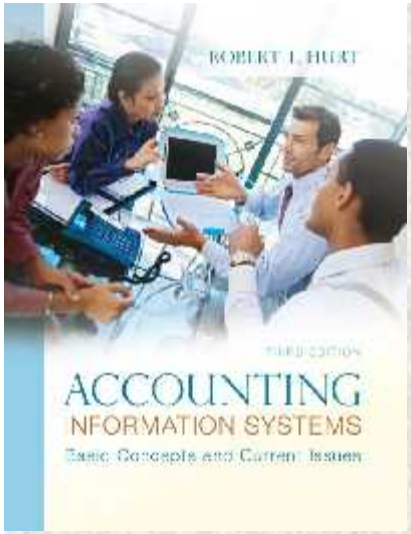


Chapter 6

Flowcharting

Outline

- Expected outcomes
- Forms of AIS documentation
- Flowchart types
- Principles
- Creation steps
- Symbols

Expected outcomes

- List and discuss the purpose and use of systems flowcharts, document flowcharts, program flowcharts and hardware flowcharts.
- Explain the basic parts of and design considerations common to all types of flowcharts.
- Identify and describe common symbols and IT tools used in flowcharting.
- Discuss ways flowcharts impact the design, implementation and evaluation of AIS.
- Create and interpret systems flowcharts.

Forms of AIS documentation

- Flowcharts

  Used by approximately 46% of accounting professionals in a survey by Bradford et al.

- Data flow diagrams

  Used by approximately 21% of accounting professionals in a survey by Bradford et al.

- REA models

  Used by approximately 20% of accounting professionals in a survey by Bradford et al.

"System Diagramming Techniques: An Analysis of Methods Used in Accounting Education and Practice." M. Bradford, S. Richtermeyer and D. Roberts. Journal of Information Systems (Spring 2007).

Forms of AIS documentation

- **Lecture break 6-1**
  - Which forms of documentation are taught in your AIS course(s)?
  - Why do AIS professors teach techniques that are not widely used in practice?

Flowchart types

- Systems flowcharts

  Provide a “big picture” overview of an information system.

- Document flowcharts

  Trace a document through an information system; more focused than a system flowchart, which would normally include documents.

- Program flowcharts

  Show the logic associated with a computer program; rarely used in AIS work.

- Hardware flowcharts

  Show the relationship among hardware elements of an information system.

The chapter emphasizes systems flowcharts, with a few instances of document flowcharts.

Principles

- General ideas / norms that guide the development of flowcharts
- Art vs. science
- Goals
  - Consistency
  - Clarity
  - Readability
- Read from top to bottom, left to right
- Plenty of white space
- Title
  - Flowchart type
  - Process depicted
  - Company name
  - Preparer name
  - Page X of Y for multiple pages

Principles

- Columns depict areas of responsibility
  - Department names
  - Position names
  - Rarely, a person's name
- Creation is an iterative process that requires discussion.

- Documents
  - Clear point of origin

    Documents are usually created by a process; they may also come from outside the system boundary.
  - Clear point of termination

    Documents often terminate in one of two ways: filing or crossing the system boundary.

Creation steps

- Establish the system boundary.
  - Some judgment and subjectivity required
  - May be modified later
- Determine column headings (areas of responsibility).
- List actions within each column.
- Choose appropriate symbols.
- Prepare a first draft.
- Discuss with others.
- Revise as needed.

Symbols

- Four broad groups defined by American National Standards Institute (ANSI)
- **Data** symbols

  Indicate the existence of data and often its medium (e.g., paper)
- **Process** symbols

  What happens to the data
- **Line** symbols

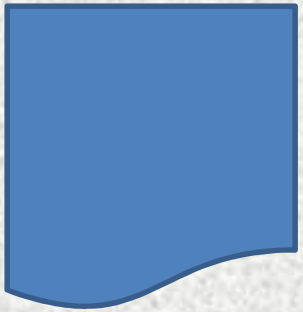
  Show flow of action
- **Special** symbols

  Facilitate reading and writing of flowchart

Symbols

Data symbols

Electronic database, labeled with the database name (e.g., “employee file”)



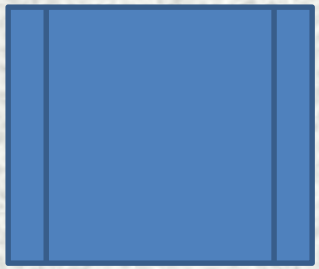
Document, labeled with its name (e.g., “purchase order”)

Visual display, often labeled with data displayed (e.g., “error report”)

Symbols

Process symbols

Generic process symbol, labeled with a verb phrase (e.g., “Gather materials”)



Predefined process symbol, used to encapsulate a multi-step process that will be understood by readers (e.g., “Complete accounting cycle”)

Manual process, labeled with a verb phrase when a process involves no IT (e.g., “Write check”)

Symbols

Process symbols

File symbol, labeled with the method of filing (e.g., by date)

Decision symbol, labeled with a question that has a binary outcome (e.g., “yes” or “no”).

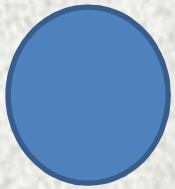
Symbols

Line symbol.

Not labeled in a flowchart.

Symbols

Special symbols



On-page connector, labeled with a letter or number, matched with an identical symbol on the same page.

Off-page connector, labeled with the page number and a letter or number. Similar symbol appears on subsequent page.

Terminator symbol, labeled in one of three ways: "Start," "End" or "To ___."

Symbols

- **Lecture break 6-2**
  - Choose one data symbol, one process symbol and one special symbol.
  - Think about a systems flowchart of the accounting cycle. When and how would you use each symbol you chose?

Classroom assessment

- This chapter has focused on flowcharts and their uses in accounting information systems.

- Try your hand at preparing a flowchart based on the short case on the next slide.
- Then, work with a partner to compare your work.
- Generate a revised flowchart with your partner.

Classroom assessment

Certified Fraud Examiners are required to complete 20 hours of continuing professional education annually. At least ten of the hours must relate directly to fraud detection / deterrence; two hours must focus on ethics. Each month, the Association of Certified Fraud Examiners (www.acfe.com) searches its member database to determine which members need to certify CPE compliance. The Association mails a letter to those members, reminding them to log on to the web site and certify their compliance. Members must do so by the date specified in the letter. The ACFE may randomly select members to provide detailed information about the CPE units they completed. If a member is so selected and cannot provide required documentation, the ACFE may extend the deadline or revoke the certification.