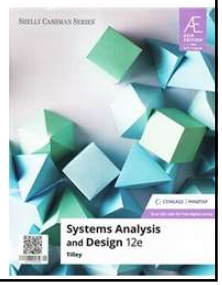
# SYSTEMS ANALYSIS AND DESIGN 12TH EDITION

Chapter 1

Introduction to System Analysis and Design




## 重要時程

- 第1週 2/23 開學週
- 第2週 3/2 CH1 分組
- 第3週 3/9 CH2
- 第4週 3/16 分組報告(資訊系統實例7分鐘+期末專案發想2分鐘)
- 第5週 3/23 CH3
- 第6週 3/30 CH4
- 第7週 4/6 補假
- 第8週 4/13 Ch5
- 第9週 4/13 Ch5

2

- 第10週 Ch6 Object Modeling
- 第11週 Ch7 Development Strategies
- 第12週 Ch8 Interface Design
- 第13週 Ch9 Data Design
- 第14週 Ch9 Data Design
- 第15週 筆試
- 第16週 期末分組報告 1-7組
- 第17週 期末分組報告 8-14組
- 第18週 端午節(期末分組報告繳交 )

3

上週

課程討論版

**請到網路上查詢國內外系統分析師的工作機會、工作內容、求才條件、工作待遇、地區分布並上傳到課程討論版。並提出看法說明系統分析師的工作適不適合自己?**

4


S11055015
徐以棠
學生
本課程發文次數: 1

刪除

公司：耐特資訊股份有限公司
職位：系統分析師
網站：https://www.104.com.tw/job/7wica?jobsource=jolist_b_relevance

[工作內容]
1.具備需求分析、系統設計、資料庫設計能力，並能進行需求訪談及溝通協調，
2.撰寫需求訪談、系統分析、需求規格書等相關文件
3.具備例SD/PG溝通需求規格，進行系統/專案開發，
4.須熟悉關聯式資料庫SQL指令碼及schema設計，具完整系統資料庫規劃經驗，
5.懂Web Service或API相關資料交換操作
6.可獨立或與團隊合作，工作態度積極、負責，能配合公司出差規定，
7.具有高度自我管理能力者
8.具備清晰表達能力與邏輯組織分析能力,且能獨立處理客戶需求者
9.面試請攜帶SA文件範例
10.主管交辦事項

[求才條件]
1.工作經歷：不拘
2.學歷要求：專科、大學
3.科系要求：資訊管理相關、電機電子工程相關、數學及電算機科學學科類
4.語文條件：
中文 -- 聽 /精通，說 /精通，讀 /精通，寫 /精通
英文 -- 聽 /略懂，說 /略懂，讀 /略懂，寫 /略懂
5.擅長工具：HTML、Excel、PowerPoint、Word
6.工作技能：系統架構規劃、系統整合分析
7.科系限制：資訊管理學類, 電子工程學類, 系統設計學類, 軟體發展學類, 電機工程學類, 資訊工程學類

[工作待遇]
1.待遇面議（經常性薪資達 4 萬元或以上）
2.工作性質：全職
3.上班地點：台中市西區臺灣大道二段573號9樓H室
4.遠端工作：部分遠端，依照公司規定可遠端上班
5.管理責任：不需負擔管理責任
6.出差外派：需出差，一年累積時間未定
7.上班時段：日班，09：00～18：00；午休12：00~13：30
8.休假制度：週休二日
9.可上班日：不限

[福利制度]
法定項目：



這週

## 確定分組名單

## 分組名單

- 請各組以接龍方式列出分組名單,例:
- 第0組
  - S10955048 陳奕翔
  - S10955049 黃彥豪
  - S10955058 林政瑋
  - S10955059 鍾易恆
- 第1組
  - S109550xx 陳xx
  - S109550xx 黃xx
  - S109550xx 林xx
  - S109550xx 鍾xx



## 分組討論後回答在討論區
## 請寫組別和組員名字學號

- 請參考課本及課程網站的資料整理分析回答下列各項系統分析師相關問題
  - 工作職稱
  - 所需知識技能背景
  - 教育程度
  - 可能需要的專業認證
  - 工作職稱
  - 公司組織與規模
  - 薪資
  - 地點

- PHASE I: SYSTEMS PLANNING. 系統規畫

1. Introduction to Systems Analysis and Design.
2. Analyzing the Business Case.
3. Managing Systems Projects.

- PHASE II: SYSTEMS ANALYSIS.系統分析

4. Requirements Engineering
5. Data and Process Modeling.
6. Object Modeling.
7. Development Strategies.

- PHASE III: SYSTEMS DESIGN.系統設計

8. User Interface Design.
9. Data Design.
10. System Architecture.

9

- PHASE IV: SYSTEMS IMPLEMENTATION.系統建置

11. Managing Systems Implementation.

- PHASE V: SYSTEMS SUPPORT AND SECURITY.系統安全與支援

12. Managing Systems Support and Security.

- ONLINE APPENDIX: THE SYSTEMS ANALYST'S TOOLKIT.

Toolkit Part A: Communication Tools.
Toolkit Part B: CASE Tools.
Toolkit Part C: Financial Analysis Tools.
Toolkit Part D: Internet Resource Tools.
Supplements

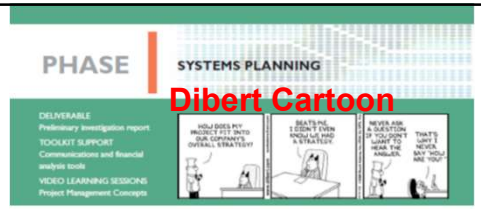
10

COURSE TECHNOLOGY CENGAGE Learning

Analysis and Design for Systems 12th Edition

Chapter 1

Introduction to Systems Analysis and Design

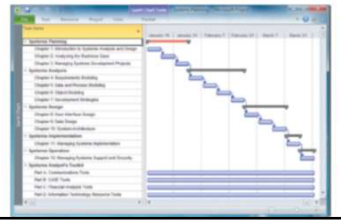



Dibert Cartoon

As the Dilbert cartoon suggests, it is always a good idea to know whether a project fits the company's overall strategy. You will learn more about the relationship between systems projects and corporate strategies in the systems planning phase.

Systems planning is the first of five phases in the systems development life cycle. After an introduction to systems analysis and design, you will learn how systems projects get started, how to evaluate project requests, determine project feasibility, and how to use project management tools and techniques. You will learn how to prepare a preliminary investigation report.

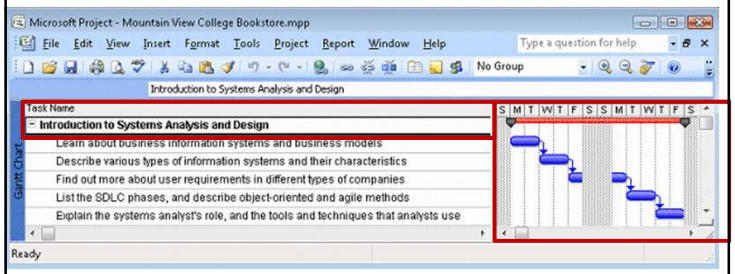
Gantt Chart



12

The role of an information system is to support **business goals**


13




14

# Chapter Objectives

www.themegallery.com

## Chapter Objectives

- Discuss the **impact** (影響) of **information technology** on business strategy and success
- Define an information system and describe its **components** (組成要件)
- Explain how profiles and models can represent business functions and operations
- Explain how the **Internet** has affected business strategies and relationships
- Identify various **types of information systems** (資訊系統類型) and explain who uses them

16

## Chapter Objectives

- Distinguish between **structured analysis, object-oriented analysis, and agile methods**(快捷法)
- Compare the traditional waterfall model with agile methods and models
- Apply five basic guidelines for systems development
- Discuss the role of the information technology department and the **systems analysts (系統分析師)** who work there

17

## Introduction

Companies use information as a weapon in the battle

- increase productivity,
- deliver quality products and services,
- maintain customer loyalty,
- make decisions

Information technology can mean the difference between success and failure

18

## What is IT?


## IT Budgets

- The growth of economy

- The economy slows down

# 1.1 Information Technology

## What Is Information Technology?

- Information Technology (IT)
  - Combination of hardware and software products and services that companies use to manage, access, communicate, and share information
- Welcome to the 21st Century: The IT Journey Continues
  - Changes in the world
  - Changes in technology
  - Changes in client demand

**FIGURE 1-3** How times have changed!

## Herman Hollerith 1896

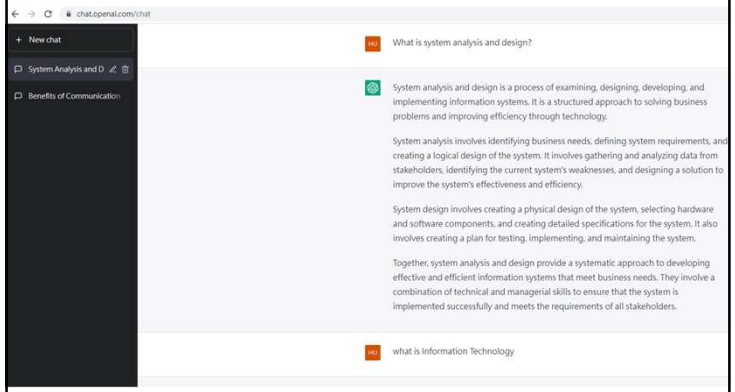
23


https://www.youtube.com/watch?v=x75lhyxGQDU

https://www.ibm.com/watson/

24

## ChatGPT




25

## The Impact of Information Technology

- Systems Development
  - Business information systems are developed by people who are
    - technically qualified,
    - business-oriented,
    - highly motivated
  - Must be good communicators with strong analytical and critical thinking skills

26

## The Impact of Information Technology

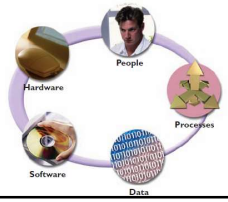
- Who develops Information Systems?
  - In-house applications
  - Software packages
  - Internet-based application services
  - Outsourcing
  - Custom solutions
  - Enterprise-wide software strategies

How versus What

27

## What Is Information Technology? (Cont.)

- **Systems Analysis and Design**
  - Step-by-step process for developing high-quality information systems
- **Information systems**:
  - Combination of technology, people, and data to perform certain business functions






28

## What Is Information Technology? (Cont.)

- **What Does a Systems Analyst Do?**
  - –Plans, develops, and maintains information systems協助規劃、開發及維護資訊系統
  - –Manages IT projects, including tasks, resources, schedules, and costs管理IT專案、
  - –Conducts meetings, delivers presentations, and writes memos, reports, and documentation召開會議、進行簡報，以及撰寫備忘錄、報告及文件




# 1.2 Information Systems

## Information System Components

- **System**: Set of related components that produces specific results
  - –**Mission-critical systems** are vital to a company's operations

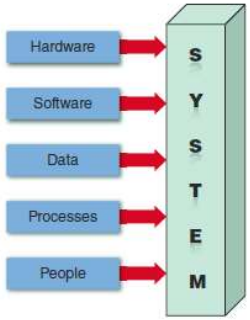



**FIGURE 1-4** An information system needs these components.




## Information System Components (Cont.1)

- **Hardware**
  - – Physical layer of the information system
  - – **Moore's Law** was integral to the development of hardware
- **Software**
  - – Controls hardware
  - – **System software**
  - – **Application software**
    - **Horizontal system**
    - **Vertical system**
    - **Legacy system**

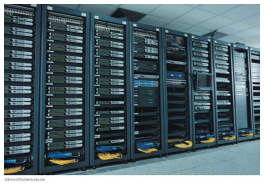


**FIGURE 1-5** Server farms provide the enormous power and speed that modern IT systems need.
dotshock/Shutterstock.com

## Information System Components

(Cont. 2)

- **Data**
  - Stored in tables
- **Processes**
  - Describe the tasks and business functions performed to achieve specific results
- **People**
  - **Stakeholders:** Individuals interested in an information system





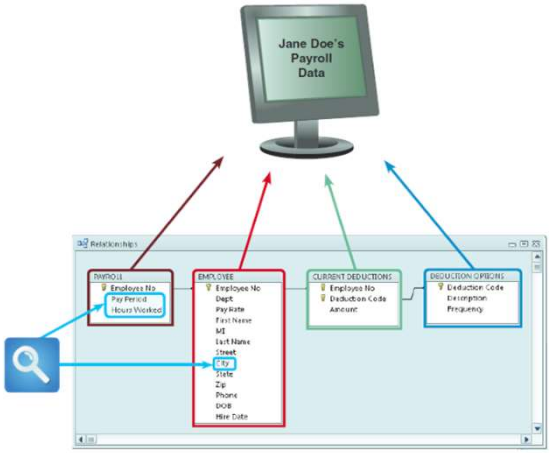
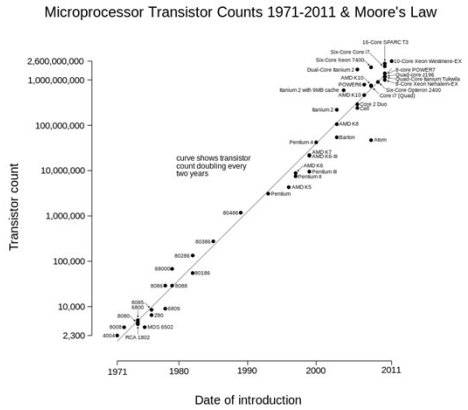



**FIGURE 1-6** In a typical payroll system, data is stored in separate tables that are linked to form an overall database.



## 摩爾定律






## Information System Components

- **Data** All systems require input data
  - **Data**: Basic facts that serve as raw material
  - **Information:** Data transformed into output

**Data VS Information ?**

## 1.3 Internet Business Strategies

## Business Today

- Influenced by:
  - Rapidly increasing globalization
  - Technology integration for seamless information access
  - Rapid growth of cloud-based computing and services
- All trends are **Internet-centric**



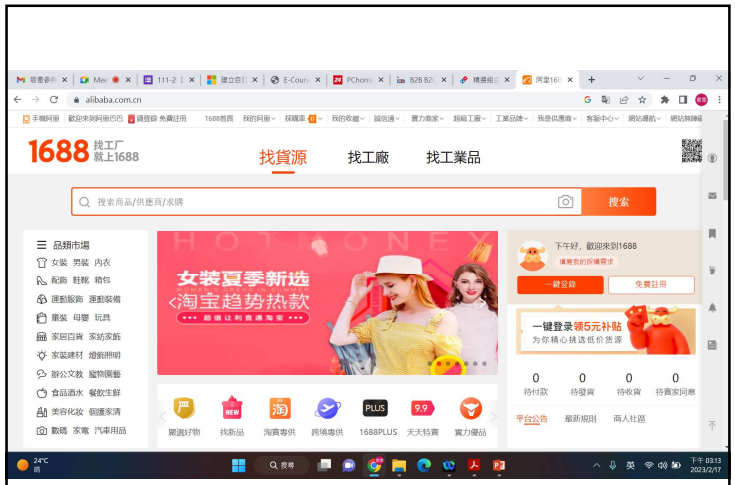

## The Internet Model

- **Ecommerce (electronic commerce)**
  - User interface - Enables communication between a data-base management software and a web-based server
  - Mobile devices interact with the system using **apps**




## Business Today (Cont.2)

- **B2C (Business-to-Customer)**
  - In a single convenient session, customers can:
    - Do research and compare prices and features
    - Check availability and arrange delivery
    - Choose payment methods
- **B2B (Business-to-Business)**
  - Ecommerce was initially carried out using **electronic data interchange (EDI)**
  - Most firms use **supply chain** management (SCM) software, which helps businesses manage inventory levels, costs, alternate suppliers

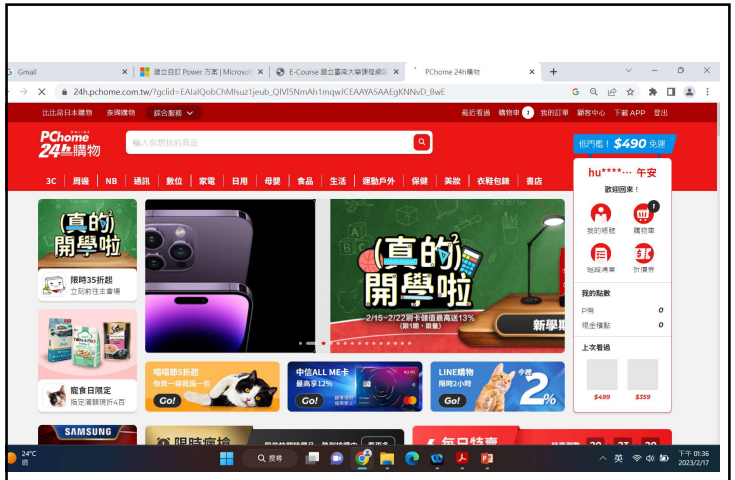



https://alibaba.com.cn/

41


https://www.books.com.tw/

42




https://24h.pchome.com.tw/

43

## 1.4 Modeling Business Operations

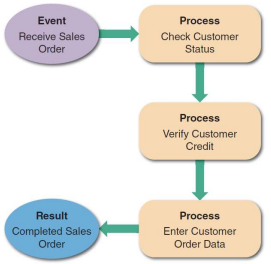
## Modeling Business Operations

- Business Profile
  - Overview of a company's mission, functions, organization, products, services, customers, suppliers, competitors, constraints, and future direction
- Business Process
  - Specific set of transactions, events, and results that can be described and documented
  - **Business process model (BPM)**
  - **Business process modeling notation (BPMN)**




## Modeling Business Operations (Cont.)

**FIGURE 1-8** A simple business model might consist of an event, three processes, and a result.



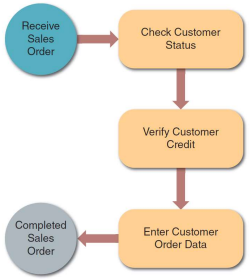




**FIGURE 1-9** This sample uses business process modeling notation (BPMN) to represent the same events, processes, and workflow shown in Figure 1-8.
Source: Drawio.com



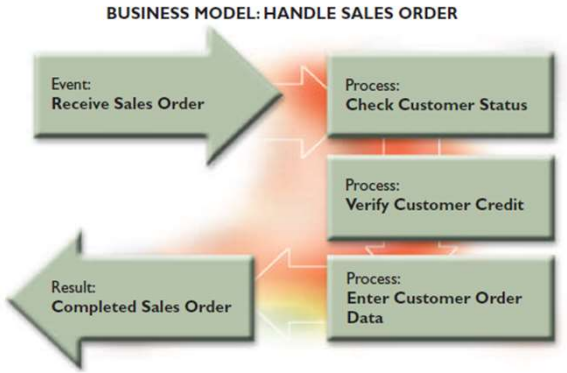




**FIGURE 1-xx** A simple business model might consist of an event, three processes, and a result.



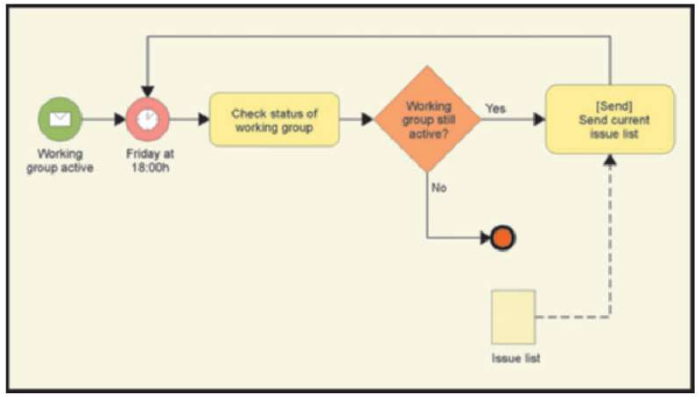



**FIGURE 1-12** This sample uses business process modeling notation (BPMN) to represent events, processes, and workflow.

## 1.5 Business Information Systems

## Business Information Systems

- **Current Method**
  - All employees use office productivity systems
  - Operations users require decision support systems
  - Systems are defined by their functions and features




## Business Information Systems

- **Enterprise Computing**
  - Supports company-wide operations and data management requirements
    - **Enterprise resource planning (ERP)** systems provide cost-effective support for users and managers throughout the company




## Transaction Processing (TP) Systems

- Processes data generated by day-to-day business operations
  - Examples - Customer order processing, accounts receivable, and warranty claim processing

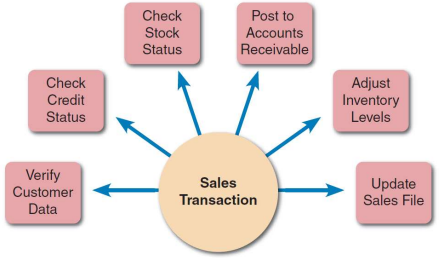



**FIGURE 1-11** A single sales transaction consists of six separate tasks, which the TP system processes as a group.

## Business Support Systems

- **Provide job-related information support to users at all levels of a company**
  - Can work hand-in-hand with a TP system
- **Management Information Systems (MIS)**
- **Radio frequency identification (RFID)**
  - Uses high-frequency radio waves to track physical objects

**FIGURE 1-12** With an RFID tag, items can be tracked and monitored throughout the shipping process.
© nullplus/photos.com



## Knowledge Management

- Uses a knowledge base and inference rules
  - **Knowledge base**: Large database that allows users to find information by entering keywords
  - **Inference rules**: Identify data patterns and relationships




## Business Information Systems (Cont.3)

- **User Productivity Systems**
  - Technology that improves productivity
  - **Groupware:** Enables data sharing and coordination of efforts
- **Systems Integration**
  - Combination of transaction processing, business support, knowledge management, and user productivity features



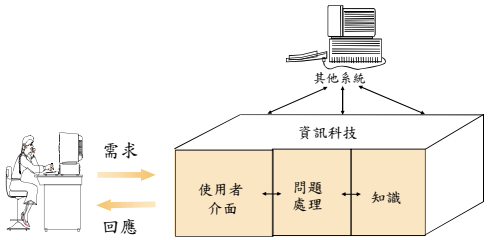



## 資訊系統種類

- 交易處理系統(Transaction Processing System, TPS)
- 管理資訊系統(Management Information System, MIS)
- 企業資源規劃系統(Enterprise Resource Planning, ERP)
- 決策支援系統(Decision Support System, DSS)
- 專家系統(Expert System, ES)
- 高階主管資訊系統等(Executive Information System, EIS)

## 資訊系統的種類

- 資訊系統是一種由使用者介面、問題處理與知識等子系統有組織的結合，用以管理知識，並為某些活動提供知識或服務的系統。




## 資訊系統建置策略

- 資訊系統建置策略乃指資訊系統之建立、修改、擴充或更新等所採取之方式。資訊系統之建置策略可分成三種：
  - 由公司內部獨立完成
  - 由公司外部取得
  - 其他方式

## （續）

- 若採取由公司內部獨立完成，可以有以下方式：
  - 使用者自建
  - 由公司資訊部門自行開發
  - 由相關部門人員組成任務編組開發
- 若取自於公司外部，則可：
  - 委外開發
  - 購買現成之套裝軟體
  - 引進同業之系統
  - 採取租賃方式
- 其他方式
  - 上述各種策略之綜合，或由部分同業聯合共同找資訊公司開發等。



## 交易處理系統

- 交易處理系統亦稱資料處理系統，其主要目的是將大量的交易處理自動化。此系統的兩種主要功能為交易記錄之保存與交易表單之產生。
- POS系統之前檯系統、加油站之加油作業與收銀系統，金融機構之櫃檯系統等皆屬於交易處理系統。

## 管理資訊系統

- 管理資訊系統主要之目的是提供不同層級的管理者有關組織營運狀況不同摘述程度之報表，這些報表之格式事先設定，資料之處理與報表之產生也多是結構化的。該系統的兩種主要功能是交易資料之記錄保存與摘述性報表之產生。
- POS系統之後檯系統是屬於管理資訊系統。



## 企業資源規劃系統

- 能即時整合與規劃分散於各據點之企業資源及掌握企業之營運狀況，並能隨時依需求彈性地處理與展示資訊。
- 狹義的觀點視ERP系統為整合與規劃企業內部資源之系統。
- 廣義的觀點視ERP系統為整合與規劃企業內外部資源之系統（例如包括上下游之供應鏈管理）。

## 決策支援系統

- 決策支援系統之主要目的是支援決策者，以提升其決策效率與效能。
- 決策支援系統主要是支援半結構化或非結構化之決策活動，其主要特徵有：
  - 能以即興、自訂性或標準化的方式分析資料與產生報表。
  - 能直接與決策者產生互動。
  - 例如：POS 系統之後檯系統，除了固定式資料查詢、處理、分析與報表產生外，若還能與使用者互動，並依其需求擷取分析與展示資訊，則該系統可稱為DSS。

## 高階主管資訊系統

- 高階主管資訊系統是針對高階主管之資訊需求而設計，其目的是希望高階主管能直接從電腦中，即時得到其所需之關鍵資訊，而不需透過中介使用者。
- 高階主管資訊系統有一些重要的特徵，例如可過濾、摘述關鍵資訊。一般來說，高階主管資訊系統之特徵與決策支援系統相同，但高階主管資訊系統比決策支援系統有更多的限制，故高階主管資訊系統可視為是決策支援系統的一種特例。

# 專家系統

- 專家系統初期發展的目的是用以取代人類專家，並希望專家系統所提供之解答或建議可達到人類專家之水準。
- 專家系統有三個主要元件：使用者介面、推理機與知識庫。使用者介面是專家系統與使用者交談之機制；推理機是專家系統依使用者之要求從知識庫中推論出結果或建議之機制；知識庫則是系統儲存專家知識的地方。
- 如今，專家系統不再強調取代專家，而是支援專家，因此專家系統也漸成為另一種決策支援系統。



# 資訊系統之種類及其特性

| 資訊系統種類 | 資訊系統特性 |
|---|---|
| 交易處理系統 | 針對大量交易處理之自動化，其處理程序及資訊需求非常結構化，且一經決定後就不常改變。 |
| 管理資訊系統 | 提供給不同層級的管理者，有關組織營運狀況不同摘述程度之報表，且報表之格式是預定的。一般來說，這些資料之處理與報表之格式事先預定，且一經決定後就不常改變。 |
| 決策支援系統 | 主要是用以支援決策者半結構化或非結構化之決策。一般來說，需求沒有固定形式。 |
| 企業資源規劃系統 | 能即時整合與規劃企業分散於各據點之企業資源，並能隨時依需求彈性的處理與展示資訊。 |

# 系統開發

重點在討論一個軟體資訊系統的開發過程中所涉及到的：

- 系統建置的規劃與管理
- 分析與設計所採用的方法
- 分析與設計所採用的技術
- 以及各種相關事項

## 1.6 Organizational Information Models

## Functions and Organizational Levels

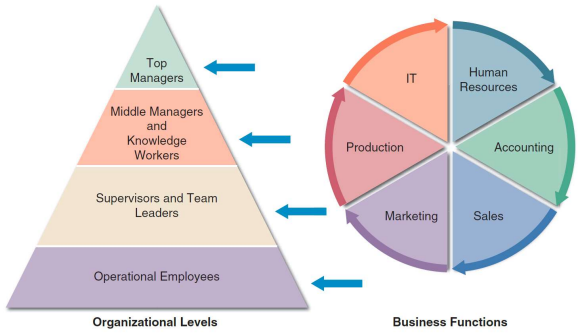



**FIGURE 1-14** A typical organizational model identifies business functions and organizational levels.




## What Information Do Users Need?

- **Top Managers**
  - Use IT to develop long-range **strategic plans**
    - Require information such as economic forecasts, technology trends, competitive threats, and governmental issues




## What Information Do Users Need?

- **Middle Managers and Knowledge Workers**
  - Middle managers provide direction, resources, and performance feedback to supervisors and team leaders
    - Require more detailed information than top managers
  - Knowledge workers provide support for the organization's basic functions




## What Information Do Users Need?

(Cont.2)

- **Supervisors and Team Leaders**
  - Oversee operational employees and carry out day-to-day functions
    - Require decision support information, knowledge management systems, and user productivity systems

## What Information Do Users Need?
(Cont.2)

- **Operational Employees**
  - Rely on TP systems to enter and receive data they need to perform their jobs
  - **Empowered** to handle tasks and make decisions that were assigned previously to supervisors






## 資訊系統開發人員

- 資訊系統開發之相關人員包括：
  - A. 終端使用者：提供使用者需求與企業知識
  - B. 終端使用者之高層主管：決定系統發展方向，提供資源
  - C. 程式設計師：依藍圖設計程式，建立資料庫，測試及安裝系統
  - D. 系統分析師：使用者需求→資訊技術、企業處理、知識等軟硬體藍圖
  - E. 資訊系統經理：統籌系統建置與開發
  - F. 資料庫管理者及其他技師等：負責資料庫、作業系統等軟硬體之建置、管理及維護

## 1.7 Systems Development

## Systems Development Methods

- Structured Analysis
- Object-Oriented (O-O) Analysis
- Agile/Adaptive Methods

## Systems Development Methods (Cont.1)

- **Structured Analysis**
  - Time-tested and easy to understand
  - Uses the **systems development life cycle (SDLC)**
  - Based on predictive approach
  - Process-centered technique
    - Uses process models to graphically describe a system
  - Addresses data organization and structure, relational database design, and user interface issues
  - The SDLC describes activities and functions that all systems developers perform, regardless of which approach they use



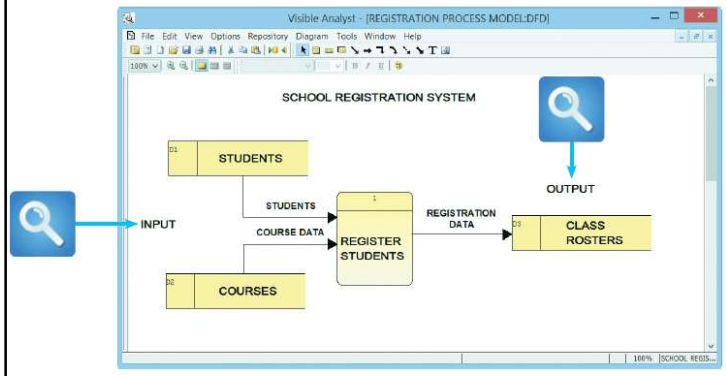




**FIGURE 1-18** This Visible Analyst screen shows a process model for a school registration system. The REGISTER STUDENTS process accepts input data from two sources and transforms it into output data.
Source: Visible Systems Corporation



## SDLC Development phases and deliverables

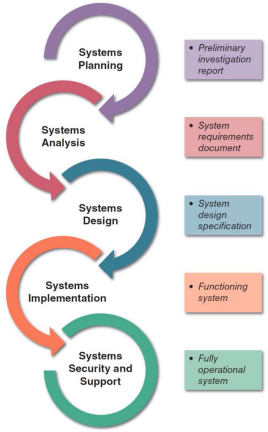



**FIGURE 1-19** Development phases and deliverables are shown in the waterfall model. The circular symbols indicate interaction among the phases.




## Steps in the SDLC Model

- **Systems planning**
  - Initiated by a **systems request**
  - Goal - To perform a **preliminary investigation**
  - **Feasibility study**: Reviews anticipated costs and benefits and recommends a course of action

## Steps in the SDLC Model

- **Systems analysis**
  - **Goal** : To build a logical model of the new system
  - **Requirements modeling**: Analyst investigates business processes and documents the functions to be performed by the new system
  - **Deliverable** : **System requirements document**




## Steps in the SDLC ModelSystems

- **Systems design**
  - **Goal** – To create a physical model that satisfies all documented requirements
  - User interface is designed and application architecture is determined
  - Outputs, inputs, and processes are identified
  - Deliverable - **System design specification**
  - Management and user involvement is critical




## Steps in the SDLC

- **Systems implementation**
  - New system is constructed, programs are written, tested, and documented, and the system is installed
  - Deliverable - A completely functional and documented information system
  - Includes systems evaluation




## Steps in the SDLC

- **Systems support and security**
  - IT staff maintains, enhances, and protects the system
  - A well-designed system must be secure, reliable, maintainable, and **scalable**

## Systems Development Methods (Cont.7)

- **Object-Oriented Analysis**
  - Combines data and the processes that act on the data into objects
    - **Object**: Member of a **class**, which possesses **properties**
    - O-O methodology provides easy transition to O-O programming languages like Java

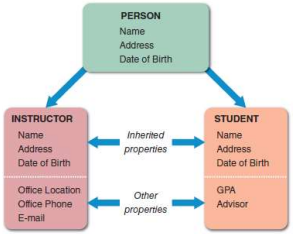



**FIGURE 1-20** The PERSON class includes INSTRUCTOR and STUDENT objects, which have their own properties and inherited properties.




## Object-Oriented Development Model

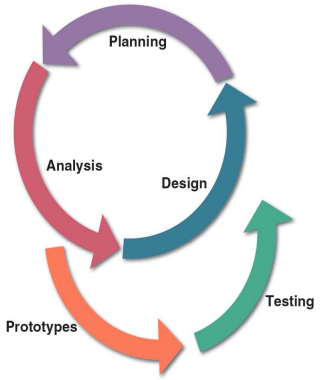



**FIGURE 1-21** In a typical O-O development model, planning, analysis, and design tasks interact continuously to generate prototypes that can be tested.




## Systems Development Methods (Cont.9)

- **Agile Methods**
  - Involve building and constantly adjusting a series of prototypes to user requirements
  - Use a spiral model
    - **Spiral model**: Series of **iterations** based on user feedback
    - Feedback from prior steps is incorporated in each incremental step
  - Allow developers to be more flexible and responsive




## Agile Methods

- Disadvantages
  - Riskier than traditional methods
  - Weak documentation and blurred lines of accountability
  - Lack of emphasis on the larger business picture

## Other Development Methods

- **Joint application development (JAD)**
  - Focuses on team-based fact-finding
- **Rapid application development (RAD)**
  - A compressed version of the entire development process





## Systems Development Tools

- **Modeling**
  - Graphical representation of a concept or process
    - **Business model**
    - Data model
    - Object model
    - Network model
    - Process model

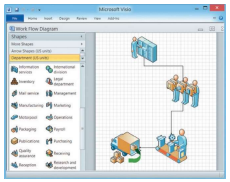


**FIGURE 1-15 Microsoft Visio** allows you to drag and drop various symbols and connect them to show a business process.
Source: Microsoft Visio 2010





## Systems Development

- Prototyping
  - Early working version of an information system
    - Disadvantage - Important decisions might be made before business or IT issues are thoroughly understood
  - A prototype based on careful fact-finding and modeling techniques can be an extremely valuable tool





## Systems Development Tools

- **Computer-Aided Systems Engineering (CASE) Tools**
  - Known as **computer-aided software engineering**
  - Provide an overall framework for systems development
  - Support design methodologies
    - Structured analysis
    - Object-oriented analysis
  - Generate program code
    - Speeds the implementation process

## 1.8 The Information Technology Development

## The Information Technology Department

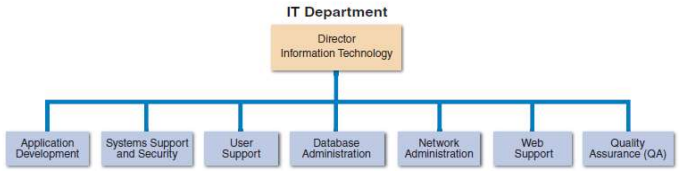



**FIGURE 1-23** Depending on its size, an IT department might have separate organizational units for these functions, or they might be combined into a smaller number of teams.




## The Information Technology Department

- **Application Development**
  - Systems are developed by teams consisting of users, managers, and IT staff members
- **Systems Support and Security**
  - Provides vital protection and maintenance services
- **User Support**
  - Provides users with technical information, training, and productivity support
    - Known as a **help desk**




## The Information Technology Department (

- **Database Administration**
  - Involves data design, management, security, backup, and access systems
- **Network Administration**
  - Includes hardware and software maintenance, support, and security
- **Web Support**
  - Web support specialists design and construct Web pages
    - Monitor traffic and manage hardware and software
    - Link Web-based applications information systems to the company's information systems

## The Information Technology Department

- **Quality Assurance (QA)**
  - QA team reviews and tests all applications and systems changes to verify specifications and software quality standards




## 1.9 The Systems Analyst

## The Systems Analyst

- Investigates, analyzes, designs, develops, installs, evaluates, and maintains a company's information systems
- Constantly interacts with users and managers within and outside the organization




## The Systems Analyst (Cont.1)

- **Roles**
  - Acts a translators to managers and programmers
  - A company's best line of defense in an IT disaster
  - Most valuable skill - The ability to listen
  - Seeks feedback from users to ensure that systems do not deviate from accomplishing set objectives

## The Systems Analyst (Cont.1)

- **Knowledge, Skills, and Education**
  - Technical knowledge
  - Communication and business skills
  - **Critical thinking skills**
  - Education - A college degree in information systems, science, or business
    - Some IT experience is required




## The Systems Analyst (Cont.2)

- **Certification**
  - Helps IT professionals learn new skills and gain recognition for their efforts




## The Systems Analyst (Cont.3)

- **Career Opportunities**
  - Companies will need systems analysts to apply new information technology
  - Explosion in e-commerce will fuel IT job growth
  - Important factors
    - Job titles
    - Company organization
    - Company size
    - Salary, location and future Growth
    - **Corporate culture**




## Trends in Information Technology

- IT is one of the fastest evolving industries
- Knowledge of current trends is vital to a systems analyst
- Key trends
  - Agile methods
  - Cloud computing
  - Mobile devices and apps
  - IT firms now offer a mix of products, services, and support
  - Social media

## 1.10 Summary

## Chapter Summary

- IT - Combination of hardware and software resources
  - Used by companies to manage, access, communicate, and share information
- Essential components of an information system
  - Hardware, software, data, processes, and people
- Successful companies offer a mix of products, technical and financial services, consulting, and customer support




## Chapter Summary (Cont.1)

- Types of information systems
  - Enterprise computing systems, transaction processing systems, business support systems, knowledge management systems, or user productivity systems
- Organization structure includes top managers, middle managers and knowledge workers, supervisors and team leaders, and operational employees




## Chapter Summary (Cont.2)

- Systems analysts use modelling, prototyping, and computer-aided systems engineering (CASE) tools
- Popular system development approaches
  - Structured analysis, object-oriented analysis, and agile methods
- In addition to technical knowledge, a systems analyst must understand the business, think critically, and communicate effectively

## Test Yourself

1. In order to best support user's IT needs, IT professionals need to understand the company's business operations. What process might a system analyst use to accomplish this?

## Test Yourself

1. In order to best support user's IT needs, IT professionals need to understand the company's business operations. What process might a system analyst use to accomplish this?
   - Business process modeling is used to represent a company's operations and information needs

## Test Yourself

2. What are the five key components of information systems?

## Test Yourself

2. What are the five key components of information systems?

Hardware
Software
Data
Processes
People

## Test Yourself

3. How are business information systems identified?

## Test Yourself

3. How are business information systems identified?
   - Functions and features

## Test Yourself

4. True/False: An enterprise computing system is highly specialized and targeted for a company's top executives.

## Test Yourself

4. True/False: An enterprise computing system is highly specialized and targeted for a company's top executives.

False

## Test Yourself

5. SDLC is an example of a _____ approach, while Extreme Programming is an example of an _____ approach.

## Test Yourself

5. SDLC is an example of a predictive approach, while Extreme Programming is an example of an adaptive approach.

## Test Yourself

6. CASE tools are:
   a) an object oriented methodology
   b) techniques or tools to help plan and design information systems
   c) team-based fact finding techniques

## Test Yourself

6. CASE tools are:
   a) an object oriented methodology
   b) techniques or tools to help plan and design information systems
   c) team-based fact finding techniques

## Test Yourself

7. Objects, classes, and methods are all terms used in structured/object oriented methodologies

## Test Yourself

7. Objects, classes, and methods are all terms used in object oriented methodologies

## Test Yourself

8. What are the phases of the systems development life cycle?

## Test Yourself

8. What are the phases of the systems development life cycle?
   - Systems planning
   - Systems analysis
   - Systems design
   - Systems implementation
   - Systems operation and support

## Test Yourself

9. List at least three of the six functions of a typical IT department

## Test Yourself

9. List at least three of the six functions of a typical IT department
   1. Application development
   2. Systems support
   3. User support
   4. Database administration
   5. Network administration
   6. Web support

## Test Yourself

10. True/False: Certification is a professional credential that is valued by little (if any) companies.

## Test Yourself

10. True/False: Certification is a professional credential that is valued by little (if any) companies.

False

## Chapter Summary

- Chapter 1 complete

129