Foundation Concepts: Information Systems & Design Innovation

What is an Information System?

- IS can be organized combination of People, Hardware, Software, Communication Networks and Data Resources that stores and retrieves, transforms and disseminates information in an organization.

Information Technology

★ **Term of Information Systems Consist of :**

- Computer Hardware
- Computer Software
- Telecommunication Network
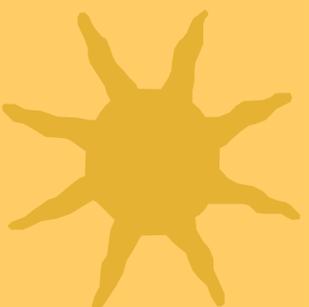- Data Resource Management
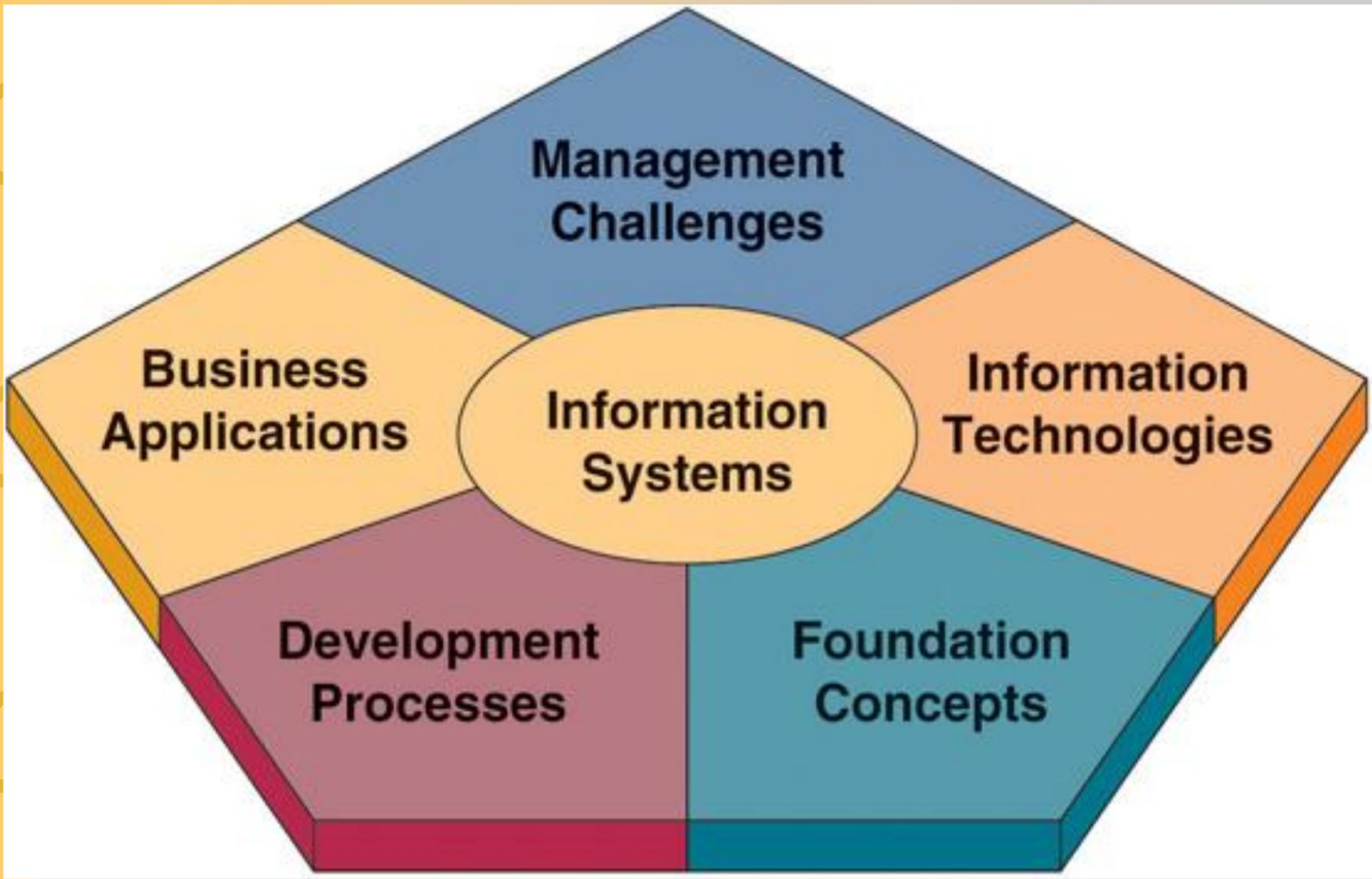
Framework for Business Professional

- Foundation Concepts
- Information Technologies
- Business Applications
- Development Processes
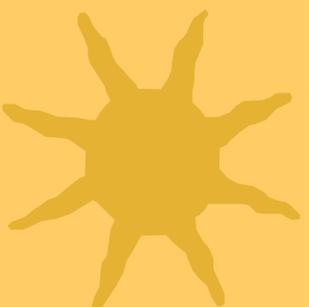- Management Challenges

Framework of IS Knowledge

The **Fundamental** Roles of IS

- Support of Education Operations

- Support of Managerial Decision making
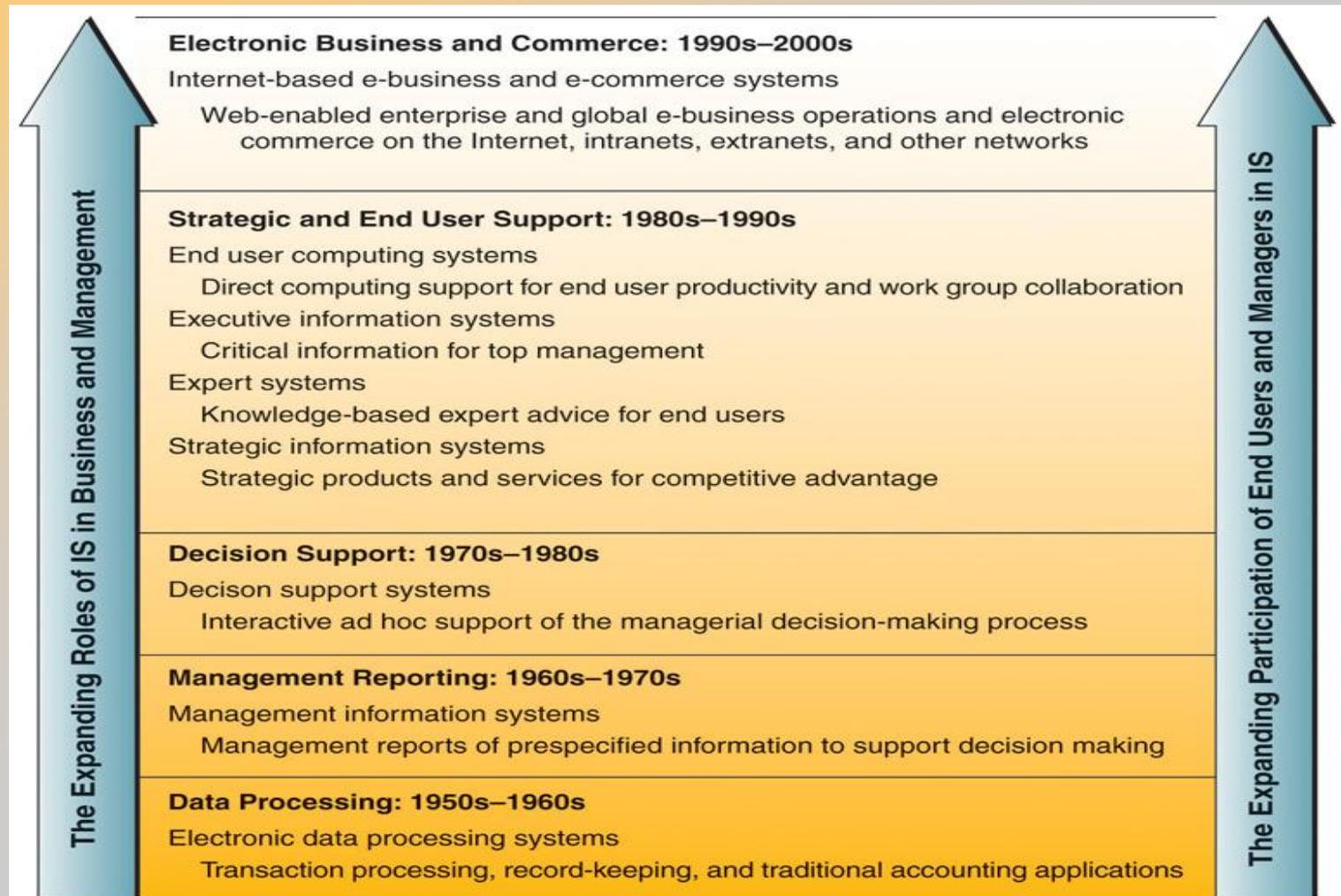
- Support of Strategic Competitive Advantage

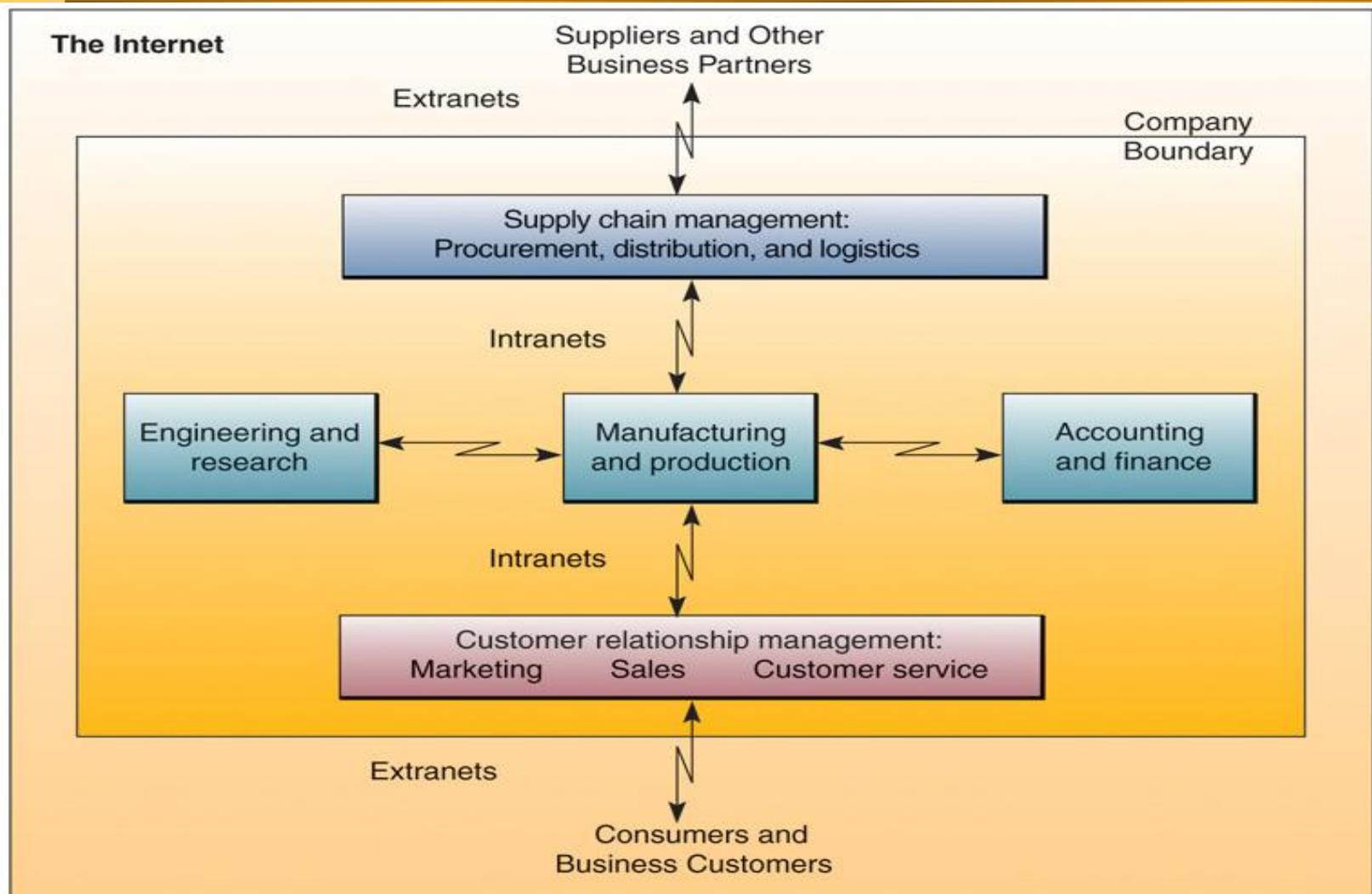# Roles of IS

Information Systems

Trends in Information Systems

Electronic Business and Commerce: 1990s–2000s

Internet-based e-business and e-commerce systems

Web-enabled enterprise and global e-business operations and electronic commerce on the Internet, intranets, extranets, and other networks

Strategic and End User Support: 1980s–1990s

End user computing systems

Direct computing support for end user productivity and work group collaboration

Executive information systems

Critical information for top management

Expert systems

Knowledge-based expert advice for end users

Strategic information systems

Strategic products and services for competitive advantage

Decision Support: 1970s–1980s

Decison support systems

Interactive ad hoc support of the managerial decision-making process

Management Reporting: 1960s–1970s

Management information systems

Management reports of prespecified information to support decision making

Data Processing: 1950s–1960s

Electronic data processing systems

Transaction processing, record-keeping, and traditional accounting applications

The Expanding Roles of IS in Business and Management

The Expanding Participation of End Users and Managers in IS

Information Technology Infrastructure

Enterprise Collaboration Systems
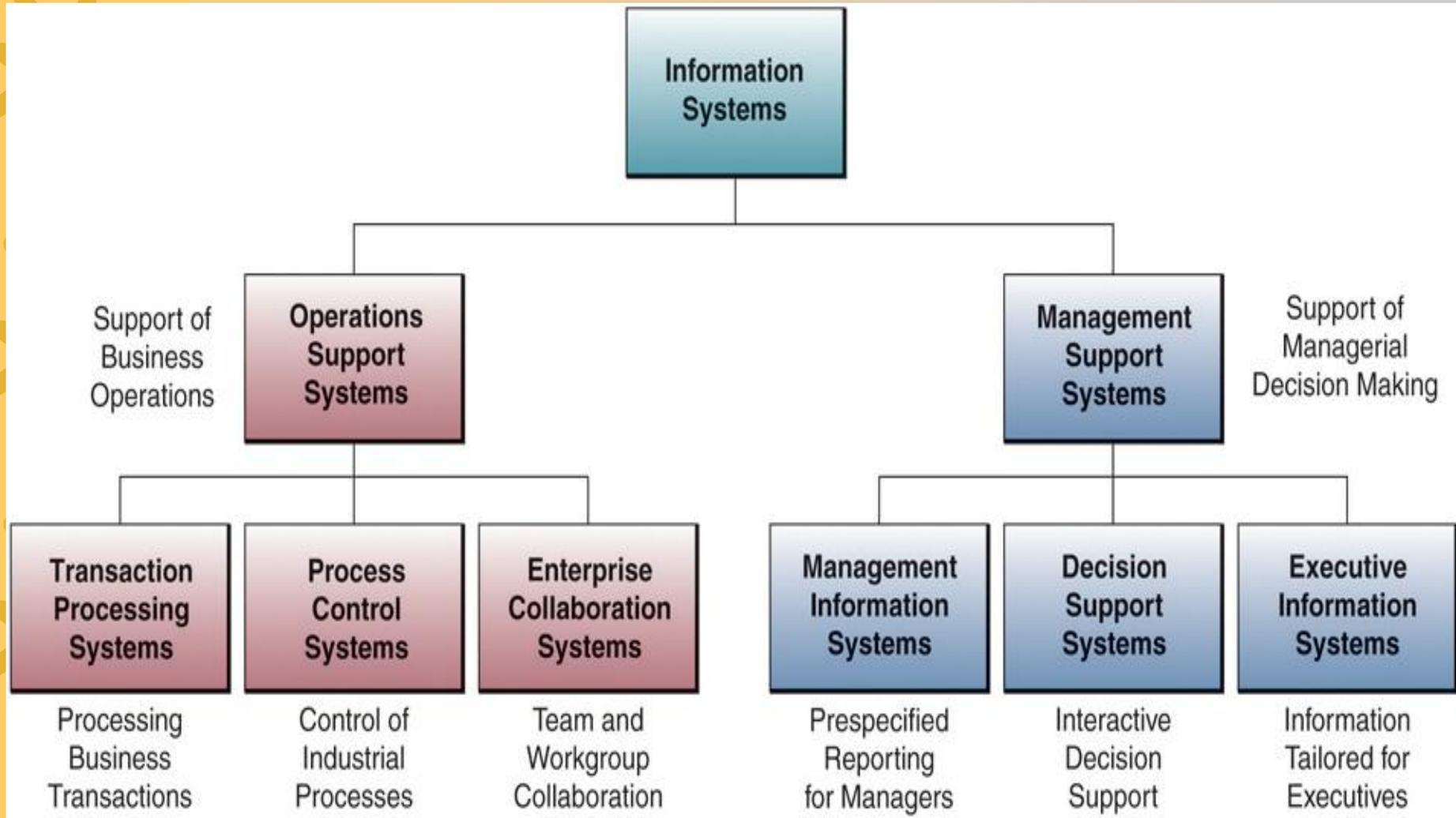
Definition:

★ Involve the use of software tools to support communication, coordination, and collaboration among the members of networked teams and workgroups.
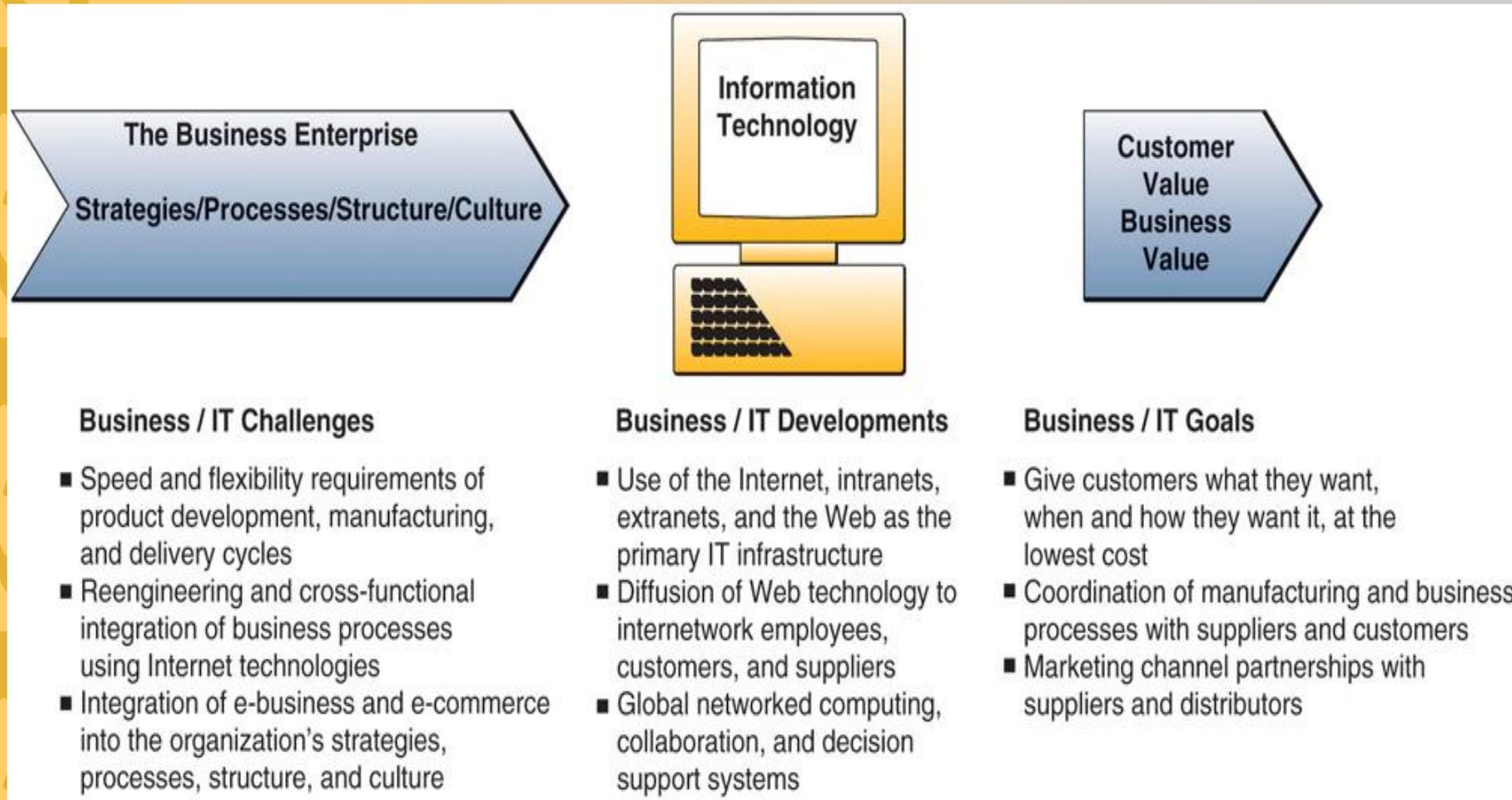
Types of Information Systems

Information Systems

Support of Business Operations — Operations Support Systems

Support of Managerial Decision Making — Management Support Systems

Operations Support Systems:
- Transaction Processing Systems — Processing Business Transactions
- Process Control Systems — Control of Industrial Processes
- Enterprise Collaboration Systems — Team and Workgroup Collaboration

Management Support Systems:
- Management Information Systems — Prespecified Reporting for Managers
- Decision Support Systems — Interactive Decision Support
- Executive Information Systems — Information Tailored for Executives

Management Challenges & Opportunities

The Business Enterprise
Strategies/Processes/Structure/Culture

Information Technology

Customer Value Business Value

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

Measures of Success

* Efficiency
  – Minimize costs
  – Minimize time
  – Minimize the use of information resources
* Effectiveness
  – Support an organization's business strategies
  – Enable its business processes
  – Enhance its organizational structure and culture
  – Increase the customer business value of the enterprise

Developing IS Solutions

Ethical Challenges of IT

Applications of IT

- Customer Relationship Management
- Human Resources Management
- Business Intelligence Systems

Potential Harms

- Infringements on privacy
- Inaccurate information
- Collusion

Potential Risks

- Consumer boycotts
- Work stoppages
- Government intervention

Possible Responses

- Codes of ethics
- Incentives
- Certification

IT Career Trends

* Rising labor costs have resulting in large-scale movement to outsource programming functions to India, the Middle East and Asia-Pacific countries.

* More new and exciting jobs emerge each day as organizations continue to expand their wide-scale use of IT.

* Frequent shortages of qualified information systems personnel.

* Constantly changing job requirements due to dynamic developments in business and IT ensure long-term job outlook in IT remains positive and exciting.

The IS Function represents…

* A dynamic, rewarding, and challenging career opportunity for millions of men and women.

* A key component of the resources, infrastructure, and capabilities of today's networked business enterprise.

What is a System?

Definition:

A group of interrelated components, with a clearly defined boundary, working together toward a common goal by accepting inputs and producing outputs in an organized transformation process.
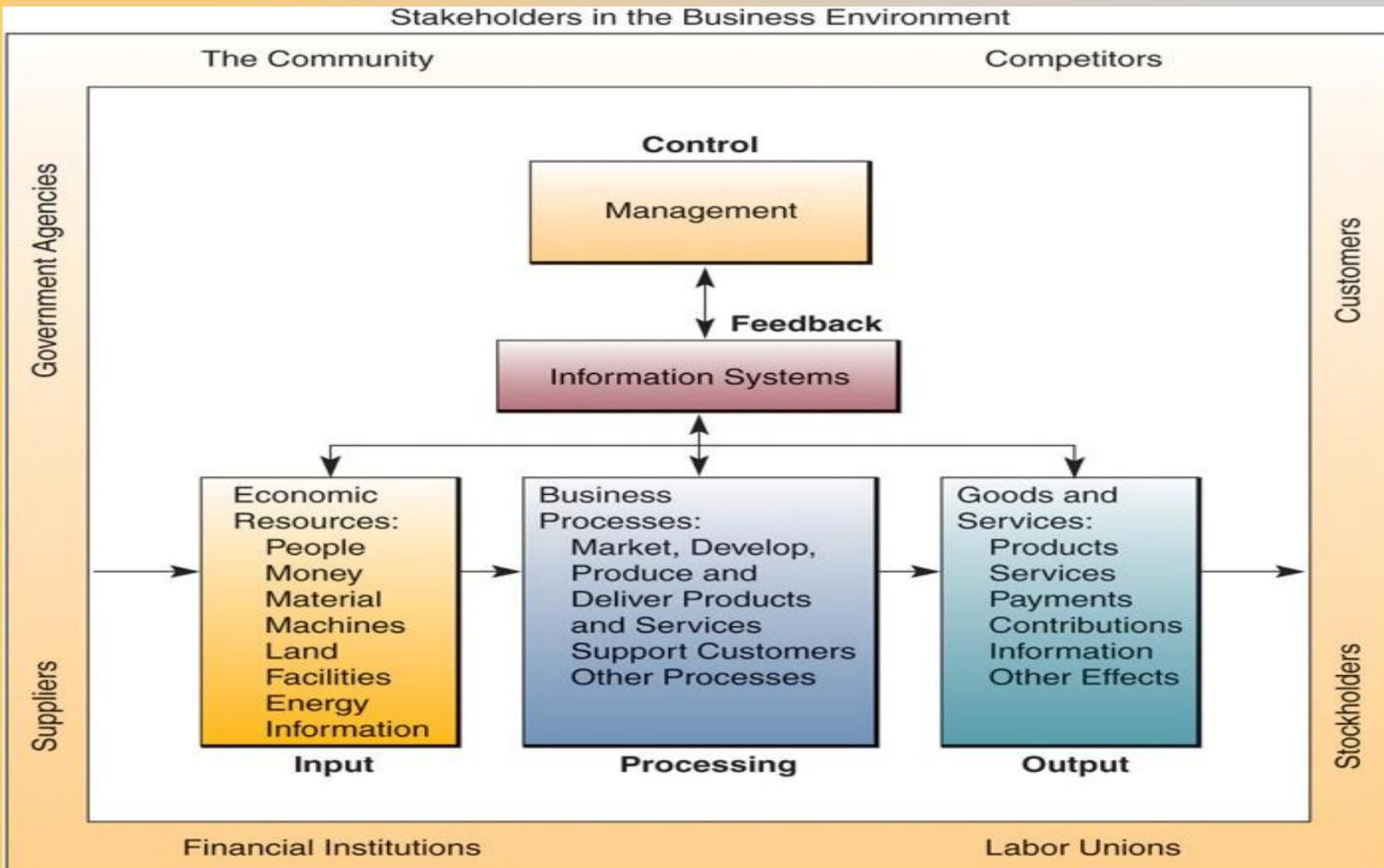
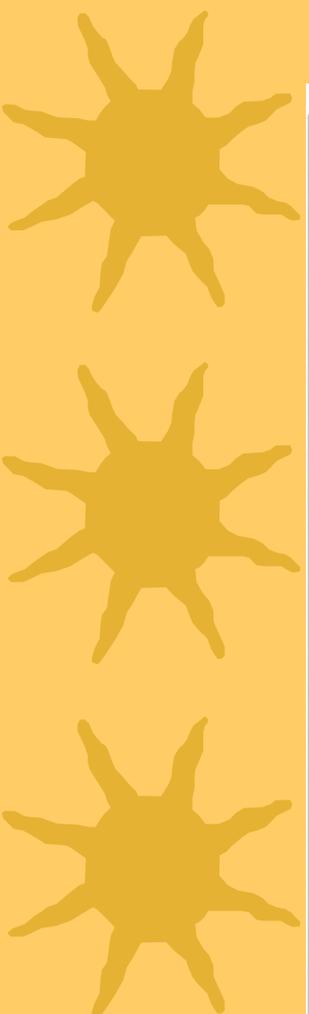# System Components

- Input
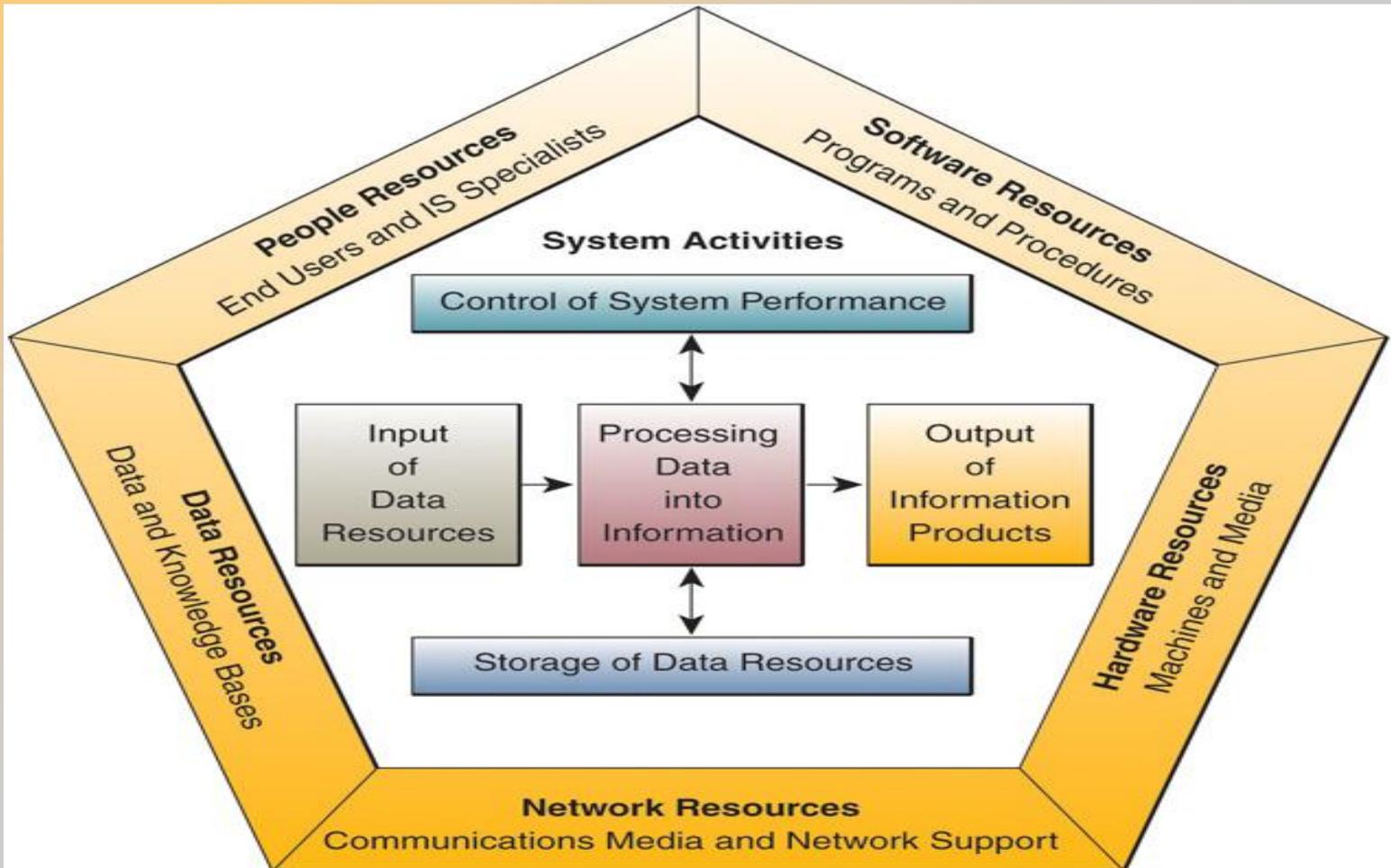- Process
- Output
- Feedback
- Control

A Business System

Stakeholders in the Business Environment

The Community — Competitors

Government Agencies — Customers

Suppliers — Stockholders

Financial Institutions — Labor Unions

Control

Management

Feedback

Information Systems

Economic Resources:
People
Money
Material
Machines
Land
Facilities
Energy
Information

Input

Business Processes:
Market, Develop, Produce and Deliver Products and Services
Support Customers
Other Processes

Processing

Goods and Services:
Products
Services
Payments
Contributions
Information
Other Effects

Output

IS Resources & Activities

Information System Resources

* People
* Hardware
* Software
* Data
* Network

Recognizing Information Systems

Fundamental Components of IS

* People, hardware, software, data and network resources used

* Types of information products produced

* Input, processing, output, storage and control activities performed

The End