Universitas Esa Unggul

Smart, Creative and Entrepreneurial

# DASAR SISTEM INFORMASI

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Prodi Sistem Informasi - Fakultas Ilmu Komputer

# DASAR SISTEM INFORMASI

## Pert.02B

: Foundations of Information Systems in Business

Bagaimana perusahaan meng gunakan sistem informasi?
Apa saja komponen dari sistem informasi?

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# LEARNING OUTCOMES

- Why study Information Systemsand Information Technology
- Bagaimana perusahaan meng gunakan sistem informasi?
- Apa saja komponen dari sistem informasi?
- What does IS do for a business, dan
- IS Knowledge Framework for Business Professionals

# Why study Information Systems and Information Technology?

- Vital component of successful businesses
- Helps businesses expand/*memperluas* and competitive
- Businesses use IS and IT
  - To improve efficiency and effectiveness of business processes
  - For managerial decision making
  - For workgroup collaboration

# What is an component Information System?

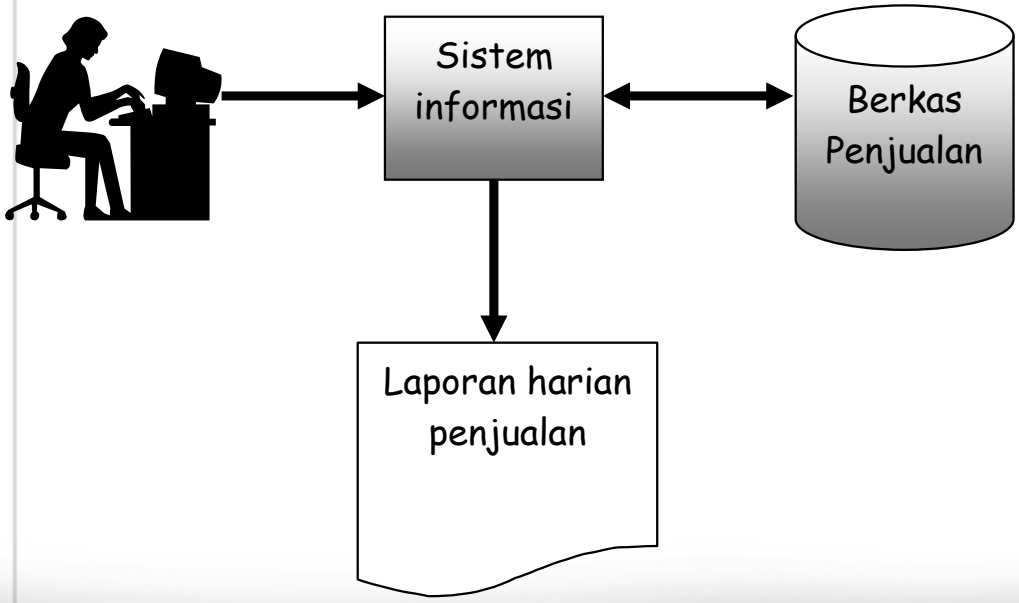
- Sebuah kombinasi yang terorganisasi
  - People
  - Hardware
  - Software
  - Communications networks
  - Data resources
  - Policies and procedures
- That stores, retrieves, update, transforms/*mengubah*, and disseminates/*menyebarkan* information in an organization

# Information System (IS) versus Information Technology (IT)

- IS adalah semua komponen dan sumber daya yang diperlukan untuk memberikan informasi dan fungsi untuk organisasi
- TI adalah perangkat keras, perangkat lunak, jaringan dan manajemen data
- In theory, IS could be paper based (*Secara teori, IS dapat berbasis kertas)*
- But we will focus on Computer-Based Information Systems (CBIS)

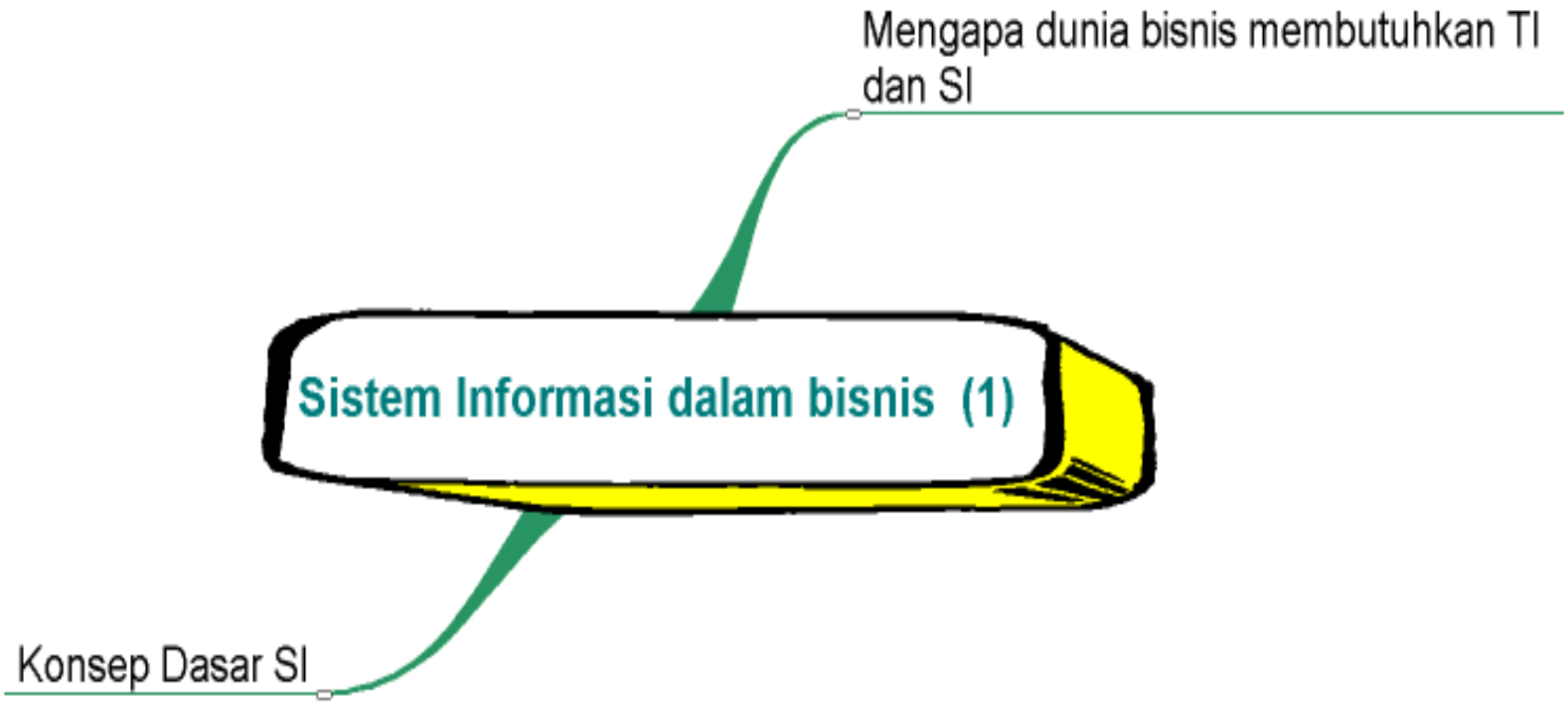
# Sifat Sistem Informasi

- Tidak harus kompleks
- Bisa saja menggunakan sebuah komputer



# Bagaimana perusahaan menggunakan SI

## Mind Map



# Pentingnya sistem informasi bagi organisasi

Untuk menciptakan perusahaan yang berhasil dan kompetitif, mengelola perusahaan secara global, menambah nilai bisnis dan menyediakan produk dan jasa yang bermanfaat bagi pelanggan.

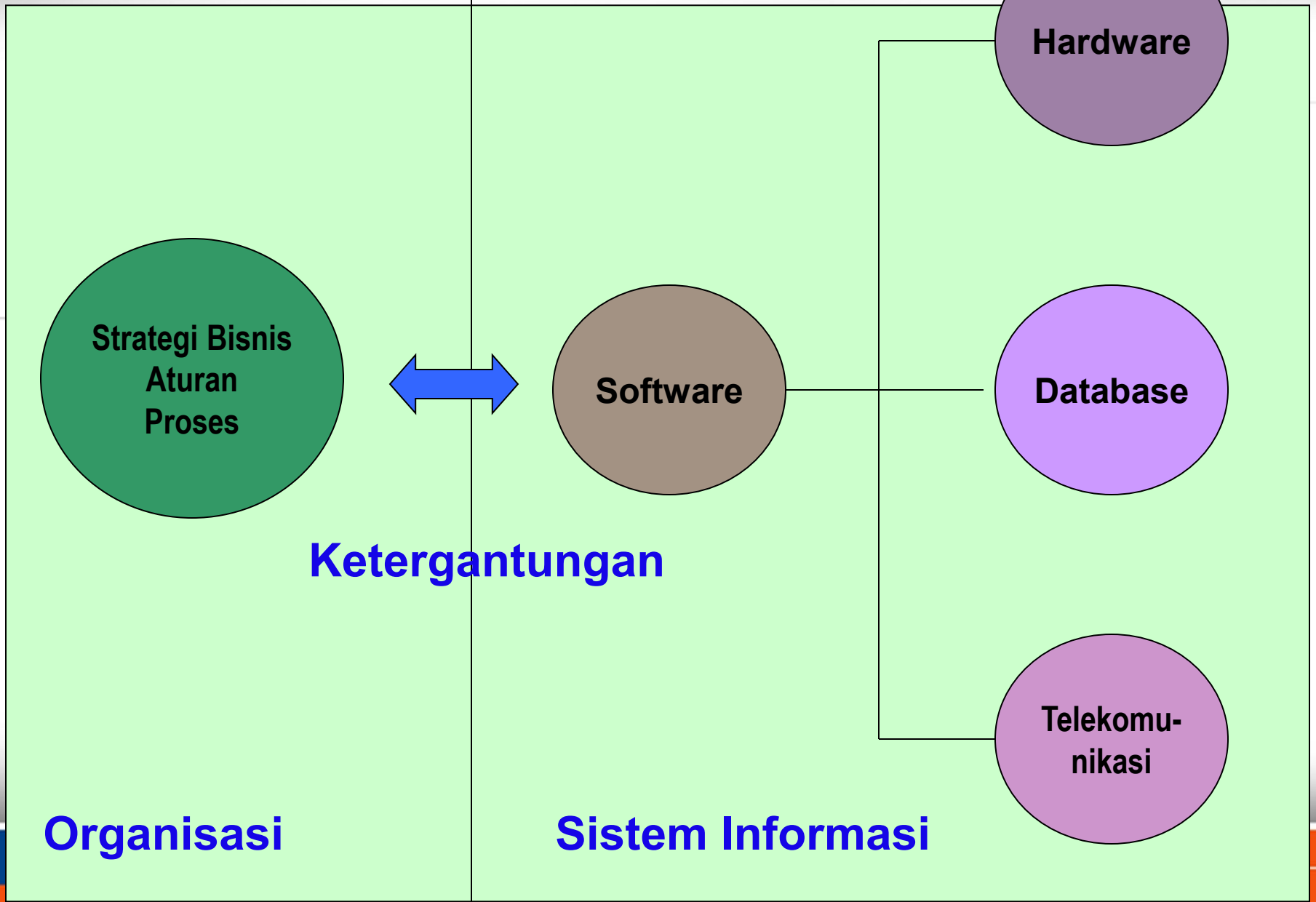
# Pertanyaan Utama bagi Manajer?

**Bagaimana mengoptimalkan *return* perusahaan dari investasi sistem informasi**

# *Why Information Systems?*

- Manajemen Modal: **TI telah menjadi komponen investasi modal terbesar bagi perusahaan di AS dan banyak masyarakat industri lainnya.**
- Pondasi dalam melakukan kegiatan bisnis: **Terdapat ketergantungan antara kemampuan perusahaan untuk menggunakan TI dengan kemampuan untuk mengimplementasikan strategi perusahaan dan mencapai tujuan perusahaan. (Lihat gambar 1)**
- Produktivitas: **TI adalah salah satu alat yang paling penting dalam inovasi organisasi untuk menambah produktivitas perusahaan.**
- Peluang dan Manfaat Strategik: **Investasi dalam TI diperlukan untuk memperoleh peluang baru di pasar, mengembangkan produk baru dan menciptakan jasa baru.**

# Gambar 1. Ketergantungan antara Organisasi dan SI



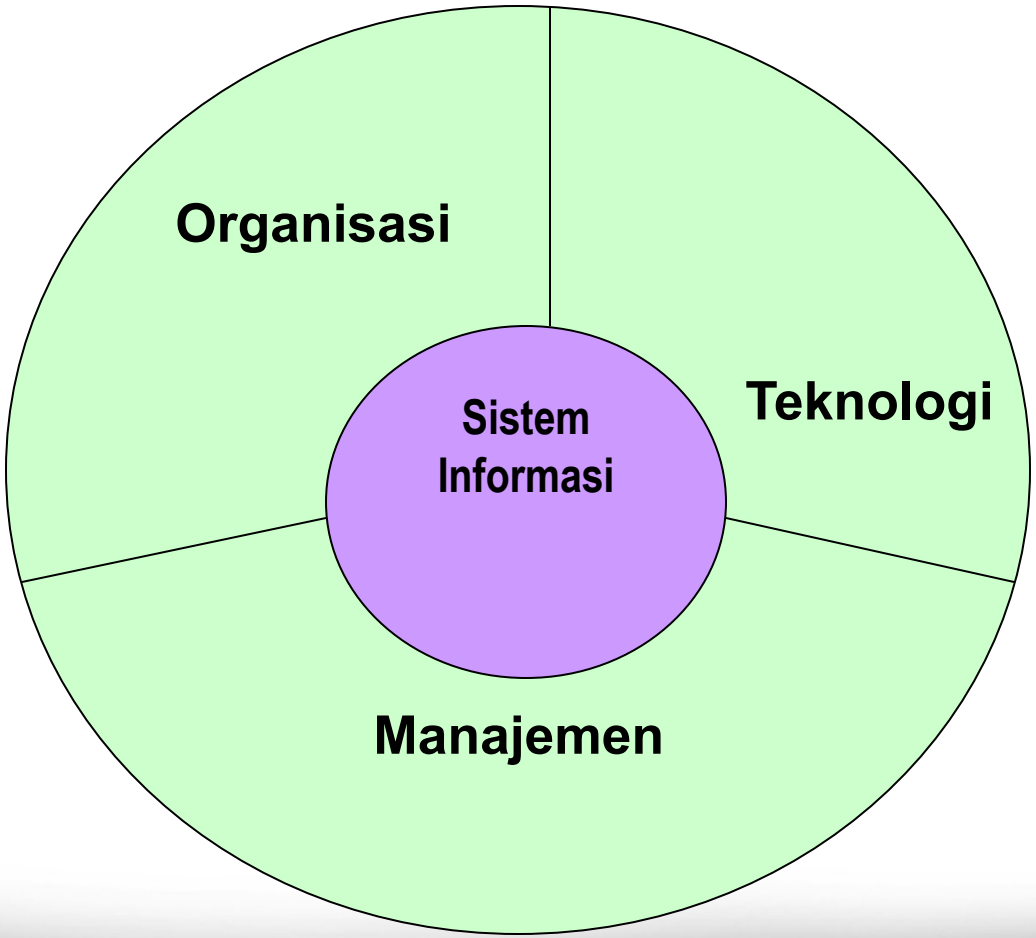
# 5 Faktor yang Dipertimbangkan dalam Menilai Dampak TI pada Perusahaan Bisnis

1. Pertumbuhan Internet dan Bertemunya Teknologi
2. Transformasi *business enterprise*
3. Pertumbuhan Ekonimi yang terhubung secara global
4. Pertumbuhan Ekonomi Berbasis Ilmu dan Informasi
5. Munculnya Perusahaan Digital

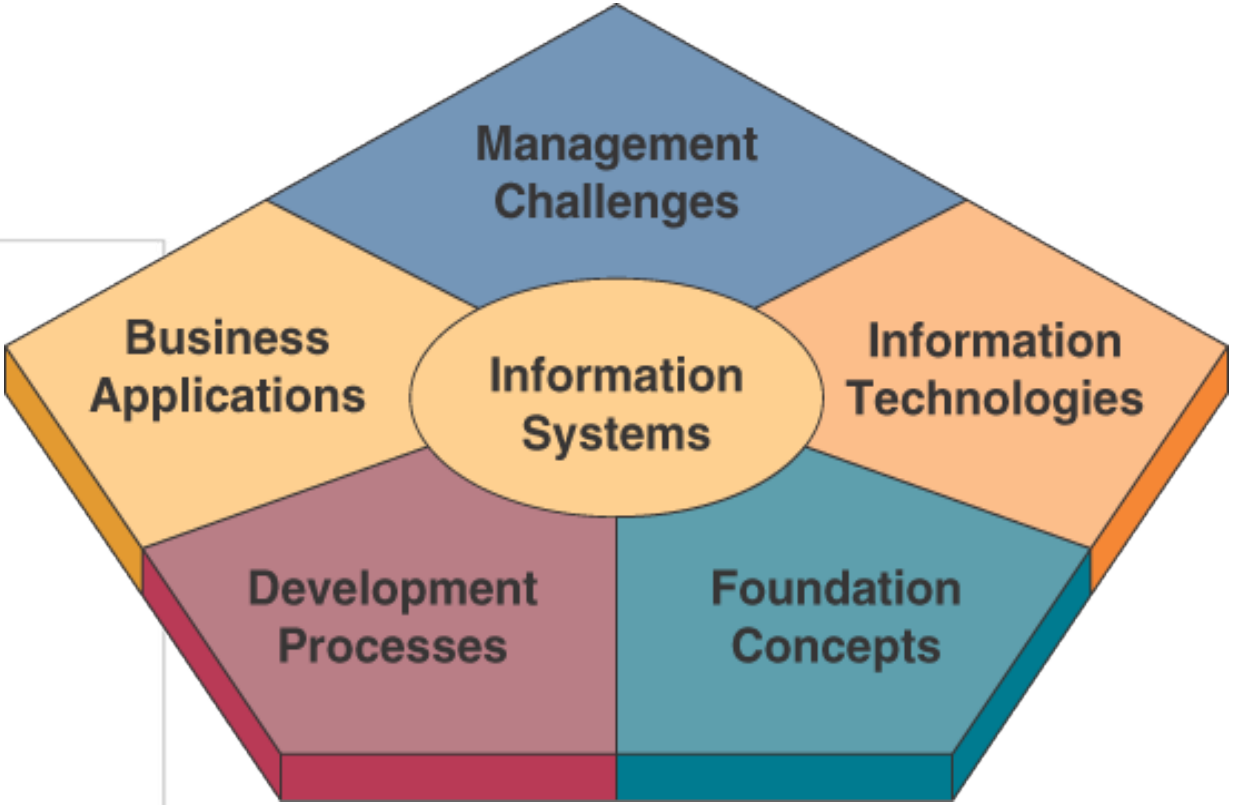
# Perusahaan Digital/*Digital Firm*

- Perusahaan digital adalah perusahaan yang semua hubungan bisnis yang signifikan seperti pelanggan, pemasok dan tenaga kerja dapat dimediasi dan dihubungkan secara digital.
- Proses bisnis inti (*core business process*)diselesaikan melalui jaringan digital menjangkau seluruh organisasi atau menghubungkan sejumlah organisasi.

# Sistem Informasi lebih luas daripada komputer



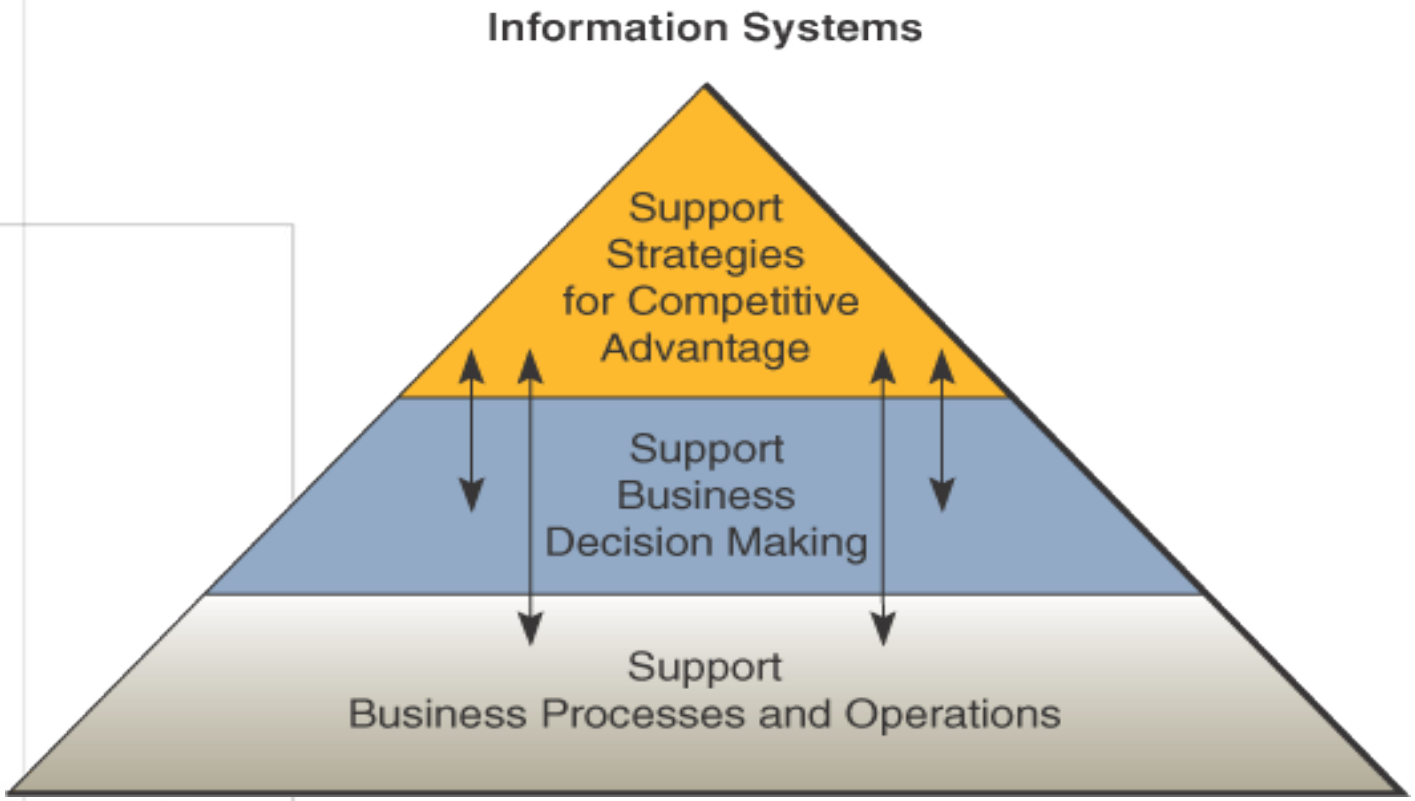
# IS Knowledge Framework for Business Professionals



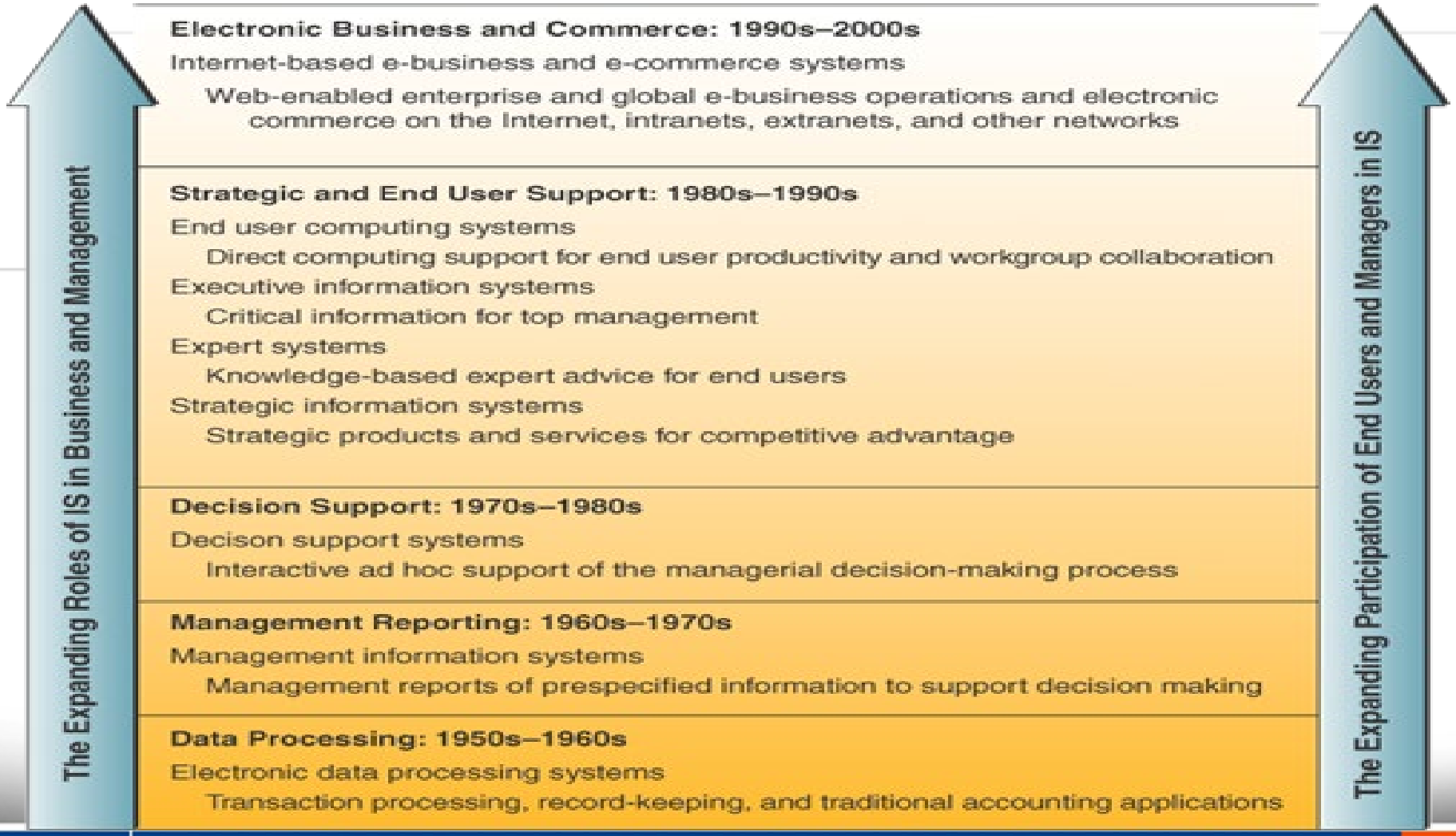
# What should a Business Professional know about IS? (Apa yg harus diketahui tentang Bisnis Profesional IS)

- **Foundation Concepts** : perilaku serta , technical, business and managerial concepts (*konsep teknis, bisnis dan manajerial)*
- Information Technology: Hardware, software, networks, data management and Internet-based technology
- Business Applications: penggunaan utama (*Major uses*) of the IS in the organization
- Development Processes: How to plan (*Bagaimana merencanakan*), develop and implement IS to meet*(memenuhi)* business opportunities
- Management Challenges: The challenges/*tantangan* of effectively and ethically managing/*mengelola* IT

# What does IS do for a business?
# (*Apa IS lakukan untuk bisnis?)*



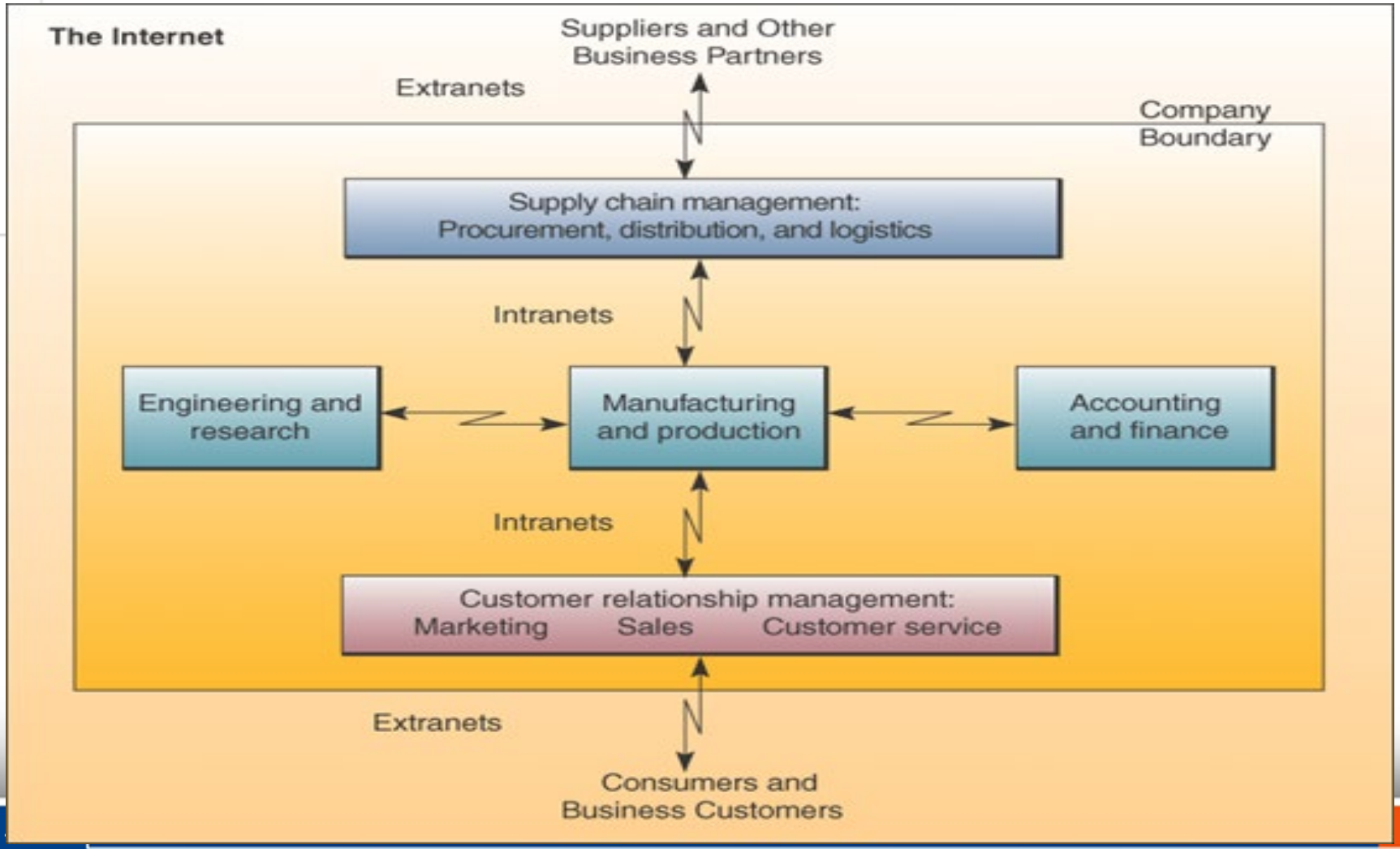
# Business Applications expanding role/*peran* over time */dari wkt ke wkt*



# What is E-business?

- The use of Internet technologies
  - to work and empower/*meberdayakan* business processes, electronic commerce, and enterprise collaboration
  - within a company and with its customers, suppliers, and other business stakeholders.
- An online exchange of value.

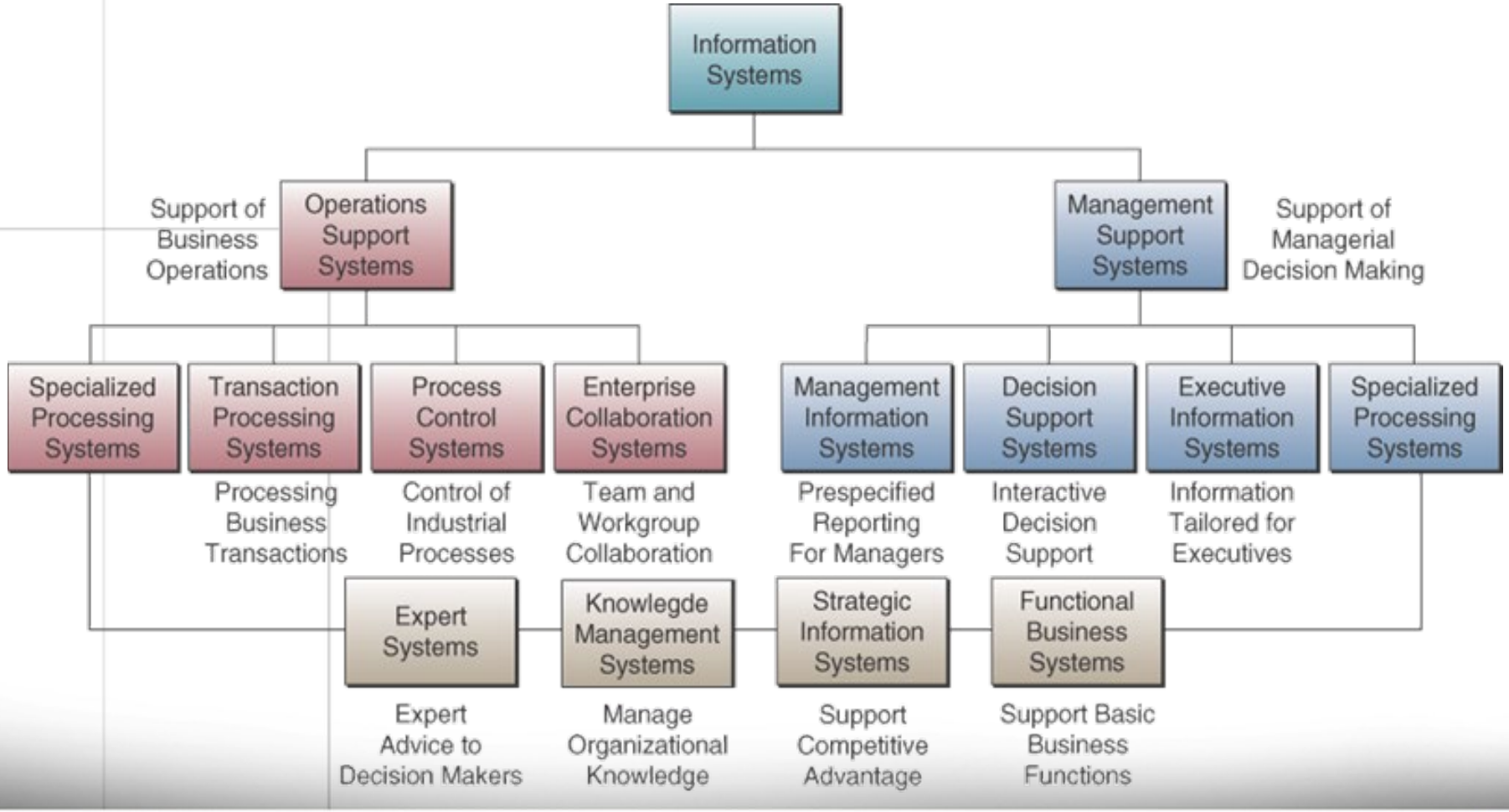
# How e-business is being used



# E-business use

- Reengineer/ *Rekayasa ulang* internal business processes
- Enterprise collaboration systems: support communications, coordination and collaboration among teams and work groups, e.g., virtual teams
- Electronic commerce: buying, selling, marketing and servicing of products and services over computer networks

# Types of IS


Information Systems
Support of Business Operations
Operations Support Systems
Management Support Systems
Support of Managerial Decision Making
Specialized Processing Systems
Transaction Processing Systems
Process Control Systems
Enterprise Collaboration Systems
Management Information Systems
Decision Support Systems
Executive Information Systems
Specialized Processing Systems
Processing Business Transactions
Control of Industrial Processes
Team and Workgroup Collaboration
Prespecified Reporting For Managers
Interactive Decision Support
Information Tailored for Executives
Expert Systems
Knowlegde Management Systems
Strategic Information Systems
Functional Business Systems
Expert Advice to Decision Makers
Manage Organizational Knowledge
Support Competitive Advantage
Support Basic Business Functions

# Operations support systems

- **What are they?** ***(apakah itu)***
  - **Efficiently process business transactions**
  - **Control industrial processes**
  - **Support communications and collaboration**
  - **Update corporate databases**

# Types of Operations Support Systems

- Transaction Processing Systems
  - Record and process *(Rekam dan proses )* data from business transactions
  - Examples: sales processing, inventory systems, accounting systems
- Process Control Systems
  - Monitor and control physical processes
  - Example: penggunaan sensor kilang minyak bumi to monitor chemical processes
- Enterprise Collaboration Systems
  - Enhance/ *Meningkatkan* team and work group communications
  - Examples: e-mail, videoconferencing

# Two ways to process transactions

- Batch Processing:
  - Kumpulkan transaksi dari waktu ke waktu dan proses berkala
  - Example: bank memproses semua cek yang diterima dalam batch pada malam hari
- Online Processing:
  - Process transactions immediately/*segra*
  - Example: bank memproses penarikan ATM immediately

# Management Support Systems

- What are they?
  - Memberikan informasi dan dukungan untuk pengambilan keputusan yang efektif oleh para manajer
-

# Types of Management Support Systems

- Management Information Systems (MIS)
  - Memberikan laporan dan menampilkan kpd manajer
  - Example: daily/*harian* sales analysis reports
- Decision Support Systems (DSS)
  - Memberikan dukungan ad hoc interaktif untuk pengambilan keputusan
  - Example: A what-if-analysis to determine where to spend/*menghabiskan* advertising dollars
- Executive Information Systems (EIS)
  - Memberikan informasi penting bagi para eksekutif dan manajer
  - Example: easy access to actions/*tindakan* of competitors

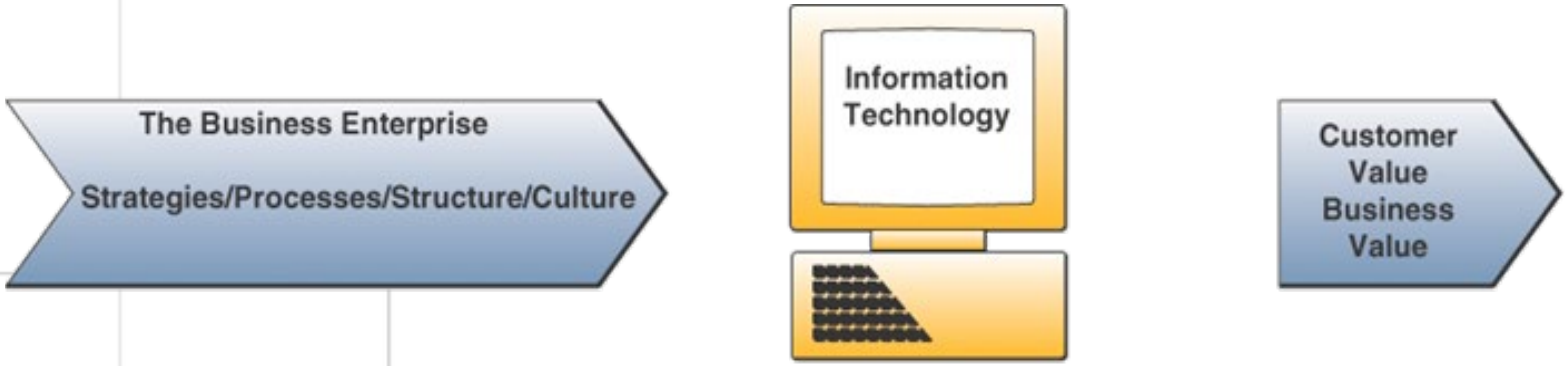
# Operational or Management Systems

- Expert Systems
  - Provide expert advice (*Memberikan saran ahli*)
  - Example: credit application advisor/penasihat
- Knowledge Management Systems
  - Dukungan penciptaan, organisasi dan penyebaran pengetahuan bisnis di seluruh perusahaan (*Support creation, organization and dissemination of business knowledge throughout company)*
  - Example: Intranet access to best business practices

# Classifications of IS by scope

- Functional business systems
  - Focus on operational and managerial applications of basic business functions
  - Examples: support accounting, finance or marketing
- Strategic information systems
  - Help get a strategic advantage over its customers
  - Examples: shipment tracking, e-commerce web systems
- Cross-functional information systems
  - Systems that are combinations of several types of information systems
  - Provide support for many functions

# Challenges and Opportunities of IT




**Business / IT Challenges**

- Speed and flexibility requirements of product development, manufacturing, and delivery cycles.
- Reengineering and cross-functional integration of business processes using Internet technologies.
- Integration of e-business and e-commerce into the organization's strategies, processes, structure, and culture.

**Business / IT Developments**

- Use of the Internet, intranets, extranets, and the Web as the primary IT infrastructure.
- Diffusion of Web technology to internetwork employees, customers, and suppliers.
- Global networked computing, collaboration, and decision support systems.

**Business / IT Goals**

- Give customers what they want, when and how they want it, at the lowest cost.
- Coordination of manufacturing and business processes with suppliers and customers.
- Marketing channel partnerships with suppliers and distributors.

# Measuring success of an IS

- Efficiency
  - Minimize cost, time and use of information resources
- Effectiveness
  - Support business strategies
  - Enable business processes
  - Enhance organizational structure and culture
  - Increase the customer and business value
- What's the difference between Efficiency and Effectiveness?

# Developing IS Solutions

# What is a system?

- **A system**
  - **Seperangkat komponen yang saling terkait**
  - **Dengan batas yang jelas**
  - **Bekerja bersama untuk mencapai seperangkat tujuan yang sdh ditentukan**
  - **By accepting inputs and producing outputs in an organized transformation process**

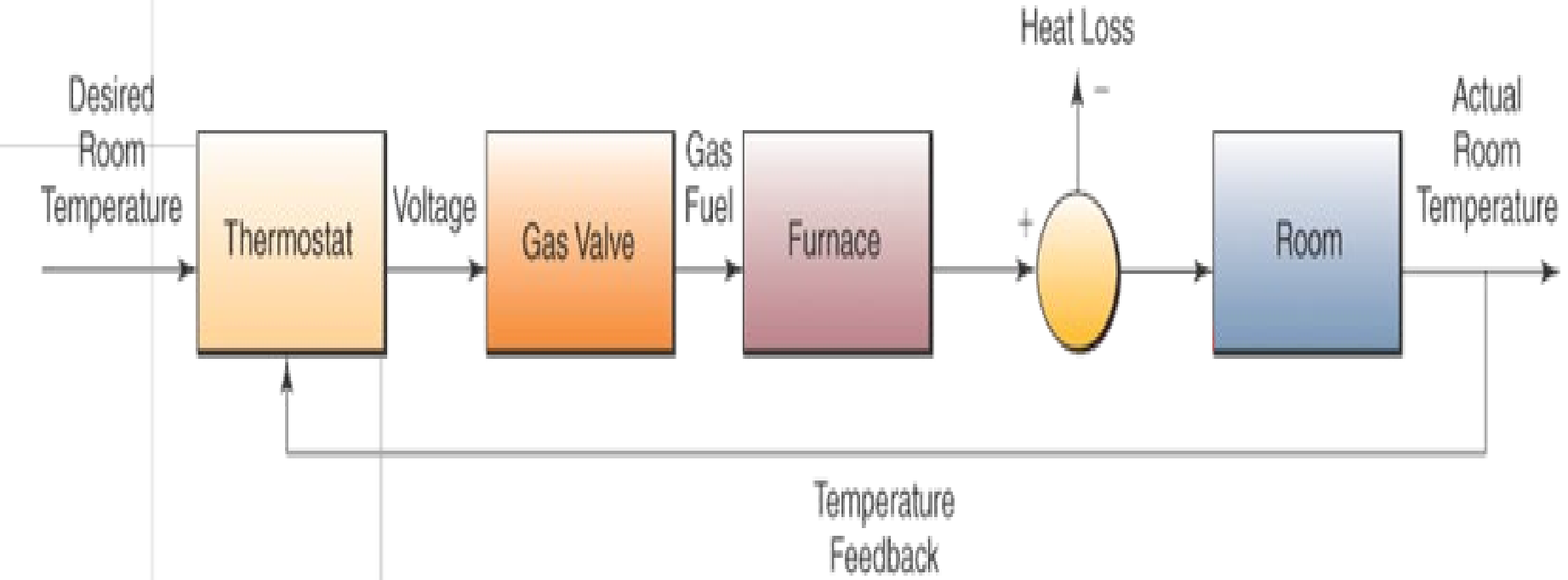
# Systems have three basic functions:

- Input involves capturing and assembling elements that enter the system to be processed
- Processing involves transformation process that convert input into output
- Output involves transferring elements that have been produced by the transformation process to their ultimate destination

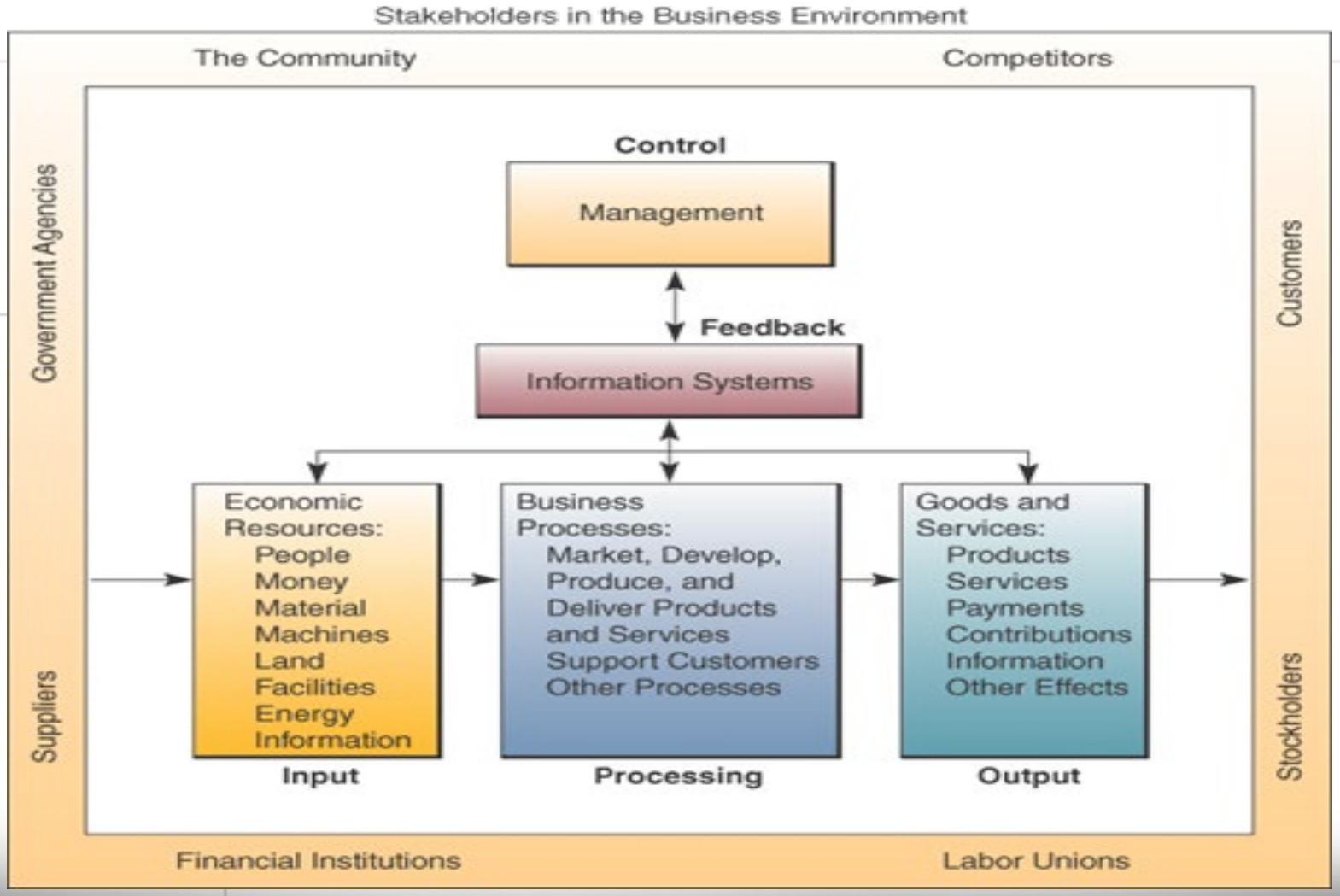
# Cybernetic system

- All systems have input, processing and output
- A cybernetic system, a self-monitoring, self-regulating system, adds feedback and control:
  - Feedback is data about the performance of a system
  - Control involves monitoring and evaluating feedback to determine whether a system is moving towards the achievement of its goal

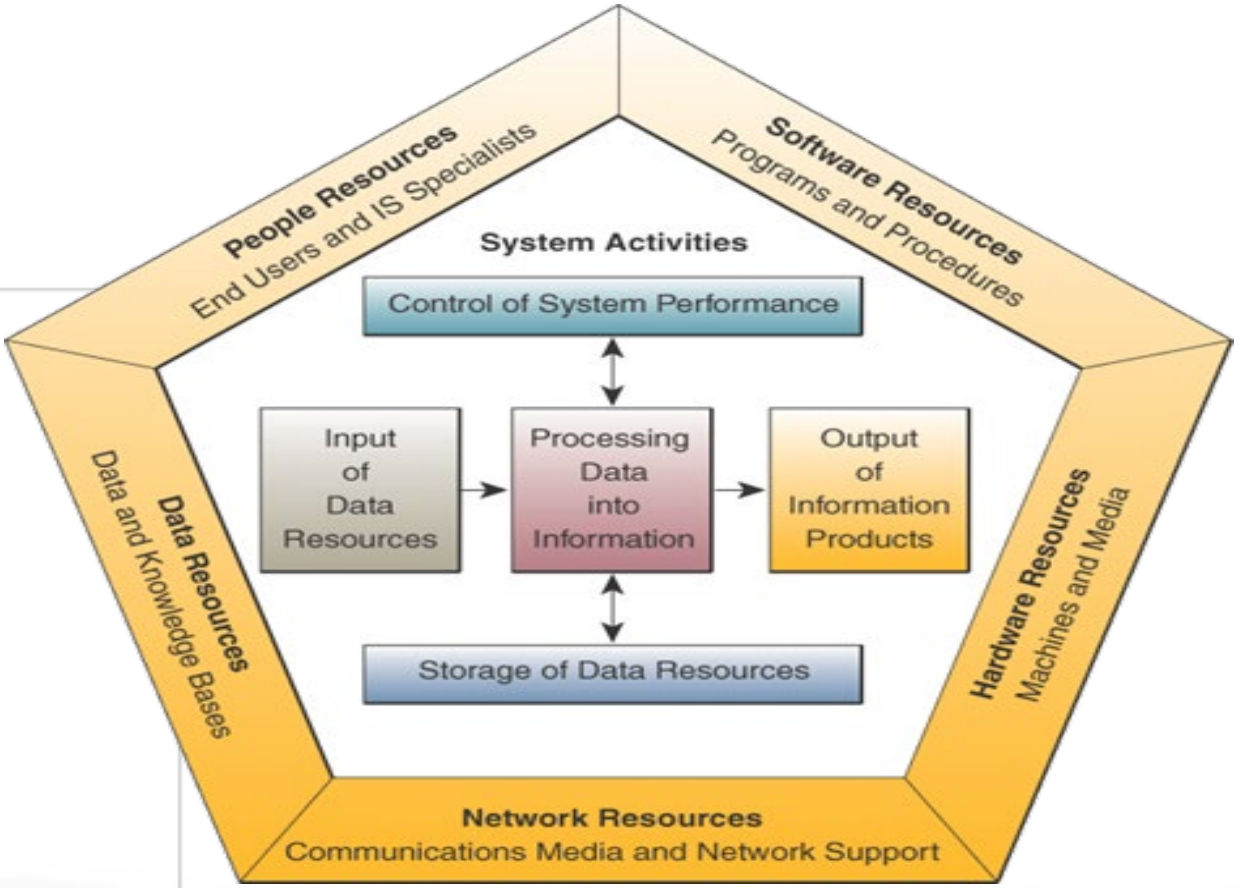
# A Cybernetic system



# A business as a system



# Information systems model



# Components of an IS

- People
  - End users: the people who use the IS or the information from the IS
  - IS specialists: the people who develop and operate IS
- Hardware Resources
  - All physical devices used in information processing
  - Machines, data media, peripherals
- Software Resources
  - All information processing instructions including programs and procedures
  - System software, application software and procedures

# Components of an IS *(cont.)*

- Data Resources
  - Facts about the business transactions
  - Processed and organized information
  - Databases of organized data
- Network Resources
  - Communications media
  - Network infrastructure:  hardware and software
  - The Internet, intranets and extranets

# Data versus Information

- Data are raw facts about physical phenomena or business transactions
- Information is data that has been converted into meaningful and useful context for end users
- Example:
  - Sales data is names, quantities and dollar amounts
  - Sales information is amount of sales by product type, sales territory or salesperson

# IS Activities

- Input of data resources
  - Data entry activities
- Processing of data into information
  - E.g., calculate, compare, sort, classify, summarize
- Output of information products
  - Messages, reports, forms and graphic images
- Storage of data resources
  - Data elements and databases
- Control of system performance
  - Monitoring and evaluating feedback

# Recognizing IS

- As a business professional, you should be able to look at an IS and identify
  - The people, hardware, software, data and network resources they use
  - The type of information products they produce
  - The way they perform input, processing, output, storage and control activities

# Case Study Questions

1. Why do you think that Aviall failed in their implementation of an airplane parts and components inventory control system?
2. How ahs information technology brought new business success to Aviall? How did IT change Aviall's business model?
3. How could other companies use Aviall's approach to the use of IT to improve their business success? Give several examples.

# Aviall Inc. From Failure to Success with IT

- Supplier of airplane parts and components
- Had lost track of its inventory
  - Price-tracking software didn't work with inventory control or purchasing forecasting
  - Sent wrong parts to wrong customers
  - Sales falling
- Needed a middleware vision: get all the software to work together

# Real World Internet Activity

1. Go to the Aviall's website at www.aviall.com and look through some of the case studies of business solutions that Aviall provides to its customers.
- See if you can find evidence of successes directly related to the new system.

# Real World Group Activity

2. Sometimes, big failures can become big successes when working with innovative applications of technology. In small groups,
   - Discuss your thoughts as to why it seems a failure has to happen first.
   - Is it because we don't hear about the successes unless they come from a failure?
   - How can we learn from the failures in applying innovative technologies so that more successes can be realized?

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**Good Luck**