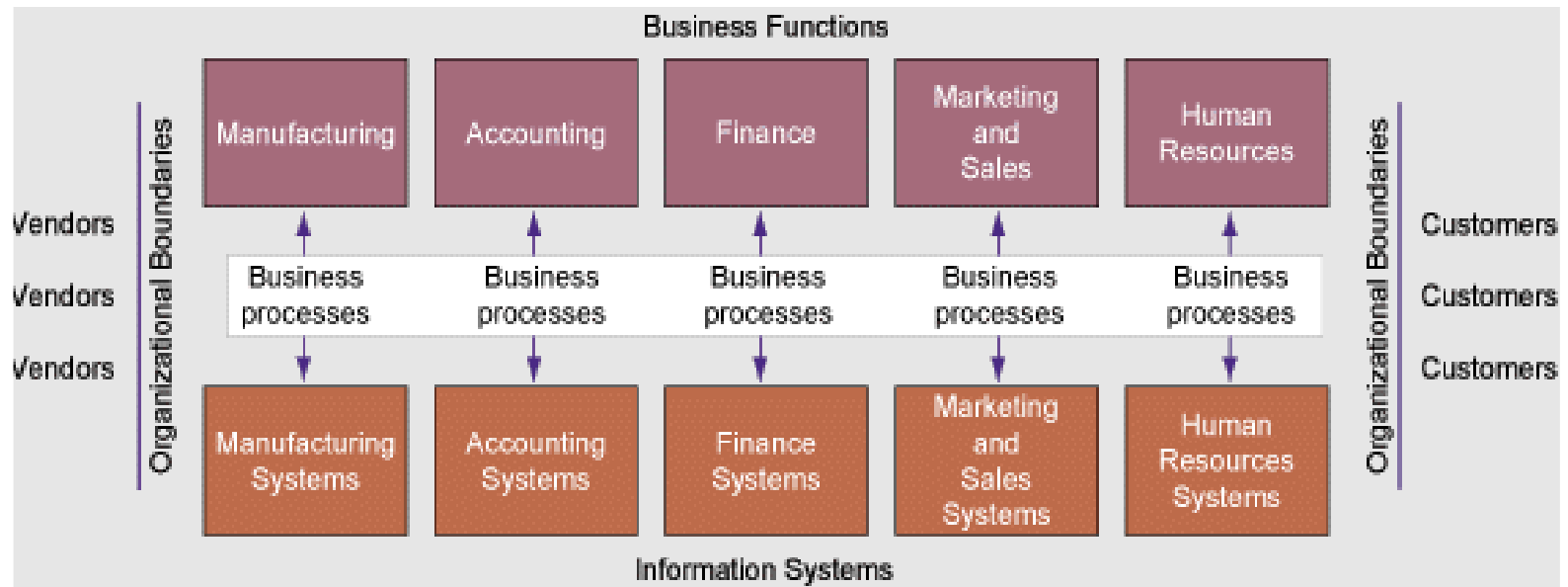**Figure 2-2**

Departmental Systems
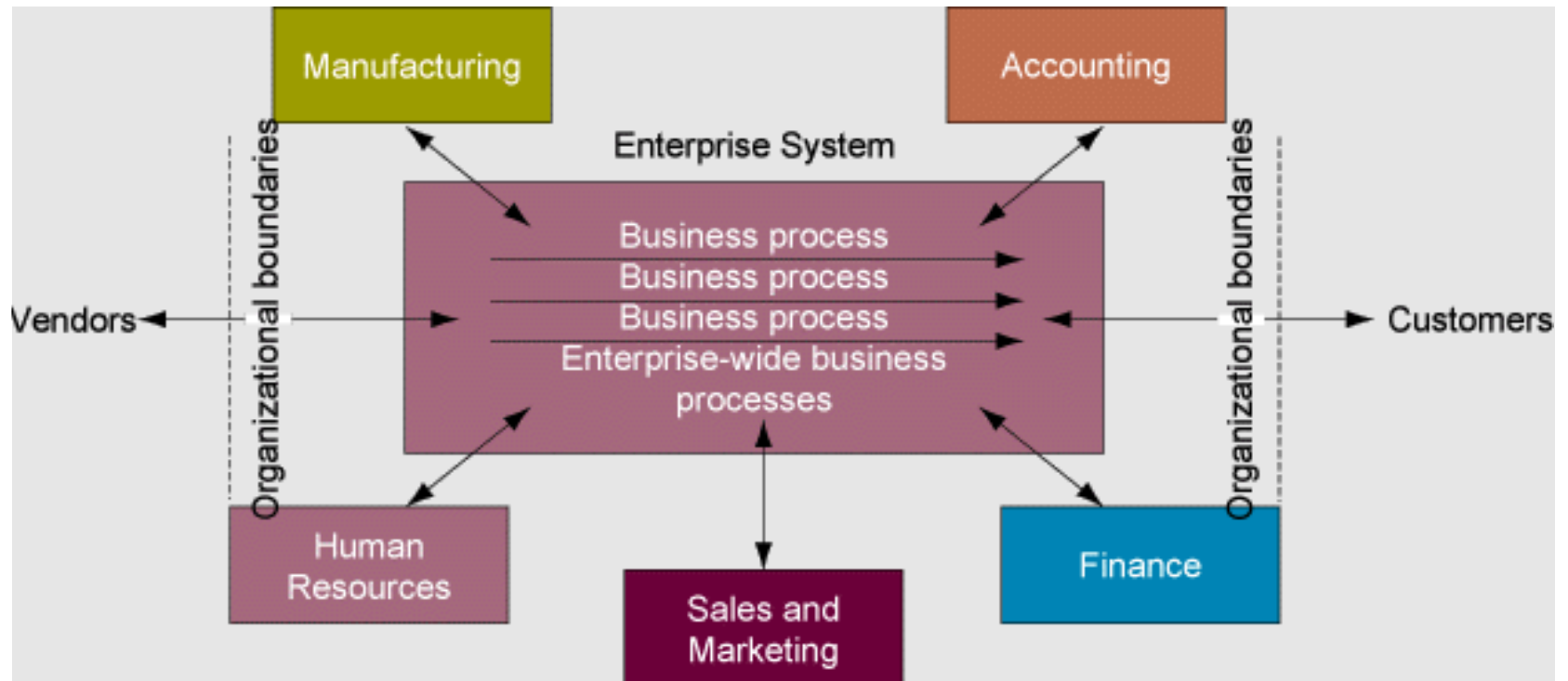

Figure 2-13

Enterprise System

Figure 2-14

Enterprise System

- Where should the "website" (or websites) be located?

- What business process (or processes) should it support?

- Business *operations* = Business *logic* = Business *processes*. All three terms will be used interchangeably.

Departmental VS Enterprise-wise

- **Departmental**
  - ❑ Designed in a way to fit in the operations of a business unit.
  - ❑ Different department will have a different system.
  - ❑ Scope of the system is smaller.
  - ❑ Analysis and design are simpler.
  - ❑ Easy to maintain.

- **Enterprise-wise**
  - ❑ Designed in a way to fit in the operations of the whole enterprise.
  - ❑ Processes or services oriented.
  - ❑ Scope of the system is huge.
  - ❑ Analysis and design are complicated ?
  - ❑ Difficult to maintain ?

Final Notes

- **IS design is depended various interdependent issues.**
    - Design of the business processes and the organization structure.
    - Company culture and policy, your partners.
    - Laws enforced by different countries.
    - Education levels of the users.
    - Accessible information technologies
- **The final design has to be gone through multiple revisions.**

Questions

- Which level of information system (TPS, MIS, DSS or EIS) is inevitable in a firm?

- Which level of staffs (operational, managerial, executive or GM) is inevitable in a firm?

- Which level of an enterprise information system should be empowered by a website?

Questions

- Usually, a management school will have the departments focusing on the areas of teaching *business administration*, *accounting*, *marketing* and *information management*. Why?

- Some management schools might also have departments on the areas of *economics, finance* and *statistics*. Why?