

Chapter 2

Global E-Business and Collaboration

Video Cases

- Case 1: Walmart's Retail Link Supply Chain [Walmart Supply Chain - YouTube](#)
- Case 2: Cemex: Becoming a Social Business [CEMEX is a best practice Social Business - YouTube](#)
- Instructional Video: US Foodservice Grows Market with Oracle CRM on Demand

* This chapter is designed to provide you a **quick overview of the kinds of systems found in a typical corporation**. Some of the concepts were introduced in Chapter 1. Recall and describe the different levels of management in a business, intranets, and business processes using information from the previous chapter. Some are new—such as enterprise wide systems.

Learning Objectives

- 2.1 Understand how business processes relate to information systems.
- 2.2 Explain how information systems serve different management groups.
- 2.3 Explain how **enterprise applications** improve firm performance.
- 2.4 Understand the importance of **collaboration** and **social business systems**.
- 2.5 Describe collaboration tools.
- 2.6 Describe social business tools.
- 2.7 Understand how to evaluate collaboration and social business tools.
- 2.8 Describe **knowledge management systems**.
- 2.9 Describe the role of the information systems function.
- 2.10 Understand how the information in this chapter can help your career.

Enterprise Social Networking Transforms Sharp Corporation into a More Innovative Connected Organization (1 of 2)

17th ed.
Case

* Opening Case: kind of knowledge management case

- Problem
 - Hierarchical top-down processes
 - New competitors
 - Lack of collaboration and idea sharing
- Solutions
 - Develop knowledge-sharing strategy and goals
 - Redesign knowledge-sharing and collaboration processes
 - Change organizational culture
 - Implement Microsoft Yammer collaboration software

Enterprise Social Networking Transforms Sharp Corporation into a More Innovative Connected Organization (2 of 2)

- Use of new information systems to improve performance and remain competitive
 - Demonstrates importance of teamwork and collaboration for innovation and profit growth
 - Illustrates importance of organizational culture and business processes for knowledge dissemination
- Two Questions (p.73)

Business Processes and Information Systems

Business Processes (1 of 2)

* Business processes are at the heart of every business. This could include anything from ordering a hamburger at McDonalds, to applying for a driver's license at the DMV (Department of Motor Vehicles). Studying a firm's business processes is an excellent way to learn a great deal about how that business actually works.

- Business processes
 - Flows of material, information, knowledge
 - Logically related set of tasks that define how specific business tasks are performed
 - May be tied to functional area or be cross-functional
- Businesses: Can be seen as collection of business processes
- Business processes may be assets or liabilities

* How could a business process be a **liability**? Think of some dysfunctional business processes or some really poor business process.

(if they are based on outdated ways of working that impede organizational responsiveness and efficiency)

Business Processes (2 of 2)

- Examples of functional business processes
 - Manufacturing and production
 - Assembling the product; checking the product for quality
 - Sales and marketing
 - Identifying customers; selling the product
 - Finance and accounting
 - Creating financial statements; paying creditors
 - Human resources
 - Hiring employees; evaluating job performance

Figure 2.1 The Order Fulfillment Process

* Each rectangle represents one part of the larger business process of order fulfillment. Notice that this business process spans several different functional areas of the business from sales (orders), to accounting, and to manufacturing. Important business processes typically span several different functional areas or divisions in a business.

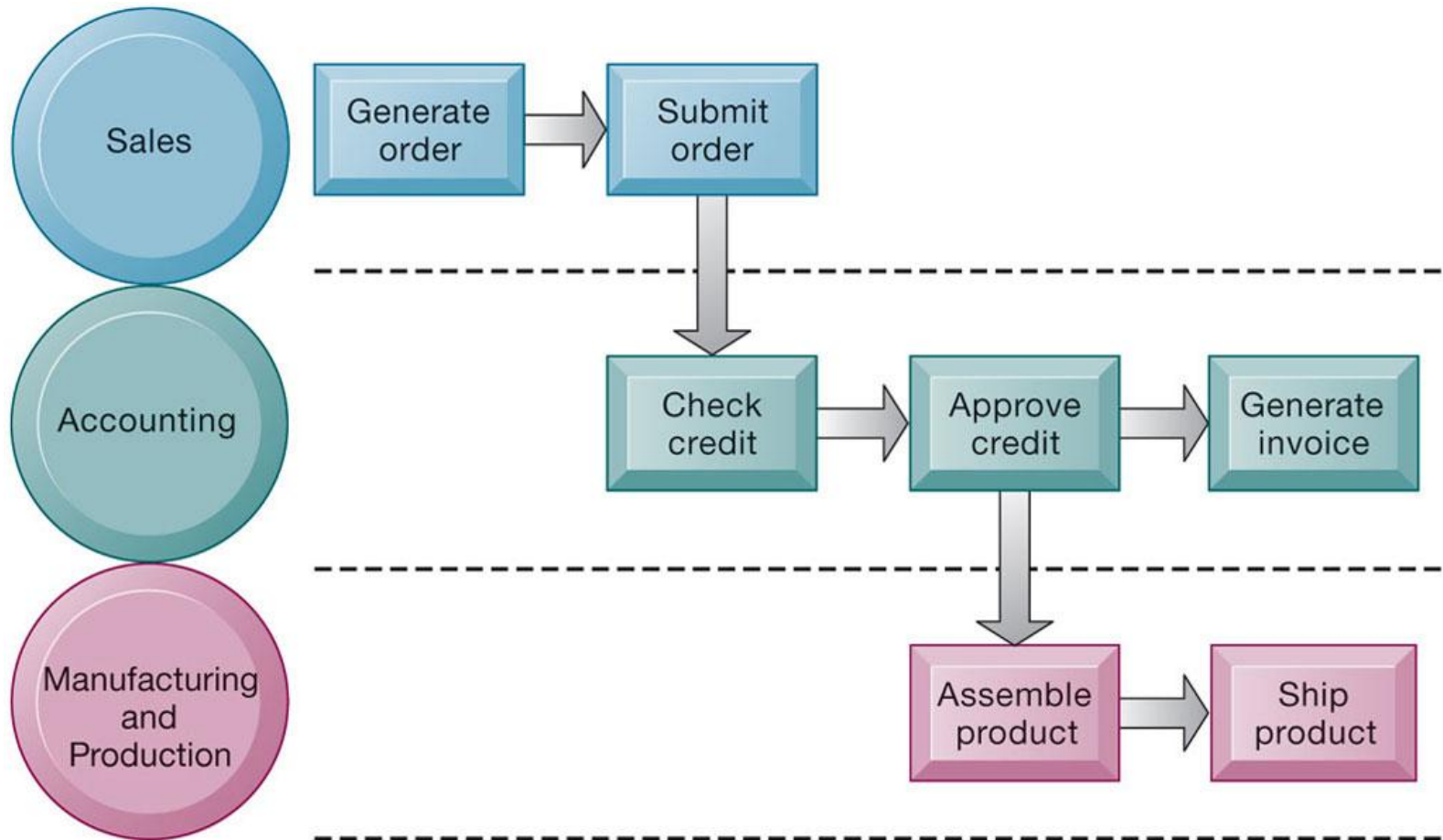


FIGURE 2-1 Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.

How Information Technology Improves Business Processes

- Increasing efficiency of existing processes
 - Automating steps that were manual
- Enabling entirely new processes
 - Changing flow of information
 - Replacing sequential steps with parallel steps
 - Eliminating delays in decision making
 - Supporting new business models

* Examples of entirely new business processes made possible by information technology are downloading a song from iTunes or buying a book or e-book from Amazon. Amazon book reader Kindle which is continuously connected to the Internet and allows customers to download books and pay for them using Amazon's one-click purchase method.

AI Changes the Design of Business Processes

ASSIST

Human performs the process

AI retrieves information, summarizes cases, drafts content, or recommends a decision.

AUTOMATE

System completes routine steps

Rules and models execute repeatable work while people handle exceptions.

AGENT

AI performs a defined workflow

Agents call tools and systems under permissions, monitoring, review, and escalation controls.

Systems for Different Management Groups or levels of management (1 of 2)

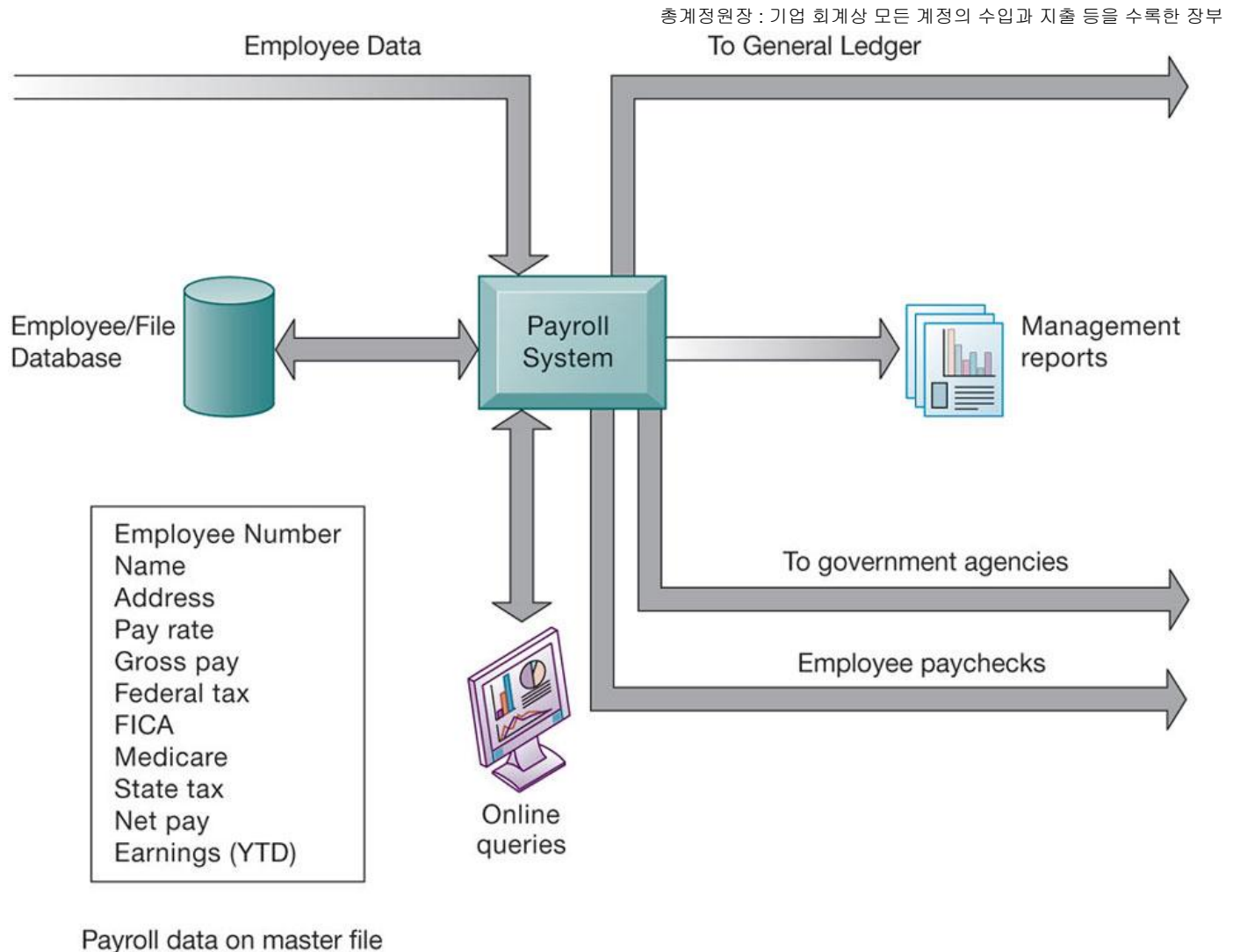
- Transaction processing systems (TPS)
 - Serve operational managers and staff
 - Perform and record daily routine transactions necessary to conduct business
 - Examples: sales order entry, payroll, shipping
 - Allow managers to monitor status of operations and relations with external environment
 - Serve predefined, structured goals and decision making

* aka. Legacy systems

* The purpose of these systems is to answer routine questions about the flow of transactions through the organization. These systems are a necessity for any business.

Figure 2.2 A Payroll TPS

A TPS for payroll processing captures employee payment transaction data (such as a time card). System outputs include online and hard-copy reports for management and employee paychecks.



* Note that the outputs of the payroll system are useful not only within the company to managers, but also to regulatory agencies and other entities relying on the accuracy of the reported data.

Systems for Different Management Groups or levels of management (2 of 2)

- Systems for **business intelligence (BI)**
 - Data and software tools for organizing and analyzing data
It is a type of S/W used in analyzing data
 - Used to help managers and users make improved decisions

- Management information systems (MIS)

- Decision support systems (DSS)

- Executive support systems (ESS)

* This slide emphasizes the relationship between the class of software called “business intelligence” and the decision support systems used by middle and senior management, DSS and ESS.

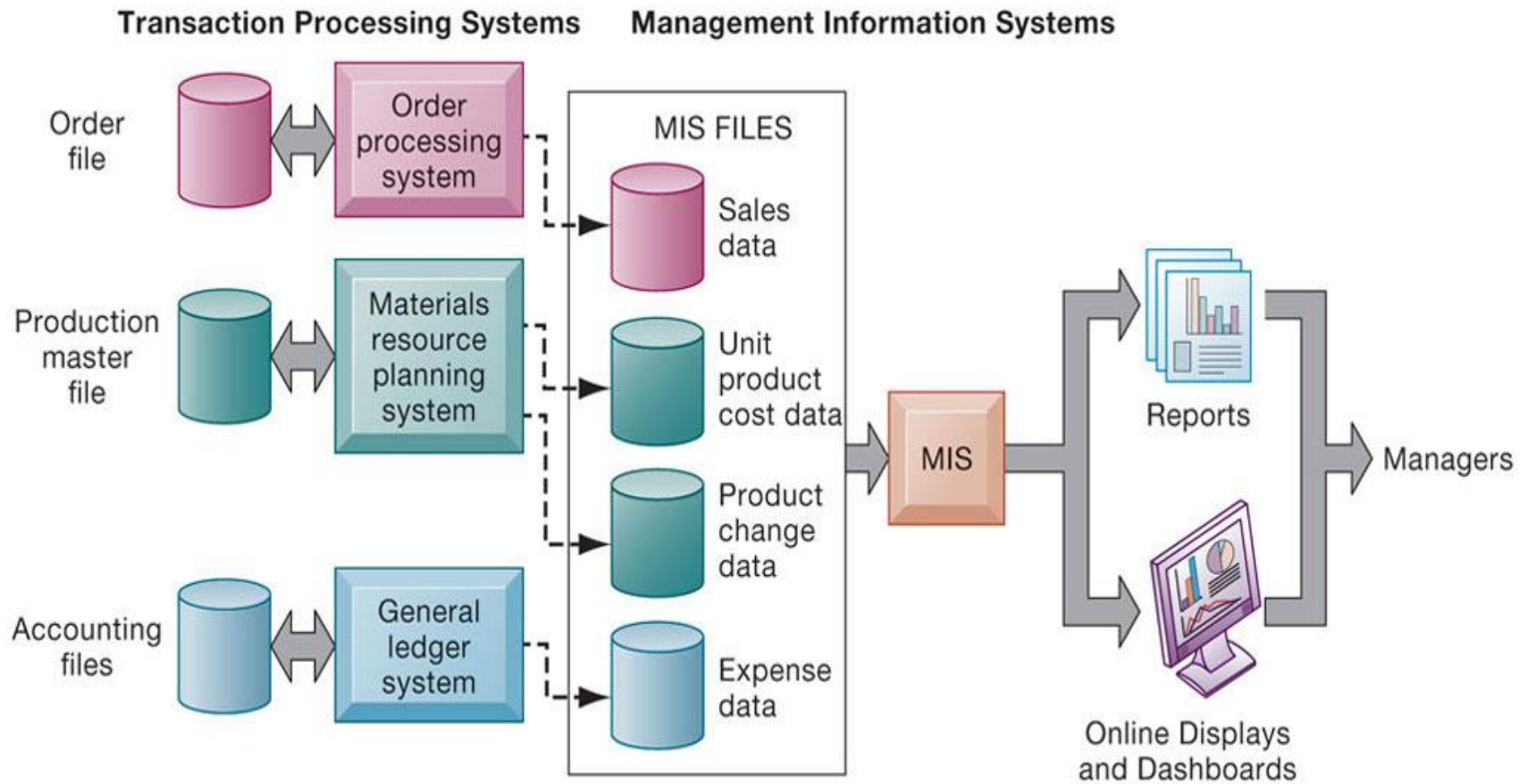
Management Information Systems (MIS)

- Serve middle management
 - Provide reports on firm's current performance, based on data from TPS
 - Provide answers to routine questions with predefined procedure for answering them
 - Typically have little analytic capability (are not flexible)
- * Most MISs use simple routine.

* Management information systems is a specific category of information systems for middle management. It has the same name, but a very different meaning from the term introduced in Chapter 1 (the study of information systems in business and management). In other words, the study of management information systems involves looking at all the systems used in business. An MIS system is a specific type of an IS. It's easy to get the two confused.

Figure 2.3 How Management Information Systems Obtain Their Data from the Organization's TPS

* The relationship between TPS and MIS here is important. MIS receive data from an organization's TPS systems and create outputs that management can use to make strategic decisions.



In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.

Figure 2.4 Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2020

Product Code	Product Description	Sales Region	Actual Sales	Planned	Actual Versus Planned
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
	Total		16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
	Total		18,559,253	17,700,000	1.05

This report, showing summarized annual sales data, was produced by the MIS in Figure 2-3.

This graphic represents the “reports” portion of the Figure 2-3. Perhaps referencing that slide again to drive home that point. Understand the decimals in the “ACTUAL versus PLANNED” category, where anything above 1.00 represents more sales than planned and anything less represents a disappointing result of fewer sales than planned.

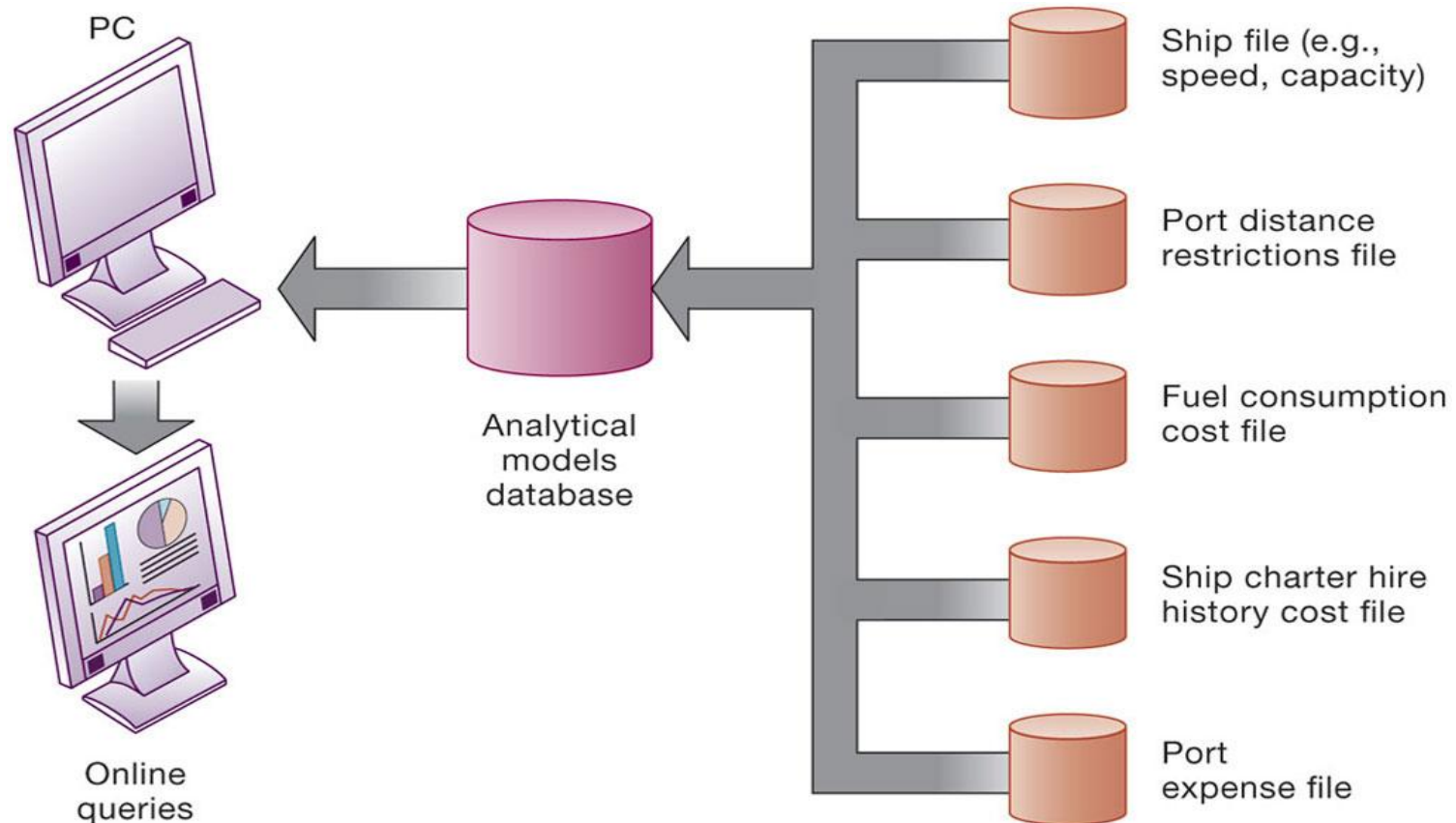
Decision Support Systems (DSS)

- **Decision support systems (DSS)**
 - Serve middle management
 - Support non-routine decision making
 - Example: What is the impact on production schedule if December sales doubled?
 - May use external information as well (internal) TPS / MIS data
 - Analytical
 - **Model driven DSS**
 - Voyage-estimating systems
 - **Data driven DSS** (focusing on extracting useful information from large quantities of data)
 - Intrawest's marketing analysis systems

* Understand what is meant by non-routine decision making, as opposed to routine decision making, and why DSS are specifically designed to assist managers in making that type of decision.

Figure 2.5 Voyage-Estimating Decision-Support System

DSS can rely on either analytical models or large databases to provide valuable information. Which of these two types the below figure best resembles (analytical models)? What types of decisions does this system help its users make? Examples include what vessels to send to particular destinations to maximize profit, the optimal loading pattern for cargo, and the optimal rate at which vessels should travel to maximize efficiency while still meeting their schedules, and so forth.



This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

Executive Support Systems (ESS) (1/2)

- **Support senior management**
- **Address non-routine decisions**
 - Requiring judgment, evaluation, and insight
- **Incorporate data about external events (e.g., new tax laws or competitors) as well as summarized information from internal MIS and DSS**
- **Example: Digital dashboard with real-time view of firm's KPI (key performance index) and financial performance (such as working capital, cash flow, and inventory)**

Because there is no agreed-on procedure for arriving at a solution. A ESS presents graphs and data from many sources through an interface. + using a portal, which uses a Web interface to present integrated personalized business content.

-> It is a common feature of modern-day ESS

Executive Support Systems (ESS) (2/2)

- Think the connection between ESS, MIS, and DSS!
- ESS rely on accurate inputs from a firm's MIS and DSS to provide useful information to executives.
 - > These systems should not exist in isolation from one another.
 - > If they are isolated from one another, it is a kind of organizational dysfunction, probably inherited from the past.
- Note that the digital dashboard is a common feature of modern-day ESS.
- A critical feature of ESS is ease of use and simplicity of display.
 - > Executives using an ESS want quick access to the most critical data affecting their firm.

Enterprise Applications

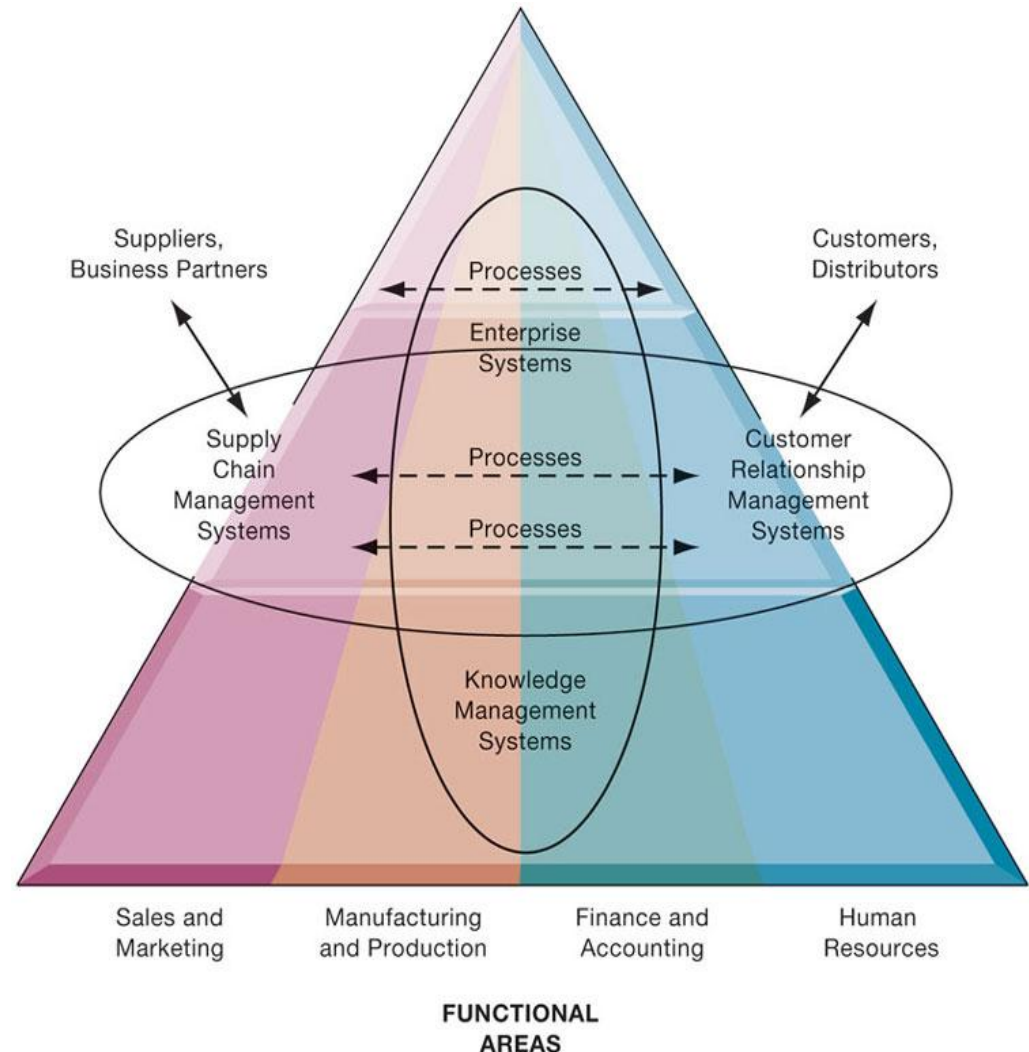
* Enterprise applications are used to manage the information used in the systems discussed previously. In other words, enterprise applications are used to ensure that TPS, MIS, DSS, and ESS work together smoothly.

- Systems for linking the enterprise
- Span functional areas
- Execute business processes across the firm
- Include all levels of management
- Four major applications:
 - Enterprise systems (ES) (ERP; Enterprise resource planning)
 - Supply chain management systems (SCM)
 - Customer relationship management systems (CRM)
 - Knowledge management systems (KMS)

Figure 2.6 Enterprise Application Architecture

✓ Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.

* The purpose of this graphic is simply to illustrate that enterprise systems are very large and diverse databases that pull information from many parts of the firm and enable processes both across the firm, at different organizational levels, as well as with suppliers and customers. The triangle represents the organization, with different colors for the four main business functions. The ovals show that an enterprise application architecture incorporates systems used in sales and marketing, enabling these to communicate with each other and externally, with suppliers and customers. It also incorporates information supplied by knowledge management systems, manufacturing and finance systems, and other enterprise systems. **The purpose of incorporating data and information from all of these sources** is to enable and automate cross-functional business processes and supply accurate information to aid decision making.



Enterprise Systems:

- Speed communication of information throughout firm
- Enable greater flexibility in responding to customer requests, greater accuracy in order fulfillment
- Enable managers to assemble overall view of operations

- **Enterprise systems (ES)** -> refer to the larger database environment within which previous applications reside and operate. aka. **ERP** (enterprise resource planning) systems
 - **Collects data from different firm functions and stores data in single central data repository**
 - **Resolves problem of fragmented data**
 - **Enable:** Coordination of daily activities; Efficient response to customer orders (production, inventory); Help managers make decisions about daily operations and longer-term planning

* This slide emphasizes the singularity of enterprise systems (one system) that integrates information flows from a variety of sources and serves a wide variety of groups and purposes in the firm. **Remind the difference between enterprise applications and enterprise systems:** Enterprise applications are any applications that span the enterprise, and types of enterprise applications include CRM, SCM, KMS, and enterprise systems. Enterprise systems refers to the larger database environment within which these applications reside and operate. Note that enterprise systems are referred to in some first as enterprise resource planning systems (ERP).

Enterprise Systems Are Moving to Cloud Platforms

Market evidence

SAP reported €18.119 billion of Cloud ERP Suite revenue in 2025, compared with €8.209 billion in 2022.

Architecture

Cloud ERP combines standardized processes, shared data, APIs, analytics, and continuously updated services.

Management

Subscription cost, configuration, data migration, integration, skills, and vendor dependence require active governance.

AI

ERP vendors increasingly embed copilots and agents that use enterprise data to support decisions and execute tasks.

Supply Chain Management (SCM) Systems

- **Manage firm's relationships with suppliers**, purchasing firms, distributors, and logistics companies.
- **Manage shared information** about orders, production, inventory levels, and so on.
- **Goal** is to move correct amount of product from source to point of consumption as quickly as possible and at lowest cost
- One type of inter-organizational system: Automating flow of information across organizational boundaries
 - > This distinction is important because SCM systems must be designed with the business processes of potential partners and suppliers in mind.

Current Case: Walmart's AI-Enabled Supply Chain

Sense

Demand, inventory, transportation, and operational signals provide a shared view of current conditions.

Predict

Machine learning forecasts demand and identifies likely stock, fulfillment, and routing problems.

Act

Self-healing inventory can redirect products to locations that need them before imbalances become waste.

Learn

Reusable technology components and local operating feedback support faster deployment across countries.

Control

Managers still need data quality, access, exception handling, performance measures, and accountable decisions.

Customer Relationship Management (CRM) Systems

* CRM systems are extremely important for both marketing and customer service.

- Help manage relationship with customers.
- Provide information to coordinate all of the business processes that deal with customers in sales, marketing, and customer service
- Goals:
 - Optimize revenue
 - Improve customer satisfaction
 - Increase customer retention
 - Identify and retain most profitable customers
 - Increase sales

Knowledge Management Systems (KMS)

- Manage processes for capturing and applying knowledge and expertise
 - Example. How to create, produce, deliver products and services
- Collect relevant knowledge and make it available wherever needed in the enterprise to improve business processes and management decisions.
- Link firm to external sources of knowledge

* The idea that business firms are repositories of knowledge may be new. Think about examples of firm knowledge, for instance, the knowledge required to run a fast food restaurant, or the knowledge required to operate a Web site such as Amazon. Knowledge management systems are useful for helping a firm's employees understand how to perform certain business processes or how to solve problems. What might the consequences be for a firm with poor knowledge management systems?

Intranets and Extranets

- Technology platforms that increase integration and expedite the flow of information
- Intranets:
 - Internal networks (Web sites) based on Internet standards accessible only by employees
 - Often are private access area in company's Web site
- Extranets:
 - Company Web sites accessible only to authorized vendors and suppliers
 - Often used to coordinate supply chain
 - Facilitate collaboration

These terms (intranet and extranet) are fading from use, but you will occasionally find firms still using these terms.

E-Business, E-Commerce, and E-Government

- E-business
 - Use of digital technology and Internet to drive major business processes
- E-commerce
 - Subset of e-business
 - Buying and selling goods and services through Internet
- E-government
 - Using Internet technology to deliver information and services to citizens, employees, and businesses

E-business refers to the use of the Internet and networking to enable all parts of the business, whereas E-commerce refers to just that part of business that involves selling goods and services over the Internet. Internet technology has also brought similar changes in the public sector—the use of Internet and networking technologies in government is referred to as e-government.

What is Collaboration?

- Collaboration
 - Short lived or long term
 - Informal or formal (teams)
- Growing importance of collaboration
 - Changing nature of work
 - Growth of professional work—“interaction jobs”
 - Changing organization of the firm
 - Changing scope of the firm
 - Emphasis on innovation
 - Changing culture of work

What is Social Business?

- Social business
 - Use of social networking platforms (internal and external) to engage employees, customers, and suppliers
- Aims to deepen interactions and expedite information sharing
- “Conversations” to strengthen bonds with customers
- Requires information transparency: Driving the exchange of information without intervention from executives or others
- Seen as way to drive operational efficiency, spur innovation, accelerate decision making

Collaboration Is Expanding to Human-Agent Teams

Current evidence

Microsoft's 2026 study analyzed 20,000 AI-using workers in 10 countries and Microsoft 365 telemetry.

Shared learning

Frontier Professionals more often share AI practices and mistakes with their teams: 61% compared with 36%.

Quality

They discuss quality standards for AI-assisted work more often: 54% compared with 29%.

Repeatability

Effective teams document agent workflows, human handoffs, review criteria, and authority to change the process.

Management

Collaboration now includes coordinating people, data, applications, and AI agents.

Business Benefits of Collaboration and Teamwork

- Investment in collaboration technology can return large rewards, especially in sales and marketing, research and development
- Productivity: Sharing knowledge and resolving problems
- Quality: Faster resolution of quality issues
- Innovation: More ideas for products and services
- Customer service: Complaints handled more rapidly
- Financial performance: Generated by improvements in factors above

* Research regarding the business benefits of collaboration is anecdotal; however, business and academic communities generally regard collaboration as an essential driving factor in business success: Firms that collaborate more make more money.

Figure 2.7 Requirements for Collaboration

Successful collaboration requires an appropriate organizational structure and culture, along with appropriate collaboration technology.

Collaboration Capability

- Open culture
- Decentralized structure
- Breadth of collaboration

Collaboration Technology

- Use of collaboration and social technology for implementation and operations
- Use of collaborative and social technology for strategic planning

Collaboration
Quality

Firm Performance

* This slide graphically describes how collaboration is believed to impact business performance. Two primary ingredients are needed: collaboration capability (including how much collaboration is possible) and collaboration technology or means. The quality of these two factors directly affects firm performance—the higher quality of collaboration means better firm performance. How collaboration can be high or low quality? An example of low-quality collaboration could be a team put together to solve a business problem but is unable to effectively work together because of internal politics. Do you have any experience with poor collaboration?

Digital Infrastructure Has an Environmental Footprint

Business issue

AI and cloud services increase demand for data-center computing, electricity, cooling, water, and specialized hardware.

Google 2024

Google reported a 12% reduction in data-center energy emissions despite increased energy demand.

Energy sourcing

Google signed contracts for more than 8 GW of clean energy generation in 2024.

Efficiency

Its Ironwood TPU is nearly 30 times more power efficient than its first Cloud TPU from 2018.

MIS lesson

Managers should evaluate service value together with energy, carbon, water, hardware, and supply-chain impacts.

Building a Collaborative Culture and Business Processes

- “Command and control” organizations (in the past; large firms)
 - No value placed on teamwork or lower-level participation in decisions
- Collaborative business culture
 - Senior managers rely on teams of employees
 - Policies, products, designs, processes, and systems rely on teams
 - The managers purpose is to build teams

* Collaboration is not something that spontaneously arises—it must be enabled and nurtured. Collaborative culture is an essential factor—simply having collaborative technology will not result in collaboration if it isn’t seen as part of the business and rewarded. Are there any businesses or business functions that benefit by less collaboration? Are there any disadvantages to collaboration?

Tools and Technologies for Collaboration and Social Business

- E-mail and instant messaging (IM)
- Wikis
- Virtual worlds (ex. Second Life)
- Collaboration and social business platforms
 - Virtual meeting systems (telepresence)
 - Cloud collaboration services (Google Drive, Google Docs, etc.)

Microsoft Teams and Microsoft SharePoint, Slack, Zoom, Google Workspace, and Notion

Generative AI assistants embedded in collaboration tools

- **AI agents that perform defined tasks under human direction**
- **Spotlight on Technology Case Study: AI Accelerates Drug Discovery and Development**

Systems for Collaboration and Social Business

- **Enterprise social networking software capabilities**
 - Profiles
 - Content sharing
 - Feeds and notifications
 - Groups and team workspaces
 - Tagging and social bookmarking
 - Permissions and privacy

Modern collaboration platforms combine profiles, channels, shared content, search, workflow automation, meetings, and AI assistance. Selection should consider identity, information governance, data location, integration, accessibility, and the quality of search and AI-generated answers.

Checklist for Managers: Evaluating and Selecting Collaboration and Social Software Tools

- Two dimensions of collaboration technologies:
Time/space matrix
 - Space (or location)—remote or co-located
 - Time—synchronous or asynchronous
- Six steps in evaluating software tools
 - Identify your firm's collaboration challenges
 - Identify what kinds of solutions are available
 - Analyze available products' cost and benefits
 - Evaluate security risks
 - Consult users for implementation and training issues
 - Evaluate product vendors

Current Criteria for Collaboration Platforms

Work fit

Match the platform to synchronous, asynchronous, remote, co-located, and cross-company work.

Integration

Assess identity, calendars, documents, enterprise applications, workflow tools, and APIs.

Governance

Define ownership, permissions, retention, e-discovery, data location, and external sharing.

AI quality

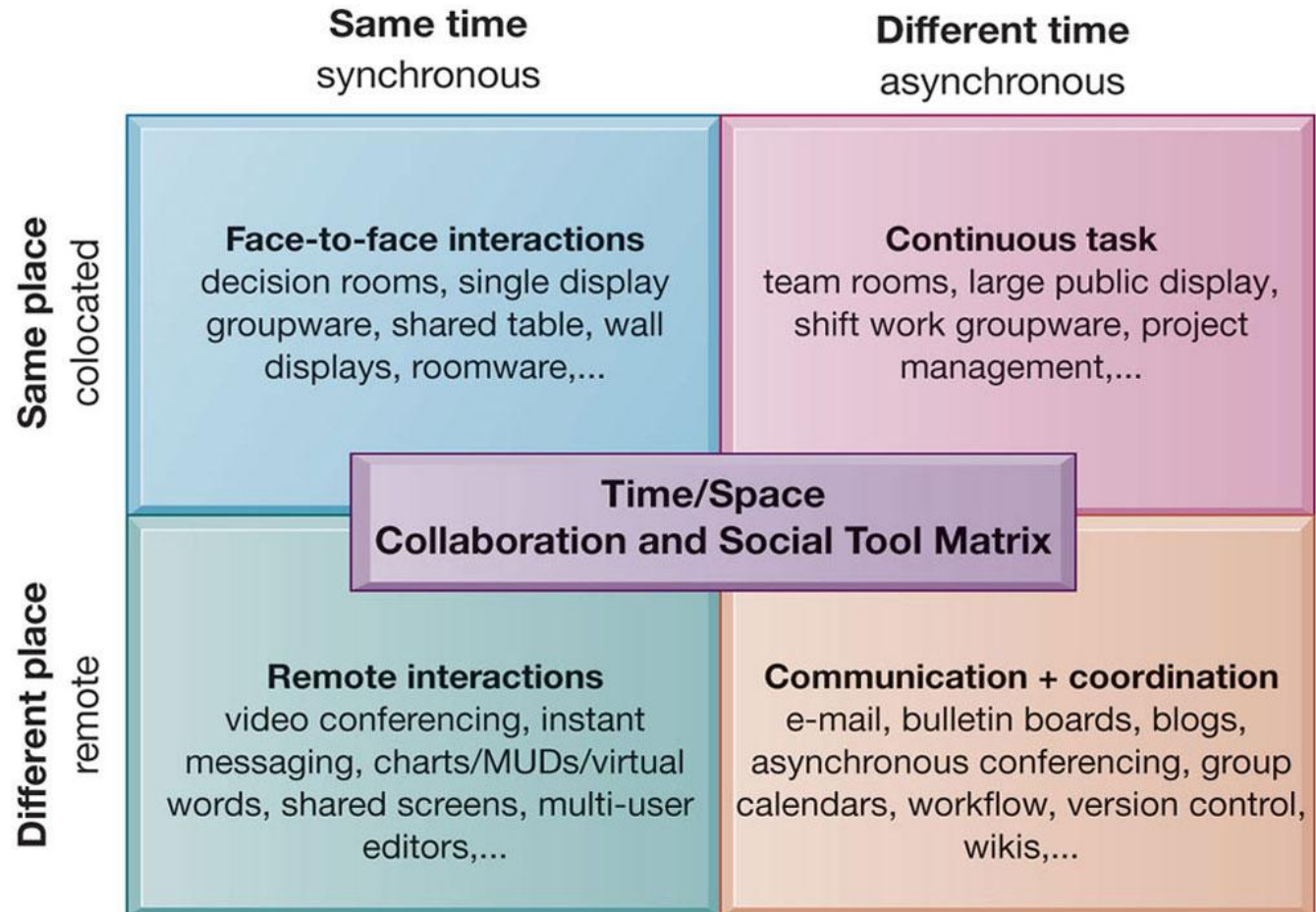
Evaluate grounding, citations, access-aware retrieval, monitoring, and human review of generated content.

Adoption

Measure active use, search success, cycle time, quality, employee experience, and business outcomes.

Figure 2.8 The Time/Space Collaboration and Social Tool Matrix

* You can use this matrix to identify solutions to the time/location issues that face a firm, and to choose specific collaboration technologies.



Collaboration technologies can be classified in terms of whether they support interactions at the same or different time or place or whether these interactions are remote or co-located.

What is the Role of Knowledge Management Systems (KMSs) in Business?

- Knowledge management systems are among fastest growing areas of software investment
- Information economy
 - 37 percent U.S. labor force: knowledge and information workers
 - 55 percent of U.S. GDP from the knowledge and information sectors
- Substantial part of a firm's stock market value is related to intangible assets: knowledge, brands, reputations, and unique business processes
- Well-executed knowledge-based projects can produce extraordinary ROI (return on investment)

- More than half the value of all stocks listed on the New York Stock Exchange is attributed to intangible assets such as knowledge and know-how.

Important dimensions of knowledge (1 of 5)

- Data, knowledge, and wisdom
- Tacit knowledge and Explicit knowledge
- Important dimensions of knowledge
 - Knowledge is a firm asset.
 - Knowledge has different forms.
 - Knowledge has a location.
 - Knowledge is situational.

This slide and the next begin to answer the question “What is knowledge” as it pertains to the organization. Why is it important to define and describe knowledge? Provide examples of knowledge, given an example industry, that illustrate that it is a “firm asset”. (E.g., For an electrical appliances firm, knowing how to make the most efficient and cheapest air conditioner). Explain each element of the dimensions, providing examples. For example, what is meant by “knowledge is intangible”, “Give me an example of explicit knowledge,” and so on. Further explain or give examples for each characteristic. For example, “What is an example of knowledge with a social basis?” “What is an example of knowledge that is sticky; what is sticky about it?”

Important dimensions of knowledge (2/5)

- **Knowledge is a firm asset.**
 - Intangible
 - Creation of knowledge from data, information, requires organizational resources
 - As it is shared, experiences network effects
- **Knowledge has different forms.**
 - May be *explicit* (documented) or *tacit* (residing in minds)
 - Know-how, craft, skill
 - How to follow procedure
 - Knowing why things happen (causality)

Important dimensions of knowledge (3/5)

— Knowledge has a location.

- Cognitive event
 - Both social and individual
 - “Sticky” (hard to move), situated (enmeshed in firm’s culture), contextual (works only in certain situations)
- Situated: (특정한 장소에) 위치해(자리잡고) 있는, (특정한 상황에) 놓여 있는

— Knowledge is situational.

- Conditional: Knowing when to apply procedure
- Contextual: Knowing circumstances to use certain tool

“What is an example of knowledge with a social basis?” “What is an example of knowledge that is sticky; what is sticky about it?”

Important Dimensions of Knowledge (4 of 5)

- To transform information into knowledge, firm must expend additional resources to discover patterns, rules, and contexts where knowledge works
- Wisdom: Collective and individual experience of applying knowledge to solve problems
 - Involves where, when, and how to apply knowledge
- Knowledge-based core competencies
 - Key organizational assets
- Knowing how to do things effectively and efficiently in ways others cannot duplicate is a prime source of profit and competitive advantage
 - Example: Having a unique build-to-order production system

Important Dimensions of Knowledge (5 of 5)

- **Organizational learning**

- Process in which organizations learn

- Gain experience through collection of data, measurement, trial and error, and feedback
- Adjust behavior to reflect experience
 - Create new business processes
 - Change patterns of management decision making

- This slide emphasizes the value of knowledge to the organization. Describe knowledge the company has that gives it competitive advantage, such as Apple, eBay, Burger King, and so on. It might also be a good time to point out what is the value of a “skilled labor force.” That value results from the knowledge employees have to do their jobs efficiently and effectively. This knowledge in the heads of employees is hard to replace.

- This slide also introduces the concept of **organizational learning**, which describes the process of gathering, creating, and applying knowledge. You (Most) will be surprised that organizations learn, and others will provide many examples of organizations which refused to learn anything. In organizational learning, knowledge becomes the driver of new behavior—decision making, new products and services, new business processes. This might be seen also as organizations sensing and responding to their environment. Think how that business might demonstrate organizational learning.

The Knowledge Management Value Chain

(1 of 3)

- **Knowledge management**

- Set of business processes developed in an organization to create, store, transfer, and apply knowledge

- **Knowledge management value chain**

- Each stage adds value to raw data and information as they are transformed into usable knowledge
 - Knowledge acquisition
 - Knowledge storage
 - Knowledge dissemination
 - Knowledge application

- This slide defines the term knowledge management and describes the process from acquiring knowledge to applying it as a value chain and is followed by slides detailing each stage.

- Each stage of the chain adds more value to the raw data and information.

- Differentiate between the stages, and how each stage could incorporate more value?

-> For example, how does knowledge once it is stored incorporate more value than the previous stage, knowledge that is being acquired?

Generative AI in the Knowledge Management Value Chain

ACQUIRE

Capture and classify

Transcription and extraction can turn meetings, documents, and service interactions into searchable knowledge.

STORE

Govern the knowledge base

Metadata, ownership, permissions, retention, quality, and provenance determine whether content can be trusted.

DISSEMINATE

Retrieve with context

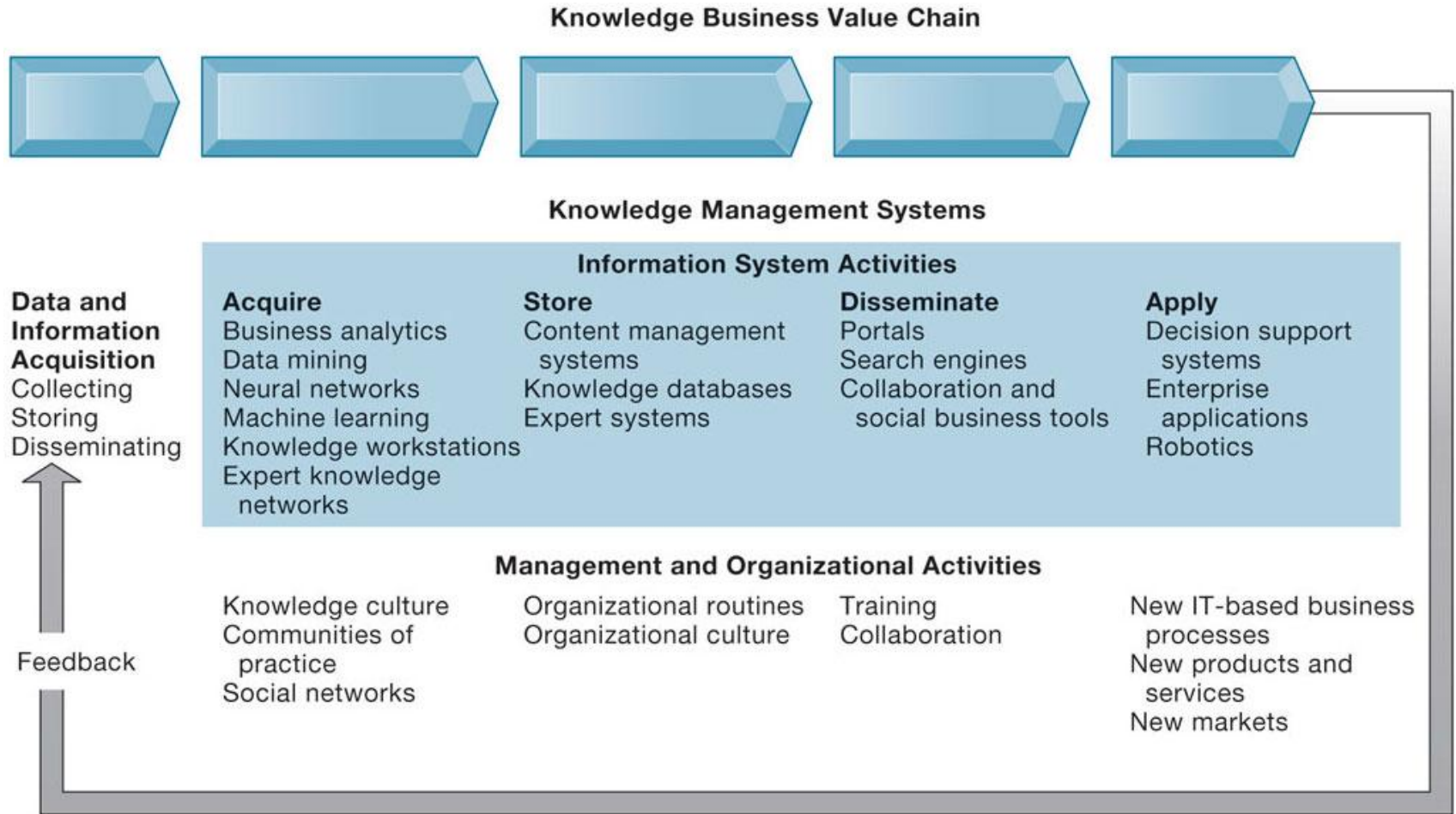
Enterprise search and retrieval-augmented generation connect a question with approved source material.

APPLY

Support a decision or action

People review important outputs. Agents need defined authority, monitoring, and escalation.

Figure 11.1 The Knowledge Management Value Chain



Knowledge management today involves both information systems activities and a host of enabling management and organizational activities.

80:20

This graphic details the stages of the knowledge management value chain, separating the information system activities from the management/organizational activities involved at each stage. It also describes two other very important requirements for the value chain, the initial data and information acquisition that forms the basis for creating knowledge, and feedback from the knowledge application stage that can result in new opportunities for data and knowledge creation.

An illustration explains the role of knowledge management systems in knowledge business value chains. A knowledge business value chain is connected to data and information acquisition through feedback.

The Knowledge Management Value Chain

(2 of 3)

- **Knowledge acquisition**

- Documenting tacit and explicit knowledge
 - Storing documents, reports, presentations, best practices
 - Unstructured documents (e.g., e-mails)
 - Developing online expert networks
- Creating knowledge
- Tracking data from TPS and external sources

- **Knowledge storage**

- Databases
- Document management systems
- Role of management:
 - Support development of planned knowledge storage systems. / Encourage development of corporate-wide schemas for indexing documents. / **Reward** employees for taking time to update and store documents properly.

Schema: abstract structure of knowledge

The Knowledge Management Value Chain

(3 of 3)

- **Knowledge dissemination**

- Portals, wikis
- E-mail, instant messaging
- Search engines, collaboration tools
- A deluge of information?
 - Training programs, informal networks, and shared management experience help managers focus attention on important information.

- **Knowledge application**

- To provide return on investment (ROI), organizational knowledge must become systematic part of management decision making and become situated in decision-support systems.
- Management supports this process by creating
 - New business practices
 - New products and services
 - New markets

Building Organizational and Management Capital: Collaboration, Communities of Practice, and Office Environments

- Developing new organizational roles and responsibilities for the acquisition of knowledge
- Chief knowledge officer (CKO) executives
- Dedicated staff / knowledge managers
- Communities of practice (COPs)
 - Informal social networks of professionals and employees
 - Activities include education, online newsletters, sharing knowledge
 - Reduce learning curves of new employees

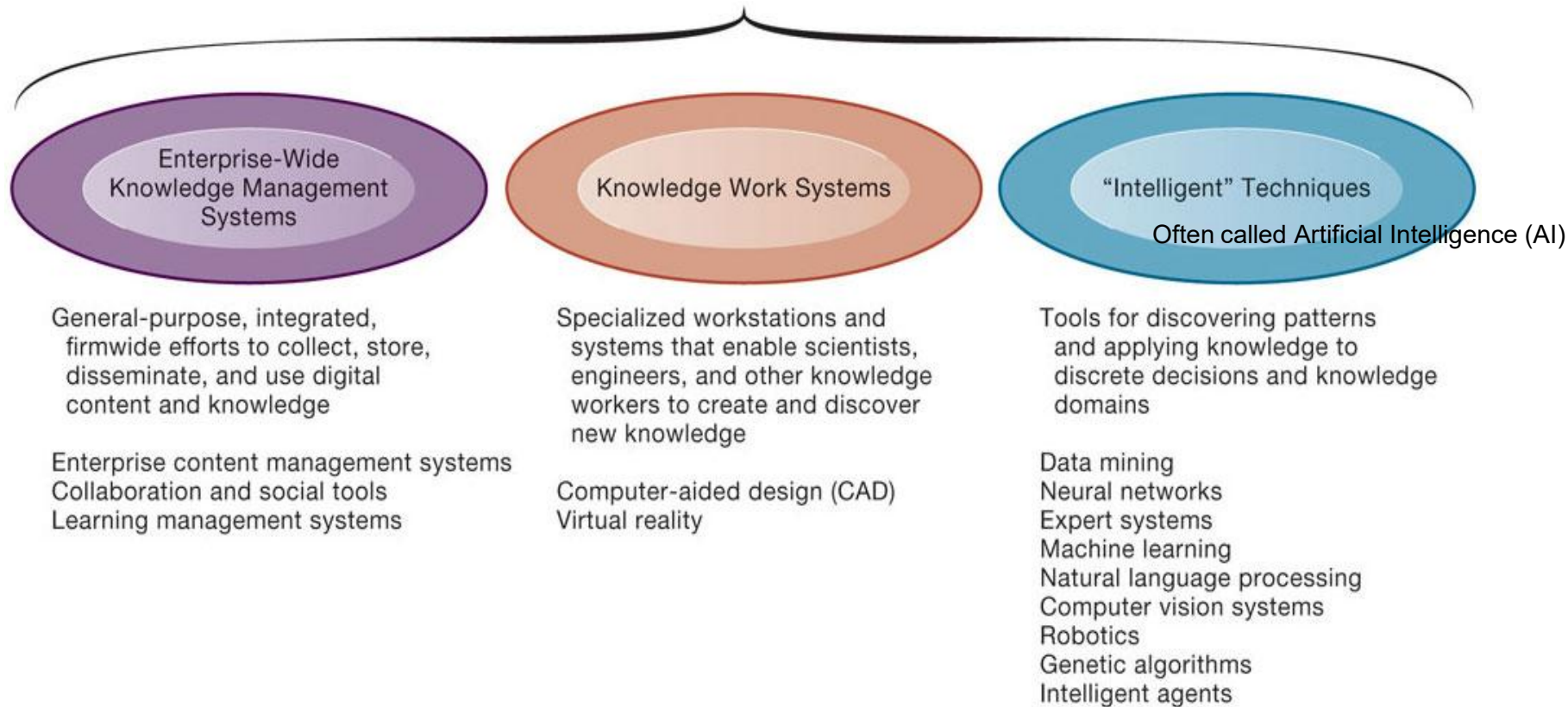
* p. 455

Three Major Types of Knowledge Management Systems

- Enterprise-wide knowledge management systems
 - General-purpose firm-wide efforts to collect, store, distribute, and apply digital content and knowledge
- Knowledge work systems (KWS)
 - Specialized systems built for engineers, scientists, other knowledge workers charged with discovering and creating new knowledge
- Intelligent techniques -> Often called Artificial Intelligence (AI)
 - Diverse group of techniques such as data mining used for various goals: discovering knowledge, distilling knowledge, discovering optimal solutions

- These categories are different in terms of the constituencies they serve, the purpose for which they are used, and what they emphasize.

Figure 11.2 Major Types of Knowledge Management Systems



There are three major categories of knowledge management systems, and each can be broken down further into more specialized types of knowledge management systems.

What Types of Systems Are Used for Enterprise-Wide Knowledge Management?

- Three major types of knowledge in an enterprise
 - Structured documents
 - Reports, presentations
 - Formal rules
 - Semistructured documents
 - E-mails, videos
 - Unstructured, tacit knowledge
- 80% of an organization's business content is semistructured or unstructured

- The proportion varies by organization, so managers should measure their own content rather than rely on a universal percentage.

- This slide describes the three major kinds of knowledge that can be found in an enterprise and indicates that less formal knowledge may be just as critical as formal knowledge for organizations to store and share.
- Think about other examples of semistructured and unstructured knowledge.
- Present an example of tacit knowledge that is more important than structured knowledge such as a report.

Enterprise Content Management Systems (CMS)

- Help capture, store, retrieve, distribute, preserve documents (reports, best practices) and semi-structured knowledge (e-mails)
- Bring in external sources
 - News feeds, research
- Tools for communication and collaboration
 - Blogs, wikis, and so on
- Key problem: developing taxonomy
 - Knowledge objects must be tagged with categories for retrieval
- Digital asset management systems
 - Specialized content management systems for classifying, storing, managing unstructured digital data
 - Photographs, graphics, video, audio

This slide discusses the purpose and features of **enterprise-wide content management systems**. A first step in building such systems is describing a knowledge object (document) so that it can be found later by users. Companies must decide and implement classification schemes, or taxonomies, to define categories meaningful to users, and then knowledge objects must be assigned a classification (“tagged”) so that it can be retrieved. Why different companies might need different taxonomies?

* What types of firms may need these digital asset management systems? (publishers, advertisers, law firms, broadcasters, entertainment producers, etc.)

AI-Ready Content Management

Quality

Remove duplicates, identify authoritative versions, record owners, and correct obsolete information.

Metadata

Use meaningful categories, dates, sensitivity labels, business context, and retention information.

Access

AI retrieval should respect the same permissions and legal restrictions as the source content.

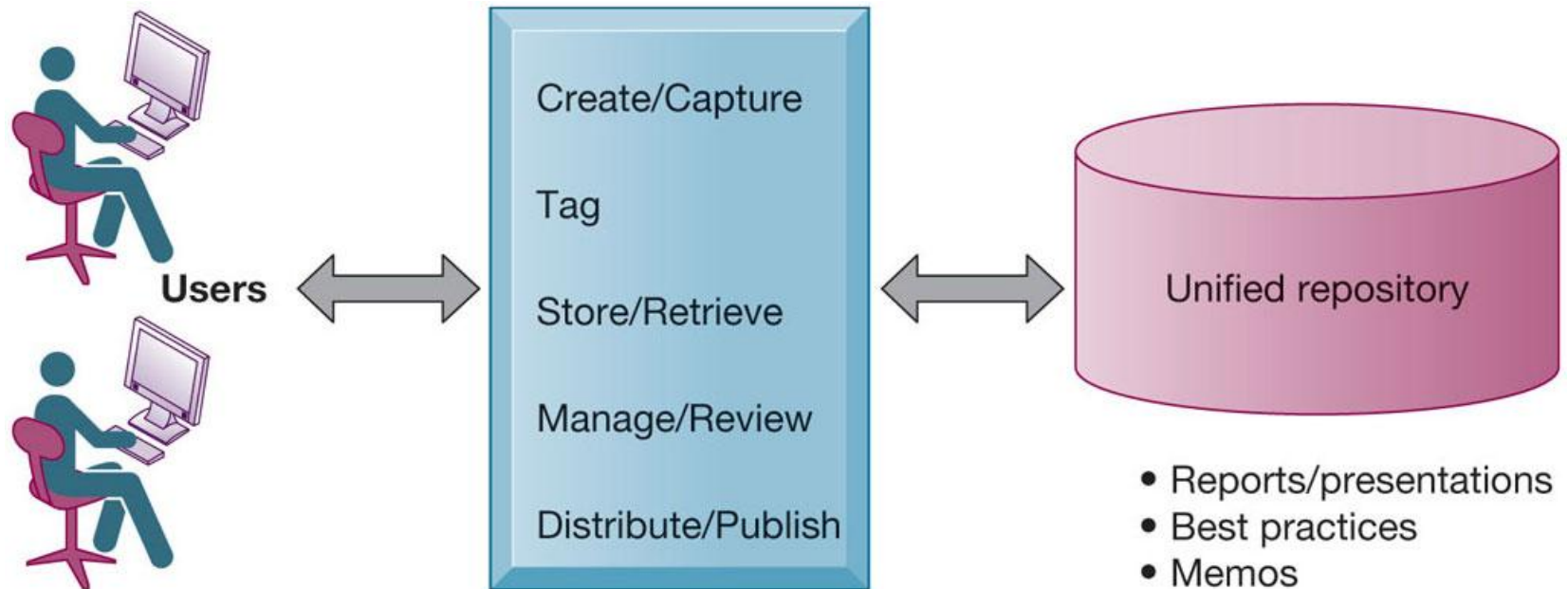
Provenance

Users need links to sources, creation dates, version history, and a way to report incorrect answers.

Evaluation

Test retrieval coverage, answer accuracy, confidentiality, bias, and performance on real work questions.

Figure 11.8 An Enterprise Content Management System



- An enterprise content management system has capabilities for classifying, organizing, and managing structured and semi-structured knowledge and making it available throughout the enterprise.

- This graphic illustrates the functions of an enterprise content management system.
- Users interact with the system to both input knowledge, manage it, and distribute it.
- These management systems can house a wide variety of information types, from formal reports to graphics, as well as bring in external content resources such as news feeds.

Locating and Sharing Expertise

- Provide online directory of corporate experts in well-defined knowledge domains
- Search tools enable employees to find appropriate expert in a company
- Social networking and social business tools for finding knowledge outside the firm
 - Saving
 - Tagging
 - Sharing web pages

Learning Management Systems (LMS)

- Provide tools for management, delivery, tracking, and assessment of employee learning and training
- Support multiple modes of learning
 - web-based classes, online forums, and so on
- Automates selection and administration of courses
- Assembles and delivers learning content
- Measures learning effectiveness
- Massively open online courses (MOOCs)
 - Web course open to large numbers of participants

Knowledge Workers and Knowledge Work

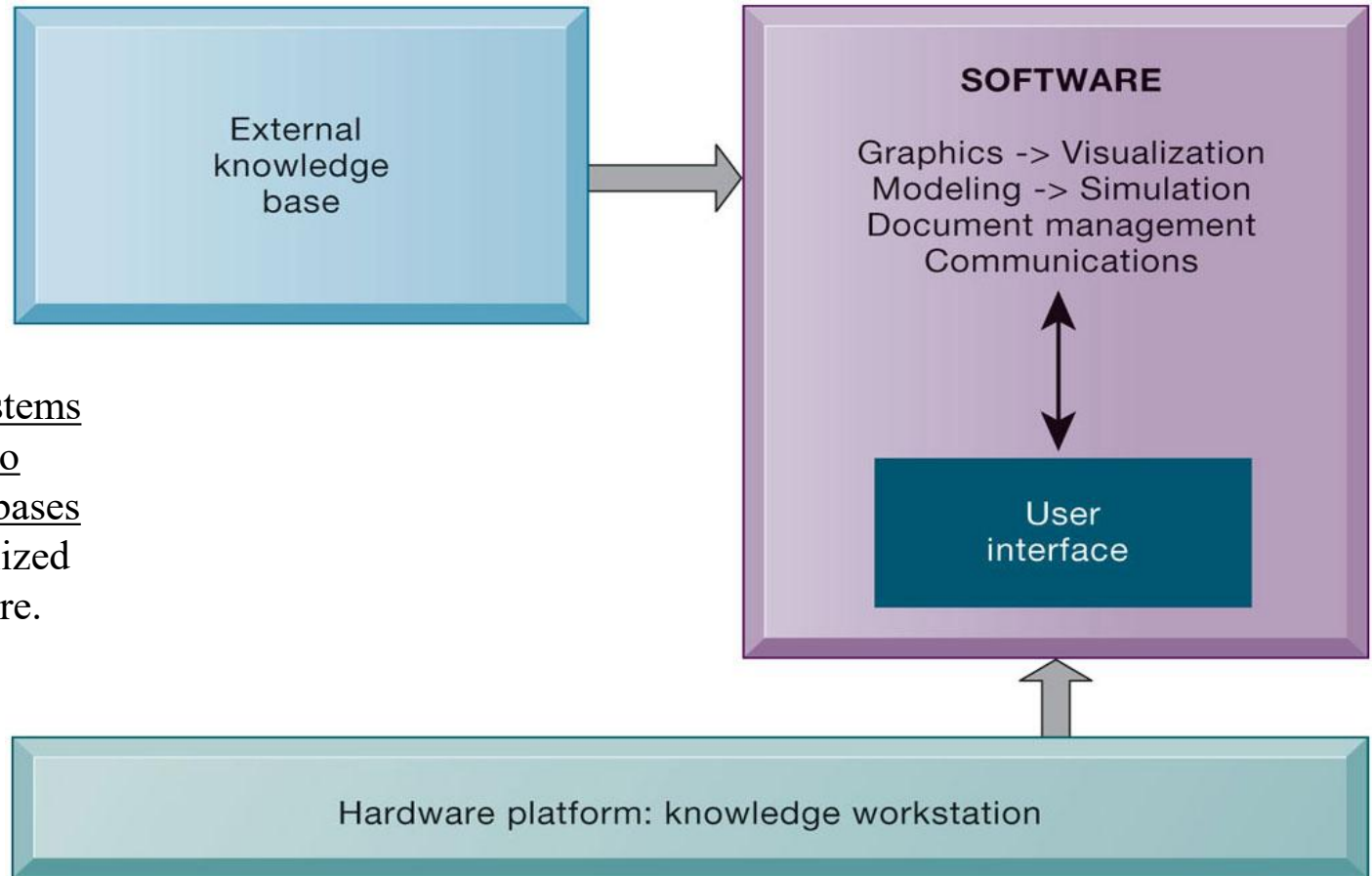
- Knowledge workers
 - Researchers, designers, architects, scientists, engineers who create knowledge for the organization
 - Perform key roles critical to organization and managers who work within organization
 - Three key roles
 - Keeping organization current in knowledge
 - Serving as internal consultants regarding their areas of expertise
 - Acting as change agents, evaluating, initiating, and promoting change projects
- Knowledge work systems
 - Systems for knowledge workers to help create new knowledge and integrate that knowledge into business

- This slide discusses knowledge work systems and identifies the importance of knowledge workers to an organization and its knowledge creation. How can knowledge workers benefit an organization? Can all companies benefit from knowledge workers, or only design, science, and engineering firms?

Requirements of Knowledge Work Systems

- Sufficient computing power for graphics, complex calculations
- Powerful graphics and analytical tools
- Communications and document management
- Access to external databases
- User-friendly interfaces
- Optimized for tasks to be performed (design engineering, financial analysis)

Figure 11.9 Requirements of Knowledge Work Systems



Knowledge work systems require strong links to external knowledge bases in addition to specialized hardware and software.

- This graphic illustrates the main components of a knowledge workstation: having the need for both specialized software and hardware, access to external information, and an easy-to-use interface. What types of external knowledge might be valuable to an engineer, a financial analyst, a medical researcher?
- The external knowledge base and hardware platform are connected to the software. The software includes processes like:
Graphics to Visualization, Modeling to Simulation, Document management, Communications
- All these processes are interconnected to user interface. The hardware platform includes the knowledge workstation.

Examples of Knowledge Work Systems

- CAD (computer-aided design)
 - Creation of engineering or architectural designs
 - 3D printing
- Virtual reality systems
 - Simulate real-life environments
 - 3D medical modeling for surgeons
 - Augmented reality (AR) systems: Enhance visualization by overlaying digital data and images onto physical real-world environment * MR
 - VRML(Virtual Reality Modeling Language)
 - **Investment workstations:**
 - Streamline investment process and consolidate internal, external data for brokers, traders, portfolio managers

What Are the Business Benefits of Using Intelligent Techniques for Knowledge Management?

- **Intelligent techniques:** Used to capture individual and collective knowledge and to extend knowledge base
 - **To capture tacit knowledge:** Expert systems, case-based reasoning, fuzzy logic
 - **Knowledge discovery:** Neural networks and data mining
 - **Generating solutions to complex problems:** Genetic algorithms
 - **Automating tasks:** Intelligent agents
- **Modern intelligent techniques for knowledge work**

Machine learning identifies patterns and predicts outcomes; Natural language processing extracts meaning from documents and conversations; Generative AI creates drafts, summaries, code, and explanations; Retrieval-augmented generation grounds answers in approved enterprise sources; Knowledge graphs connect people, concepts, records, and relationships; AI agents execute defined tasks across systems under policy and human oversight

Responsible Use of Generative AI

Govern

Assign ownership, approved uses, prohibited uses, risk tolerance, and accountability for outcomes.

Map

Identify users, affected people, data sources, dependencies, context, and foreseeable misuse.

Measure

Evaluate accuracy, security, privacy, bias, transparency, robustness, and human oversight.

Manage

Apply controls, monitor actual use, handle incidents, update the system, and retire unsafe uses.

Knowledge

Treat AI output as a claim that needs verification rather than as authoritative organizational knowledge.

The Role of the Information Systems Functions

The Information Systems Department

- Formal organizational unit responsible for information technology services
- Often headed by chief information officer (CIO)
 - Other senior positions include chief security officer (CSO, aka CISO), chief knowledge officer (CKO), chief privacy officer (CPO), chief data officer (CDO), chief AI officer (CAIO)
- Programmers
 - AI governance or responsible AI leadership
- **Systems analysts:** the job is to translate business problems and requirements into information requirements and systems
- **Information systems managers**

* How the department is organized depends on the nature and size of the business. Small companies may not have a formal department, whereas large companies may have several departments for different business functions, or they have an IT Department in each corporate division.

Organizing the Information Systems Function

- End users
 - Representatives of other departments for whom applications are developed
 - Increasing role in system design, development
- IT governance
 - Includes Strategies and policies for using IT in the organization
 - Specifies Decision rights and framework for accountability to ensure that the use of IT supports the organization's strategies and objectives
 - Organization of information systems function
 - Centralized, decentralized, and so on

* As the development of business information systems matures, **end users** have been increasingly recognized as pivotal to developing a successful system. In addition, the information systems department has also been recognized as a powerful resource for developing new products, services, and efficiencies. As such, **IT governance** is a central business concern—being able to use IT efficiently and effectively has become more and more essential to a business's success.

The Modern Information Systems Operating Model

Central responsibilities

Enterprise architecture, cybersecurity, shared platforms, data standards, vendor management, service reliability, and organization-wide governance remain central responsibilities.

Distributed responsibilities

Business product teams define outcomes, prioritize work, improve processes, manage adoption, and share accountability for data and responsible AI use with technology specialists.

Understand How the Information in This Chapter Can Help Your Career?

- Business systems analyst
 - Product manager or product owner
 - Data and business intelligence analyst
 - Cybersecurity and privacy specialist
 - Enterprise applications or cloud consultant
 - AI business process analyst
 - Information and knowledge manager
-
- Career advantage comes from combining business process knowledge, data literacy, collaboration, and responsible use of AI.

Current Career Context

Workforce change

The World Economic Forum projects 170 million jobs created and 92 million displaced by macrotrends through 2030.

Growing roles

Big data specialists, AI and machine learning specialists, and software developers rank among the fastest-growing roles.

Business roles

Operations managers, project managers, security specialists, and business intelligence professionals remain important.

Task design

Employers expect work to shift toward a more even mix of human work, technology, and human-machine collaboration.

Student focus

Learn to redesign processes, evaluate evidence, communicate with stakeholders, and use AI responsibly.

Learning Check

Process

How does an AI-enabled process differ from simple task automation?

Enterprise systems

What management risks increase when ERP and analytics move to cloud platforms?

Collaboration

Which controls help a human-agent team produce reliable work?

Knowledge

What makes enterprise content suitable for retrieval-augmented generation?

Sustainability

Which environmental measures belong in an information systems investment decision?