

Information System

ITEC-522

5th Semester Third Year

Information Technology

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Week-1



Course Description

- This is a comprehensive subject addressing technical, organizational, and managerial issues confronted by organizational professionals in the selection, implementation, and management of information systems. The course further explores current IS concepts and technologies. Students will learn how information systems give organizations a competitive edge by providing technologies that help managers plan, control, and make decisions.



Course Objectives

1. To demonstrate the knowledge of technical, organizational, and management issues associated with information systems implementation.
2. To understand the knowledge in the selection, implementation, and management of information systems.
3. To formulate planning, integration, evaluation, and support for organization-wide information systems adoption



Continue

To demonstrate how electronic business and commerce, or enterprise systems could support a firm's business processes, managerial decision making, and strategies for competitive advantage

5. To understand issues contributing to security, integrity, ethics, successful planning, implementation and management of information systems.



Learning Outcome

1. Understanding the process for aligning and organization's IT objectives with business strategy.
2. Defend the strategic value of information resources for an organization.
3. Participate in an organization's information systems and technology decision-making processes.
4. Identify ways information systems & technology may improve an organization's performance, including improving organizational processes, decision-making, collaboration, and personal productivity.



Learning Outcome

5. Define what a manager should be able to expect from an IT department in an organization.
6. Build a business case for IT, addressing key IT acquisition decisions such as make/buy; outsource/insource; project management.
7. Apply a framework for evaluating information-related ethical dilemmas commonly faced by managers.

Course Schedule

Week 1

- Course Objectives and Overview
- Introduction to Information systems Management
- Information Systems Concepts
- Systems, Information, Data, Knowledge

- **Week-2**

Information Systems Elements

- **Week-3**

Information systems in Enterprise

Types of information systems

Week-4

Business Process and IS

Organizational Change

Week 5

Enterprise business systems, ERP Systems

Week-6

supply chain systems,

customer relationship management systems.

- **Week 7**

- Information Systems in Organizations and Strategy Making
- Information Systems in (Global) Business Today

- **Week-8**

- How Businesses Use Information Systems : Strategic use of Information Systems in Digital Economy

Course Schedule

- **Week 9**
- **Information Systems Integration**
- **Week 10**
Business Intelligence and Decision Support
- **Week-11**
Systems planning Critical Issue of Organizations
- **Week-12**
Information Systems security and ethical challenges
- **Week 13**
Knowledge Management
- **Week-14**
Trend of IS for growth and advantage of organization
- **Week 15**
Course Revision Overview and Conclusion

Schedule of assessment tasks for students during the semester

Assessment No	Assessment task	Week due	Proportion of Assessment from 100 Marks
1	Mid-term test	As announced by university	30%
2	Student Assignment	10 th week	10%
3	Attendance	Full Semester	10%
4	Final test	As announced by university	50%



Reference Material

- TEXT BOOK
- Laudon K. C. & Laudon J. P., Essentials of Management Information Systems, 15th Edition, Pearson, 2018.
- Reference Book
- O'Brien J. A. and Marakas G. M., Introduction to Information Systems, 14th Edition, McGraw-Hill Irwin, 2012.



Introduction: Information Systems

What is Information Systems

- Information system is about the usage of information technology tools by group of people or staff in managing information.
- Information system is the collection of technological components, users and data into systems designed to produce information to aid decision making.



Cont.

- Information system is an integrated set of components for collecting, storing, processing, and communicating information.
- Business firms, other organizations, and individuals in society rely on information systems to manage their operations, compete in the marketplace, supply services, and enhance personal lives.



Why study MIS?

- Micro view
 - Studying MIS can provide you with essential knowledge to ensure that how company manages information systems with the highest level of efficiency.
- Macro view
 - Change of paradigm: information age

What is MIS?

- **M: Management**
 - Business Functions/Processes, Organizations, and Human Behaviors
- **I: Information**
 - Contents: Data, Information, Knowledge
 - Processes: Create, Gather/capture/elicit, Store, Organize, Consolidate & Condense, Filter, Deliver, and Share
- **S: System** (Information Systems/Information Technology)
 - Input-Process-Output and Storage
 - General Systems Theory (GST)



What is Management

Management is the process of achieving goals and objectives effectively and efficiently through and with the people.

"Management is a process of designing and maintaining an environment in which individuals work together in groups to effectively and efficiently accomplish selected aims".



What is Information

- Information as a concept has a diversity of meanings, from everyday usage to technical settings. Generally speaking, the concept of information is closely related to notions of constraint, communication, control, data, form, instruction, knowledge, meaning, mental stimulus, pattern, perception, and representation.



Cont.

- There are several ways to define “information”
 - **Subjective**: People develop models of their environment. Information created by people makes those models more accurate.
 - **Thing/artifact**: Information is what’s captured in a book, web page, or other resource.
 - More information is digital



What is System

- A set of elements or components that work together and interact to accomplish goals
 - A desktop publishing system is a computer running desktop publishing software.
- A combination of components working together
 - a computer system includes both hardware and software.
- An organization or methodology
 - The binary numbering system, for instance, is a way to count using only two digits.



System Components and Concepts

- System boundary

- Defines the system and distinguishes it from everything else

Systems are not independent. They are a part of their environments.

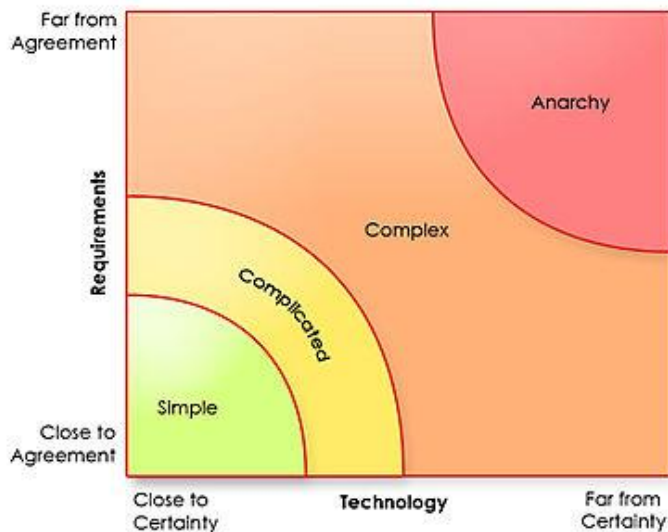
Information systems: generally integrated and interact with other systems.

But they are not open ended

System Types

- Simple vs. complex
 - Simple systems
 - possible to define system outputs from known inputs
 - Does not require high level system analysis and review
 - Chair, with not moving parts
 - A Complex System
 - Multitude of parts and relationships
 - involves a number of elements, arranged in structure(s) which can exist on many scales.
 - go through processes of change that are not describable by a single rule nor are reducible to only one level of explanation, these levels often include features whose emergence cannot be predicted from their current specifications. Ex: Genetic Algorithms, Neural Networks-learn by example.
- Requires high system analysis and review

The Spectrum of Process Complexity





System Types

- Open vs. closed :
 - Open system
 - regularly exchanges feedback with its external environment
 - porous boundaries through which useful feedback can readily be exchanged and understood.
 - continuously exchange feedback with their environments, analyze that feedback, adjust internal systems as needed to achieve the system's goals, and then transmit necessary information back out to the environment.
 - Closed system:
 - have hard boundaries through which little information is exchanged. (nearly no interaction with environments)
 - Organizations that have closed boundaries often are unhealthy. Examples include bureaucracies, monopolies and stagnating systems.

[orgs-open-systems.pdf](#)



System Types

- Adaptive vs. nonadaptive
 - Adaptive system:
 - Adoptive to environment
 - agents (which may represent cells, species, individuals, firms, nations) acting in parallel, constantly acting and reacting to what the other agents are doing.
 - ability to recognize the shape of a problem and tailor its responses, changes its behavior based on its environment.
 - handle complex problems
 - Non-adaptive System
 - Fail to adopt to environment
 - Steady



System Performance and Standards

- Efficiency
 - A measure of what is produced divided by what is consumed
- Effectiveness
 - A measure of the extent to which a system achieves its goals
- System performance standard
 - A specific objective of the system



System Variables and Parameters

- System variable
 - A quantity or item that can be controlled by the decision maker
 - E.g. the price a company charges for a product
- System parameter
 - A value or quantity that cannot be controlled by the decision maker
 - E.g., cost of a raw material



A Business Perspective on Information Systems

Complementary Assets

- Assets required to derive value from a primary investment
- Can be organizational, managerial, or social assets
- Technology investments supported by investment in complementary assets receive superior returns



Organizational Assets

- Supportive organizational culture valuing efficiency and effectiveness
- Efficient business processes
- Decentralized authority
- Distributed decision-making rights
- Strong IS development team



Managerial Assets

- Strong senior management support for technology investment and change
- Incentives for management innovation
- Teamwork and collaborative work environments
- Management training programs
- Management culture valuing flexibility and knowledge-based decision making



Social Assets

- The Internet and telecommunications infrastructure
- IT-enriched educational programs
- Governmental and private-sector standards
- Laws and regulations creating fair, stable market environments
- Technology and service firms in adjacent markets to assist implementation



Social Assets

- Technical approach: emphasizes mathematically based models, physical technology, and formal capabilities of systems
- Behavioral approach: studies issues arising from development and maintenance of systems, such as business integration and utilization

Contemporary approaches to information systems

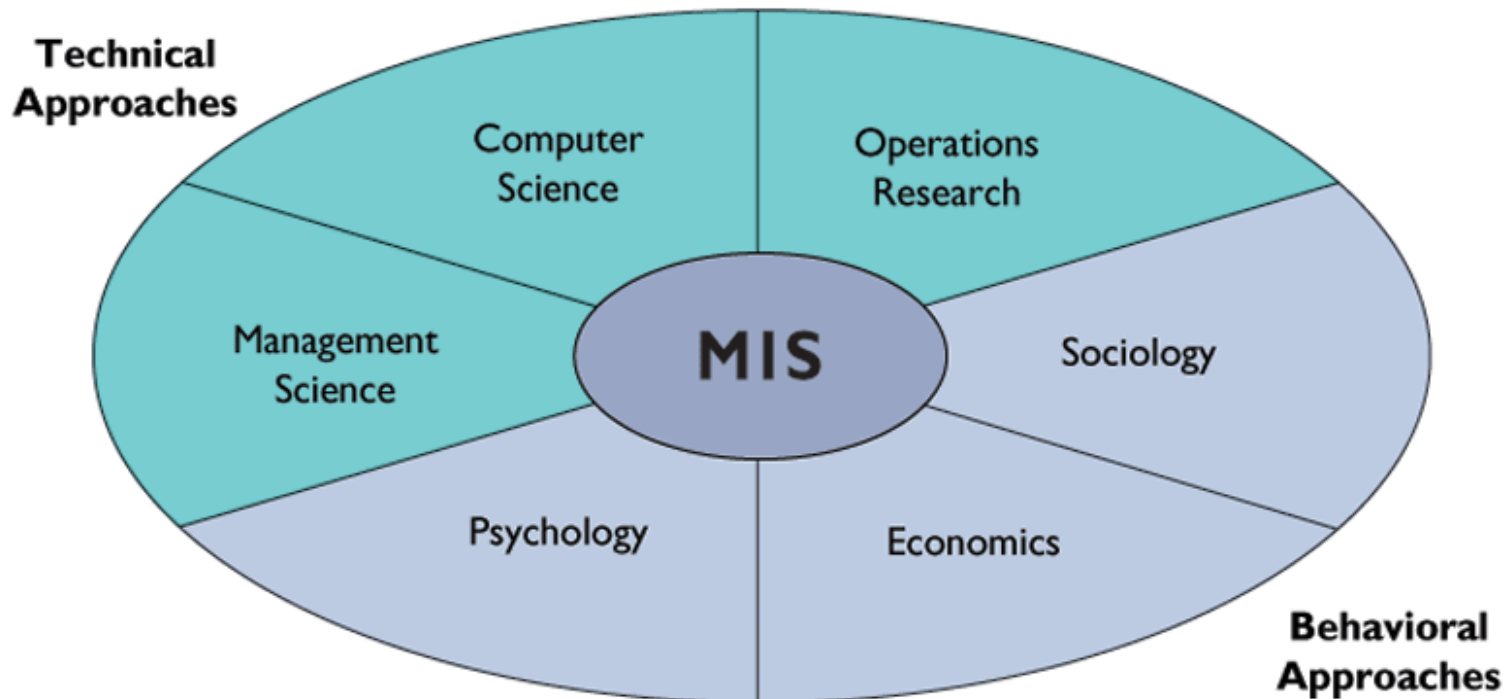


Figure 1-8



Sociotechnical Systems

- Management Information Systems (MIS)
- System performance optimized when technology and organization adjust to each other for a satisfactory fit



The Challenges of Information Systems: Key Management issues

Positive Impacts of Information Systems

- Faster calculations and paperwork
- Analysis of customer purchase patterns and preferences
- More efficient business services
- Medical advances
- Instant global distribution of information



The Challenges of Information Systems: Key Management issues

Negative Impacts of Information Systems

- Automation leading to job elimination
- Privacy concerns
- System outages and shutdowns
- Health problems, repetitive stress injury
- Illegal distribution of intellectual property



Discussion

Questions?