Case Study for Information Management
資訊管理個案

Managing Knowledge:
Tata Consulting Services (Chap. 11)

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課程大綱 (Syllabus)

週次	日期	內容（Subject/Topics）
1	101/09/13	Introduction to Case Study for Information Management
2	101/09/20	Information Systems in Global Business: 1. UPS, 2. The National Bank of Kuwait (Chap. 1)
3	101/09/27	Global E-Business and Collaboration: NTUC Income (Chap. 2)
4	101/10/04	Information Systems, Organization, and Strategy: Soundbuzz (Chap. 3)
5	101/10/11	IT Infrastructure and Emerging Technologies: Salesforce.com (Chap. 5)
6	101/10/18	Foundations of Business Intelligence: Lego (Chap. 6)

課程大綱 (Syllabus)

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7	101/10/25	Telecommunications, the Internet, and Wireless Technology: Google, Apple, and Microsoft (Chap. 7)
8	101/11/01	Securing Information System: 1. Facebook, 2. European Network and Information Security Agency (ENISA) (Chap. 8)
9	101/11/08	Midterm Report (期中報告)
10	101/11/15	期中考試週
11	101/11/22	Enterprise Application: Border States Industries Inc. (BSE) (Chap. 9)
12	101/11/29	E-commerce: 1. Facebook, 2. Amazon vs. Walmart (Chap. 10)

課程大綱 (Syllabus)

週次	日期	內容（Subject/Topics）
13	101/12/06	Knowledge Management: Tata Consulting Services (Chap. 11)
14	101/12/13	Enhancing Decision Making: CompStat (Chap. 12)
15	101/12/20	Building Information Systems: Electronic Medical Records (Chap. 13)
16	101/12/27	Managing Projects: JetBlue and WestJet (Chap. 14)
17	102/01/03	Final Report (期末報告)
18	102/01/10	期末考試週

Chap. 11
Knowledge Management: Tata Consulting Services

Case Study: Tata Consulting Services

Knowledge Management and Collaboration at Tata Consulting Services (Chap. 11)

1. Analyze the knowledge management efforts at Tata Consulting Services (TCS) using the knowledge management value chain model. Which tools or activities were used for managing tacit knowledge and which ones are used for explicit knowledge?
2. Describe the growth of knowledge management systems at TCS? How have these systems helped TCS in its business?
3. Describe the collaboration tools used at TCS? What benefits did TCS reap from these tools?
4. How did Web 2.0 tools help TCS manage knowledge and collaboration among its employees?
5. How do you think KM tools have changed some key operational processes at TCS, such as bidding for new projects, project development and implementation, customer service, and so on?

Important dimensions of knowledge

- Knowledge is a firm asset
- Knowledge has different forms
- Knowledge has a location
- Knowledge is situational

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Knowledge is a firm asset

- Intangible
- Creation of knowledge from data, information, requires organizational resources
- As it is shared, experiences network effects

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

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)

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

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)

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Knowledge is situational

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

Organizational learning

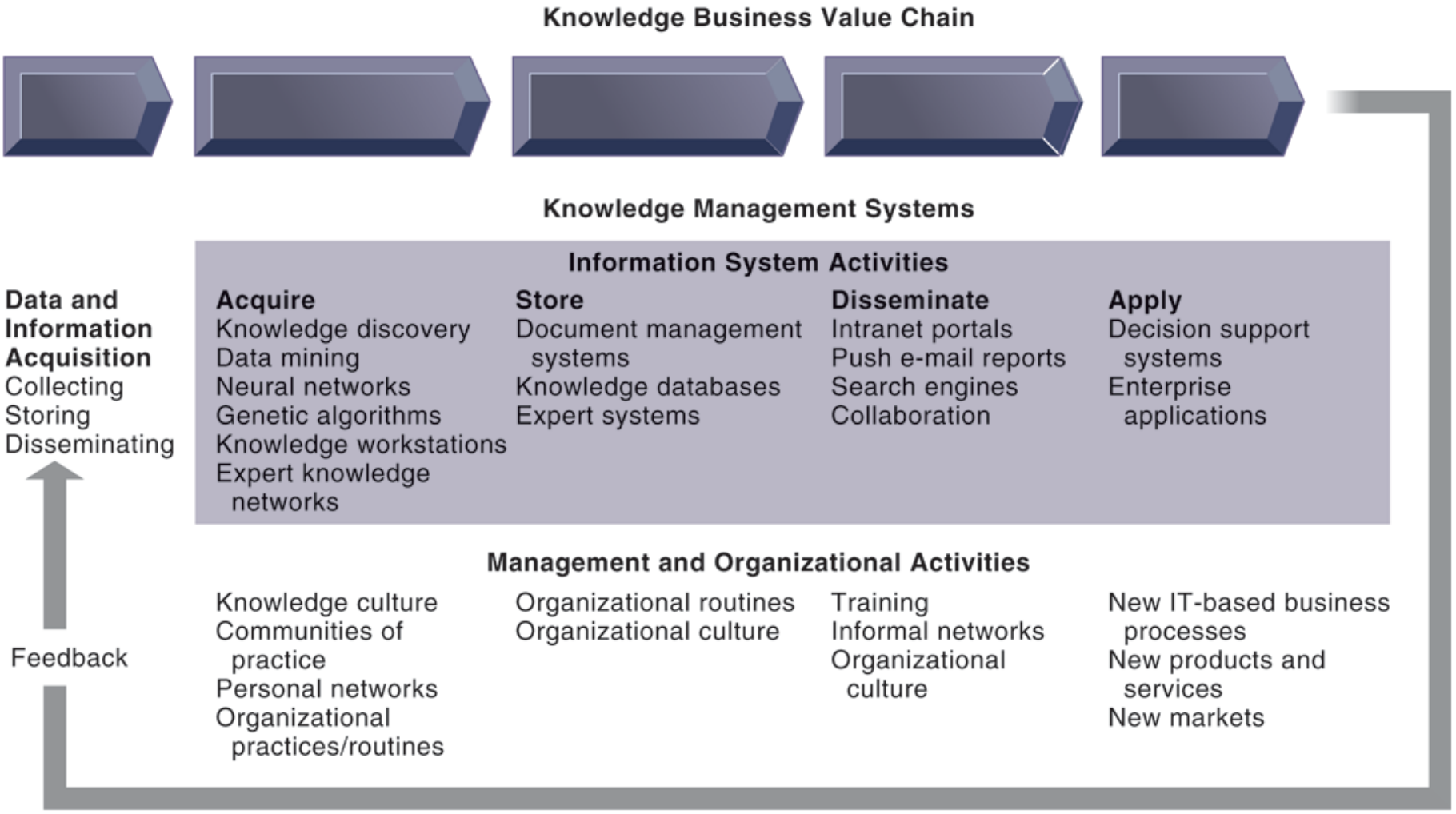
- Process in which organizations learn
  - Gain experience through collection of data, measurement, trial and error, and feedback
  - Adjust behavior to reflect experience
    - Create new business processes
    - Change patterns of management decision making

Knowledge management

- 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

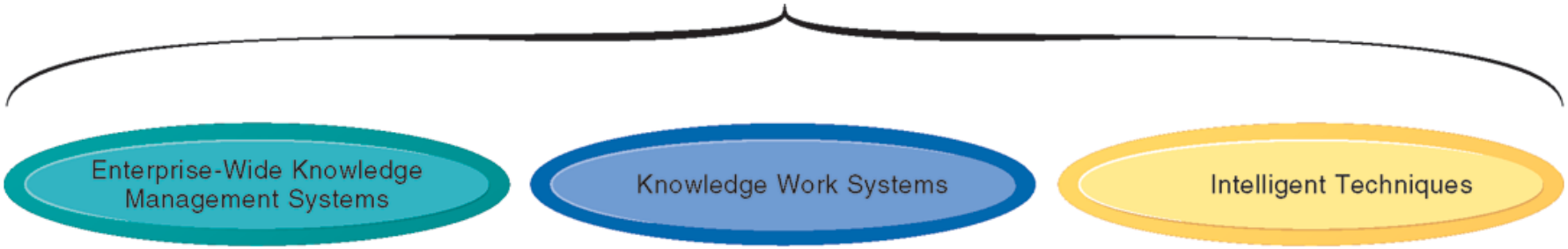
1. Knowledge acquisition
2. Knowledge storage
3. Knowledge dissemination
4. Knowledge application

The Knowledge Management Value Chain



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Major Types of Knowledge Management Systems



General-purpose, integrated, firmwide efforts to collect, store, disseminate, and use digital content and knowledge

Enterprise content management systems
Collaboration tools
Learning management systems
Knowledge network systems

Specialized workstations and systems that enable scientists, engineers, and other knowledge workers to create and discover new knowledge

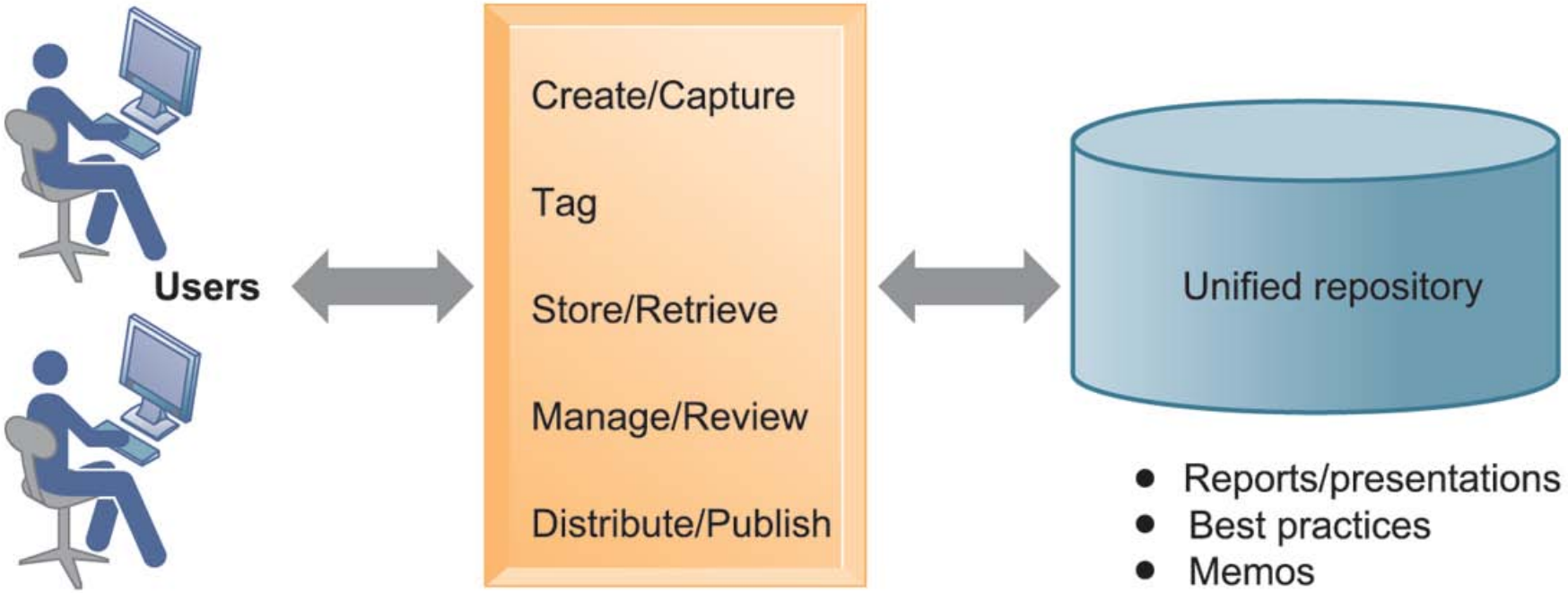
(CAD)
3-D virtualization
Virtual reality
Investment workstations

Tools for discovering patterns and applying knowledge to discrete decisions and knowledge domains

Data mining
Neural networks
Expert systems
Case-based reasoning
Fuzzy logic
Genetic algorithms
Intelligent agents

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

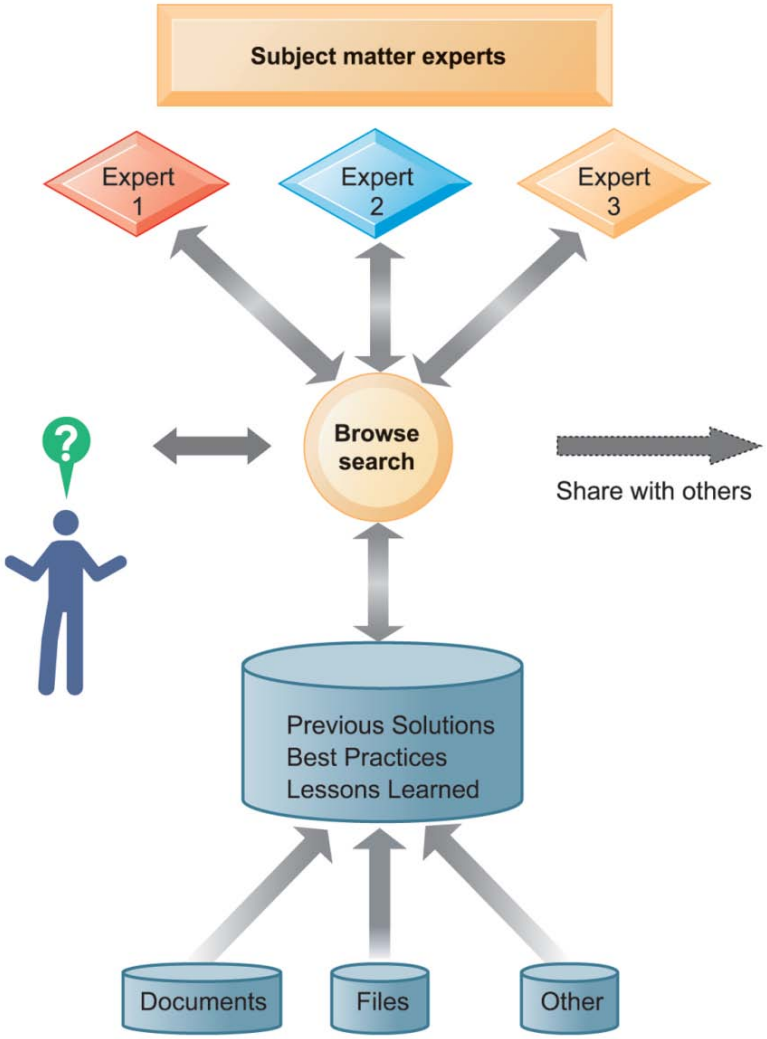
An Enterprise Content Management System



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

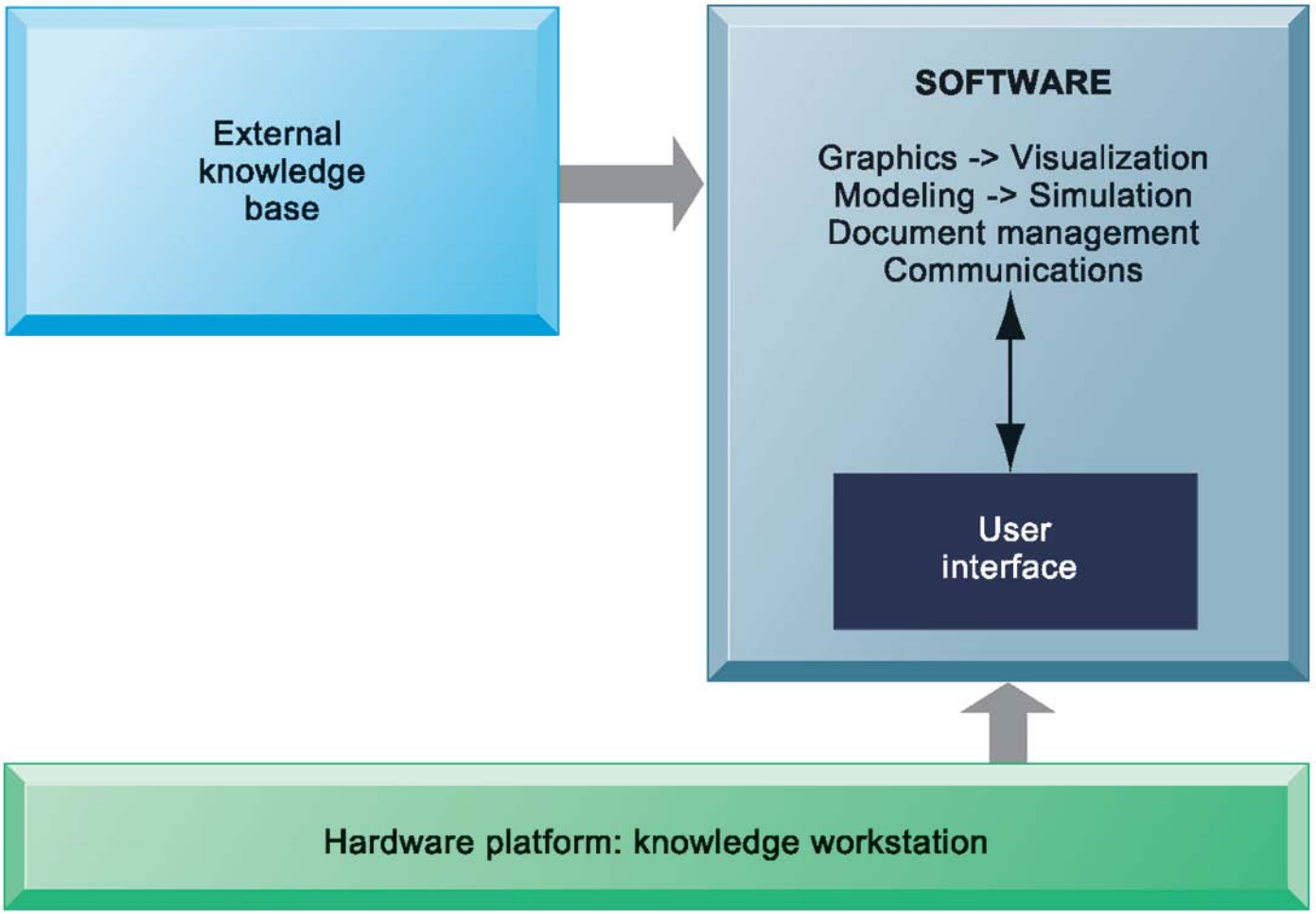
Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

An Enterprise Knowledge Network System



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Requirements of Knowledge Work Systems



Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Examples of knowledge work systems

- **CAD (computer-aided design):**
  - Creation of engineering or architectural designs
- **Virtual reality systems:**
  - Simulate real-life environments
  - 3-D medical modeling for surgeons
  - Augmented reality (AR) systems
  - VRML
- **Investment workstations:**
  - Streamline investment process and consolidate internal, external data for brokers, traders, portfolio managers

Intelligent Techniques

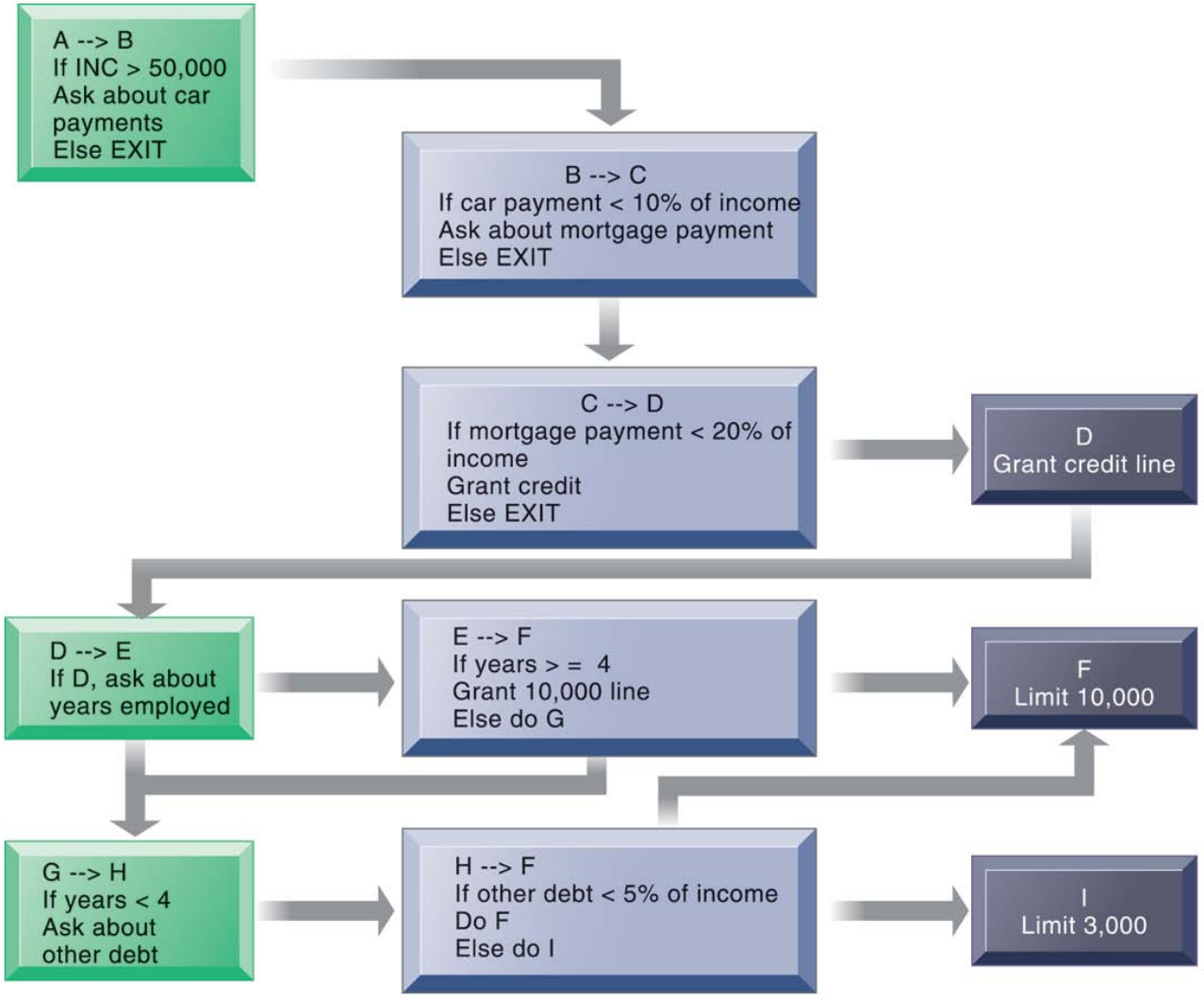
- Intelligent techniques: Used to capture individual and collective knowledge and to extend knowledge base
  - To capture tacit knowledge: Expert systems, case-based reasoning, fuzzy logic
  - Knowledge discovery: Neural networks and data mining
  - Generating solutions to complex problems: Genetic algorithms
  - Automating tasks: Intelligent agents
- Artificial intelligence (AI) technology:
  - Computer-based systems that emulate human behavior

Expert systems

- Capture tacit knowledge in very specific and limited domain of human expertise
- Capture knowledge of skilled employees as set of rules in software system that can be used by others in organization
- Typically perform limited tasks that may take a few minutes or hours, e.g.:
  - Diagnosing malfunctioning machine
  - Determining whether to grant credit for loan
- Used for discrete, highly structured decision-making

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

Rules in an Expert System



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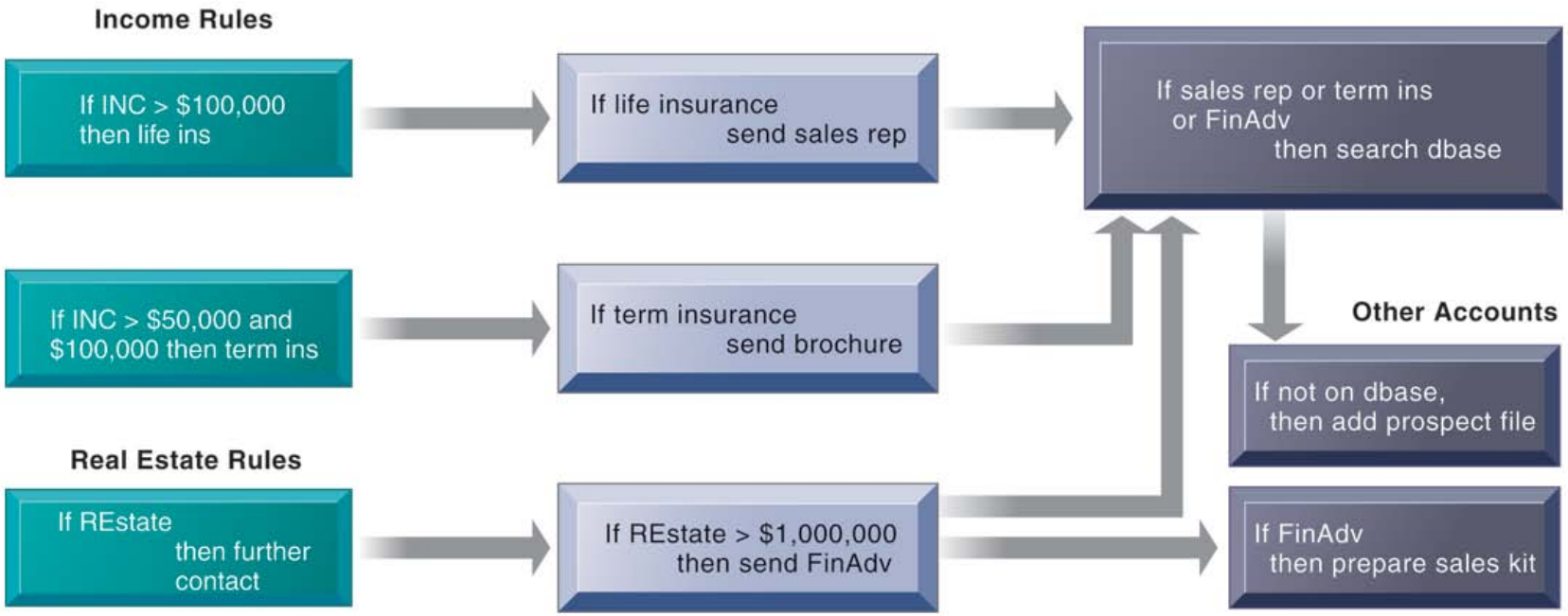
Inference Engines in Expert Systems



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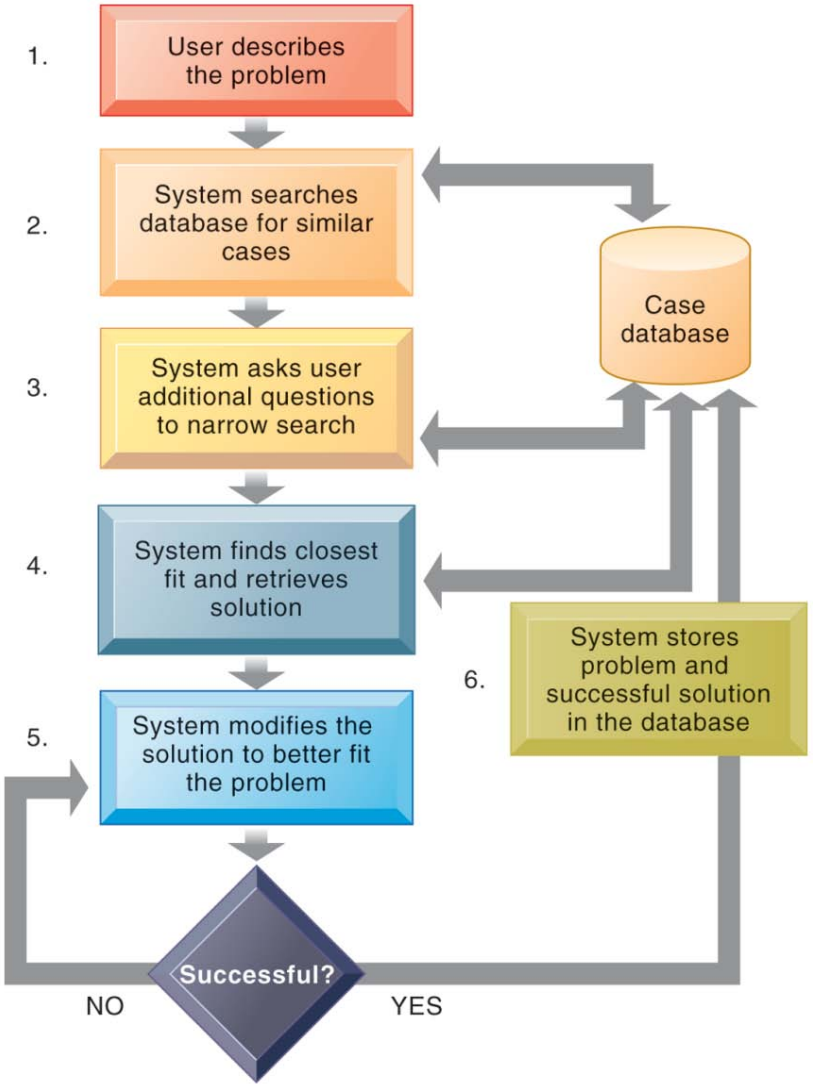
How Case-Based Reasoning Works



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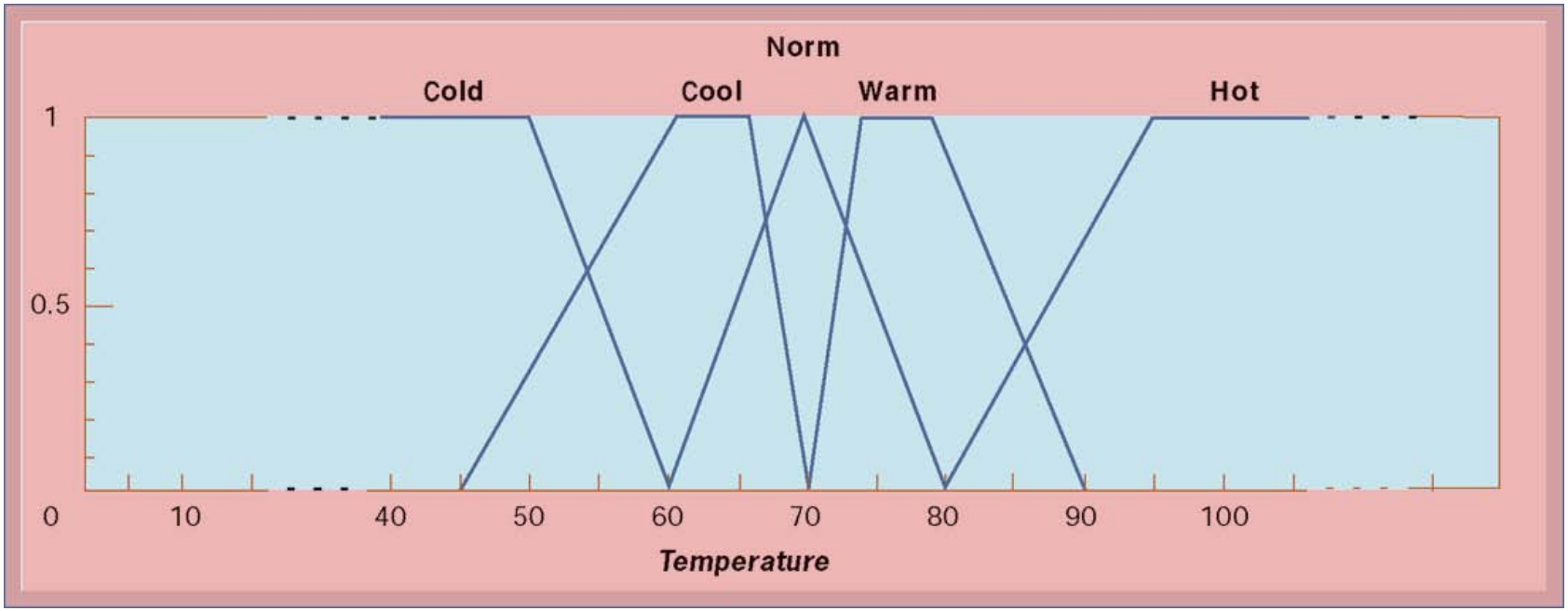
Fuzzy Logic for Temperature Control



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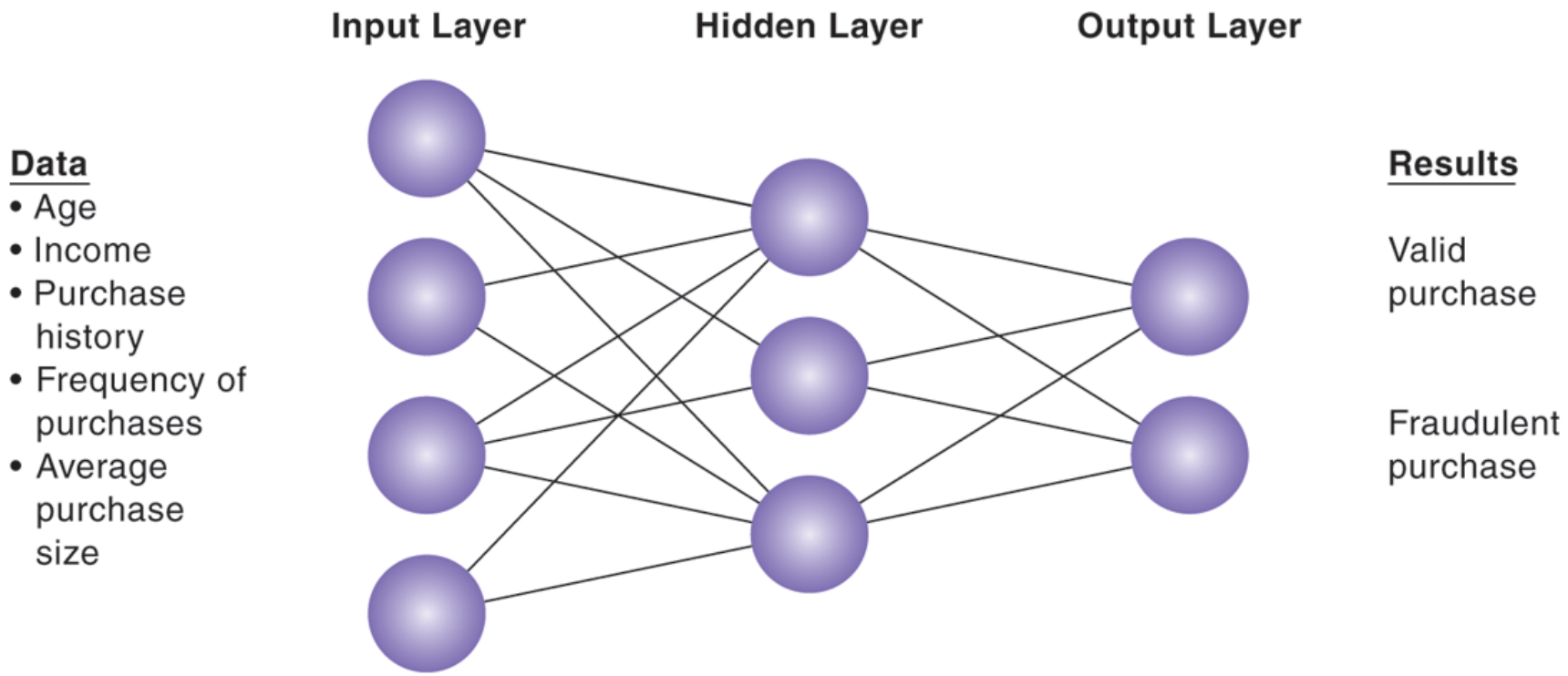
Neural networks

- Find patterns and relationships in massive amounts of data too complicated for humans to analyze
- "Learn" patterns by searching for relationships, building models, and correcting over and over again
- Humans "train" network by feeding it data inputs for which outputs are known, to help neural network learn solution by example
- Used in medicine, science, and business for problems in pattern classification, prediction, financial analysis, and control and optimization
- **Machine learning**
  - Related AI technology allowing computers to learn by extracting information using computation and statistical methods

How a Neural Network Works



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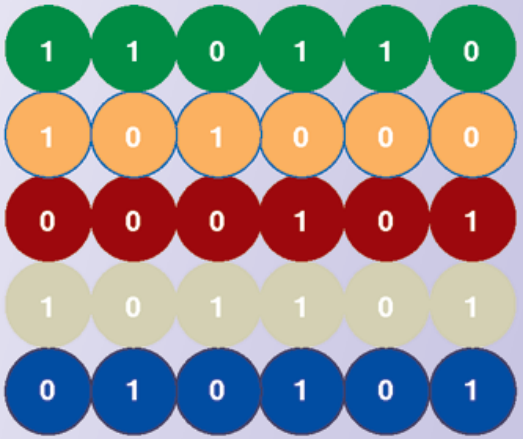
The Components of a Genetic Algorithm



A population of chromosomes

	Length	Width	Weight	Fitness
1	Long	Wide	Light	55
2	Short	Narrow	Heavy	49
3	Long	Narrow	Heavy	36
4	Short	Medium	Light	61
5	Long	Medium	Very light	74

Decoding of chromosomes

Evaluation of chromosomes

Source: Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.

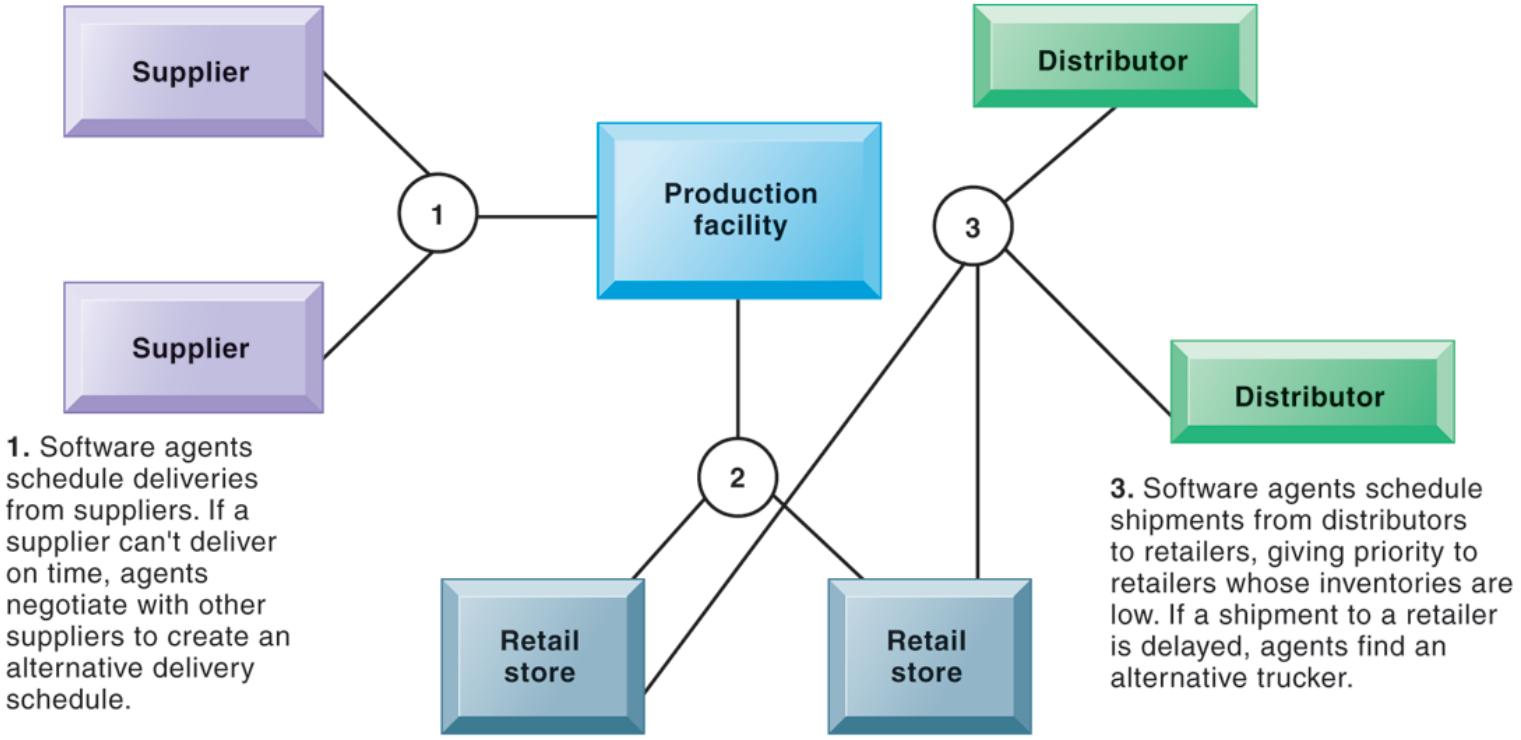
Hybrid AI systems

- Genetic algorithms, fuzzy logic, neural networks, and expert systems integrated into single application to take advantage of best features of each
- E.g., Matsushita “neurofuzzy” washing machine that combines fuzzy logic with neural networks

Intelligent agents

- Work in background to carry out specific, repetitive, and predictable tasks for user, process, or application
- Use limited built-in or learned knowledge base to accomplish tasks or make decisions on user's behalf
  - Deleting junk e-mail
  - Finding cheapest airfare
- Agent-based modeling applications:
  - Systems of autonomous agents
  - Model behavior of consumers, stock markets, and supply chains; used to predict spread of epidemics

INTELLIGENT AGENTS IN P&G'S SUPPLY CHAIN NETWORK



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資訊管理個案
(Case Study for Information Management)

1. 請同學於資訊管理個案討論前
   應詳細研讀個案，並思考個案研究問題。
2. 請同學於上課前複習相關資訊管理相關
   理論，以作為個案分析及擬定管理對策的
   依據。
3. 請同學於上課前
   先繳交個案研究問題書面報告。

References

- Kenneth C. Laudon & Jane P. Laudon (2012), Management Information Systems: Managing the Digital Firm, Twelfth Edition, Pearson.
- 周宣光　譯 (2011)，
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  第12版，東華書局