# Summary & Practical Questions - MIS

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## Chapter 1: Information Systems in Global Business Today

**Core Concept**: Information systems are essential infrastructure for modern business, transforming operations through mobile platforms, big data, and cloud computing.

**Key Points to Remember**:

1. **Three major tech trends**: Mobile digital platforms, Big Data, Cloud Computing
2. **Six strategic objectives**: Operational excellence, New products/services, Customer/supplier intimacy, Better decisions, Competitive advantage, Survival
3. **IS components**: Hardware, Software, Data management, Networks, Internet
4. **Three dimensions**: Organizations, Management, Technology
5. **Information flow**: Data (raw facts) → Processing → Information (meaningful)
6. **Complementary assets**: Organizational (culture, processes), Managerial (leadership, training), Social (infrastructure, laws)
7. **Sociotechnical perspective**: Optimize BOTH technology AND organization together

### Practice Questions - Chapter 1

**Question 1**: What are the three major technological trends transforming business today, and how do they impact operations?

**Answer**: The three trends are:

(1) **Emerging mobile digital platform** - smartphones and tablets competing with PCs, enabling work anywhere

(2) **Big Data** - analyzing massive volumes of data from web traffic, social media, and sensors for insights

(3) **Cloud Computing** - business software running over the Internet as a service, reducing infrastructure costs.

These enable 24/7 operations, global collaboration, and data-driven decision making.

**Question 2**: Explain the difference between data and information, and describe the three basic activities of an information system.

**Answer**: **Data** are raw facts representing events (like bar code readings), while **information** is data shaped into meaningful and useful form. The three basic activities are:

(1) **Input** - capturing/collecting raw data

(2) **Processing** - converting raw input into meaningful form

(3) **Output** - transferring processed information to users.

**Question 3**: What are complementary assets and why are they critical for achieving value from IT investments?

**Answer**: Complementary assets are assets required to derive value from a primary investment. They're critical because technology investments alone cannot make organizations effective. Three categories are:

(1) **Organizational assets** - supportive culture, appropriate business model, efficient processes

(2) **Managerial assets** - senior management support, training programs, collaboration culture

(3) **Social assets** - telecommunications infrastructure, IT education, legal standards.

**Question 4**: Describe the sociotechnical systems perspective and explain why both technical and behavioral factors must be considered.

**Answer**: The sociotechnical perspective states that optimal organizational performance is achieved by jointly optimizing both social and technical systems. This means technology must fit organizational needs while organizations must adapt through training and change. Critical success factors include mutual adjustment between technology and organization, considering both technical capabilities and behavioral components like culture, politics, and work processes. Ignoring either dimension leads to system failure.

**Question 5**: What are the six strategic business objectives of information systems, and provide an example of each?

**Answer**:

(1) **Operational Excellence** - Walmart's continuous replenishment system for efficiency

(2) **New Products/Services** - Apple's iTunes creating new digital music business

(3) **Customer/Supplier Intimacy** - Amazon's recommendation system building loyalty

(4) **Improved Decision Making** - real-time dashboards for managers

(5) **Competitive Advantage** - UPS package tracking system differentiating service

(6) **Survival** - meeting Sarbanes-Oxley regulatory requirements.

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## Chapter 2: Global E-business and Collaboration

**Core Concept**: Different information systems serve different management levels and business functions; collaboration and enterprise integration are critical for organizational performance.

**Key Points to Remember**:

1. **Four system types by level**: TPS (operational), MIS (middle management), DSS (non-routine decisions), ESS (senior/strategic)
2. **Four enterprise applications**: ERP (integrate functions), SCM (suppliers), CRM (customers), KMS (knowledge)
3. **Business processes**: Collections of activities producing products/services; can be automated or redesigned by IS
4. **Collaboration benefits**: Productivity (4x ROI), Quality, Innovation, Customer service, Financial performance
5. **Collaboration tools**: Email/IM, Wikis, Virtual meetings, Google Apps, SharePoint, Enterprise social networks

6. **IS Department roles**: Programmers, Systems analysts, IS managers; Led by CIO, CSO, CPO, CKO

**Practice Questions - Chapter 2**

**Question 1**: Compare and contrast the four types of information systems that serve different management levels, including their purpose and characteristics.

**Answer**:

(1) **TPS (Transaction Processing Systems)** - serve operational management, track daily routine transactions, highly structured (e.g., payroll)

(2) **MIS (Management Information Systems)** - serve middle management, provide summarized reports from TPS, limited analytical capability

(3) **DSS (Decision Support Systems)** - support non-routine, rapidly changing decisions, use "what-if" analysis and sophisticated models

(4) **ESS (Executive Support Systems)** - serve senior management, focus on strategic issues and long-term trends, use digital dashboards and portals.

**Question 2**: What are the four major enterprise applications, and how does each improve organizational performance?

**Answer**:

(1) **Enterprise Systems (ERP)** - integrate business processes across all functions using a single data repository, enabling automatic information flow company-wide

(2) **Supply Chain Management (SCM)** - manage supplier relationships, share information about orders/inventory, optimize getting products from source to consumption

(3) **Customer Relationship Management (CRM)** - coordinate all customer-related processes, optimize revenue and retention, identify most profitable customers

(4) **Knowledge Management Systems (KMS)** - capture and apply organizational knowledge, make expertise available wherever needed.

All improve coordination, efficiency, and decision-making.

**Question 3**: Explain why collaboration is increasingly important in business today and identify at least four factors driving this trend.

**Answer**: Collaboration is critical due to:

(1) **Changing nature of work** - 41% of U.S. jobs require interaction and coordination

(2) **Growth of professional work** - professionals need to share information and expertise

(3) **Changing organization** - work organized into groups/teams, expertise pushed down

(4) **Changing scope** - global operations require coordination across locations

(5) **Emphasis on innovation** - innovation is a group/social process

(6) **Changing culture** - diverse teams produce better outputs than individuals.

**Question 4**: What is social business, and how does it differ from traditional collaboration? Provide examples of applications.

**Answer**: **Social business** is the use of social networking platforms to engage employees, customers, and suppliers to enhance information-sharing, innovation, and decision making.

Unlike traditional collaboration focused on specific tasks, social business emphasizes ongoing "conversations," information transparency, and direct sharing of opinions. It drives operational efficiencies and accelerates decisions. Applications include: social networks, crowdsourcing, shared workspaces, blogs/wikis, social commerce, file sharing, social marketing, and communities. McKinsey predicts it could raise interaction worker productivity by 20-25%.

**Question 5**: Describe the six-step framework for evaluating and selecting collaboration tools for an organization.

**Answer**:

(1) **Identify collaboration challenges** - use time/space matrix to classify needs (same/different time and place)

(2) **List available solutions** - identify tools for each challenge type

(3) **Analyze products** - evaluate costs and benefits including training costs

(4) **Identify risks** - assess security and vulnerability issues

(5) **Seek user input** - gather feedback on implementation and training needs

(6) **Make selection** - choose tools and invite vendor presentations.

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## Chapter 3: Information Systems, Organizations, and Strategy

**Core Concept**: Organizations and IS have a two-way relationship; strategic use of IS can create competitive advantage through Porter's forces, value chains, and network-based strategies.

**Key Points to Remember**:

1. **Organizational features**: Routines, business processes, politics, culture, structure (5 types by Mintzberg)
2. **IS impact on organizations**: Flatten hierarchies, reduce transaction/agency costs, enable postindustrial structure
3. **Porter's 5 forces**: Traditional competitors, New entrants, Substitutes, Customers, Suppliers
4. **Four competitive strategies**: Low-cost leadership, Product differentiation, Market niche focus, Customer/supplier intimacy
5. **Value chain**: Primary activities (inbound logistics, operations, outbound logistics, sales/-marketing, service) + Support activities (infrastructure, HR, technology, procurement)
6. **Network strategies**: Synergies, Core competencies, Network economics, Virtual companies, Business ecosystems

### Practice Questions - Chapter 3

**Question 1**: Explain Porter's Competitive Forces Model and describe how information systems can be used to address each of the five forces.

**Answer**: Porter's model identifies five forces:

(1) **Traditional competitors** - IS enables differentiation and efficiency

(2) **New market entrants** - IS creates barriers through high switching costs

(3) **Substitute products** - IS enables innovation to stay ahead

(4) **Customers** - IS builds loyalty and increases switching costs

(5) **Suppliers** - IS provides data to negotiate better or find alternatives.

Organizations use IS strategically to counteract these forces through low-cost leadership (Walmart's replenishment), differentiation (Apple's ecosystem), niche focus (Hilton's OnQ), or intimacy (Chrysler-supplier links).

**Question 2**: Describe the value chain model and explain how it helps identify opportunities for strategic information systems.

**Answer**: The value chain views the firm as a series of activities adding value. **Primary activities** (inbound logistics, operations, outbound logistics, sales/marketing, service) directly produce/distribute products. **Support activities** (infrastructure, HR, technology, procurement) enable primary activities. To use it:

(1) Ask at each stage how to improve efficiency;

(2) Examine how you perform value-adding activities;

(3) Benchmark against competitors;

(4) Identify best practices;

(5) Develop candidate IS applications;

(6) Prioritize development. This identifies where IS will have greatest strategic impact.

**Question 3**: How do information systems impact organizational structure, and what is the concept of "flattening" organizations?

**Answer**: IS impact organizational structure:

(1) **Flatten Organizations** - Reduce organizational levels and middle managers; broaden span of control per manager

(2) **Postindustrial Organizations** - Authority based on knowledge not position; decentralized decision-making with task force networks

(3) **Economic Effects** - Reduce transaction and agency costs; enable external contracting; firms shrink in size while revenues increase

The concept of flatten organizations:

(1) Broadening information distribution to lower-level employees;

(2) Empowering employees with data for decisions;

(3) Increasing management efficiency - each manager can supervise more workers;

(4) Enabling faster decision-making with fewer management layers.

**Question 4**: Explain network economics and how it differs from traditional economics. Provide examples of businesses benefiting from network effects.

**Answer**: **Traditional economics** follows the law of diminishing returns - adding more resources yields lower marginal gains. **Network economics** shows marginal costs near zero while marginal gains are much larger - the more subscribers/users, the greater the value to all. Value grows with network size while cost of adding members is inconsequential.

Examples:

(1) **Telephone/Internet** - more users make networks more valuable;

(2) **eBay** - more buyers attract more sellers;

(3) **Commercial software** - more users create ecosystem of support/add-ons;

(4) **Social networks** - Facebook/LinkedIn value increases with users.

**Question 5**: What are the main challenges in sustaining competitive advantage through strategic information systems, and what must organizations do to address these challenges?

**Answer**: Challenges include:

(1) **Competitors can retaliate and copy** systems;

(2) **Markets and technology change rapidly** - Internet makes advantages disappear quickly;

(3) **Strategic systems become survival tools** required by all competitors;

(4) **High implementation costs** and organizational resistance.

To address these:

(1) **Align IT with business objectives** - only 25% achieve this alignment;

(2) **Take active management role** in shaping IS use;

(3) **Measure impact** on revenues and profits;

(4) **Plan for strategic transitions** - extensive organizational change required;

(5) **Continuously innovate** rather than rely on single system.

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## Chapter 4: Ethical and Social Issues in Information Systems

**Core Concept**: Information technology creates ethical dilemmas across five moral dimensions; organizations must follow ethical principles and protect privacy, intellectual property, and quality of life.

**Key Points to Remember**:

1. **Five moral dimensions**: Information rights/obligations, Property rights, Accountability/control, System quality, Quality of life
2. **Key concepts**: Responsibility (accept costs), Accountability (determine who acted), Liability (recover damages), Due process (known laws, appeals)
3. **Six ethical principles**: Golden Rule, Kant's Categorical Imperative, Descartes' Rule of Change, Utilitarian Principle, Risk Aversion, "No Free Lunch"
4. **FIP principles**: Notice/Awareness, Choice/Consent, Access/Participation, Security, Enforcement
5. **Three IP protections**: Trade secrets (monopoly on ideas), Copyright (70+ years), Patents (20 years exclusivity)
6. **Quality of life issues**: Digital divide, RSI/CVS/Technostress, Computer crime, Work/life boundaries, Dependence/vulnerability

### Practice Questions - Chapter 4

**Question 1**: Describe the five moral dimensions of the information age and provide an example of an ethical issue for each dimension.

**Answer**:

(1) **Information Rights and Obligations** - What information rights do individuals possess? Example: Should companies track your location without consent?

(2) **Property Rights and Obligations** - How will intellectual property be protected? Example: Software piracy costing $63 billion globally.

(3) **Accountability and Control** - Who can be held accountable for harm? Example: BlackBerry outage affecting millions - who is liable?

(4) **System Quality** - What standards of data/system quality should we demand? Example: Zero defects impossible in complex software.

(5) **Quality of Life** - What values should be preserved? Example: Computer crime, digital divide, health risks like RSI.

**Question 2**: Explain the Fair Information Practices (FIP) principles and compare the opt-in versus opt-out models for privacy protection.

**Answer**: **FIP principles** are:

(1) **Notice/Awareness** - disclose information practices before collecting data;

(2) **Choice/Consent** - consumers choose how information is used;

(3) **Access/Participation** - consumers review and contest accuracy;

(4) **Security** - ensure information is accurate and secure;

(5) **Enforcement** - mechanism to enforce principles.

**Opt-out model** (U.S.) permits collection until consumer requests data not be collected - default is collection. **Opt-in model** (Europe) prohibits collection unless consumer specifically approves - default is no collection. Privacy advocates prefer opt-in as it better protects individuals, but businesses prefer opt-out as it allows broader data collection.

**Question 3**: Compare and contrast the three main ways to protect intellectual property: trade secrets, copyrights, and patents.

**Answer**:

(1) **Trade Secrets** - any intellectual work product used for business can be classified as trade secret if not based on public information; grants monopoly on ideas but tenuous protection when widely distributed.

(2) **Copyright** - statutory grant protecting creators for life plus 70 years (or 95 years for corporate works); protects against copying entire programs or parts but NOT underlying ideas; 1980 Computer Software Copyright Act covers software.

(3) **Patents** - grant exclusive 20-year monopoly on ideas behind invention; requires originality, novelty, invention; strongest protection but difficult to pass nonobviousness criteria and takes years to receive.

**Question 4**: What are the main challenges to privacy posed by the Internet and modern information systems? Describe at least four specific technologies or practices that threaten privacy.

**Answer**: Challenges include:

(1) **Cookies** - small text files tracking website visits and enabling customization, but monitor without knowledge;

(2) **Web beacons** (web bugs) - tiny programs tracking online clickstream, invisibly embedded in emails/pages, report to third parties;

(3) **Spyware** - secretly installs itself, reports movements, sends banner ads;

(4) **NORA (Nonobvious Relationship Awareness)** - scans data to discover hidden connections;

(5) **Location tracking** - mobile phones tracked without consent;

(6) **Profiling** - combining data from multiple sources to create detailed electronic dossiers.

**Question 5**: Identify and explain at least four quality of life issues raised by information systems, including their impacts on individuals and society.

**Answer**:

(1) **Digital Divide** - gap between those with and without computer/Internet access; poor and minorities less likely to have access, creating inequality in opportunities.

(2) **Health Risks** - RSI (repetitive stress injury) from keyboards causing carpal tunnel syndrome; CVS (computer vision syndrome) affecting 90% spending 3+ hours at computers; Technostress causing aggression, fatigue, high turnover.

(3) **Boundary Erosion** - ubiquitous computing blurs family/work/leisure boundaries; work extends into personal time; weakens traditional support mechanisms.

(4) **Computer Crime and Abuse** - 315,000 Internet crime complaints totaling $500M in 2011; spam costs businesses $50B+ annually; malware infections and fraud.

(5) **Dependence and Vulnerability** - critical systems failure can cripple organizations with no backup structures.