Chapter 5

The Expenditure Cycle Part I: Purchases and Cash Disbursements Procedures

LEARNING OBJECTIVES

After studying this chapter, you should:

- Recognize the fundamental tasks that constitute the purchases and cash disbursements process.

- Be able to identify the functional areas involved in purchases and cash disbursements activities and trace the flow of these transactions through the organization.

- Be able to specify the documents, journals, and accounts that provide audit trails, promote the maintenance of historical records, and support internal decision making and financial reporting.

- Understand the exposures associated with purchases and cash disbursements activities and recognize the controls that reduce these risks.

- Be aware of the operational features and the control implications of technology used in purchases and cash disbursements systems.

The objective of the expenditure cycle is to convert the organization's cash into the physical materials and the human resources it needs to conduct business. In this chapter we concentrate on systems and procedures for acquiring raw materials and finished goods from suppliers. We examine payroll and fixed asset systems in the next chapter.

Most business entities operate on a credit basis and do not pay for resources until after acquiring them. The time lag between these events splits the procurement process into two phases: (1) the physical phase, involving the acquisition of the resource and (2) the financial phase, involving the disbursement of cash. As a practical matter, these are treated as independent transactions that are processed through separate subsystems.

This chapter examines the principal features of the two major subsystems that constitute the expenditure cycle: (1) the purchases processing subsystem and (2) the cash disbursements subsystem. The chapter is organized into two main sections. The first section provides an overview of the conceptual system, including the logical tasks, the key entities, the sources and uses of information, and the flow of key documents through an organization. The second section deals with the physical system. We first use a manual system to reinforce the reader's understanding of key concepts. We then examine several computer-based systems, focusing on the operational and control implications of alternative data processing methods.

The Conceptual System

Overview of Purchases and Cash Disbursements Activities

In this section we examine the expenditure cycle conceptually. Using data flow diagrams (DFDs) as a guide, we will trace the sequence of activities through two of the processes that constitute the expenditure cycle for most retail, wholesale, and manufacturing organizations. These are purchases processing and cash disbursements procedures. Payroll and fixed asset systems, which also support the expenditure cycle, are covered in Chapter 6.

As in the previous chapter, the conceptual system discussion is intended to be technology-neutral. The tasks described in this section may be performed manually or by computer. At this point our focus is on what (conceptually) needs to be done, not how (physically) it is accomplished. At various stages in the processes, we will examine specific documents, journals, and ledgers as they are encountered. Again, this review is technology-neutral. These documents and files may be physical (hard copy) or digital (computer generated). Later in the chapter, we examine examples of physical systems.

Purchases Processing Procedures

Purchases procedures include the tasks involved in identifying inventory needs, placing the order, receiving the inventory, and recognizing the liability. The relationships between these tasks are presented with the DFD in Figure 5-1. In general, these procedures apply to both manufacturing and retailing firms. A major difference between the two business types lies in the way purchases are authorized. Manufacturing firms purchase raw materials for production, and their purchasing decisions are authorized by the production planning and control function. These procedures are described in Chapter 7. Merchandising firms purchase finished goods for resale. The inventory control function provides the purchase authorization for this type of firm.

Monitor Inventory Records. Firms deplete their inventories by transferring raw materials into the production process (the conversion cycle) and by selling finished goods to customers (revenue cycle). Our illustration assumes the latter case, in which inventory control monitors and records finished goods inventory levels. When inventories drop to a predetermined reorder point, a **purchase requisition** is prepared and sent to the prepare purchase order function to initiate the purchase process. Figure 5-2 presents an example of a purchase requisition.

While procedures will vary from firm to firm, typically a separate purchase requisition will be prepared for each inventory item as the need is recognized. This can result in multiple purchase requisitions for a given vendor. These purchase requisitions need to be combined into a single purchase order (discussed next), which is then sent to the vendor. In this type of system, each purchase order will be associated with one or more purchase requisitions.

Prepare Purchase Order. The prepare purchase order function receives the purchase requisitions, which are sorted by vendor if necessary. Next, a **purchase order** (PO) is prepared for each vendor, as illustrated in Figure 5-3. A copy of the PO is sent to the vendor. In addition, a copy is sent to the set up accounts payable (AP) function for filing temporarily in the AP pending file, and a blind copy is sent to the receive goods function, where it is held until the inventories arrive. The last copy is filed in the **open/closed purchase order file.**
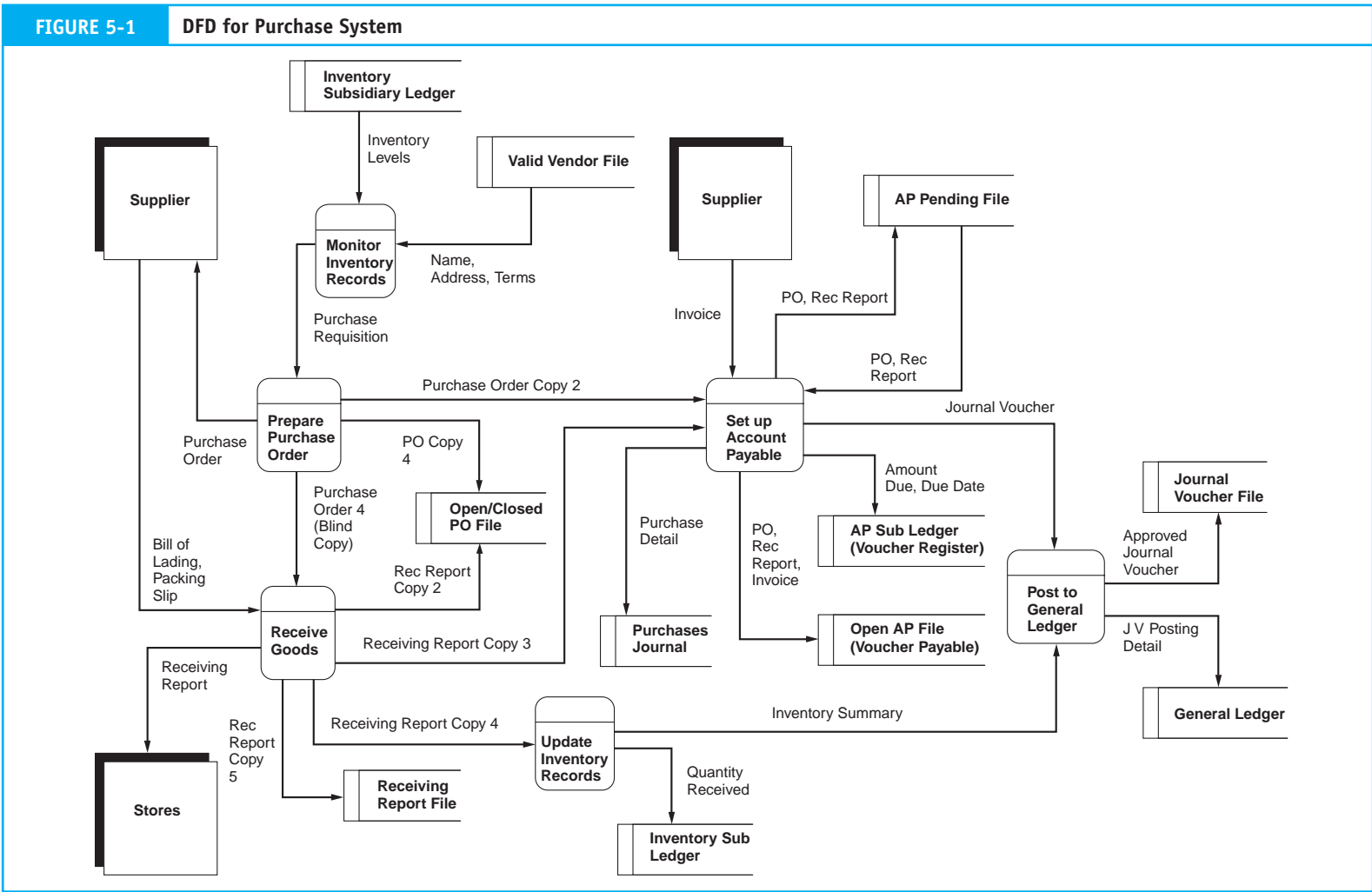
FIGURE 5-1 | **DFD for Purchase System**

FIGURE 5-2	Purchase Requisition

Hampshire Supply Co.
Purchase Requisition

No. 89631

Suggested Vendor   *Jones and Harper Co*
1620 North Main St.
Bethlehem PA 18017

Date Prepared		Date Needed
8/15/2008		*9/1/2008*

Part No.	Quantity	Description	Unit Price	Extended Price
86329	*200*	*Engine Block Core Plug*	*$1.10*	*$220*

Prepared By: *RBJ*	Approved By: *THJ*	Total Amount *$220.00*	Vendor Account *4001*

To make the purchasing process efficient, the inventory control function will supply much of the routine ordering information that the purchasing department needs directly from the inventory and **valid vendor** files. This information includes the name and address of the primary supplier, the economic order quantity (EOQ)[1] of the item, and the standard or expected unit cost of the item. This allows the purchasing department to devote its efforts to meeting scarce, expensive, or unusual inventory needs. To obtain the best prices and terms on special items, the purchasing department may need to prepare detailed product specifications and request bids from competing vendors. Dealing with routine purchases as efficiently as good control permits is desirable in all organizations. The valid vendor file contributes to both control and efficiency by listing only those vendors approved to do business with the organization. This reference helps to reduce certain vendor fraud schemes discussed in Chapter 3.

Receive Goods. Most firms encounter a time lag (sometimes a significant one) between placing the order and receiving the inventory. During this time, the copies of the PO reside in temporary files in various departments. Note that no economic event has yet occurred. At this point, the firm has received no inventories and incurred no financial obligation. Hence, there is no basis for making a formal entry into any accounting record. However, firms often make memo entries of pending inventory receipts and associated obligations.

The next event in the expenditure cycle is the receipt of the inventory. Goods arriving from the vendor are reconciled with the blind copy of the PO. The **blind copy,**

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1   The economic order quantity model and other inventory models are covered in Chapter 7.

FIGURE 5-3	Purchase Order

Hampshire Supply Co.
Purchase Order

No. 23591

Please show the above number on all shipping documents and invoices.

To :   *Jones and Harper Co.*
        1620 North Main St.
        Bethlehem PA 18017

Vendor Number	Date Ordered		Date Needed		Purchasing Agent	Terms
4001		*8/15/08*		*9/1/08*	*J. Buell*	*2/10, n/30*

Purchase Req. No.	Part No.	Quantity	Description	Unit Price	Extended Price
89631	*86329*	*200*	*Engine Block Core Plug*	*$ 1.10*	*$220.00*
89834	*20671*	*100*	*Brake Shoes*	*9.50*	*950.00*
89851	*45218*	*10*	*Spring Compressors*	*33.00*	*330.00*

Prepared By : *BKG*	Approved By : *RMS*	Total Amount	*$1,500.00*

illustrated in Figure 5-4, contains no quantity or price information about the products being received. The purpose of the blind copy is to force the receiving clerk to count and inspect inventories prior to completing the receiving report. At times, receiving docks are very busy and receiving staff are under pressure to unload the delivery trucks and sign the bills of lading so the truck drivers can go on their way. If receiving clerks are only provided quantity information, they may be tempted to accept deliveries on the basis of this information alone, rather than verify the quantity and condition of the goods. Shipments that are short or contain damaged or incorrect items must be detected before the firm accepts and places the goods in inventory. The blind copy is an important device in reducing this exposure.

Upon completion of the physical count and inspection, the receiving clerk prepares a **receiving report** stating the quantity and condition of the inventories. Figure 5-5 contains an example of a receiving report. One copy of the receiving report accompanies the physical inventories to either the raw materials storeroom or finished goods warehouse for safekeeping. Another copy is filed in the open/closed PO file to close out the purchase order. A third copy of the receiving report is sent to the AP department, where it is filed in the **AP pending file.** A fourth copy of the receiving report is sent to inventory control for updating the inventory records. Finally, a copy of the receiving report is placed in the **receiving report file.**

Update Inventory Records. Depending on the inventory valuation method in place, the inventory control procedures may vary somewhat among firms. Organizations that use a **standard cost system** carry their inventories at a predetermined standard value regardless of

FIGURE 5-4	Blind Copy Purchase Order

Hampshire Supply Co.
Purchase Order

No. 23591

Please show the above number on all shipping documents and invoices.

To : *Jones and Harper Co.*
1620 North Main St.
Bethlehem PA 18017

Vendor Number	Date Ordered		Date Needed	Purchasing Agent	Terms
4001	*8/15/08*		*9/1/08*	*J. Buell*	*2/10, n/30*

Purchase Req. No.	Part No.	Quantity	Description	Unit Price	Extended Price
89631 *89834* *89851*	*86329* *20671* *45218*		*Engine Block Core Plug* *Brake Shoes* *Spring Compressors*		

Prepared By : *BKG*	Approved By : *RMS*		Total Amount	

FIGURE 5-5	Receiving Report

Hampshire Supply Co.
Receiving Report

No. 62311

Vendor	*Jones and Harper Co.*	Shipped Via :	*Vendor*
Purchase Order No.	*23591*	Date Received	*9/1/08*

Part No.	Quantity	Description	Condition
86329 *20671* *45218*	*200* *100* *10*	*Engine Block Core Plug* *Brake Shoes* *Spring Compressors*	*Good* *Good* *Ear on one unit bent*

Received By: *RTS*	Inspected By: *LEW*	Delivered To: *DYT*

the price actually paid to the vendor. Figure 5-6 presents a copy of a standard cost inventory ledger.

Posting to a standard cost inventory ledger requires only information about the quantities received. Because the receiving report contains quantity information, it serves this purpose. Updating an **actual cost inventory ledger** requires additional financial information, such as a copy of the supplier's invoice when it arrives.

Set Up Accounts Payable. During the course of this transaction, the set up AP function has received and temporarily filed copies of the PO and receiving report. The organization has received inventories from the vendor and has incurred (realized) an obligation to pay for the goods.

At this point in the process, however, the firm has not received the **supplier's invoice**[2] containing the financial information needed to record the transaction. The firm will thus defer recording (recognizing) the liability until the invoice arrives. This common situation creates a slight lag (a few days) in the recording process, during which time the firm's liabilities are technically understated. As a practical matter, this misstatement is a problem only at period-end when the firm prepares financial statements. To close the books, the accountant will need to estimate the value of the obligation until the invoice arrives. If the estimate is materially incorrect, an adjusting entry must be made to correct the error. Because the receipt of the invoice typically triggers AP procedures, accountants need to be aware that unrecorded liabilities may exist at period-end closing.
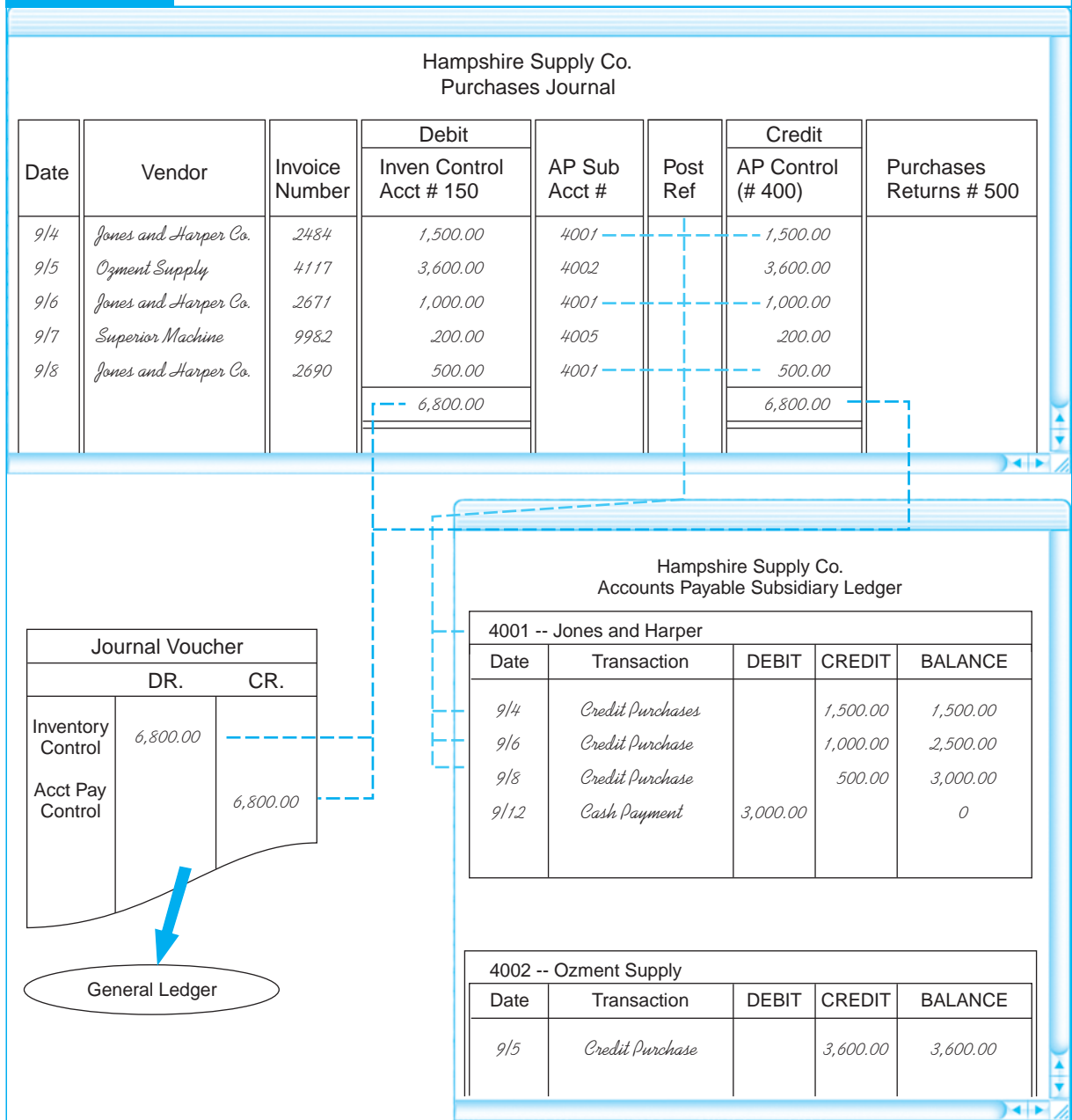
When the invoice arrives, the AP clerk reconciles the financial information with the receiving report and PO in the pending file. This is called a three-way match, which verifies that what was ordered was received and is fairly priced. Once the reconciliation is complete, the transaction is recorded in the purchases journal and posted to the supplier's account in the **AP subsidiary ledger.** Figure 5-7 shows the relationship between these accounting records.

FIGURE 5-6	Inventory Subsidiary Ledger Using Standard Cost

HAMPSHIRE MACHINE CO.									
Perpetual Inventory Record—Item #86329									
Item Description	Units Received	Units Sold	Qnty on Hand	Reorder Point	Qnty on Order	EOC	Vendor Number	Standard Cost	Total Inven. Cost
Engine Block Core Plug	200		200	30		200	4001	1.10	220
		30	170						187
		20	150						165

2   Note that the supplier's invoice in the buyer's expenditure cycle is the sales invoice of the supplier's revenue cycle.

FIGURE 5-7	Relationship between Purchase Journal, AP Subsidiary Ledger, and Journal Voucher

Hampshire Supply Co.
Purchases Journal

Date	Vendor	Invoice Number	Debit Inven Control Acct # 150	AP Sub Acct #	Post Ref	Credit AP Control (# 400)	Purchases Returns # 500
9/4	Jones and Harper Co.	2484	1,500.00	4001		1,500.00	
9/5	Ozment Supply	4117	3,600.00	4002		3,600.00	
9/6	Jones and Harper Co.	2671	1,000.00	4001		1,000.00	
9/7	Superior Machine	9982	200.00	4005		200.00	
9/8	Jones and Harper Co.	2690	500.00	4001		500.00	
			6,800.00			6,800.00	

Journal Voucher

	DR.	CR.
Inventory Control	6,800.00	
Acct Pay Control		6,800.00

General Ledger

Hampshire Supply Co.
Accounts Payable Subsidiary Ledger

4001 -- Jones and Harper

Date	Transaction	DEBIT	CREDIT	BALANCE
9/4	Credit Purchases		1,500.00	1,500.00
9/6	Credit Purchase		1,000.00	2,500.00
9/8	Credit Purchase		500.00	3,000.00
9/12	Cash Payment	3,000.00		0

4002 -- Ozment Supply

Date	Transaction	DEBIT	CREDIT	BALANCE
9/5	Credit Purchase		3,600.00	3,600.00

Recall that the inventory valuation method will determine how inventory control will have recorded the receipt of inventories. If the firm is using the actual cost method, the AP clerk would send a copy of the supplier's invoice to inventory control. If standard costing is used, this step is not necessary.

After recording the liability, the AP clerk transfers all source documents (PO, receiving report, and invoice) to the **open AP file.** Typically, this file is organized by payment

due date and scanned daily to ensure that debts are paid on the last possible date without missing due dates and losing discounts. We examine cash disbursements procedures later in this section. Finally, the AP clerk summarizes the entries in the purchases journal for the period (or batch) and prepares a journal voucher for the general ledger function (see Figure 5-7). Assuming the organization uses the perpetual inventory method, the journal entry will be:

	DR	CR
Inventory—Control	6,800.00	
Accounts Payable—Control		6,800.00

If the periodic inventory method is used, the entry will be:

	DR	CR
Purchases	6,800.00	
Accounts Payable—Control		6,800.00

Vouchers Payable System

Rather than using the AP procedures described in the previous section, many firms use a **vouchers payable system.** Under this system, the AP department uses **cash disbursement vouchers** and maintains a voucher register. After the AP clerk performs the three-way match, he or she prepares a cash disbursement voucher to approve payment. Vouchers provide improved control over cash disbursements and allow firms to consolidate several payments to the same supplier on a single voucher, thus reducing the number of checks written. Figure 5-8 shows an example of a voucher.

Each voucher is recorded in the **voucher register,** as illustrated in Figure 5-9. The voucher register reflects the AP liability of the firm. The sum of the unpaid vouchers in

FIGURE 5-8	Cash Disbursement Voucher

Hampshire Supply Co.
Cash Disbursement Voucher

No.   **1870**

Date___9/12/07___

Disburse Check to: Jones and Harper Co.
1620 North Main St.
Bethlehem Pa. 18017

Invoice Number	Invoice Date	Invoice Amount	Discount Amount	Net Amount
2484	9/4/07	$1,500		$1,500
2671	9/6/07	$1,000		$1,000
2690	9/8/07	$525	$25	$500

Prepared By: RJK	Approved By: JAN	Total Amount $3,000	Account Debited 4001

FIGURE 5-9	Voucher Register

Hampshire Supply Co.
Voucher Register

| Date | Voucher No. | Paid | | Voucher Payable (Credit) | Merchandise Debit | Supplies Debit | Selling Expense Debit | Administrative Expense Debit | Fixed Assets Debit | Misc. Debits | |
		Check No.	Date							Acct. No.	Amount
9/12/07	1870	104	9/14	3,000	3,000						
9/13/07	1871			3,600		3,600					
9/14/07	1872	105	9/15	500			500				

the register (those with no check numbers and paid dates) is the firm's total AP balance. The AP clerk files the cash disbursement voucher, along with supporting source documents, in the **vouchers payable file.** This file is equivalent to the open AP file discussed earlier and also is organized by due date. The DFD in Figure 5-1 illustrates both liability recognition methods.

Post to General Ledger. The general ledger function receives a journal voucher from the AP department and an account summary from inventory control. The general ledger function posts from the journal voucher to the inventory and AP control accounts and reconciles the inventory control account and the inventory subsidiary summary. The approved journal vouchers are then posted to the journal voucher file. With this step, the purchases phase of the expenditure cycle is completed.

The Cash Disbursements Systems

The cash disbursements system processes the payment of obligations created in the purchases system. The principal objective of this system is to ensure that only valid creditors receive payment and that amounts paid are timely and correct. If the system makes payments early, the firm forgoes interest income that it could have earned on the funds. If obligations are paid late, however, the firm will lose purchase discounts or may damage its credit standing. Figure 5-10 presents a DFD conceptually depicting the information flows and key tasks of the cash disbursements system.

Identify Liabilities Due. The cash disbursements process begins in the AP department by identifying items that have come due. Each day, the AP function reviews the open AP file (or vouchers payable file) for such items and sends payment approval in the form of a **voucher packet** (the voucher and/or supporting documents) to the cash disbursements department.

Prepare Cash Disbursement. The cash disbursements clerk receives the voucher packet and reviews the documents for completeness and clerical accuracy. For each disbursement, the clerk prepares a check and records the check number, dollar amount, voucher number, and other pertinent data in the **check register,** which is also called the **cash disbursements journal.** Figure 5-11 shows an example of a check register.

FIGURE 5-10   **DFD for Cash Disbursements System**

- Open AP File (Voucher Payable) → Due Date, Amount Due → Identify Liabilities Due
- Identify Liabilities Due → Voucher Packet → Prepare Cash Disbursement
- Prepare Cash Disbursement → Payment Detail → Check Register
- Prepare Cash Disbursement → Check → Supplier
- Prepare Cash Disbursement → Check Copy → Update AP Record
- Prepare Cash Disbursement → Journal Voucher → Post to General Ledger
- Update AP Record → Check Number, Payment Date → AP Sub Ledger (Voucher Register)
- Update AP Record → Voucher Packet, Check Copy → Closer Voucher File
- Update AP Record → AP Summary → Post to General Ledger
- Post to General Ledger → Approved Journal Voucher → Journal Voucher File
- Post to General Ledger → J V Posting Detail → General Ledger

FIGURE 5-11	Cash Disbursements Journal (Check Register)

Cash Disbursements Journal

Date	Check No.	Voucher No.	Description	Credit		GL / Subsidiary Account Debited	Posted	Vouch Pay 401	Freight-in 516	Op Expen 509	Other	Posted
				Cash	Purch. Disc.							
9/4/07	101	1867	Martin Motors	500		Auto					500	✓
9/4/07	102	1868	Pen Power	100		Utility	✓			100		
9/12/07	103	1869	Acme Auto	500		Purchases					500	✓
9/14/07	104	1870	Jones and Harper	3,000				3,000				

Depending on the organization's materiality threshold, the check may require additional approval by the cash disbursements department manager or treasurer (not shown in Figure 5-10). The negotiable portion of the check is mailed to the supplier, and a copy of it is attached to the voucher packet as proof of payment. The clerk marks the documents in the voucher packets paid and returns them to the AP clerk. Finally, the cash disbursements clerk summarizes the entries made to the check register and sends a journal voucher with the following journal entry to the general ledger department:

	DR	CR
Accounts Payable	XXXX.XX	
Cash		XXXX.XX

Update AP Record. Upon receipt of the voucher packet, the AP clerk removes the liability by debiting the AP subsidiary account or by recording the check number and payment date in the voucher register. The voucher packet is filed in the **closed voucher file,** and an account summary is prepared and sent to the general ledger function.

Post to General Ledger. The general ledger function receives the journal voucher from cash disbursements and the account summary from AP. The voucher shows the total reductions in the firm's obligations and cash account as a result of payments to suppliers. These numbers are reconciled with the AP summary, and the AP control and cash accounts in the general ledger are updated accordingly. The approved journal voucher is then filed. This concludes the cash disbursements procedures.

Expenditure Cycle Controls

This section describes the primary internal controls in the expenditure cycle according to the control procedures specified in Statement on Auditing Standards No. 78. The main points are summarized in Table 5-1.

TABLE 5-1	Summary of Expenditure Cycle Controls	

CONTROL POINTS IN THE EXPENDITURE CYCLE		
Control Activity	**Purchases Processing System**	**Cash Disbursements System**
Transactions authorization	Inventory control.	AP authorizes payment.
Segregation of duties	Inventory control separate from purchasing and inventory custody. AP subsidiary ledger separate from the general ledger.	Separate AP subsidiary ledger, cash disbursements, and general ledger functions.
Supervision	Receiving area.	
Accounting records	AP subsidiary ledger, general ledger, purchases requisition file, purchase order file, receiving report file.	Voucher payable file, AP subsidiary ledger, cash disbursements journal, general ledger cash accounts.
Access	Security of physical assets. Limit access to the accounting records above.	Proper security over cash. Limit access to the accounting records above.
Independent verification	AP reconciles source documents before liability is recorded. General ledger reconciles overall accuracy of process.	Final review by cash disbursements. Overall reconciliation by general ledger. Periodic bank reconciliation by controller.

Transaction Authorization

Purchases Subsystem. The inventory control function continually monitors inventory levels. As inventory levels drop to their predetermined reorder points, inventory control formally authorizes replenishment with a purchase requisition.

Formalizing the authorization process promotes efficient inventory management and ensures the legitimacy of purchases transactions. Without this step, purchasing agents could purchase inventories at their own discretion, being in a position both to authorize and to process the purchase transactions. Unauthorized purchasing can result in excessive inventory levels for some items, while others go out of stock. Either situation is potentially damaging to the firm. Excessive inventories tie up the organization's cash reserves, and stock-outs cause lost sales and manufacturing delays.

Cash Disbursements Subsystem. The AP function authorizes cash disbursements via the cash disbursement voucher. To provide effective control over the flow of cash from the firm, the cash disbursements function should not write checks without this explicit authorization. A cash disbursements journal (check register) containing the voucher number authorizing each check (see Figure 5-11) provides an audit trail for verifying the authenticity of each check written.

Segregation of Duties

Segregation of Inventory Control from the Warehouse. Within the purchases subsystem, the primary physical asset is inventory. Inventory control keeps the detailed records of the asset, while the warehouse has custody. At any point, an auditor should be able to reconcile inventory records to the physical inventory.

Segregation of the General Ledger and Accounts Payable from Cash Disbursements. The asset subject to exposure in the cash disbursements subsystem is cash. The records controlling this asset are the AP subsidiary ledger and the cash account in the general ledger. An individual with the combined responsibilities of writing checks, posting to the cash account, and maintaining AP could perpetrate fraud against the firm. For instance, an individual with such access could withdraw cash and then adjust the cash account accordingly to hide the transaction. Also, he or she could establish fraudulent AP (to an associate in a nonexistent vendor company) and then write checks to discharge the phony obligations. By segregating these functions, we greatly reduce this type of exposure.

Supervision

In the expenditure cycle, the area that most benefits from supervision is the receiving department. Large quantities of valuable assets flow through this area on their way to the warehouse. Close supervision here reduces the chances of two types of exposure: (1) failure to properly inspect the assets and (2) the theft of assets.

Inspection of Assets. When goods arrive from the supplier, receiving clerks must inspect items for proper quantities and condition (damage, spoilage, and so on). For this reason, the receiving clerk receives a blind copy of the original PO from purchasing. A blind PO has all the relevant information about the goods being received except for the quantities and prices. To obtain quantities information, which is needed for the receiving report, the receiving personnel are forced to physically count and inspect the goods. If receiving clerks were provided with quantity information via an open PO, they may be tempted to transfer this information to the receiving report without performing a physical count.

Inspecting and counting the items received protects the firm from incomplete orders and damaged goods. Supervision is critical at this point to ensure that the clerks properly carry out these important duties. A packing slip containing quantity information that could be used to circumvent the inspection process often accompanies incoming goods. A supervisor should take custody of the packing slip while receiving clerks count and inspect the goods.

Theft of Assets. Receiving departments are sometimes hectic and cluttered during busy periods. In this environment, incoming inventories are exposed to theft until they are securely placed in the warehouse. Improper inspection procedures coupled with inadequate supervision can create a situation that is conducive to the theft of inventories in transit.

Accounting Records

The control objective of accounting records is to maintain an audit trail adequate for tracing a transaction from its source document to the financial statements. The expenditure cycle employs the following accounting records: AP subsidiary ledger, voucher register, check register, and general ledger. The auditor's concern in the expenditure cycle is that obligations may be materially understated on financial statements because of unrecorded

transactions. This is a normal occurrence at year-end closing simply because some supplier invoices do not arrive in time to record the liabilities. This also happens, however, as an attempt to intentionally misstate financial information. Hence, in addition to the routine accounting records, expenditure cycle systems must be designed to provide supporting information, such as the purchase requisition file, the PO file, and the receiving report file. By reviewing these peripheral files, auditors may obtain evidence of inventory purchases that have not been recorded as liabilities.

Access Controls

Direct Access. In the expenditure cycle, a firm must control access to physical assets such as cash and inventory. These control concerns are essentially the same as in the revenue cycle. Direct access controls include locks, alarms, and restricted access to areas that contain inventories and cash.

Indirect Access. A firm must limit access to documents that control its physical assets. For example, an individual with access to purchase requisitions, purchase orders, and receiving reports has the ingredients to construct a fraudulent purchase transaction. With the proper supporting documents, a fraudulent transaction can be made to look legitimate to the system and could be paid.

Independent Verification

Independent Verification by Accounts Payable. The AP function plays a vital role in the verification of the work others in this system have done. Copies of key source documents flow into this department for review and comparison. Each document contains unique facts about the purchase transaction, which the AP clerk must reconcile before the firm recognizes an obligation. These include:

1. The PO, which shows that the purchasing agent ordered only the needed inventories from a valid vendor.[3] This document should reconcile with the purchase requisition.
2. The receiving report, which is evidence of the physical receipt of the goods, their condition, and the quantities received. The reconciliation of this document with the PO signifies that the organization has a legitimate obligation.
3. The supplier's invoice, which provides the financial information needed to record the obligation as an account payable. The AP clerk verifies that the prices on the invoice are reasonable compared with the expected prices on the PO.

Independent Verification by the General Ledger Department. The general ledger function provides an important independent verification in the system. It receives journal vouchers and summary reports from inventory control, AP, and cash disbursements. From these sources, the general ledger function verifies that the total obligations recorded equal the total inventories received and that the total reductions in AP equal the total disbursements of cash.

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3   Firms often establish a list of valid vendors with whom they do regular business. Purchasing agents must acquire inventories only from valid vendors. This technique deters certain types of fraud, such as an agent buying from suppliers with whom he or she has a relationship (a relative or friend) or buying at excessive prices from vendors in exchange for a kickback or bribe.

Physical Systems

In this section we examine the physical system. This begins with a review of manual procedures and then moves on to deal with several forms of computer-based systems. As mentioned in the previous chapter, manual systems are covered here as a visual training aid to promote a better understanding of the concepts presented in the previous section. From this point, therefore, the reader may continue with the review of manual systems or, without loss of technical content, bypass this material and go directly to computer-based systems located on page 252.

A Manual System

The purpose of this section is to support the conceptual treatment of systems presented in the previous section. This should help you envision the relationships between organizational units, the segregation of duties, and the information flows essential to operations and effective internal control. In addition, we will highlight inefficiencies intrinsic to manual systems, which gave rise to improved technologies and techniques used by modern systems. The following discussion is based on Figure 5-12, which presents a flowchart of a manual purchases system.

Inventory Control

When inventories drop to a predetermined reorder point, the clerk prepares a **purchase requisition.** One copy of the requisition is sent to the purchasing department, and one copy is placed in the **open purchase requisition file.** Note that to provide proper authorization control, the inventory control department is segregated from the purchasing department, which executes the transaction.

Purchasing Department

The purchasing department receives the purchase requisitions, sorts them by vendor, and prepares a multipart **purchase order** (PO) for each vendor. Two copies of the PO are sent to the vendor. One copy of the PO is sent to inventory control, where the clerk files it with the open purchase requisition. One copy of the PO is sent to AP for filing in the AP pending file. One copy (the blind copy) is sent to the receiving department, where it is filed until the inventories arrive. The clerk files the last copy along with the purchase requisition in the **open PO file.**
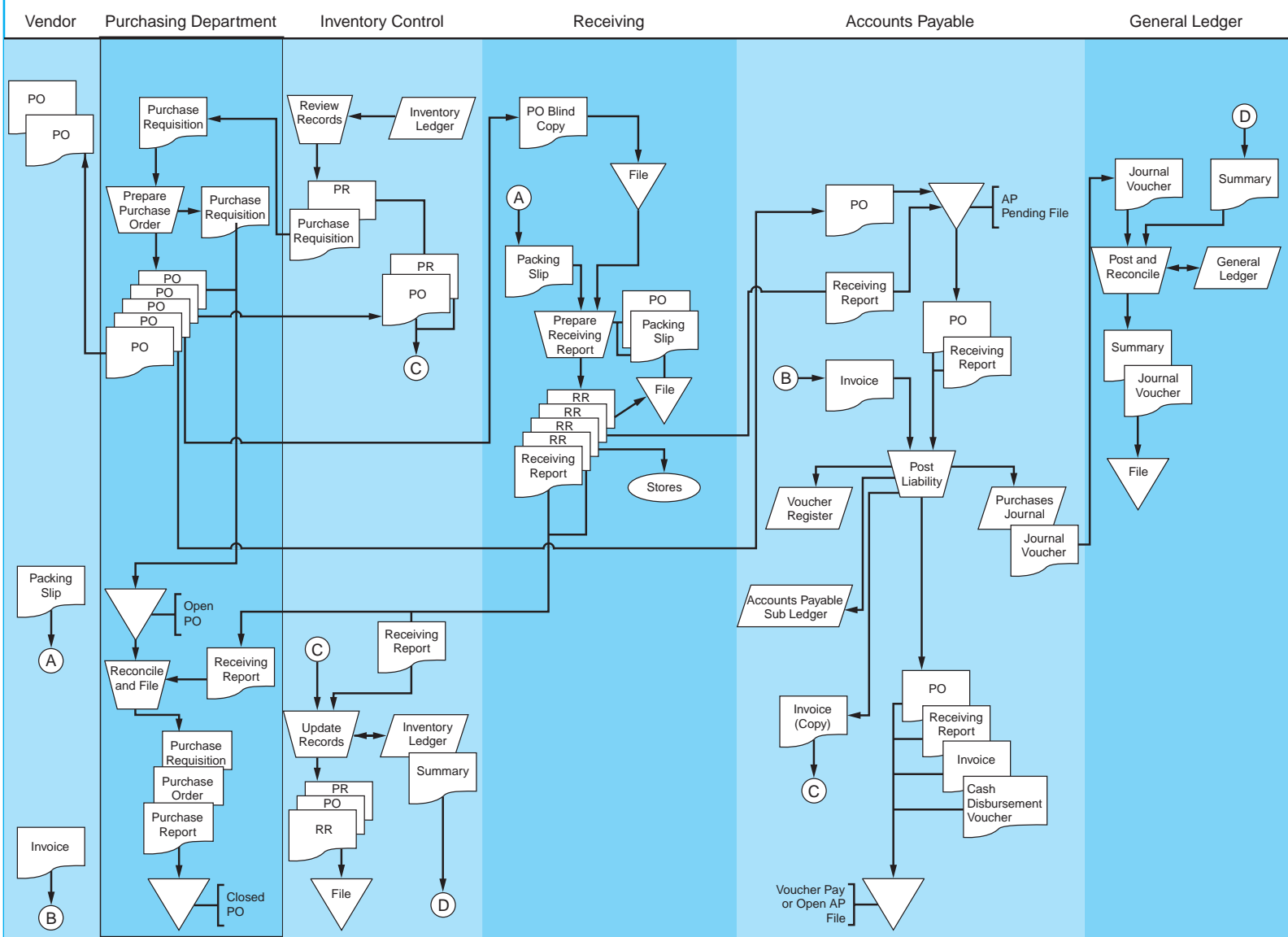
Receiving

Goods arriving from the vendor are reconciled with the blind copy of the PO. Upon completion of the physical count and inspection, the receiving clerk prepares a multipart receiving report stating the quantity and condition of the inventories. One copy of the receiving report accompanies the physical inventories to the storeroom. Another copy is sent to the purchasing department, where the purchasing clerk reconciles it with the open PO. The clerk closes the open PO by filing the purchase requisition, the PO, and the receiving report in the **closed PO file.**

   A third copy of the receiving report is sent to inventory control where (assuming a standard cost system) the inventory subsidiary ledger is updated. A fourth copy of the receiving report is sent to the AP department, where it is filed in the AP pending file. The final copy of the receiving report is filed in the receiving department.

FIGURE 5-12   **Manual Purchase System**

Vendor	Purchasing Department	Inventory Control	Receiving	Accounts Payable	General Ledger

Vendor: PO, PO

Purchasing Department: Purchase Requisition → Prepare Purchase Order → Purchase Requisition; PO, PO, PO, PO, PO; Open PO; Reconcile and File; Receiving Report; Purchase Requisition, Purchase Order, Purchase Report; Closed PO

Inventory Control: Review Records ← Inventory Ledger; PR, Purchase Requisition; PR, PO → C; Update Records → Inventory Ledger, Summary; PR, PO, RR; Receiving Report; File; C; D

Receiving: PO Blind Copy → File; A → Packing Slip → Prepare Receiving Report ← Packing Slip, PO → File; RR, RR, RR, RR, Receiving Report; Stores

Accounts Payable: PO → AP Pending File; Receiving Report; PO, Receiving Report; B → Invoice; Post Liability; Voucher Register; Purchases Journal; Journal Voucher; Accounts Payable Sub Ledger; Invoice (Copy) → C; PO, Receiving Report, Invoice, Cash Disbursement Voucher; Voucher Pay or Open AP File

General Ledger: D → Summary; Journal Voucher; Post and Reconcile ← General Ledger; Summary, Journal Voucher; File

Packing Slip → A
Invoice → B

AP Department

When the invoice arrives, the AP clerk reconciles the financial information with the documents in the pending file, records the transaction in the purchases journal, and posts it to the supplier's account in the AP subsidiary ledger (voucher register). After recording the liability, the AP clerk transfers the source documents (PO, receiving report, and invoice) to the **open vouchers payable (AP) file.**

General Ledger Department

The general ledger department receives a journal voucher from the AP department and an account summary from inventory control. The general ledger clerk reconciles these and posts to the inventory and AP control accounts. With this step, the purchases phase of the expenditure cycle is completed.

The Cash Disbursements Systems

A detailed document flowchart of a manual cash disbursements system is presented in Figure 5-13. The tasks performed in each of the key processes are discussed in the following section.

FIGURE 5-13   Cash Disbursements System
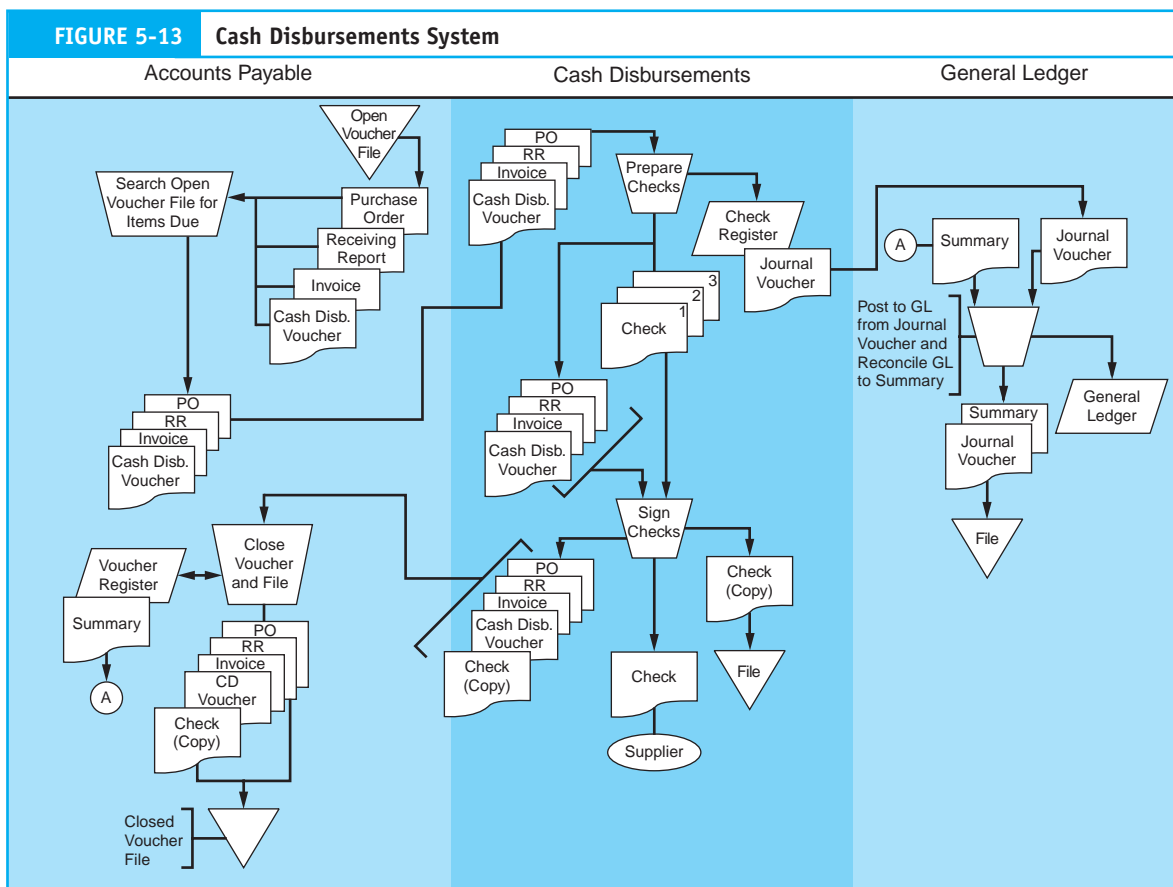
AP Department

Each day, the AP clerk reviews the open vouchers payable (AP) file for items due and sends the vouchers and supporting documents to the cash disbursements department.

Cash Disbursements Department

The cash disbursements clerk receives the voucher packets and reviews the documents for completeness and clerical accuracy. For each disbursement, the clerk prepares a three-part check and records the check number, dollar amount, voucher number, and other pertinent data in the check register.

The check, along with the supporting documents, goes to the cash disbursements department manager, or treasurer, for his or her signature. The negotiable portion of the check is mailed to the supplier. The clerk returns the voucher packet and check copy to the AP department and files one copy of the check. Finally, the clerk summarizes the entries made to the check register and sends a journal voucher to the general ledger department.

AP Department

Upon receipt of the voucher packet, the AP clerk removes the liability by recording the check number in the voucher register and filing the voucher packet in the closed voucher file. Finally, the clerk sends an AP summary to the general ledger department.

General Ledger Department

Based on the journal voucher from cash disbursements and the account summary from AP, the general ledger clerk posts to the general ledger control accounts and files the documents. This concludes the cash disbursements procedures.

Concluding Remarks

We conclude our discussion of manual systems with two points of observation. First, notice how manual expenditure cycle systems generate a great deal of paper documentation. Buying, preparing, transporting, and filing physical documents add considerably to the cost of system operation. As we shall see in the next section, their elimination or reduction is a primary objective of computer-based systems design.

Second, for purposes of internal control, many functions such as the inventory control, purchasing, AP, cash disbursements, and the general ledger are located in physically separate departments. These labor-intensive activities also add greatly to the cost of system operation. In computer-based systems, computer programs perform these clerical tasks, which is much cheaper and far less prone to error. Although the classic department structure may still exist in computer-based environments, personnel responsibilities are refocused. Rather than being involved in day-to-day transaction processing, these departments are now involved with financial analysis and exception-based problem solving. As a result, these departments are smaller and more efficient than their manual system counterpart.

Computer-Based Purchases and Cash Disbursements Applications

Now that we have covered the fundamental operational tasks and controls that constitute the expenditure cycle, let's examine the role of computers. In Chapter 4 we presented a

technology continuum with automation at the low end and reengineering at the high end. Recall that automation involves using technology to improve the efficiency and effectiveness of a task, while the objective of reengineering is to eliminate nonvalue-added tasks. Reengineering involves replacing traditional procedures with innovative procedures that are often very different from those previously in place. In this section we see how both automation and reengineering techniques apply in purchases and cash disbursement systems.

Automating Purchases Procedures Using Batch Processing Technology

The automated batch system presented in Figure 5-14 has many manual procedures similar to those presented in Figure 5-12. The principal difference is that accounting (bookkeeping) tasks are now automated. The following section describes the sequence of events as they occur in this system.

Data Processing Department: Step 1

The purchasing process begins in the data processing department, where the inventory control function is performed. When inventories are reduced by sales to customers or usage in production, the system determines if the affected items in the **inventory subsidiary file** have fallen to their reorder points.[4] If so, a record is created in the open purchase requisition file. Each record in the requisition file defines a separate inventory item to be replenished. The record contains the inventory item number, a description of the item, the quantity to be ordered, the standard unit price, and the vendor number of the primary supplier. The information needed to create the requisition record is selected from the inventory subsidiary record, which is then flagged "On Order" to prevent the item from being ordered again before the current order arrives. Figure 5-15 shows the record structures for the files used in this system.

At the end of the day, the system sorts the open purchase requisition file by vendor number and consolidates multiple items from the same vendor onto a single requisition. Next, vendor mailing information is retrieved from the **valid vendor file** to produce purchase requisition documents (hard copy), which go to the purchasing department.

Purchasing Department

Upon receipt of the purchase requisition, the purchasing department prepares a multipart PO. Copies are sent to the vendor, AP, receiving, data processing, and the purchasing department's file.

The system in Figure 5-14 employs manual procedures as a control over the ordering process. A computer program identifies inventory requirements and prepares traditional purchase requisitions, but the purchasing agent reviews the requisitions before placing the order. Some firms do this to reduce the risk of placing unnecessary orders with vendors because of a computer error. Such manual intervention, however, does create a bottleneck

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4   This may be batch or real time, depending on the revenue and conversion cycle systems that interface with the expenditure cycle. The raw materials and finished goods inventory files link these three transaction cycles together. The design of one system influences the others. For example, if sales processing (revenue cycle) reduces inventories in real time, the system will naturally identify inventory requirements in real time also. This is true even if the purchases system is batch oriented.
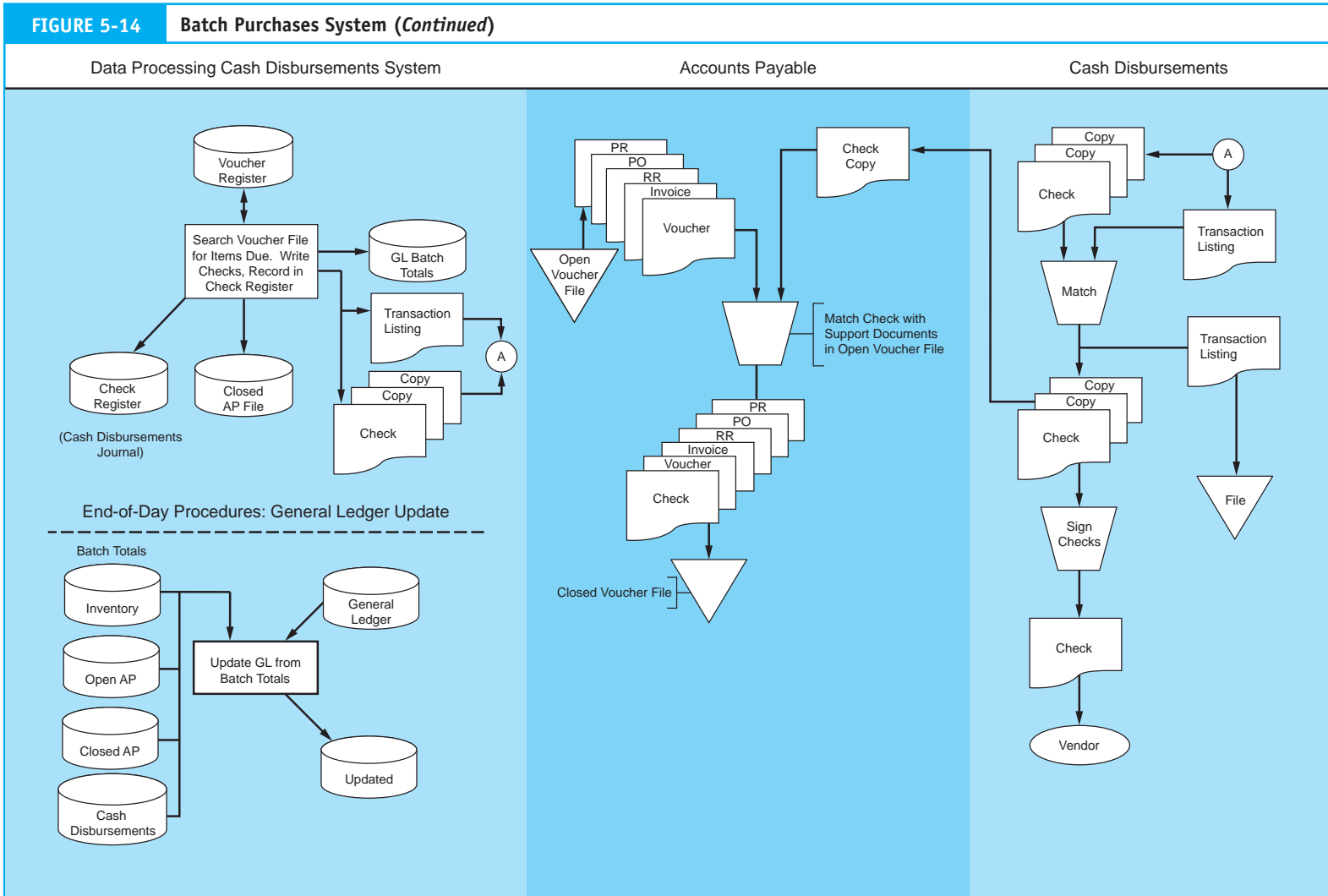
FIGURE 5-14 | **Batch Purchases System**

FIGURE 5-14   **Batch Purchases System (*Continued*)**

Data Processing Cash Disbursements System

Voucher Register

Search Voucher File for Items Due. Write Checks, Record in Check Register

GL Batch Totals

Transaction Listing

A

Check Register
(Cash Disbursements Journal)

Closed AP File

Copy
Copy
Check

End-of-Day Procedures: General Ledger Update

Batch Totals

Inventory

Open AP

Closed AP

Cash Disbursements

Update GL from Batch Totals

General Ledger

Updated

Accounts Payable

PR
PO
RR
Invoice
Voucher

Open Voucher File

Check Copy

Match Check with Support Documents in Open Voucher File

PR
PO
RR
Invoice
Voucher
Check

Closed Voucher File

Cash Disbursements

Copy
Copy
Check

A

Transaction Listing

Match

Transaction Listing

Copy
Copy
Check

File

Sign Checks

Check

Vendor

FIGURE 5-15   **Record Structures for Expenditure Cycle Files**

| Inven Num | Description | Qnty on Hand | Reorder Point | **Qnty On Order*** | EOQ | Vendor Number | Standard Cost | Total Inven. Cost | Inventory Master File |

| Pur Req Number | Inven Num | Qnty on Order | Vendor Number | Unit Standard Cost | Open (and Closed) Purchase Requisition File |

| Vendor Number | Address | Terms of Trade | Date of Last Order | Lead Time | Vendor File |

| PO Num | Pur Req Number | Inven Num | Qnty On Order | Vendor Number | Address | Standard Cost | Expected Invoice Amount | Rec Flag | Open (and Closed) Purchase Order File |

| Voucher Number | Check Num | Invoice Num | Invoice Amount | Acct Cr | Acct DR | Vendor Number | Open Date | Due Date | Close Date |

Voucher Register (Open AP File)

| Rec Rpt Number | PO Num | Carrier Code | Date Received | Condition Code | Rec Report File |

*A value in this field is a "flag" to the system not to order item a second time. When inventories are received, the flag is removed by changing this value to zero.

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and delays the ordering process. If sufficient computer controls are in place to prevent or detect purchasing errors, then more efficient ordering procedures can be implemented.

Before continuing with our example, we need to discuss alternative approaches for authorizing and ordering inventories. Figure 5-16 illustrates three common methods.

In alternative one, the system takes the procedures shown in Figure 5-14 one step further. This system automatically prepares the PO documents and sends them to the purchasing department for review and signing. The purchasing agent then mails the approved purchase orders to the vendors and distributes copies to other internal users.

Alternative two expedites the ordering process by distributing the purchase orders directly to the vendors and internal users, thus bypassing the purchasing department completely. Instead, the system produces a transaction list of items ordered for the purchasing agent's review.

Alternative three represents a reengineering technology called electronic data interchange (EDI). The concept was introduced in Chapter 4 to illustrate its application to the

FIGURE 5-16 | **Alternative Inventory Ordering Procedures**
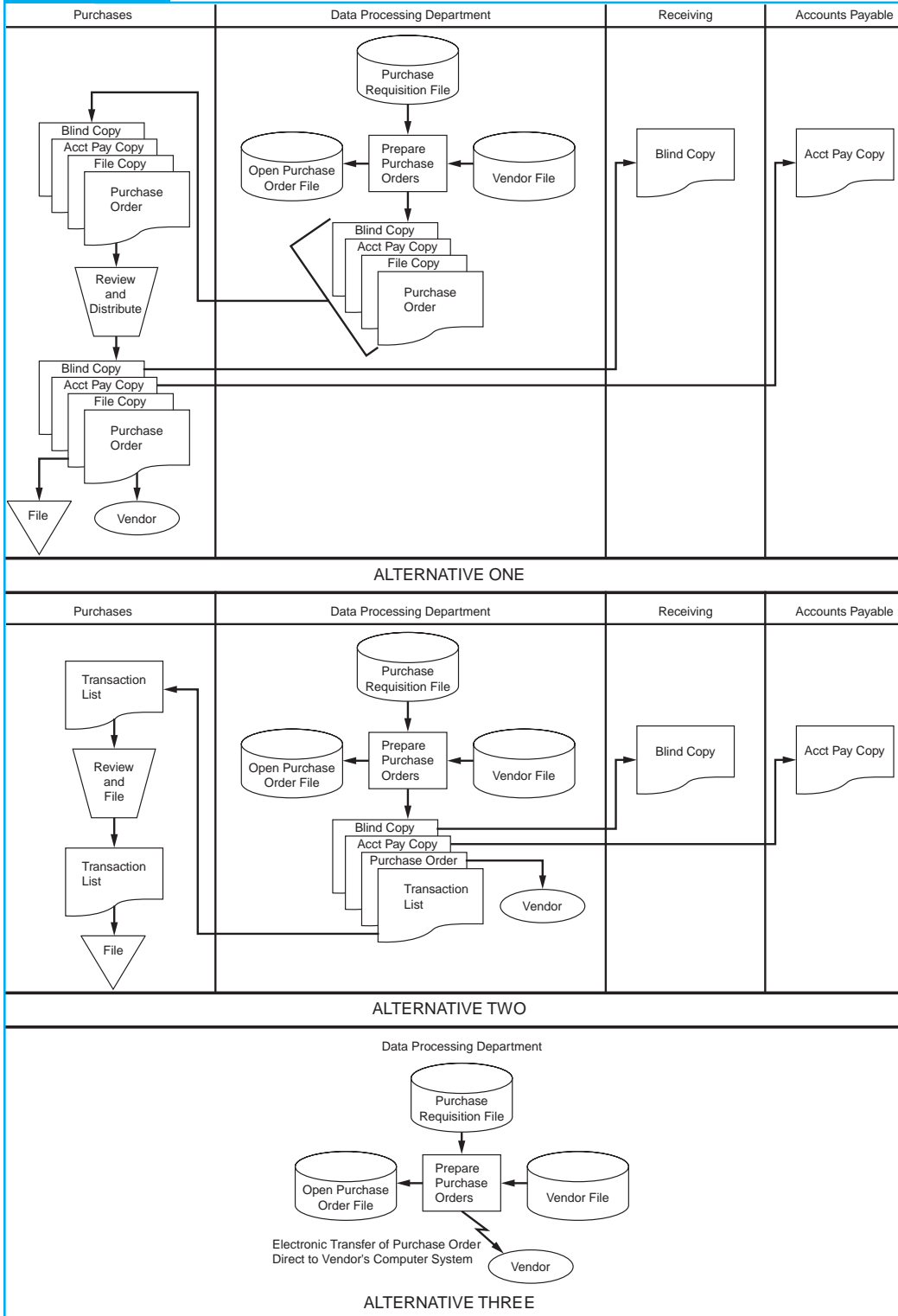
revenue cycle. This method produces no physical purchase orders. Instead, the computer systems of both the buying and selling companies are connected via a dedicated telecommunications link. The buyer and seller are parties to a trading partner arrangement in which the entire ordering process is automated and unimpeded by human intervention.

In each of the three alternatives, the tasks of authorizing and ordering are integrated within the computer system. Because physical purchase requisitions have no purpose in such a system, they are not produced. Digital requisition records, however, would still exist to provide an audit trail.

Data Processing Department: Step 2

As explained in Figure 5-14, a copy of the PO is sent to data processing and used to create a record in the open PO file. The associated requisitions are then transferred from the open purchase requisition file to the closed purchase requisition file.

Receiving Department

When the goods arrive from vendors, the receiving clerk prepares a receiving report and sends copies to purchasing, AP, and data processing.

Data Processing Department: Step 3

The data processing department creates the receiving report file from data provided by the receiving report documents. Then a batch program updates the inventory subsidiary file from the receiving report file. The program removes the "On Order" flag from the updated inventory records and calculates batch totals of inventory receipts, which will later be used in the general ledger update procedure. Finally, the associated records in the open PO file are transferred to the closed PO file.

Accounts Payable

When the AP clerk receives the supplier's invoice, he or she reconciles it with the supporting documents that were previously placed in the AP pending file. The clerk then prepares a voucher, files it in the open voucher file, and sends a copy of the voucher to data processing.

Data Processing Department: Step 4

The voucher file is created from the voucher documents. A batch program validates the voucher records against the valid vendor file and adds them to the voucher register (open AP subsidiary file). Finally, batch totals are prepared for subsequent posting to the AP control account in the general ledger.

Cash Disbursements Procedures

Data Processing Department

Each day, the system scans the DUE DATE field of the voucher register (see Figure 5-15) for items due. Checks are printed for these items, and each check is recorded in the check register (cash disbursements journal). The check number is recorded in the voucher register to close the voucher and transfer the items to the **closed AP file.** The checks, along with a transaction listing, are sent to the cash disbursements department. Finally, batch totals of closed AP and cash disbursements are prepared for the general ledger update procedure.

At the end of the day, batch totals of open (unpaid) and closed (paid) AP, inventory increases, and cash disbursements are posted to the AP control, inventory control, and cash accounts in the general ledger. The totals of closed AP and cash disbursements should balance.

Cash Disbursements Department

The cash disbursements clerk reconciles the checks with the transaction listing and submits the negotiable portion of the checks to management for signing. The checks are then mailed to the suppliers. One copy of each check is sent to AP, and the other copy is filed in cash disbursements, along with the transaction listing.

Accounts Payable Department

Upon receipt of the check copies, the AP clerk matches them with open vouchers and transfers these now closed items to the closed voucher file. This concludes the expenditure cycle process.

Reengineering the Purchases/Cash Disbursements System

The automated system described in the previous section simply replicates many of the procedures in a manual system. In particular, the AP task of reconciling supporting documents with supplier invoices is labor-intensive and costly. The following example shows how reengineering this activity can produce considerable savings.

The Ford Motor Company employed more than 500 clerks in its North American AP department. Analysis of the function showed that a large part of the clerks' time was devoted to reconciling discrepancies among supplier invoices, receiving reports, and purchase orders. The first step in solving the problem was to change the business environment. Ford initiated trading partner agreements with suppliers in which they agreed in advance to terms of trade such as price, quantities to be shipped, discounts, and lead times. With these sources of discrepancy eliminated, Ford reengineered the work flow to take advantage of the new environment. The flowchart in Figure 5-17 depicts the key features of a reengineered system.
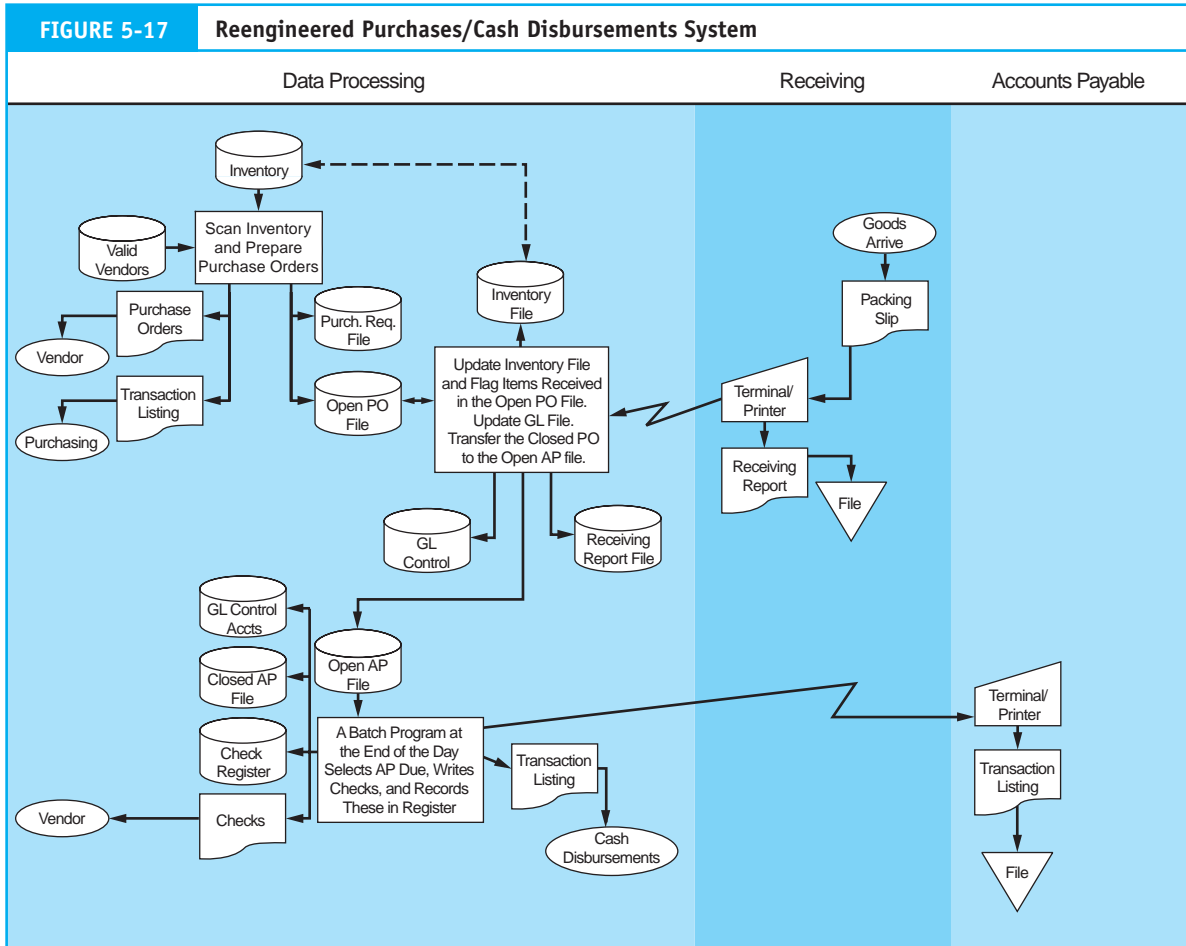
Data Processing

The following tasks are performed automatically.

1. The inventory file is searched for items that have fallen to their reorder points.
2. A record is entered in the purchase requisition file for each item to be replenished.
3. Requisitions are consolidated according to vendor number.
4. Vendor mailing information is retrieved from the valid vendor file.
5. Purchase orders are prepared and added to the open PO file.
6. A transaction listing of purchase orders is sent to the purchasing department for review.

Receiving Department

When the goods arrive, the receiving clerk accesses the open PO file in real time by entering the PO number taken from the packing slip. The receiving screen, illustrated in Figure 5-18, then prompts the clerk to enter the quantities received for each item on the PO.

FIGURE 5-17	Reengineered Purchases/Cash Disbursements System

FIGURE 5-18	Receiving Screen

DATE: 12/15/07   PURCH. ORDER #   567   CLERK ID   MD

ITEM #   QTY RECVD   QTY ORDER   Discrepancy

Displays after Qty Recvd
has been entered

45-709   50   55   5

MANUAL ENTRY =

Data Processing

The following tasks are performed automatically by the system.

1. Quantities of items received are matched against the open PO record, and a Y value is placed in a logical field to indicate the receipt of inventories.
2. A record is added to the receiving report file.
3. The inventory subsidiary records are updated to reflect the receipt of the inventory items.
4. The general ledger inventory control account is updated.
5. The record is removed from the open PO file and added to the open AP file, and a due date for payment is established.

Each day, the DUE DATE fields of the AP records are scanned for items due to be paid. The following procedures are performed for the selected items.

1. Checks are automatically printed, signed, and distributed to the mail room for mailing to vendors. EDI vendors receive payment by electronic funds transfer (EFT). EFT is discussed in the appendix to Chapter 12.
2. The payments are recorded in the check register file.
3. Items paid are transferred from the open AP file to the closed AP file.
4. The general ledger AP and cash accounts are updated.
5. Reports detailing these transactions are transmitted via terminal to the AP and cash disbursements departments for management review and filing.

Because the financial information about purchases is known in advance from the trading partner agreement, the **vendor's invoice** provides no critical information that cannot be derived from the receiving report. By eliminating this source of potential discrepancy, Ford was able to eliminate the task of reconciling vendor invoices with the supporting documents for the majority of purchase transactions. As a result of its reengineering effort, Ford was able to reduce its AP staff from 500 to 125.

Control Implications

The general control issues raised in Chapter 4 pertain also to the expenditure cycle and are not revisited here. A full treatment of this material is provided in Chapters 15 through 17. In the following section we examine only the issues specific to the expenditure cycle by focusing on the differences between an automated and a reengineered system.

The Automated System

Improved Inventory Control. The greatest advantage of the automated system over its manual counterpart is improved ability to manage inventory needs. Inventory requirements are detected as they arise and are processed automatically. As a result, the risks of accumulating excessive inventory or of running out of stock are reduced. With this advantage, however, comes a control concern. Authorization rules governing purchase transactions are embedded within a computer program. Program errors or flawed inventory models can cause firms to find themselves suddenly inundated with inventories or desperately short of stock. Therefore, monitoring automated decisions is extremely important. A well-controlled system should provide management with adequate summary reports about inventory purchases, inventory turnover, spoilage, and slow-moving items.

Better Cash Management. The automated system promotes effective cash management by scanning the voucher file daily for items due, thus avoiding early payments and missed due dates. In addition, by writing checks automatically, the firm reduces labor cost, saves processing time, and promotes accuracy.

To control against unauthorized payments, all additions to the voucher file should be validated by comparing the vendor number on the voucher against the valid vendor file. If the vendor number is not on file, the record should be diverted to an error file for management review.

In this system, a manager in the cash disbursements department physically signs the checks, thus providing control over the disbursement of cash. Many computer systems, however, automate check signing, which is more efficient when check volume is high. This, naturally, injects risk into the process. To offset this exposure, firms set a materiality threshold for check writing. Checks in amounts below the threshold are signed automatically, while those above the threshold are signed by an authorized manager or the treasurer.

Time Lag. A lag exists between the arrival of goods in the receiving department and recording inventory receipts in the inventory file. Depending on the type of sales order system in place, this lag may negatively affect the sales process. When sales clerks do not know the current status of inventory, sales may be lost.

Purchasing Bottleneck. In this automated system, the purchasing department is directly involved in all purchase decisions. For many firms this creates additional work, which extends the time lag in the ordering process. A vast number of routine purchases could be automated, thus freeing purchasing agents from routine work such as preparing purchase orders and mailing them to the vendors. Attention can then be focused on problem areas (such as special items or those in short supply), and the purchasing staff can be reduced.

Excessive Paper Documents. The automated system is laden with paper documents. All operations departments create documents, which are sent to data processing and which data processing must then convert to magnetic media. Paper documents add costs because they must be purchased, stored, prepared, handled by internal mail carriers, and converted by data processing personnel. Organizations with high volumes of transactions benefit considerably from reducing or eliminating paper documents in their systems.

The Reengineered System

The reengineered system addresses many of the operational weaknesses associated with the automated system. Specifically, the improvements in this system are that (1) it uses real-time procedures and direct access files to shorten the lag time in record keeping, (2) it eliminates routine clerical procedures by distributing terminals to user areas, and (3) it achieves a significant reduction in paper documents by utilizing digital communications between departments and by digitally storing records. These operational improvements, however, have the following control implications.

Segregation of Duties. This system removes the physical separation between authorization and transaction processing. Here, computer programs authorize and process purchase orders as well as authorize and issue checks to vendors. To compensate for this exposure, the system provides management with detailed transaction listings and summary reports. These documents describe the automated actions taken by the system and allow management to spot errors and any unusual events that warrant investigation.

Accounting Records and Access Controls. Advanced systems maintain accounting records on digital storage media, with little or no hard-copy backup. Sarbanes-Oxley legislation requires organization management to implement adequate control security measures to protect accounting records from unauthorized access and destruction.

Summary

The chapter examined procurement procedures involving the acquisition of raw materials and finished goods. Because most organizations conduct these activities on a credit basis, the information system needs to be designed to properly recognize and record obligations as they arise and to discharge them when they come due. Two expenditure cycle subsystems accomplish these tasks: the purchases system and the cash disbursements system. This chapter focused on the following areas:

1. The processes of each subsystem and the flow of information between them.
2. The documents, journals, and accounts needed to provide audit trails, maintain historical records, and support internal decision making and financial reporting.
3. The areas of exposure and the control techniques that reduce these risks.

The chapter examined the impact of technology on items 1, 2, and 3 above. From this perspective, we saw that automated systems use computers to replicate traditional manual tasks. Reengineered systems, however, involve and require new and innovative ways of dealing with traditional problems. Any technological solution carries control implications. Computers remove a fundamental separation of functions between authorizing and processing transactions. Also at risk is the integrity of accounting records. To control these risks, systems must be designed to provide users with documents and reports that permit independent verification and support audit trail needs.

Key Terms

actual cost inventory ledgers (240)
AP pending file (238)
AP subsidiary ledger (240)
blind copy (237)
cash disbursement vouchers (242)
cash disbursements journal (243)
check register (243)
closed AP file (258)
closed purchase order file (235)
closed voucher file (245)
inventory subsidiary file (253)
open AP file (241)
open purchase order file (235)
open purchase requisition file (249)

open vouchers payable file (251)
purchase order (235)
purchase requisition (235)
receiving report (238)
receiving report file (238)
standard cost system (238)
supplier's invoice (240)
valid vendor (237)
valid vendor file (253)
vendor's invoice (261)
voucher packet (243)
voucher register (242)
vouchers payable file (243)
vouchers payable system (242)

Review Questions

1. Differentiate between a purchase requisition and a purchase order.
2. What purpose does a purchasing department serve?
3. Distinguish between an AP file and a vouchers payable file.
4. What are the three logical steps of the cash disbursements system?
5. What general ledger journal entries does the purchases system trigger? From which departments do these journal entries arise?
6. What two types of exposure can close supervision of the receiving department reduce?
7. How can a manual purchases cash disbursements system be reengineered to reduce discrepancies, be more accurate, and reduce processing costs?
8. What steps of independent verification does the general ledger department perform?
9. What is (are) the purpose(s) of maintaining a valid vendor file?
10. How do computerized purchasing systems help to reduce the risk of purchasing bottlenecks?
11. What is the purpose of the blind copy of a purchase order?
12. Give one advantage of using a vouchers payable system.

Discussion Questions

1. What three documents must accompany the payment of an invoice? Discuss where these three documents originate and the resulting control implications.
2. Are any time lags in recording economic events typically experienced in cash disbursements systems? If so, what are they? Discuss the accounting profession's view on this matter as it pertains to financial reporting.
3. Discuss the importance of supervision controls in the receiving department and the reasons behind blind fields on the receiving report, such as quantity and price.
4. Why do the inventory control and general ledger departments seem to disappear in computer-based purchasing systems (Figure 5-14)? Are these functions no longer important enough to have their own departments?
5. How does the procedure for determining inventory requirements differ between a basic batch-processing system and batch processing with real-time data input of sales and receipts of inventory? What about for the procedures the receiving department uses?
6. What advantages are achieved in choosing
   a. a basic batch computer system over a manual system?
   b. a batch system with real-time data input over a basic batch system?
7. Discuss the major control implications of batch systems with real-time data input. What compensating procedures are available?
8. Discuss some specific examples in which information systems can reduce time lags and how the firm is positively affected by such time lags.
9. You are conducting an end-of-year audit. Assume that the terms of trade between a buyer and a seller are free on board (FOB) destination. What document provides evidence that a liability exists and may be unrecorded?
10. Describe a three-way match.

Multiple-Choice Questions

1. Which document helps to ensure that the receiving clerks actually count the number of goods received?
   a. packing list
   b. blind copy of purchase order
   c. shipping notice
   d. invoice

2. When the goods are received and the receiving report has been prepared, which ledger may be updated?
   a. standard cost inventory ledger
   b. inventory subsidiary ledger
   c. general ledger
   d. AP subsidiary ledger

3. Which statement is NOT correct for an expenditure system with proper internal controls?
   a. Cash disbursements maintain the check register.
   b. AP maintains the AP subsidiary ledger.
   c. AP is responsible for paying invoices.
   d. AP is responsible for authorizing invoices.

4. Which duties should be segregated?
   a. matching purchase requisitions, receiving reports, and invoices and authorizing payment
   b. authorizing payment and maintaining the check register
   c. writing checks and maintaining the check register
   d. authorizing payment and maintaining the AP subsidiary ledger

5. Which documents would an auditor most likely choose to examine closely to ascertain that all expenditures incurred during the accounting period have been recorded as a liability?
   a. invoices
   b. purchase orders
   c. purchase requisitions
   d. receiving reports

6. Which task must still require human intervention in an automated purchases/cash disbursements system?
   a. determination of inventory requirements
   b. preparation of a purchase order
   c. preparation of a receiving report
   d. preparation of a check register

7. Which one of the following departments does not have a copy of the purchase order?
   a. the purchasing department
   b. the receiving department
   c. accounts payable
   d. general ledger

8. Which document typically triggers the process of recording a liability?
   a. purchase requisition
   b. purchase order
   c. receiving report
   d. supplier's invoice

9. Which of the following tasks should the cash disbursement clerk NOT perform?
   a. review the supporting documents for completeness and accuracy
   b. prepare checks
   c. approve the liability
   d. mark the supporting documents paid

10. Which of the following is true?
    a. The cash disbursement function is part of accounts payable.
    b. Cash disbursements is an independent accounting function.
    c. Cash disbursements is a treasury function.
    d. The cash disbursement function is part of the general ledger department.

Problems

1. Unrecorded Liabilities

You are auditing the financial statements of a New York City company that buys a product from a manufacturer in Los Angeles. The buyer closes its books on June 30. Assume the following details:

Terms of trade FOB shipping point

June 10, buyer sends purchase order to seller

June 15, seller ships goods

July 5, buyer receives goods

July 10, buyer receives seller's invoice

Required:

a. Could this transaction have resulted in an unrecorded liability in the buyer's financial statements?

b. If yes, what documents provide audit trail evidence of the liability?

c. On what date did the buyer realize the liability?

d. On what date did the buyer recognize the liability?

New assumption:

Terms of trade FOB destination

e. Could this transaction have resulted in an unrecorded liability in the buyer's financial statements?

f. If yes, what documents provide audit trail evidence of the liability?

g. On what date did the buyer realize the liability?

h. On what date did the buyer recognize the liability?

2. Inventory Ordering Alternatives

Refer to Figure 5-16 in the text, which illustrates three alternative methods of ordering inventory.

Required:

a. Distinguish between a purchase requisition and a purchase order.

b. Discuss the primary advantage of alternative two over alternative one. Be specific.

c. Under what circumstances can you envision management using alternative one rather than alternative two?

3. Document Preparation

Create the appropriate documents (purchase requisition, purchase order, receiving report, inventory record, and disbursement voucher) and prepare any journal entries needed to process the following business events for Jethro's Boot & Western Wear Manufacturing Company (this is a manual system).

a. On October 28, 2005, the inventory subsidiary ledger for Item 2278, metal pins, indicates that the quantity on hand is 4,000 units (valued at $76), the reorder point is 4,750, and units are on order. The economic order quantity is 6,000 units. The supplier is Jed's Metal Supply Company (vendor number 83682). The customer number is 584446. The current price per unit is $0.02. Inventory records are kept at cost. The goods should be delivered to Inventory Storage Room 2.

b. On November 8, the goods were received (the scales indicated that 4,737 units were received).

c. On November 12, an invoice (number 9886) was received for the above units, which included freight of $6. The terms were 1/10, net 30. Jethro's likes to keep funds available for use as long as possible without missing any discounts.
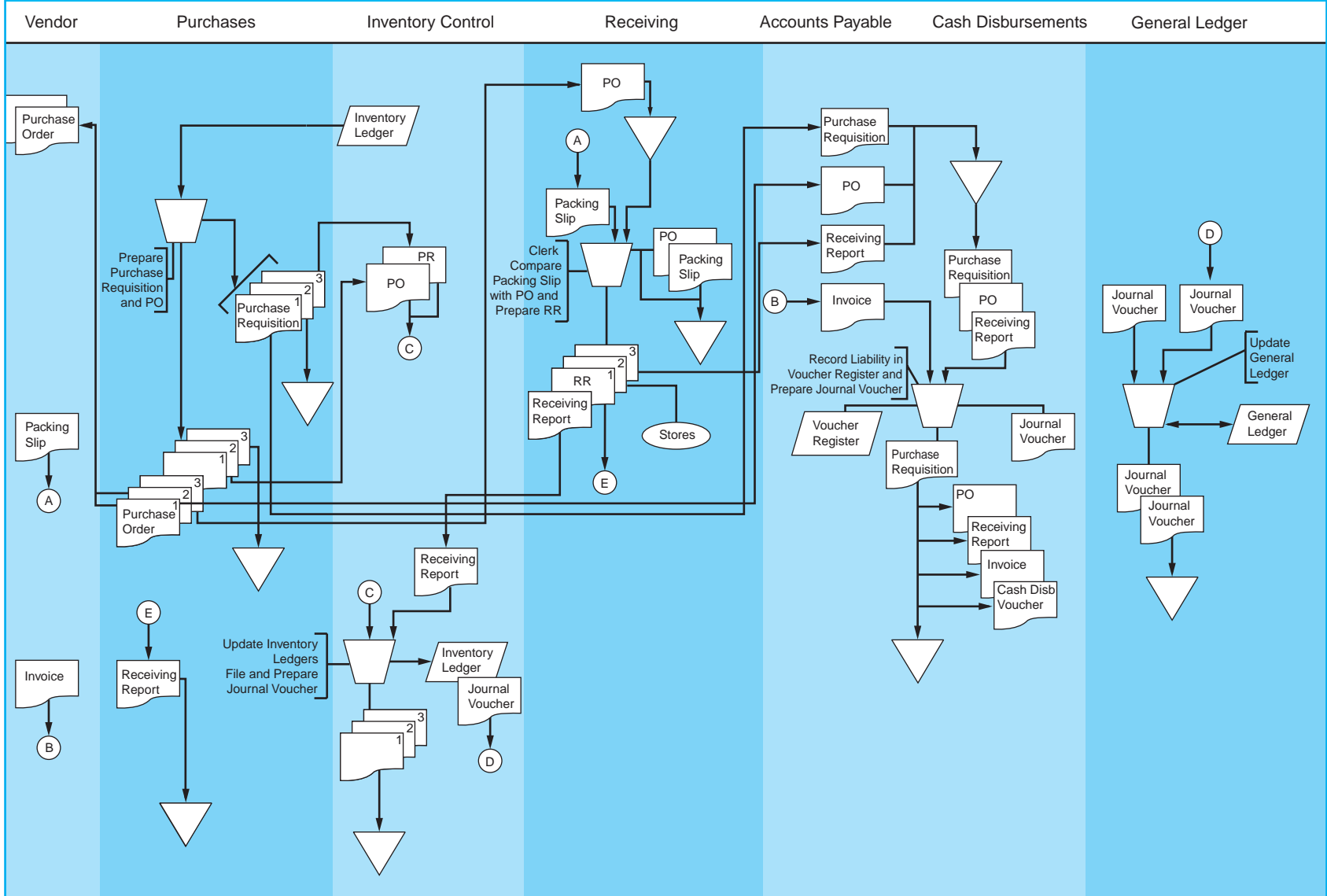
4. Flowchart Analysis

Examine the diagram on the following page and indicate any incorrect initiation and/or transfer of documentation. What problems could this cause?

5. Accounting Records and Files

Indicate which department—accounts payable, cash disbursements, data processing, purchasing, inventory, or receiving—has ownership over the following files and registers:

a. open purchase order file

b. purchase requisition file

c. open purchase requisition file

d. closed purchase requisition file

e. inventory

f. closed purchase order file

Problem 4:
Flowchart Analysis

| Vendor | Purchases | Inventory Control | Receiving | Accounts Payable | Cash Disbursements | General Ledger |

g. valid vendor file
h. voucher register
i. open vouchers payable file
j. receiving report file
k. closed voucher file
l. check register (cash disbursements journal)

6. Source Documents Identification
Explain, in detail, the process by which the information is obtained and the source of information for each of the fields in the expenditure cycle files. (See Figure 5-15 for a complete listing of files and fields.)

7. Data Processing
Explain how the processing procedures would differ, if at all, for the transactions listed in Problem 6 if a computer-based system with

a. a basic batch-processing system were implemented.
b. a batch-processing system with real-time data input were used.

8. Internal Control
Using the flowchart below of a purchases system, identify six major control weaknesses in the system. Discuss and classify each weakness in accordance with SAS 78.

9. Purchase Discounts Lost
Estimate the amount of money AP and cash disbursements departments could save if a basic batch-processing system were implemented. Assume that the clerical workers cost the firm $12 per hour, that 13,000 vouchers

Problem 8:
Internal Control

are prepared, and that 5,000 checks are written per year. Assume that total cash disbursements to vendors amount to $5 million per year. Due to sloppy bookkeeping, the current system takes advantage of only about 25 percent of the discounts vendors offer for timely payments. The average discount is 2 percent if payment is made within 10 days. Payments are currently made on the fifteenth day after the invoice is received. Make your own assumptions (and state them) regarding how long specific tasks will take. Also discuss any intangible benefits of the system. (Don't worry about excessive paper documentation costs.)

10. Data Processing Output
Using the information provided in Problem 9, discuss all transaction listings and summary reports that would be necessary for a batch system with real-time input of data.

11. Internal Control
The following is a description of manufacturing company's purchasing procedures. All computers in the company are networked to a centralized accounting system so that each terminal has full access to a common database.

The inventory control clerk periodically checks inventory levels from a computer terminal to identify items that need to be ordered. Once the clerk feels inventory is too low, he chooses a supplier and creates a PO from the terminal by adding a record to the purchase order file. The clerk prints a hard copy of the PO and mails it to the vendor. An electronic notification is also sent to AP and receiving, giving the clerks of each department access to the PO from their respective terminals.

When the raw materials arrive at the unloading dock, a receiving clerk prints a copy of the PO from his terminal and reconciles it to the packing slip. The clerk then creates a receiving report on a computer system. An electronic notification is sent to AP and inventory control, giving the respective clerks access to the receiving report. The inventory

control clerk then updates the inventory records.

When the AP clerk receives a hard copy invoice from the vendor, she reconciles the invoice with the digital PO and receiving report and prepares a paper cash disbursements voucher. The cash disbursement voucher and invoice are placed in the open AP file in a filing cabinet until the due date. The clerk also updates the AP subsidiary ledger and records the liability amount in the purchase journal from the department computer terminal. The AP clerk periodically reviews the cash disbursement file for items due and, when they are identified, prepares a check for the amount due. Finally, using the department terminal, the clerk removes the liability from the AP subsidiary file and posts the disbursement to the cash account.

Required:
a. Create a document flowchart of the system.
b. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.

12. Accounting Documents
Required: Answer the following questions.
a. Which department is responsible for initiating the purchase of materials?
b. What is the name of the document generated by the department identified in (a) above?
c. Typically, multiple copies of a purchase order are prepared. One copy should go to the vendor and one is retained in the purchasing department. To achieve proper control, which other departments should receive copies of the purchase order?
d. What documents does the AP clerk review before setting up a liability?
e. Which document transfers responsibility for goods sold to a common carrier?

Internal Control Cases

1. Walker Books, Inc.
(Prepared by Matt Wisser, Lehigh University)

Company Background

Walker Books, Inc., is currently one of the largest book distributors in the United States. Established in 1981 in Palo Alto, California, Walker Books was originally a side project of founder and current president Curtis Walker, who at the time was employed by a local law firm. Because reading was much more than just a hobby of his, he decided to use some of his savings to buy an abandoned restaurant and convert it into a neighborhood bookstore, mainly selling used books that were donated by friends and family. When the doors first opened, Walker's wife, Lauren, was the only employee during the week; Curtis was the only employee on the weekends. At the end of the first fiscal year, Walker Books had grossed $20,000 in sales.

As the years passed, Curtis Walker quit the law firm and began concentrating fully on his bookstore. More employees were hired, more books were traded in, and more sales were attained each year that passed. However, during the mid-1990s, Walker was faced with two problems: many large, upscale bookstores were being built in the area, and the use of the Internet for finding and ordering books was becoming cheaper and more popular for current customers. In 1995, Walker's sales finally started to decline. Deciding to take a risk because of the newfound competition, he closed his doors to the neighborhood, invested more money to expand the current property, and transformed his company from simply selling used books to being a distributor of new books. Publishers send books to his warehouse, in which he stores them and resells them to large bookstore chains upon request.

Walker Books, Inc., has rapidly become one of the largest book distributors in the country. Though they are still at their original location in Palo Alto, California, they distribute books to each of the 50 states and because of that, the company now sees sales of about $105,000,000 per year. When Mr. Walker is asked about his fondest memory, he always responds that he will never forget how the little bookstore, with two employees, has expanded to now have more than 145 employees.

As mentioned, all of Walker's customers are large-chain bookstores who themselves see many millions of dollars in revenue per year. However, some of these bookstores have had bad relationships with Walker Books in the past year. There have been many disputes between them, such as books that were ordered from Walker but were never sent, poor inventory management by Walker, and the inability of Walker to provide legitimate documentation of transactions. According to projections of this year's financials, the sour relationship that Walker Books and many of its customers have is going to take a toll on year-end revenue. Curtis Walker has stated time after time that because of his law background, he "clearly knows the difference between right and wrong, including those of internal controls." You have been hired as an independent expert to inspect the internal controls currently in place at Walker Books, Inc.

Expenditure Cycle
Purchases System

The purchases process begins with the purchasing agent, who monitors the levels of books available via a computer terminal listing current inventory. Upon noticing a deficiency in one inventory item, the agent generates four copies of a PO: one is sent to AP, one is sent to the vendor, one is sent to the receiving department, and the last is filed within the department.

Vendors will generally ship the products within five business days of the order. When goods arrive in the receiving department, the corresponding packing slip always accompanies them. The receiving department clerk unloads the goods and then reconciles the packing slip with the PO. After unloading the

goods, three copies of the receiving report are generated. One copy goes with the goods to the warehouse, another is sent to the purchasing department, and the final copy is filed in the receiving department. In the warehouse, the copy is simply filed once the goods are stored on the shelves. In the purchasing department, the clerk receives this copy of the receiving report and files it with the PO.

When the AP department receives the PO, it is temporarily filed until the respective invoice arrives from the vendor. Upon receipt of the invoice, the AP clerk takes the PO out of the temporary file and reconciles the two documents. This event triggers Walker Books to record a liability in the AP subsidiary ledger. At the same time, a journal voucher is created and sent to the general ledger department. The documents (PO and invoice) are placed in the open AP file in the department.

Once the general ledger department receives the journal voucher, the clerk examines it for any obvious errors and then inputs the information into a terminal. Once all the information is entered into the terminal, the clerk clicks the finalize button, which permanently updates the general ledger file stored on the mainframe in the department.

Cash Disbursements System
The AP clerk periodically reviews the open AP file for liabilities that are due. In order to maximize returns on invested cash yet still take advantage of vendor discounts, the clerk will pull the invoice two days before its applicable due date. Upon finding an open AP file in need of payment, the clerk prepares a check for the amount due as per the invoice. The AP ledger is also updated by the AP clerk. The check number, dollar amount, and other pertinent data are recorded in the check register. The check is subsequently sent to the cash disbursements department. The invoice is then discarded as it no longer has any relevant information that hasn't already been recorded elsewhere.

When the cash disbursements clerk receives the unsigned check, she examines it to ensure that no one has tampered with any of the information and that no errors have been made. Because she is familiar with all of

the vendors that Walker deals with, she can identify any false vendors or any payment amounts that seem too high or too low for that particular vendor. Assuming everything looks good, she signs the check using a signature block that displays the name of the assistant treasurer, Tyler Matthews. Matthews's signature is the only one that can be put onto a check for it to be deemed valid. The cash disbursements clerk then photocopies the check for audit trail purposes.

Once the check is signed, it is sent directly to the supplier. The photocopy of the check is marked as paid and then filed in the cash disbursements department. The clerk then creates a journal voucher, which is sent to the general ledger department. Once the general ledger department receives the journal voucher, the clerk inputs the information into the terminal, which permanently updates the general ledger file.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

2. **A&V Safety, Inc.**
(Prepared by Adam Johnson and Aneesh Varma, Lehigh University)

A&V Safety Inc. is a growing company specializing in the sales of safety equipment to commercial entities. It currently employs 200 full-time employees who all work out of their headquarters in San Diego, California. During the summer, the company expands to include about 10 summer interns who are delegated smaller jobs and other errands. A&V currently competes with Office Safety, Inc., and X-Safe, who leads the industry. Suppliers

for A&V include Halotron Extinguishers, Kadelite, and Exit Signs, Inc., and there have been no issues requiring redress. The terms of trade used by A&V are 2–10 net 30 with FOB delivery. This is used with all suppliers, and inventory is kept at a level that will service two weeks. This level has shown to avoid stock-outs, and the excess inventory is held in a warehouse in a suburb of San Diego.

The company has growing revenue, which has recently topped $23 million and has a return on investment of 14% and net margin of slightly over 20%. While the company has been operating efficiently in the past, new systems problems have arisen due to the strain put on these legacy systems from recent growth.

Expenditure Cycle

The expenditure cycle consists of a purchasing procedure and cash disbursements procedure. The company has allocated its purchasing to three departments: warehouse, purchasing, and accounting.

The company has to buy safety devices such as fire extinguishers, exit signs, and sensors. The company maintains a basic inventory control process with triggers. When a certain product is low in inventory, the inventory clerk prepares a standard PO. The clerk then sends this PO to the respective vendor from where the current supply of the product was obtained. A copy of this PO is also sent to the general ledger and the receiving department to verify the goods when they arrive. When the required shipment arrives from the vendor, it first goes to the docks of the receiving department. The clerk at the receiving department matches the packing slip in the shipment to the PO that the inventory clerk sent earlier. After comparing the numbers on the packing slip to the numbers required on the PO, he signs the PO, which moves to the accounting department. The receiving clerk also prepares a receiving report that is sent to the inventory department, where the update program adds this information to inventory ledger.

Meanwhile, the supplier sends an invoice of the goods that were just shipped. Upon reaching A&V Safety, the invoice is sent to the accounting department. The accounting department has previously received the signed PO from the receiving clerk that indicates that such goods were received. The invoice is then matched and reconciled against the receiving clerk's signed PO. The clerk in the accounting department then updates the AP subsidiary ledger for these new liabilities and the purchasing journal using this information.

The cash disbursements procedure involves the AP department, the cash disbursements department, and the general ledger. The AP reviews the liabilities that are due by searching the AP subsidiary ledger. Those items that are due are then written up into a cash disbursements voucher, and a matching AP summary is made that is sent to the general ledger. The cash disbursements voucher is sent to the cash disbursements department. Here the checks are prepared payable to the vendor. The check register is updated to reflect the amounts, check number, and payee information. A summary of this information is also sent to the general ledger.

The prepared checks are then approved by the cash disbursements department. The original check is mailed to the vendor. A copy of the check is locally filed at the cash disbursements department. Another copy of the check and the original cash disbursements voucher for the check are sent to the AP department.

At the AP department, the cash disbursements voucher and the copy of the check are used to update the cash disbursements voucher register. The AP subsidiary ledger is also updated to close out the liability that was originally placed. These documents are then locally filed. At the general ledger, all summaries that are received from each department are used to update the general ledger through the update program. Eventually a summary of the update is prepared and filed locally.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.

c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.

d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

3. Premier Sports Memorabilia General Scenario
(Prepared by Chris Polchinski, Lehigh University)

Premier Sports Memorabilia is a medium-sized, rapidly growing online and catalogue-based retailer centered in Brooklyn, New York. The company was founded in 1990 and specializes in providing the customer with authentic yet affordable sports memorabilia from their favorite players and teams past and present. The company gets most of its sales from the northeast region of the United States, but recently has been undergoing a campaign to spread out and increase its customer base. Premier's wide range of offerings include everything from team jerseys and hats, to autographed balls, plaques, and bats, to sports cards and figurines. Sales have increased slowly over the years and last year were reported at $95 million. The company currently employs 205 employees who are spread out among its three warehouses and two offices in the tri-state area.

Premier has developed close relations with suppliers and have only had a few minor communication problems since the company was started, none which have disrupted the ordinary course of business. The firm uses a wide base of manufacturers and memorabilia dealers around the country and is always looking for additional contacts who have new or rare items to offer. The company employs a mixture of low-end computer technology and manual processes. As the company expands, many of the manual tasks and the archaic computer functions will be replaced with a more advanced computer technology system, but currently they seem to serve their purpose adequately.

Purchase System Procedures

Premier's purchase transactions are initiated when its inventory levels for a certain item falls below the designated reorder point. This is electronically monitored through Premier's inventory requisition system that is directly linked to the inventory file. Once an item falls below the reorder point, an open requisition record is automatically created. A valid vendor file is used both to retrieve stored vendor information and to check that items are being ordered through a preapproved vendor that the company has done business in the past. The purchase requisition is made available to the clerks in the inventory control department via the computer terminal. A copy is sent to the purchasing department terminal for further processing.

When the purchasing department receives the requisition, it is used to prepare five hard copies of the PO. One copy is filed in the department. A second is sent to the receiving department. A third is sent to the AP department. A fourth is sent to the inventory control department. A final copy is sent to the vendor as placement of the order.

Upon receiving the PO, the inventory control clerk uses a terminal to access the open requisition file and closes the record. In addition, the program automatically creates a digital pending open purchase record.

Shortly after receiving the PO, the vendor will send out both the goods and a packing slip to Premier's receiving department. After the receiving department has both the PO and the packing slip, they use these documents to physically inspect the condition of the goods and check that both the type and quantity received are correct. After the receiving clerk has successfully done this, he or she is then responsible for creating three copies of a receiving report. One copy is filed in the department. The second is sent to AP for reconciliation. The third is sent to the inventory control department.

When the inventory control department obtains the receiving report, the clerk uses the purchase update program to access the pending open purchase record and closes it out. In

addition, the clerk updates the inventory file by posting the amounts received to the various inventory records affected.

In the meantime, the AP department has now received the PO and receiving report from other areas of the company. Upon arrival of the vendor invoice, a department clerk manually reconciles all three forms to make sure that the information matches and then proceeds to create an AP record.

Finally, at the end of each day, the inventory control department and the AP department create a hard copy inventory summary and AP journal voucher, respectively, reflecting the effects of all of the day's transactions. These documents are sent to the general ledger department, where they are reconciled and posted to their specific control accounts within the general ledger file.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

4. Jasmine Tea
(Prepared by Meridith Coyne and Gaby Keely, Lehigh University)

Jasmine Tea! is the largest coffee distributor in the Northeast. They distribute specialty tea leaves to coffee shops, cafes, and restaurants. The company headquarters is located in Newark, New Jersey; in addition, there are two distribution warehouses located in Philadelphia and Boston.

Established in 1985, the company's first warehouse was located in Newark. Jasmine Tea! began by purchasing and distributing from one Chinese tea supplier. Within two years, sales had doubled and they were seeking more varieties of tea. They now have dozens of suppliers and more than 50 varieties of tea. Currently there are 155 employees and annual sales of more than $50 million. Last year was their most successful year with an annual sales growth of 6.5 percent.

Jasmine Tea! has been receiving complaints from customers and suppliers about billing, shipping, and payment problems. Under the current operating system, each department has independent computer terminals. The complaints and inefficient computer system have triggered the management team to seek alternative solutions that will enable them to better serve their customers and meet the demands.

Purchasing Process
The purchasing agent monitors the inventory and decides when more tea supplies are needed. The purchasing agent begins the purchasing process by manually preparing two hard copies of a purchase requisition form. Then the clerk selects a supplier and enters the purchase requisition information into a computer terminal in the department. The computer terminal generates three hard copies of a PO. One copy is sent to the supplier, one copy is sent to the AP department, and the third copy is filed in the purchasing department. Once the purchasing agent has entered the purchase requisition information into the computer terminal, he files one copy of the purchase requisition and sends the other copy to AP.

When the goods are received in Newark, the receiving department verifies them using the packing slip, which is attached to the goods. The goods are verified and sent to the warehouse for storage. The receiving clerk then updates the inventory and posts to the general ledger from a terminal in the department.

AP and Cash Disbursements Procedures
The AP clerk receives the supplier's invoice and reconciles it with the purchase requisition and PO. Then the clerk posts the liability to the purchases journal and voucher register. Each day, the clerk visually searches the

voucher register file from her terminal for open invoices that are due to be paid. The clerk then prepares the check. From a computer terminal, the clerk updates the check register and voucher register and posts to the general ledger. The negotiable portion of the check is mailed to the vendor, and a check copy is filed. The purchases requisition, invoice, and PO are then filed in a closed voucher file.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

5. **Music Source, Inc.**
(Prepared by Jeff Davis, Gen Feldman, and Denise Nuccio, Lehigh University)

Company Information
Music Source, Inc., is a manufacturer of stereo equipment with six sales offices nationwide and one manufacturing plant in Pennsylvania. Currently, employment is at approximately 200 employees. Music Source focuses on the production of high-quality stereo equipment for resale by retailers. Its larger competitors include Sony, Panasonic, and Aiwa. Music Source's suppliers are Nalequip, Inc., and Uniview. Production includes speakers, basses, subwoofers, and other equipment. Currently Music Source is operating at $135,000,000 in annual sales with revenue growth at a rate of 3 percent. Unfortunately, the company has recently been experiencing several operational problems that may be fixed through the improvement of its systems.

Expenditure Cycle
Music Source reduces its inventory by transferring raw materials into the production process in the manufacturing plant and through the sale of finished equipment to the customers. Music Source's purchasing department works along with the inventory and production control functions to provide the most efficient level of inventory for use in production. The purchasing department closely monitors inventory levels and material reorder points. As soon as the inventory level drops below the reorder point, the purchasing function inputs a PO into the computer. An electronic notification is sent to AP and the receiving department to notify them of the order and provide them access to view the inputted data on their computer terminals. The purchasing clerk then mails two hard copies of the PO to the vendor.

When the raw materials are received, the receiving department reconciles the goods with the packing slip and the PO on the computer. From the terminal in the department, the clerk then creates a digital receiving report, stating the condition of the materials received. An electronic notification, granting access to view the document, is sent to purchasing and inventory control. In purchasing, the receiving report is reconciled with the open PO record. The inventory control clerk uses the receiving report to update the inventory subsidiary account and the general ledger control account. Another notification is sent to AP.

Once the AP clerk receives the vendor's invoice, she reconciles it with the PO and receiving report. The clerk then creates a digital cash disbursement voucher record and updates the general ledger. The AP department sends electronic notification to the cash disbursements department that it is granted access to view a new cash disbursement voucher.

The notification is received by the cash disbursements clerk, who reviews the document for clerical accuracy. The clerk then prepares a check and records it in the digital check register. Next the clerk records the check number in the voucher register and transfers the voucher to the closed voucher file. The negotiable portion of the check is mailed to the vendor, and a copy of the check is filed in the department. Finally, the clerk updates the general ledger accounts.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

6. Bait 'n Reel Superstore
(Prepared by Matt Wisser, Lehigh University)

Bait 'n Reel was established in 1983 by Jamie Roberts, an avid fisherman and environmentalist. Growing up in Pennsylvania's Pocono Mountains region, Roberts was lucky enough to have a large lake right down the road where he found himself fishing all throughout the year. Unfortunately, he had to drive more than 15 miles to purchase his fishing supplies, such as lines, hooks, and bait, among other things. Throughout the years of his early adulthood, he frequently overheard other fishermen vocalizing their displeasure at not having a local fishing store to serve their needs. Because of this, Roberts vowed to himself that he would open his own store if he could ever save up enough money.

By 1983, he had sufficient funds in his bank account and the opportunity arose as a local grocery store was up put up for sale. He purchased the building and converted it into a "Bait 'n Reel" fishing store. His first customers were locals who had fished with Roberts over the years. The local convenience factor and the simple pleasure of helping out a friend enticed them to shop there. However, after many years, people from all over the county started to come as Roberts increased his advertising efforts, emphasizing his ability to provide excellent service and the wide supply of fishing goods in stock. This included high-end fly fishing rods, reels, drift boats, and canoes, as well as less expensive daily use items such as hooks, lines, etc.

By the mid-1990s, the building expanded into a superstore, and the number of employees increased each year. With the help of a friend, Roberts also installed an automated computer system to help make operations more effective and efficient, in addition to reducing the amount of paper used at his superstore. Revenue increased sharply during the four years after the implementation of the computer system. In spite of this, Roberts had some questions about the processes, as many of the subsidiary accounts did not match up with the general ledger. This didn't prove to be a material problem, however, until 2001, when the computers began listing supplies in the inventory account that were actually not on the shelves. This created problems as customers became frustrated by stock-outs. Roberts knew something was wrong, but he couldn't put his finger on it.

Expenditure Cycle
Purchases System

The purchasing manager checks the inventory subsidiary ledger on his computer terminal every morning when he arrives at work. When a certain inventory item is deemed to be too low, he reviews the valid vendor file, also on his terminal, to select the best-priced vendor for that particular item. Once a vendor is found, he prepares an electronic version of the PO, in addition to two hard copies of the PO. One hard copy is sent to the vendor immediately, while the other is filed in the department. Immediately after this event, the electronic version of the PO is sent out to two terminals: one in the receiving department and one in the AP department.

When the clerk in the receiving department receives the electronic PO, he reads over it once to make sure it seems correct. When the goods arrive, he makes a detailed inspection of them and reconciles the goods to the corresponding information contained in the electronic PO. If everything looks correct, the clerk prepares two copies of the receiving report. One of these copies accompanies the goods to the inventory control department, where the clerk updates the inventory subsidiary account from his terminal; it is then filed as the goods are put on the shelves. The other copy of the receiving report is sent to the AP department.

Upon receipt of the receiving report, the AP clerk matches up the information for the respective order to the electronic PO on his terminal. He then updates the AP subsidiary ledger from his terminal to reflect the transaction. The clerk temporarily files the receiving report until documentation arrives from the vendor. For Bait 'n Reel's convenience, the vendor always sends a photocopy of the original PO along with the invoice so any discrepancies can immediately be identified. When the AP clerk receives the invoice and PO copy, he pulls the receiving report from the temporary file and reconciles the three documents. At this time, the clerk updates the AP control account in the general ledger on his terminal. The three documents are then passed on to the cash disbursements department.

Cash Disbursements System

The clerk in the cash disbursements department spends his entire day matching up the invoice, PO copy, and receiving report. Assuming everything reconciles, he prepares a check for the invoiced amount. Once this is completed, he updates the check register, cash subsidiary account, and the general ledger on his terminal. The three documents, along with the check, are then passed on to the assistant treasurer. As an additional control, he reviews everything once again to ensure consistency between all documents. He makes a copy of the check for record-keeping purposes and then signs the original check, which is immediately sent to the vendor for payment. The invoice, PO copy, receiving report, and check copy are filed in the department.

Required:

a. Create a data flow diagram of the current system.

b. Create a document flowchart of the existing system.

c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.

d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

7. **Green Mountain Coffee Roasters, Inc.**
   (Prepared by Ronica Sharma, Lehigh University)

Green Mountain Coffee Roasters, Inc., was founded in 1981 and began as a small cafe in Waitsfield, Vermont, roasting and serving premium coffee on the premises. Green Mountain blends and distributes coffee to a variety of customers, including cafes, delis, and restaurants, and currently has about 6,700 customer accounts reaching states across the nation. As the company has grown, several beverages have been added to their product line, including signature blends, light and heavy roasts, decaffeinated coffee and teas, and herbal teas. Green Mountain Coffee Roasters, Inc., has been publicly traded since 1993 and had sales in excess of $84 million for the fiscal year ended September 2007.

Green Mountain Coffee has a warehouse and manufacturing plant located in Wilton, Vermont, where it presently employees 250 full- and part-time workers. The company receives its beans in bulk from a select group of distributors located across the world, with their largest supplier being Columbia Beans Co. Green Mountain Coffee also sells accessories that complement their products, including mugs, thermoses, and coffee containers that they purchase from their supplier, Coffee Lovers, Inc. In addition to selling coffee and accessories, Green Mountain uses paper products such as coffee bags, coffee cups, and stirrers to distribute to their customers and package the coffee they purchase from Save the Trees, Inc.

Purchases System

Currently Green Mountain employs a manual purchases system with minimal computer technology. Green Mountain Coffee purchases beans and blends from other companies and then sells them to other stores. Inventory fluctuates with respect to sales of blends to stores. Sara is in charge of inventory management in the warehouse. From her PC, she reviews the inventory ledger to identify inventory needs. When items fall to their pre-established reorder point, she prepares a purchase requisition. She keeps a copy in her department for use

later, files one in the open purchase requisition file, and sends a copy to AP. At the end of the day, she uses the purchase requisition to prepare a four-part PO. One copy is filed, two are sent to the supplier, and one is sent to Fayth in the AP department. When the goods arrive, Sara inspects and counts them and sends the packing slip to AP. Using a PC, Sara updates the inventory subsidiary ledger and, at the end of day, sends an account summary to Vic in the general ledger department.

After checking that the purchase requisition and PO exist to support the packing slip, Fayth files the documents in the AP pending file. The supplier's invoice is mailed directly to Fayth, who checks it against the documents in the pending file. Using a computer system, she updates the AP subsidiary ledger and records the transaction in the purchases journal. She then files the purchase requisition, PO, packing slip, and invoice in the open AP file. At the end of the day, she prepares a journal voucher, which is sent to Vic in the general ledger department. Using a separate computer system, Vic updates the control accounts affected by the transactions and files the summary and journal vouchers.

Cash Disbursements System Summary

Fayth reviews the open AP file for items due for payment, waiting until the last date to make a payment and still take advantage of the discount. From her PC, she then updates (closes) the appropriate AP subsidiary record, prints a two-part check, and records the payment in the check register file. At the close of day, Fayth mails the check to the supplier, files a copy, and prepares a journal voucher, which goes to Vic. Vic records the transaction in the affected general ledger accounts and files the journal voucher.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according

to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

8. USA Cycle Company
(Prepared by Kim Hancy, Lehigh University)

USA Cycle Company is one of the fastest-growing bicycle distributors in the United States, with headquarters in Chicago, Illinois. Their primary business is distribution of bicycles assembled in China, but they also have a smaller, custom-order business for which they build bicycles from parts purchased from various suppliers. Their product line includes mountain, road, and comfort bikes as well as a juvenile line with up to 24-inch frames. They also distribute BMX bicycles as well as tricycles and trailer bikes. In addition, they distribute various bicycle accessories such as helmets, clothing, lights, and spare parts for all of the models they carry.

Established in 1975, the company's first warehouses were in Illinois and Wisconsin and supplied retail bicycle outlets primarily in the Midwest. One year ago, USA Cycle Company expanded, adding two additional facilities in Sacramento, California, and Redmond, Washington, to meet the growing demand for their bicycles. They now also sell customized bicycles direct to retailers through the Internet as well as by conventional means.

The company's expansion to the West Coast was coupled with a planned increase in reliance on suppliers in China. Although this resulted in decreased costs, some problems regarding inventory levels arose because of unexpected delays in shipping, primarily attributable to miscommunication and shipping conditions. Because the company does not want to carry excess inventory, they are sometimes forced to seek local suppliers at an increased cost.

USA Cycle Company uses limited computer technology to process business transactions and record accounting data, but the data

is distributed and not shared throughout the company. This has caused data redundancy and associated problems of data currency, and these problems have been exacerbated by the company's recent rapid expansion on the West Coast.

Initially, USA Cycle Company was a family-owned business. In need of capital for expansion, the company went public when they added the two facilities on the West Coast. The number of employees rose from 100 to 200 during the expansion. Gross sales also rose from $10 million to $20 million.

Description of Purchases Procedures

The USA Cycle Company purchases process begins when a clerk in the warehouse reviews inventory records. When it is determined that inventory is needed, the clerk inputs the information on the warehouse department microcomputer. This automatically inserts the information into a purchase record file. Four copies of the PO are printed. One copy is filed in the open PO file, two copies are sent to the supplier, and one copy is forwarded to the AP department and filed in the AP pending file.

When the goods are received in the warehouse, the PO is pulled from the open PO file and a clerk inspects, counts, and reconciles the goods to the packing slip and what was ordered. If many orders are received at the same time, the clerk tends to skip the reconciliation process to save time. The clerk places the goods on the warehouse shelves and uses the computer to prepare the receiving report. The information is saved in the receiving record file, and two copies of the receiving report are printed. One copy is forwarded to the AP department. The second copy, along with the PO and packing slip, is used to update the inventory subsidiary records. The general ledger is automatically updated when changes are made to these records. The source documents are then filed in the closed PO file.

When the receiving report is received in the AP department, it is filed in the AP pending file with the PO. When the invoice is received from the supplier, both documents are pulled from the AP pending file. A clerk uses these

documents to add the record to the purchases journal and post the liability. The PO, receiving report, and invoice are filed in the open AP file. When the liability is recorded, the AP subsidiary ledger, purchases journal, and general ledger are automatically updated.

Description of Cash Disbursements Process

Using the open AP file, in which the source documents are arranged by payment date, a clerk in the AP/cash disbursements department searches for accounts coming due. When payments are due, the clerk removes the PO, receiving report, and invoice from the file to prepare the checks. The checks are used to subsequently update the check register and AP subsidiary ledger. The general ledger is automatically updated. The checks are sent to be signed by the supervisor, who generally signs the checks without much examination. A copy of each check is filed with the PO, receiving report, and invoice in the closed AP file. The supervisor then mails the checks to the supplier.

Required:
a. Create a data flow diagram of the current system.
b. Create a document flowchart of the existing system.
c. Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.
d. Prepare a system flowchart of a redesigned computer-based system that resolves the control weaknesses you identified.

9. **New Born Candy Company**
   (Prepared by Gaurav Mirchandani and Matthew Demko, Lehigh University)

New Born Candy Company is the premier manufacturer and marketer of one of the best-selling candies today. The company manufactures and markets a variety of sugar-intense candies. James Born, the current CEO of New Born Candy Company, took control of the family-run business in the 1970s, although New Born Candy Company has been in existence since the mid-1930s. The company has

grown to two plants on the East Coast and 209 employees across the country.

As of the fiscal year ended 2007, New Born Candy Company experienced gross sales of almost $100 million. A major contributor was its line of Leeps and Mike and Wike candies, among the two most popular sugar candies today. Compared to its competitors, New Born Candy Company performs well.

In spite of its relative success, the CEO and management team are concerned about recent increases in costs. For example, the rate of increase in cost of goods sold has been disproportionate with growth in sales. Additionally, they are concerned that if they do not implement essential changes and upgrades to their technology platform, they will no longer be able to compete with larger manufacturers. Changes in the environment have drastically affected their production and ability to manufacture and market to larger customers such as Walgreens and CVS, big revenue-producers for the candy company.

As a result, James Born and his management team have decided to hire GMD Consulting Group to examine and identify current weaknesses in accounting and operations and to make suggestions for changes in the future. The following describes the relevant business cycles for GMD to review.

Revenue Cycle Description

New Born Candy Company receives orders from one of two places: They are delivered to the mail room where they are received and sorted, or the sales personnel receive them directly. After the mail is received and sorted by the mail room, sales orders are passed to the sales personnel. GMD Consulting looked further into mail room procedures and operations and made some interesting findings. Jonathan, the supervisor of the mail room, explained to GMD Consulting that there are so many orders (due to the rapid growth of the business and the 6,000+ customers) that they have trouble sorting through all of the mail and getting it to the appropriate department. Jonathan explained that people in the mail room have been working considerable

overtime to process the mail, but they still frequently fall behind. In talking with Suzanne, a veteran salesperson for New Born Candy Company, it was discovered that sales orders often take several days to get from the mail room to the sales department. She also told GMD Consulting that during busy times, it is very difficult to process all of the daily orders.

After receiving the orders, the sales personnel perform a credit check. When completed, the credit copy is filed along with the customer order. The billing copy is sent to the computer department, and the stock release, packing slip, shipping notice, and file copy are sent to the warehouse. Here the goods are picked and sent to shipping along with a copy of the stock release. Shipping then takes the file copy, shipping notice, packing slip, and stock release and reconciles the goods and documents, signs the shipping notice, and prepares the bill of lading. The prepared bill of lading, along with a packing slip, is given to the carrier. The carrier then ships the goods to the customer. Additionally, a file copy, a copy of the stock release, and a copy of the bill of lading are placed in a shipping file. It is important to note that in examining the shipping department, it was found that they have been receiving an increasing number of complaints from customers. Some key documents (found on pages 282–285) shed some light on this issue.

The billing copy that was generated by the sales department is now in the computer department. Here via a keystroke operation, sales data are entered into the sales order file. Then an edit run is performed. After the edit run, the data are posted to the sales journal, accounts receivable file, general ledger file, and inventory file. A management report is then created, and the customer invoice is printed and sent to the customer.

Expenditure Cycle Description

Twice each week, New Born Candy Company's computer department reviews the inventory computer file. From this review a requisition list is created and sent to the purchasing department, where it is converted into

a purchase order (PO). Two POs are sent to the vendor, and one is filed in the department. After the POs are prepared, the requisition list is filed. Upon further review of purchases and inventory control, Sammy, the manager of the manufacturing department, said that they occasionally run out of certain raw materials. As a result they do not always produce to capacity.

When the vendor receives the order from purchasing, it ships the goods along with a copy of New Born's original PO and a formal packing slip to the receiving department. There the PO and packing slip are used to assist the receiving clerk in preparing a receiving report. After the receiving report is prepared, the PO and packing slip are filed in the department. One copy of the receiving report is sent to the purchasing department, where it is filed, and another copy is sent to AP, where it is filed until the vendor's invoice arrives.

When AP receives the vendor's invoice, the AP clerk matches it to the filed copy of the receiving report. The clerk then prepares a cash disbursement voucher to authorize payment. The disbursement voucher is sent to the computer department, where it is used in a keystroke operation to create an AP record. The AP clerk then prepares a hard copy journal voucher that is sent to the general ledger department and is used to update the general ledger computer file from a terminal in the GL department. The journal voucher is filed in the GL department

Required:
a. Create data flow diagrams of the revenue and expenditure procedures.

b. Create system flowcharts of the current revenue and expenditure procedures.

c. Analyze the internal control and operational weaknesses in the system.

d. Prepare system flowcharts of a redesigned system that resolves the control and operational weaknesses you have identified.

Problem 9: Cash Disbursements Report for Months May and June						
Date	Vendor Name	Check No	Invoice No	Invoice Amount	Payment Discount	Amount
5/1/07	Hall Sugar Company	601	121	$5,200		$5,200
5/8/07	Ray Packaging	602	782	$1,200	$180	$1,020
5/15/07	Brown Chemicals	603	52	$1,875		$1,875
5/16/07	Sinclair Labs	604	122	$2,300		$2,300
5/23/07	Sinclair Labs	605	132	$2,300	$345	$1,995
5/30/07	Sugar Suppliers, Inc.	606	888	$1,275		$1,725
5/30/07	Hallies Sugar Company	607	212	$5,275		$5,272
6/1/07	Color Candies, Inc.	608	222	$1,000		$1,000
6/8/07	Hall Sugar Company	609	121	$5,200		$5,200
6/15/07	Candy Wrappers & Co.	610	787	$1,150		$1,150

Problem 9:
Shipping Report for Months Ended May and June

Date	Customer Name	Customer Shipping Address	Invoice No	Invoice Address	Payment	Date Shipped
11/2/07	James McGuire	12 Maple Avenue, Englewood, NJ 07631	556	12 Maple Avenue, Englewood, NJ 07631	$850	11/2/07
11/2/07	The Hall Candy Store	72 E.4th Street, Easton, PA 18042	233	72 E.4th Street, Easton, PA 18042	$1,975	11/2/07
11/2/07	Smiles Candies & Co.	112 Packard Circle, Easton, PA 18042	428	112 Packard Circle, Easton, PA 18042	$1,290	11/12/07
11/2/07	The Candy Guy, Inc.	47 Cresent Avenue, Allentown, PA 18103	166	47 Cresent Avenue, Allentown, PA 18103	$2,895	11/2/07
11/9/07	Candies & Treats	104 W. 48th Street, New York, NY 10017	983	1694 Corporate Way, Clifton, NJ 07014	$6,800	11/9/07
11/9/07	Kathleen Hallaway	118 Cordes Street, Bedford, NH 03110	108	118 Cordes Street, Bedford, NH 03110	$925	11/9/07
11/10/07	Lehigh University	39 University Drive, Bethlehem, PA 18015	191	39 University Drive, Bethlehem, PA 18015	$11,200	11/10/07
11/10/07	Philadelphia Candy Company	100 Mulbury Street, Philadelphia, PA 19103	333	100 Mulbury Street, Philadelphia, PA 19103	$2,650	11/10/07
11/10/07	Timothy Klienman	18 Heatherspoon Way, Bethlehem, PA 18015	445	18 Heatherspoon Way, Bethlehem, PA 18015	$750	11/10/07
11/16/07	The Candy Store At the Hilton	1810 Beach Way, Boca Raton, FL 33432	972	1810 Beach Way, Boca Raton, FL 33432	$8,200	11/16/07

Problem 9:
Invoice

INVOICE

Sugar Suppliers, Inc.
Billing Department
181 Sugar Plant Way
Allentown, PA 18103

To: New Born Candy Company   **Date:** 8/28/07
1332 Rockaway Avenue   **Invoice #:** 888
24th Floor
Bethlehem, PA 18015

Order Number	Quantity	Description	Total Price
1234	1000 Lbs.	Sugar Qty Code SJRT	$1,275.00
		Total Amount Due	$1,275.00

Prepared by: SKM
Approved by: JAH

Please make payment immediately. Please DO NOT SEND CASH.

Failure to pay within 30 days results in additional late charges.

For additional billings questions please contact us at 1-888-NewBorn

Problem 9:
Invoice

INVOICE

New Born Candy Company

Billing Department

1332 Roackaway Avenue

Bethlehem, PA 18015

To: **Customer Shipping Address:**

Candies & Treats
1694 Corporate Way
Clifton, NJ 07014

Invoice #: 983

Date of Invoice: 11/30/07

Customer Name	Customer No.	Shipping Date	Amount Due
Candies & Treats	1234	11/09/07	$6,800.00
		Total Amount Due	$6,800.00

Prepared by: SKM
Approved by: JAH

Please make payment immediately. Please DO NOT SEND CASH.

Failure to pay within 30 days results in additional late charges.

For additional billings questions please contact us at 1-888-NewBorn