

# The Expenditure Cycle Part I: Purchases and Cash Disbursements Procedures

The objective of the expenditure cycle is to convert the organization's cash into the physical materials and 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 Chapter 6.

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 physical systems, which are composed, to varying degrees, of technology and human activity. This section reviews system options that lie at different points on the technology/human continuum. Two objectives drive this discussion. The first is to illustrate system

## 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 risks associated with purchases and cash disbursements activities and be familiar with the controls that reduce these risks.
- Be aware of the operational features and the control implications of technologies used in purchases and cash disbursements systems.

functionality, efficiency issues, and work flow characteristics of different technologies. The second is to demonstrate how internal control issues differ between systems at various points on the technology/human continuum. As part of this discussion, we examine basic technology systems and advanced integrated systems. We conclude the chapter with an overview of electronic data interchange (EDI).

## 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 the purchases processing and cash disbursements procedures. Payroll and fixed asset systems, which also support the expenditure cycle, are covered in Chapter 6.

As in Chapter 4, 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 this chapter, we examine examples of physical systems.

### Purchases Processing Procedures

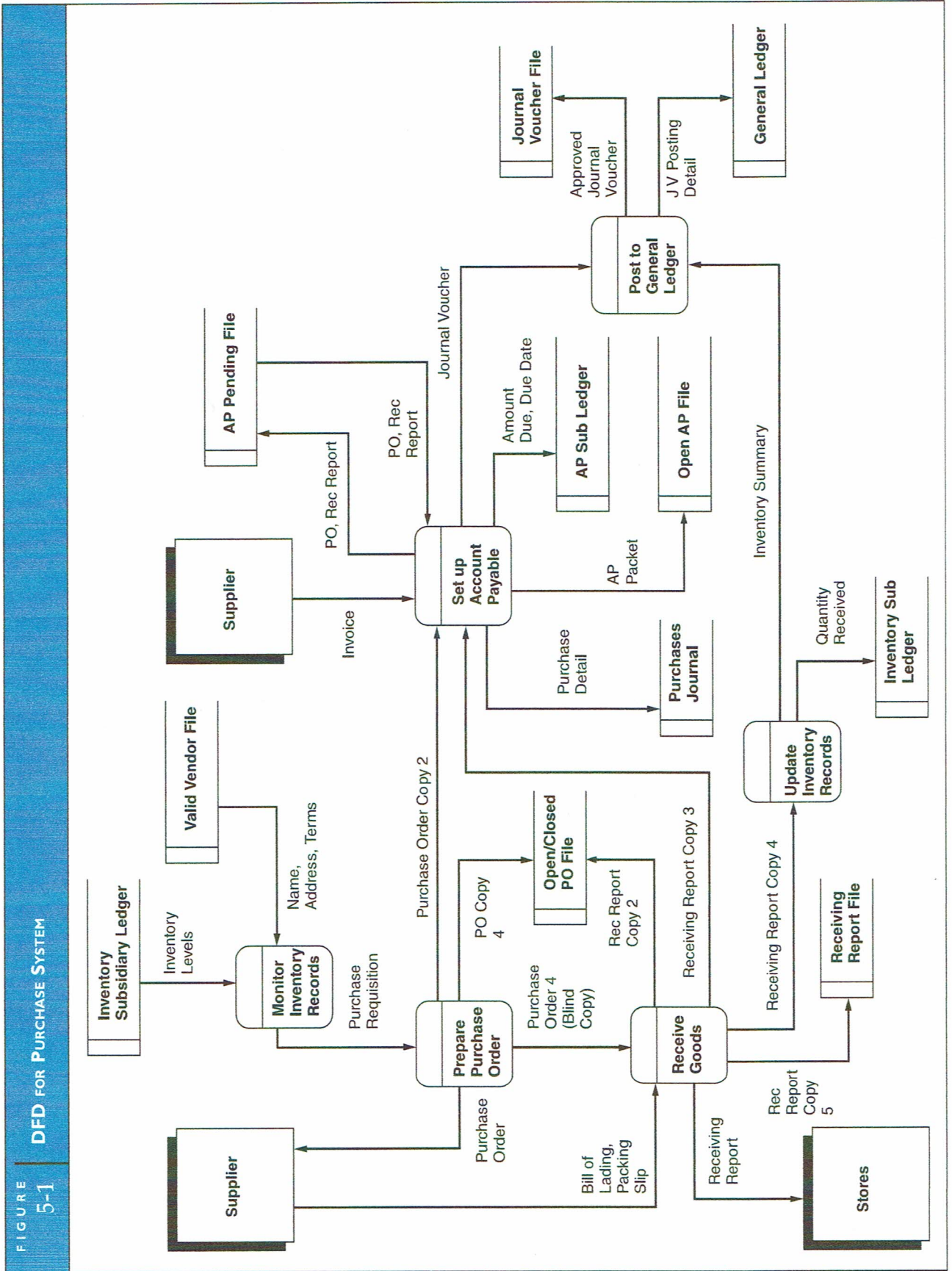
Purchases procedures include the tasks involved in identifying inventory needs, placing the order, receiving the inventory, and recognizing the liability. The relationships between these tasks are presented with the DFD in Figure 5-1. In general, these procedures apply to both manufacturing and retailing 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 at 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. Recall that the task of identifying a low-level inventory condition and creating a purchase requisition is a revenue cycle activity that was described in detail in Chapter 4. Figure 5-2 presents an example of a purchase requisition.

For efficiency and control purposes, the purchase requisition contains routine ordering information taken from the inventory subsidiary ledger and **valid vendor file**. This includes the name and address of the primary supplier, the economic order quantity<sup>1</sup> of the item, and the standard or expected unit cost of the item. Providing this information to the purchasing agent allows him or her to deal with routine purchases as efficiently as good control permits and to devote his or her primary efforts to nonroutine problems such as sourcing scarce, expensive, or unusual inventory items. The valid vendor file provides an important control by listing only approved vendors. The purpose is to ensure that the organization purchases inventories only from authorized vendors. This helps to reduce certain vendor fraud schemes 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.

Although procedures vary from firm to firm, typically a separate purchase requisition is prepared for each inventory item as the need is recognized. This often results in multiple purchase requisitions for a single vendor. The purchase requisitions therefore need to be combined into a

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



**FIGURE 5-2 PURCHASE REQUISITION**

Hampshire Supply Co. No. 89631  
Purchase Requisition

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

Date Prepared <i>8/15/2015</i>		Date Needed <i>9/1/2015</i>		
Part No.	Quantity	Description	Unit Price	Extended Price
<i>86329</i>	<i>200</i>	<i>Engine Block Core Plug</i>	<i>\$1.10</i>	<i>\$220</i>

Prepared By: <i>RBj</i>	Approved By: <i>TJG</i>	Total Amount <i>\$220.00</i>	Vendor Account <i>4001</i>
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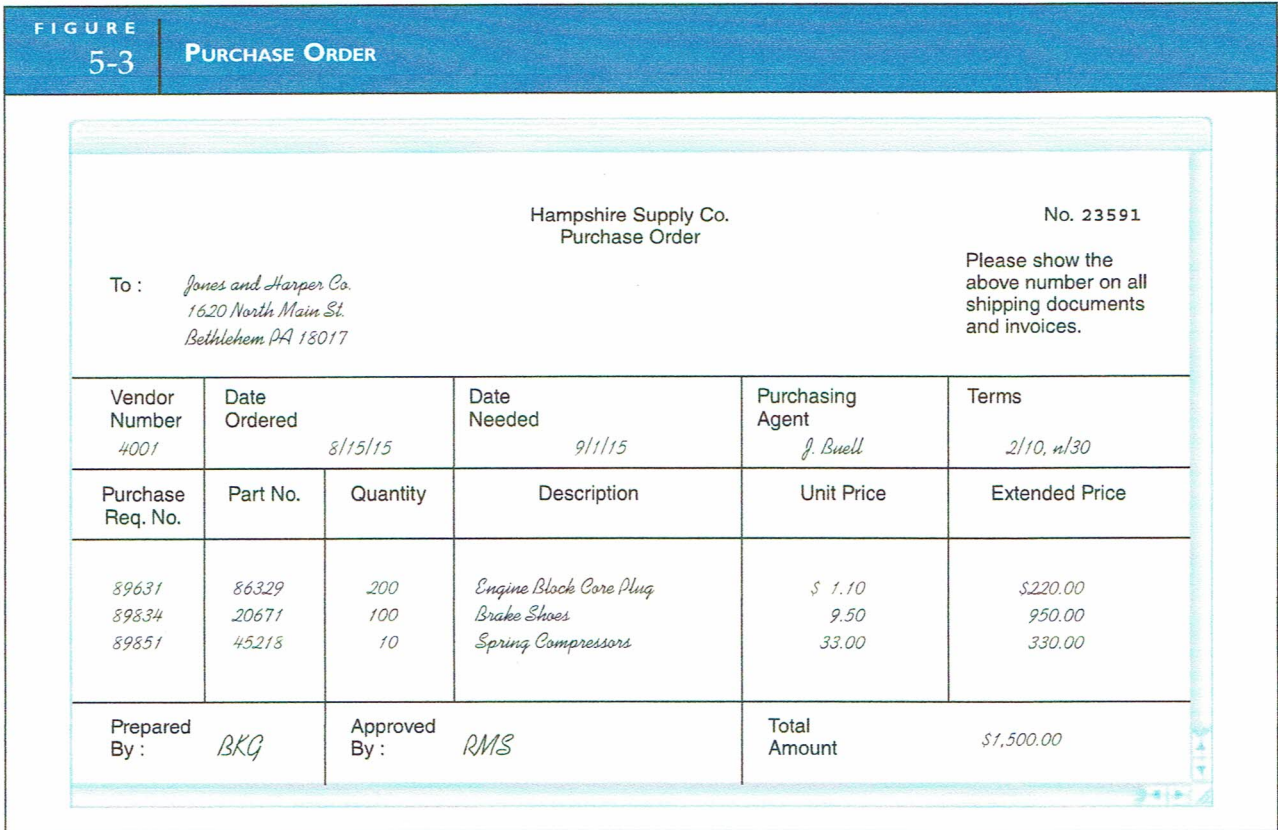
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single purchase order (discussed next), which is then sent to the vendor. In this type of system, each purchase order is associated with one or more purchase requisitions.

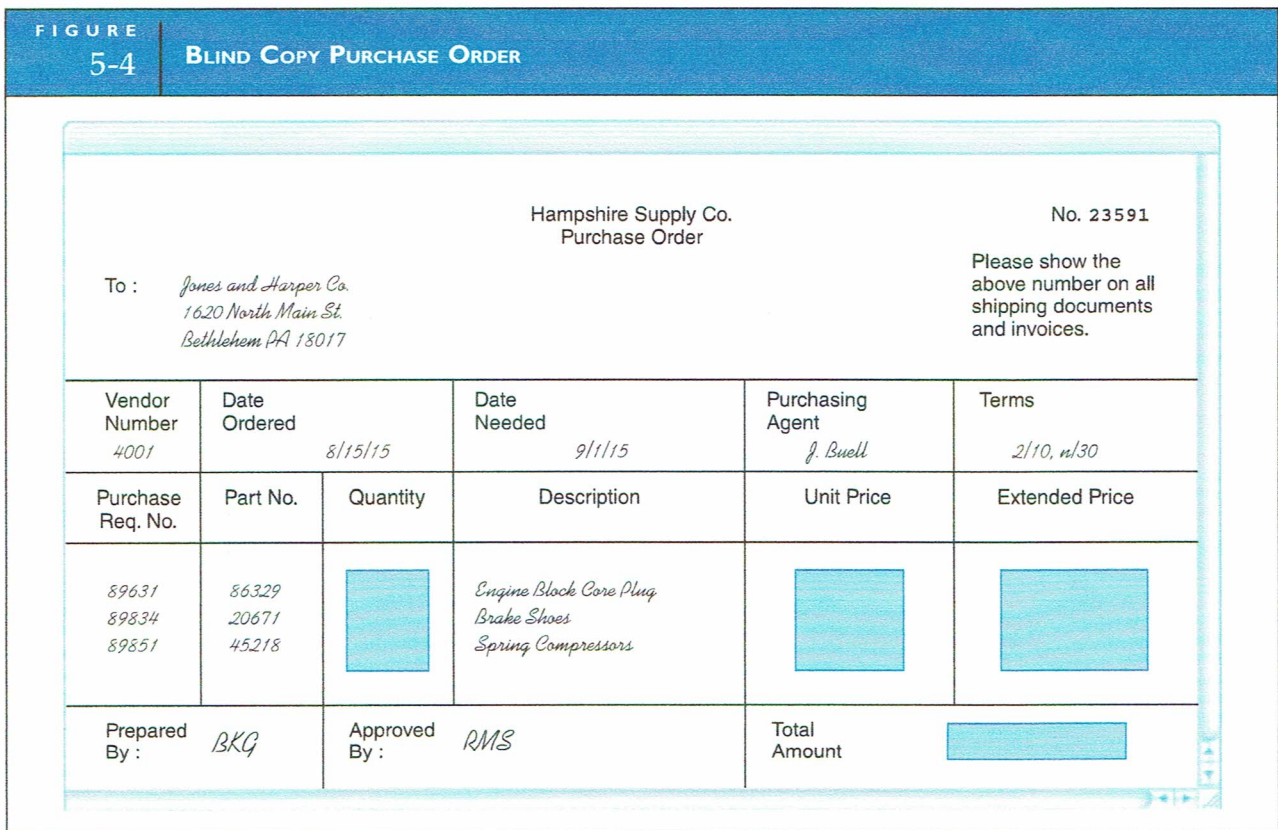
**PREPARE PURCHASE ORDER.** The prepare purchase order function receives the purchase requisitions, which are then sorted by vendor if necessary. Next a **purchase order (PO)**, which is illustrated in Figure 5-3, is prepared for each vendor. A copy of the PO is sent to the vendor. In addition, a copy 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**.

**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**, 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 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 missing items 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 control in reducing this risk.



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**FIGURE 5-5 RECEIVING REPORT**

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

Hampshire Supply Co. No. 62311  
 Receiving Report

Vendor <i>Jones and Harper Co.</i>	Shipped Via : <i>Vendor</i>	
Purchase Order No. <i>23591</i>	Date Received <i>9/1/15</i>	
Received By: <i>RTS</i>	Inspected By: <i>LEW</i>	Delivered To: <i>DUT</i>

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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 presents 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 PO. A third copy of the receiving report is sent to the set up account payable function, 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 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 the 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**<sup>2</sup> containing the financial information needed to record the transaction. The firm will thus defer recording

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

FIGURE 5-6		INVENTORY SUBSIDIARY LEDGER USING STANDARD COST							
HAMPSHIRE MACHINE CO.									
Perpetual Inventory Record—Item #86329									
Item Description	Units Received	Units Sold	Qty on Hand	Reorder Point	Qty 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				

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(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 AP 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 AP clerk prepares an **AP packet**, which consists of the supporting documents (PO, receiving report, and invoice), and files the AP packet in the **open AP file**. Once reconciled, the AP packet is the formal authority to record the liability and subsequently make payment. Next, 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.

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 will send a copy of the supplier's invoice to inventory control. If standard costing is used, this step is not necessary.

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:

	<b>DR</b>	<b>CR</b>
Inventory—Control	6,800.00	
Accounts Payable—Control		6,800.00

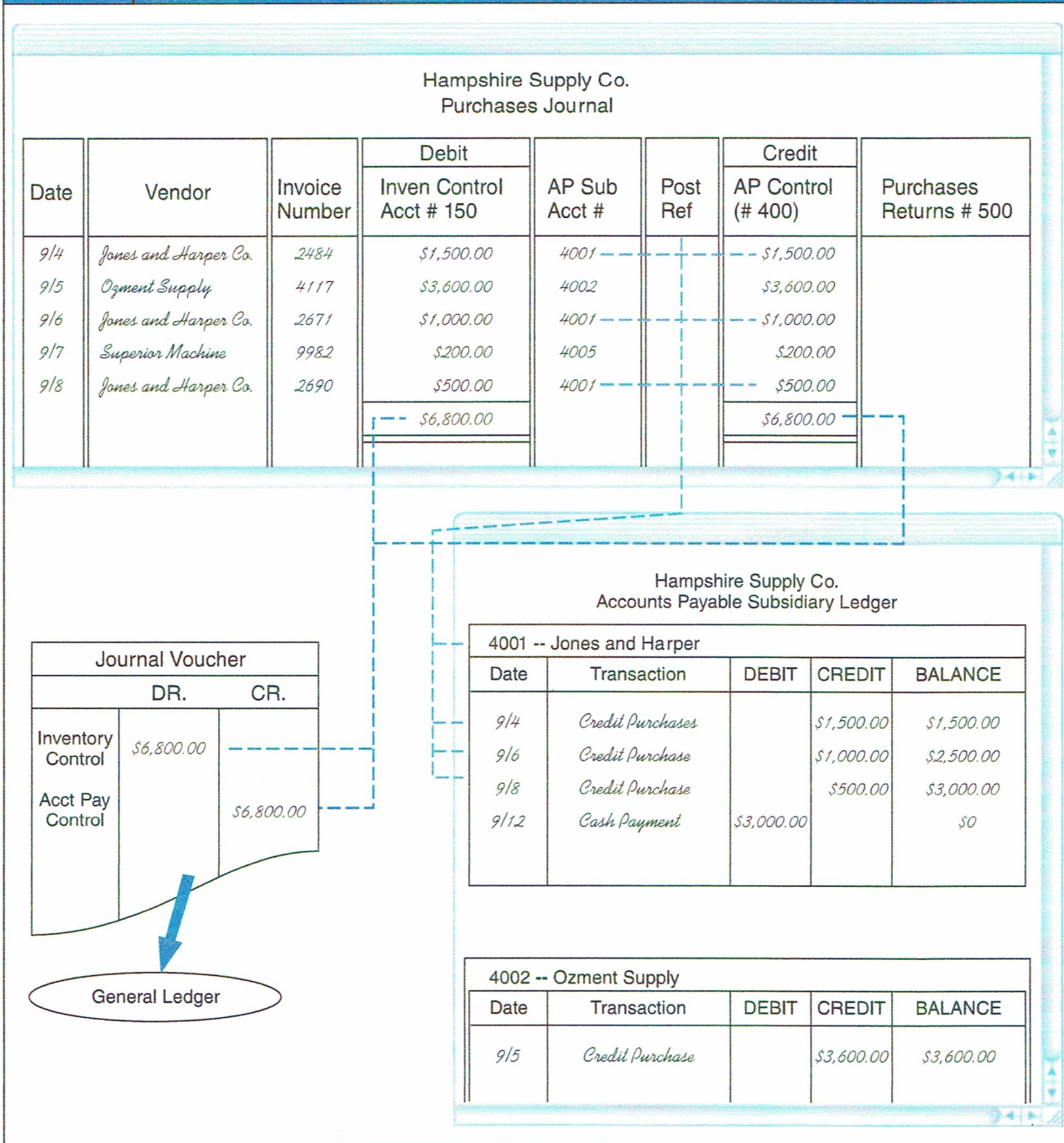
If the periodic inventory method is used, the entry will be:

	<b>DR</b>	<b>CR</b>
Purchases	6,800.00	
Accounts Payable—Control		6,800.00

### Vouchers Payable System

As an alternative to the AP procedures described in the previous section, some firms use a **vouchers payable system**. Under this system, the AP department uses **cash disbursement vouchers** and maintains

**FIGURE 5-7** RELATIONSHIP BETWEEN PURCHASE JOURNAL, AP SUBSIDIARY LEDGER, AND JOURNAL VOUCHER



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 the register (those with no check numbers and paid dates) is the firm's total AP balance. The AP clerk files the cash

## The Cash Disbursements System

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, where each day the AP clerk reviews the open AP file for items due for payment. Typically, this file is organized by payment due date to ensure that debts are paid on the last possible date without missing due dates and losing discounts. The clerk sends payment approval in the form of the AP packet (PO, receiving report, and supplier's invoice) to the cash disbursements department.

**PREPARE CASH DISBURSEMENT.** The cash disbursements clerk receives the AP 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, 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.

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; a copy of it is attached to the AP packet as proof of payment; and a check copy is filed in the department. The clerk marks the documents in the packet 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 in to the general ledger function:

	<b>DR</b>	<b>CR</b>
Accounts Payable	XXXX.XX	
Cash		XXXX.XX

**UPDATE AP RECORD.** Upon receipt of the paid AP packet, the AP clerk removes the liability by debiting the vendor's AP subsidiary ledger account. The AP packet is then filed in the **closed AP 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 AP account summary from accounts payable. 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.

## Physical Systems

We saw in Chapter 4 that physical accounting information systems are a combination of computer technology and human activity. The mix of possible technology/human options creates a continuum. At one end are minimal technology systems that rely heavily on human involvement and manual procedures. At the other end of the continuum are advanced technology systems, which replace human activity with automated processes.

Systems at different points on the continuum operate differently and present different internal control issues. The objectives of this section are to: (1) illustrate AIS functionality and work flow patterns under different levels of technology, and (2) demonstrate how the internal control profile changes as the technology/human mix changes. To accomplish this we review examples of systems at different

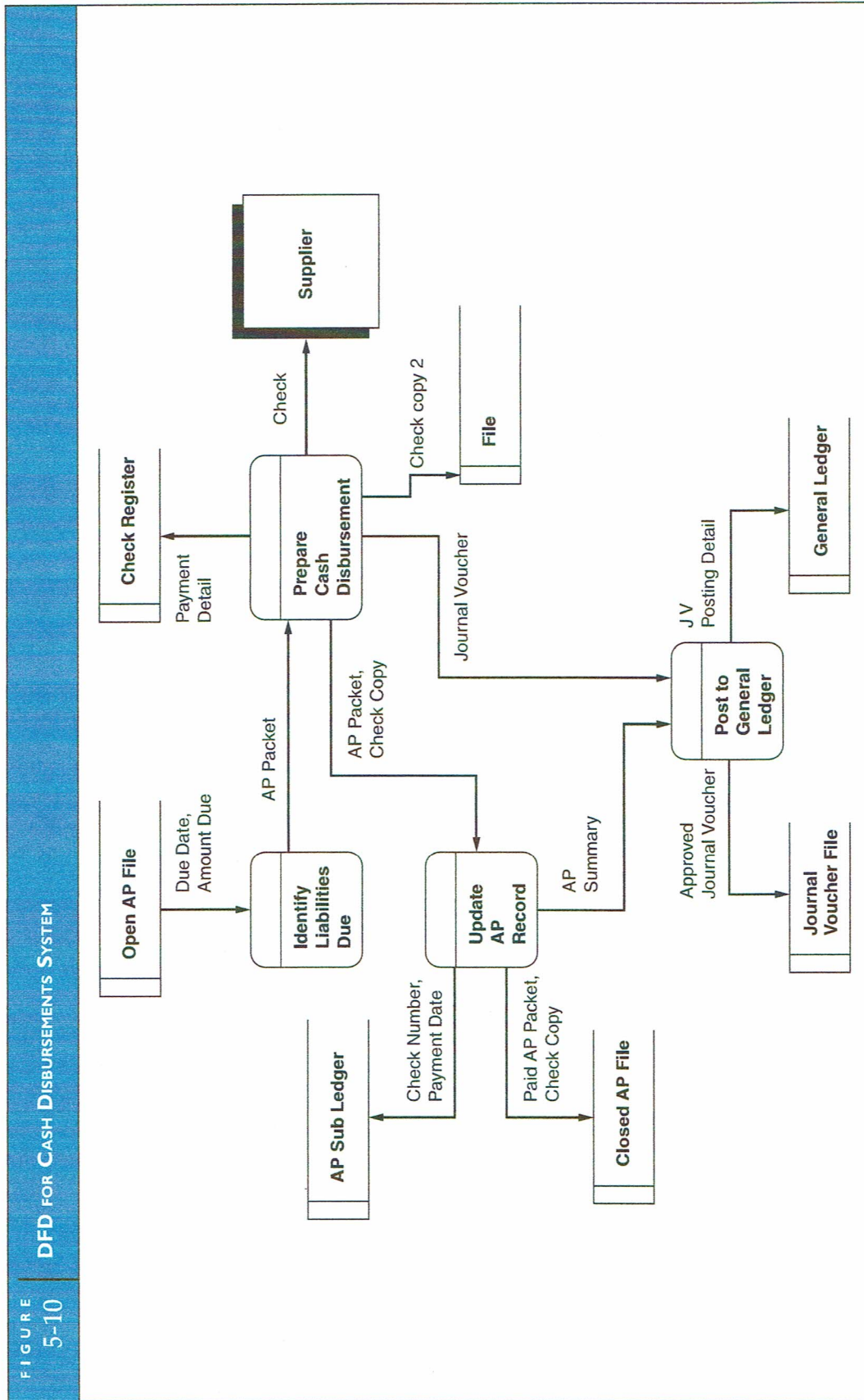


FIGURE  
5-11

## CASH DISBURSEMENTS JOURNAL (CHECK REGISTER)

Cash Disbursements Journal												
Date	Check No.	Voucher No.	Description	Credit		GL / Subsidiary Account Debited	Posted	AP 401	Freight-in 516	Op Expen 509	Other	Posted
				Cash	Purch. Disc.							
9/4/15	101	1867	Martin Motors	\$500		Auto					\$500	✓
9/4/15	102	1868	Pen Power	\$100		Utility	✓			\$100		
9/12/15	103	1869	Acme Auto	\$500		Purchases					\$500	✓
9/14/15	104	1870	Jones and Harper	\$3,000				\$3,000				

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points on the continuum. The first example is a basic technology system that employs independent PCs, which function primarily as record keeping devices. The second example is an advanced technology system that integrates all business functions through a centralized computer application.

## BASIC TECHNOLOGY EXPENDITURE CYCLE

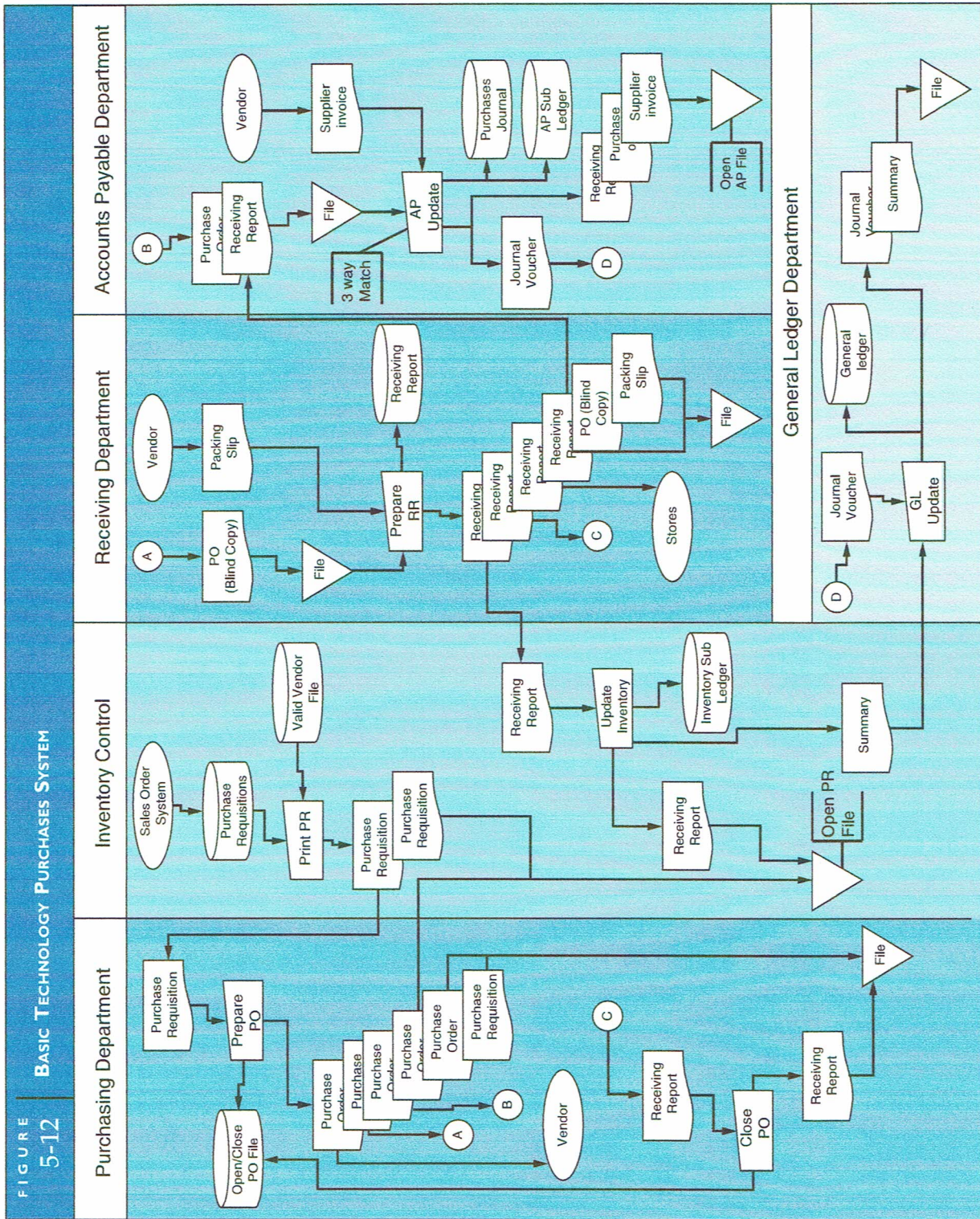
This section presents examples of basic technology expenditure cycle systems. The computers used in these systems are independent (non-networked) PCs. Therefore, information flows between departments are communicated via hard-copy documents. In addition, in such systems, maintaining physical files of source documents is critical to the audit trail. As we walk through the flowcharts, notice that in many departments, after an individual completes his or her assigned task, documents are filed as evidence that the tasks were performed.

### Basic Technology Purchases Processing System

The system flowchart in Figure 5-12 shows the processes, documents, and data files of a basic technology sales order system. The following sections outline the key activities in this system.

**INVENTORY CONTROL.** The process begins when the inventory control clerk prints purchase requisitions from his PC by accessing the **purchase requisition file**. Recall that this file was created during the sales activity when the inventories dropped to their predetermined reorder point. One copy of the requisition is sent to the purchasing department, and one copy is placed in the hard-copy **open purchase requisition file**. Note that to provide proper authorization control, the inventory control department is segregated from the purchasing department, which executes the purchase transaction.

**PURCHASING DEPARTMENT.** The purchasing department receives the purchase requisitions, sorts them by vendor, and adds a record to the digital **open purchase order file**. The clerk then prints a multipart PO for each vendor. One copy of the PO is sent to the vendor. One copy is sent to inventory control, where the clerk files it with the open purchase requisition. One copy of the PO is sent to the 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 department.



**RECEIVING.** The receiving department clerk receives the goods and the packing slip from the vendor and reconciles the goods with the blind copy of the PO. Upon completion of the physical count and inspection, the receiving clerk adds a digital record to the receiving report file and prints a multipart hard-copy 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 and closes the digital record in the open PO file. The purchasing clerk then files the hard-copy receiving report along with the previously filed purchase requisition and PO.

A third copy of the receiving report is sent to inventory control where (assuming a standard cost system) the clerk uses the department PC to update the digital inventory subsidiary ledger. The system automatically removes the “on-order” flag that was set when the purchase requisition was created. The inventory control clerk then files the hard-copy receiving report in the department, along with the PO and the purchase requisition.

A fourth copy of the receiving report is sent to the AP department, where it is filed in the AP pending file. Finally, the receiving clerk files the blind copy PO and the packing slip in the receiving department.

**AP DEPARTMENT.** When the supplier’s invoice arrives, the AP clerk reconciles the invoice, purchase order, and receiving report (three-way match) and prepares an AP packet, which in this paper-oriented system is simply a folder containing the reconciled supporting documents. The clerk next records the transaction in the digital purchases journal, and posts the liability to the supplier’s account in the AP subsidiary ledger. The clerk then files the AP packet in the open 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.

### Basic Technology Cash Disbursements System

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

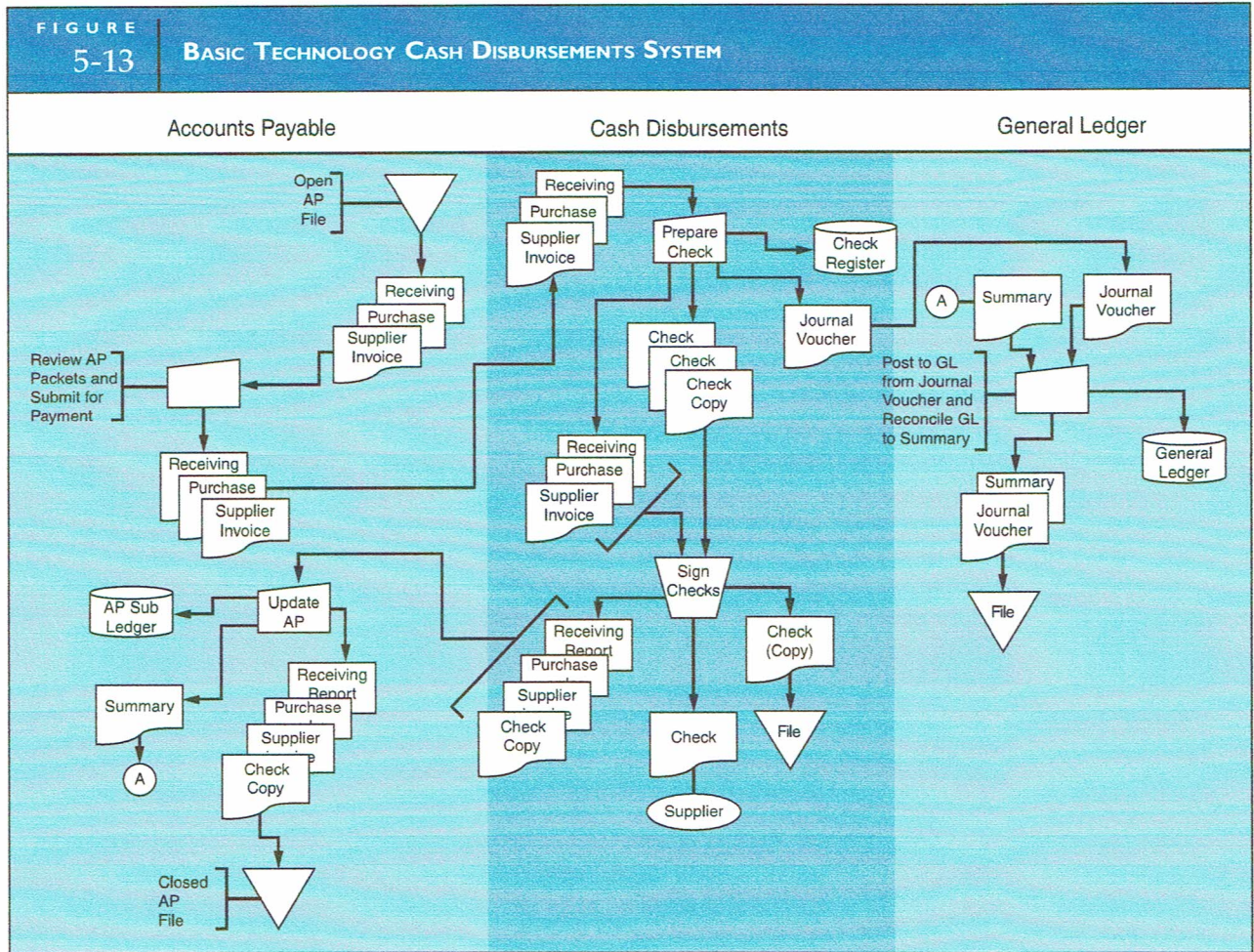
**AP DEPARTMENT.** Each day, the AP clerk reviews the AP packets in the open AP file for items due, and sends the supporting documents to the cash disbursements department.

**CASH DISBURSEMENTS DEPARTMENT.** The cash disbursements clerk receives the AP 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, 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 AP 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 AP packet, the AP clerk removes the liability by debiting the vendor’s digital AP subsidiary record. Next, the AP packet is filed in the closed AP 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 uses the department PC to post to the general ledger control accounts and files the documents. This concludes the cash disbursements procedures.



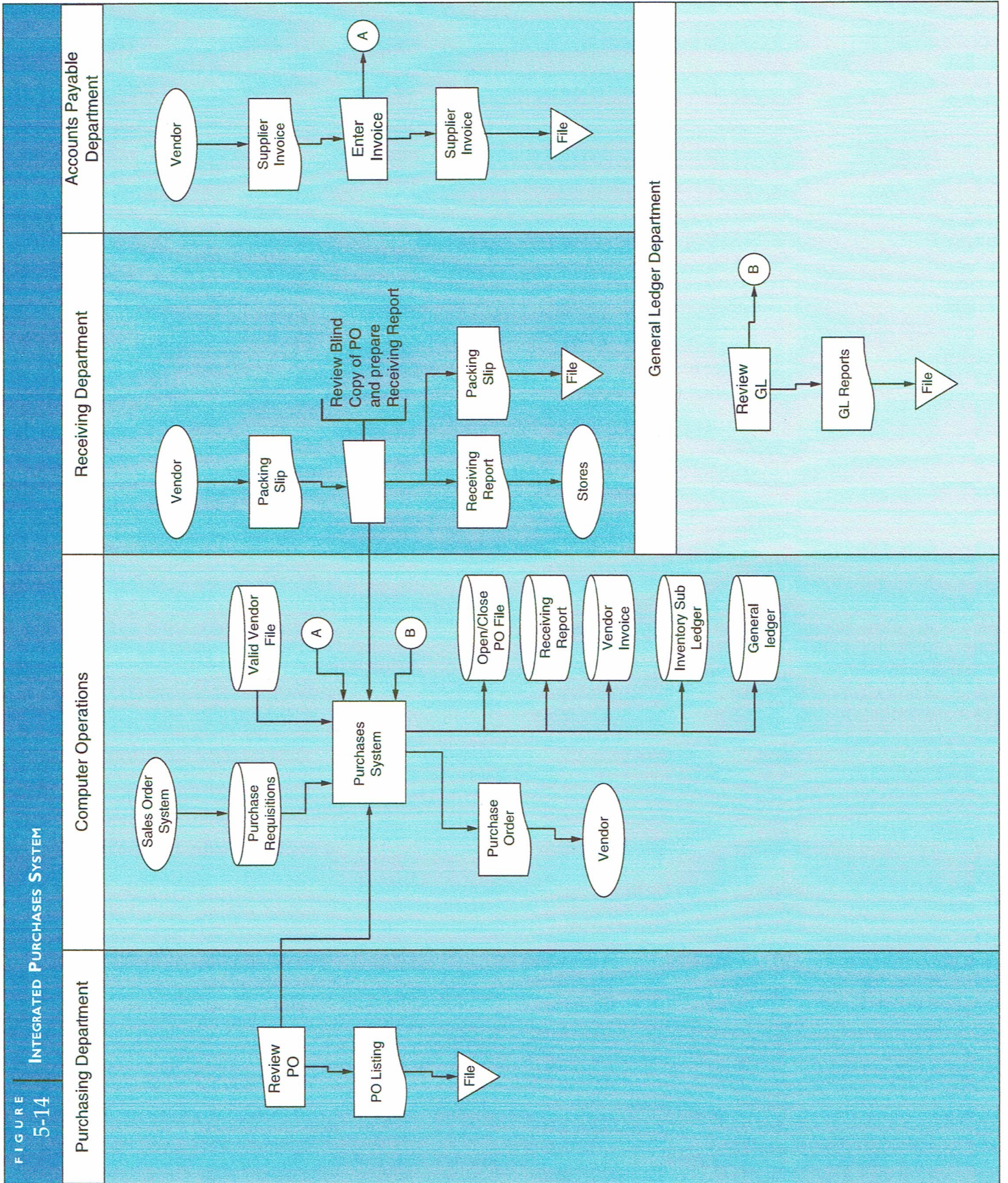
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### ADVANCED TECHNOLOGY EXPENDITURE CYCLE

Recall from Chapter 4 that the purpose of advanced technologies in AIS is to integrate accounting and other business functions through a common information system. Integration improves operational performance and reduces costs by eliminating nonvalue-added tasks. In this section, we see how advanced technologies can significantly alter and simplify the expenditure cycle, compared to the basic technology system presented in the previous section. We begin by reviewing the operational features of an integrated purchases system, and then we examine an integrated cash disbursements system.

### INTEGRATED PURCHASES PROCESSING SYSTEM

The flowchart in Figure 5-14 illustrates an integrated purchase system. Notice that the level of departmental activity is significantly lower than that of the basic technology system presented in Figure 5-12. Labor-intensive activities that characterize the basic technology system add greatly to the cost of system operation and result in human error. In the advanced technology system, computer programs perform many clerical tasks, which is much cheaper and far less prone to error. Although the traditional department structure still exists in advanced technology environments, personnel responsibilities are refocused on financial analysis and exception-based problem solving, rather than on day-to-day clerical tasks. As a result, these departments are smaller and more efficient than their basic technology counterparts. Each phase of this reengineered system is described next.



## Computer Operations

The purchases computer application performs the following tasks automatically.

1. The system reads the purchases requisition file for items that need to be replenished. The requisitions are then sorted by the vendor and matched against the valid vendor file for vendor address and contact information.
2. Hard-copy purchase orders are prepared and sent to the vendor.
3. A record is added to the open PO file.
4. A digital transaction listing of POs is created, which is downloaded by the purchasing agent, reviewed, and filed in the department.

## Receiving Department

When the goods arrive, the receiving clerk accesses a blind copy of the open PO file in real time by entering the PO number taken from the packing slip. The receiving screen, illustrated in Figure 5-15, then prompts the clerk to enter the quantities received for each item on the PO. The following tasks are performed automatically by the system.

1. A record is added to the receiving report file.
2. Quantities of items received are matched against the open PO record, and the PO is closed by placing the receiving report number in the PO closed flag. Figure 5-16 presents possible structures for the PO and receiving report files.
3. The inventory subsidiary records are updated to reflect the receipt of the inventory items.
4. The general ledger inventory control account is updated.

## Accounts Payable Department

When the AP clerk receives the supplier's invoice, the clerk accesses the system and adds a record to the vendor invoice file. The clerk then files the hard-copy invoice in the department. The following tasks are performed automatically by the system.

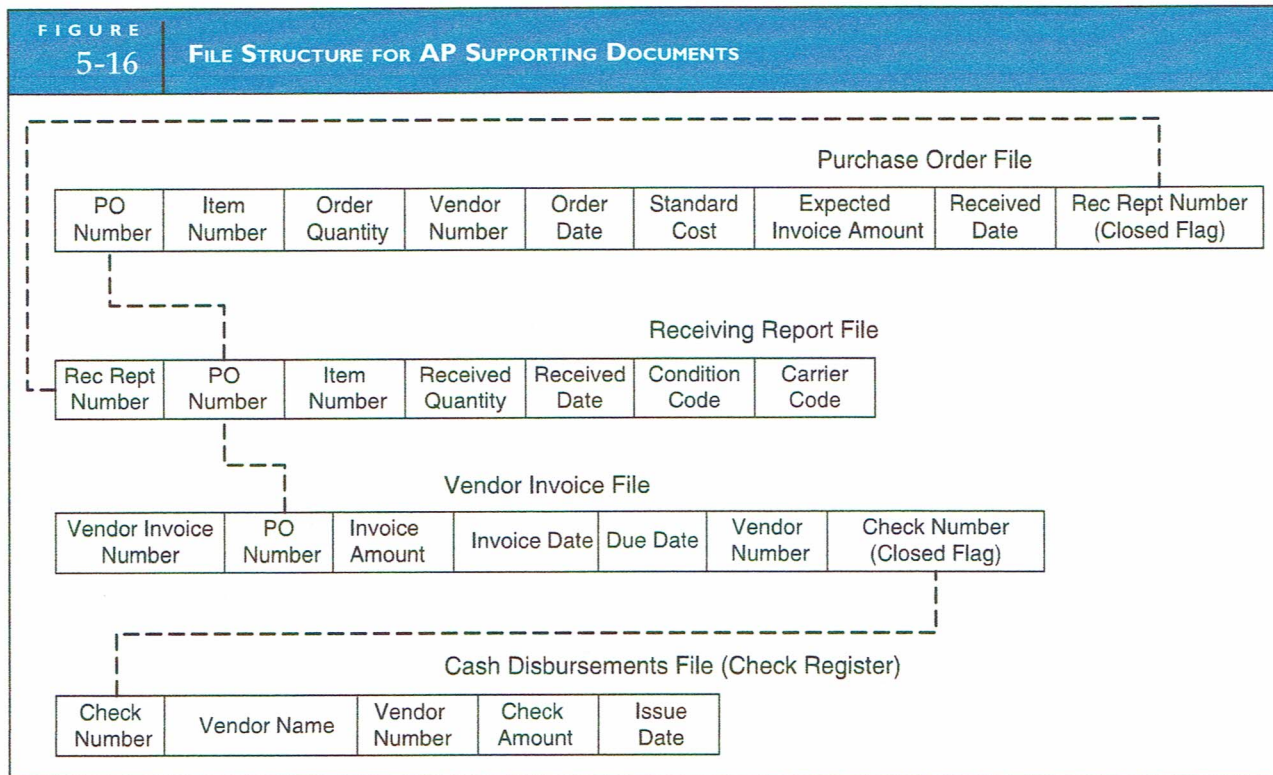
1. Using the PO number as a common attribute, the system links the vendor invoice to the associated purchase order and receiving report records (see Figure 5-16).

**FIGURE 5-15 RECEIVING SCREEN**

DATE:	12/15/15	PURCH. ORDER #	567	CLERK ID	MD
ITEM #	QTY RECVD	QTY ORDER	Discrepancy		
45-709	50	55	5		
MANUAL ENTRY =					

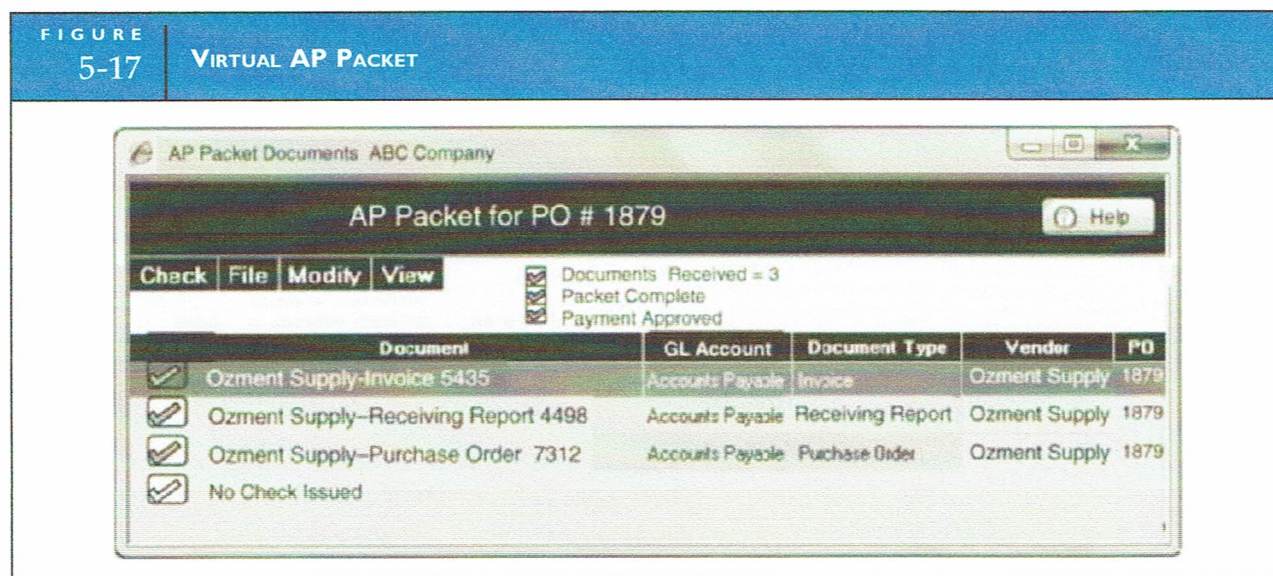
Displays after Qty Recvd has been entered

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- The system reconciles the supporting documents and creates a virtual AP packet to authorize payment.
- The system displays the virtual AP packet on the AP clerk's computer screen for review. Figure 5-17 presents an example of an AP packet screen display. The virtual AP packet allows the AP clerk to browse the supporting documents and modify documents if necessary to reconcile quantity or price discrepancies that may exist.
- Assuming no discrepancies that demand the AP clerk's intervention, the system automatically approves payment and sets a payment due date.



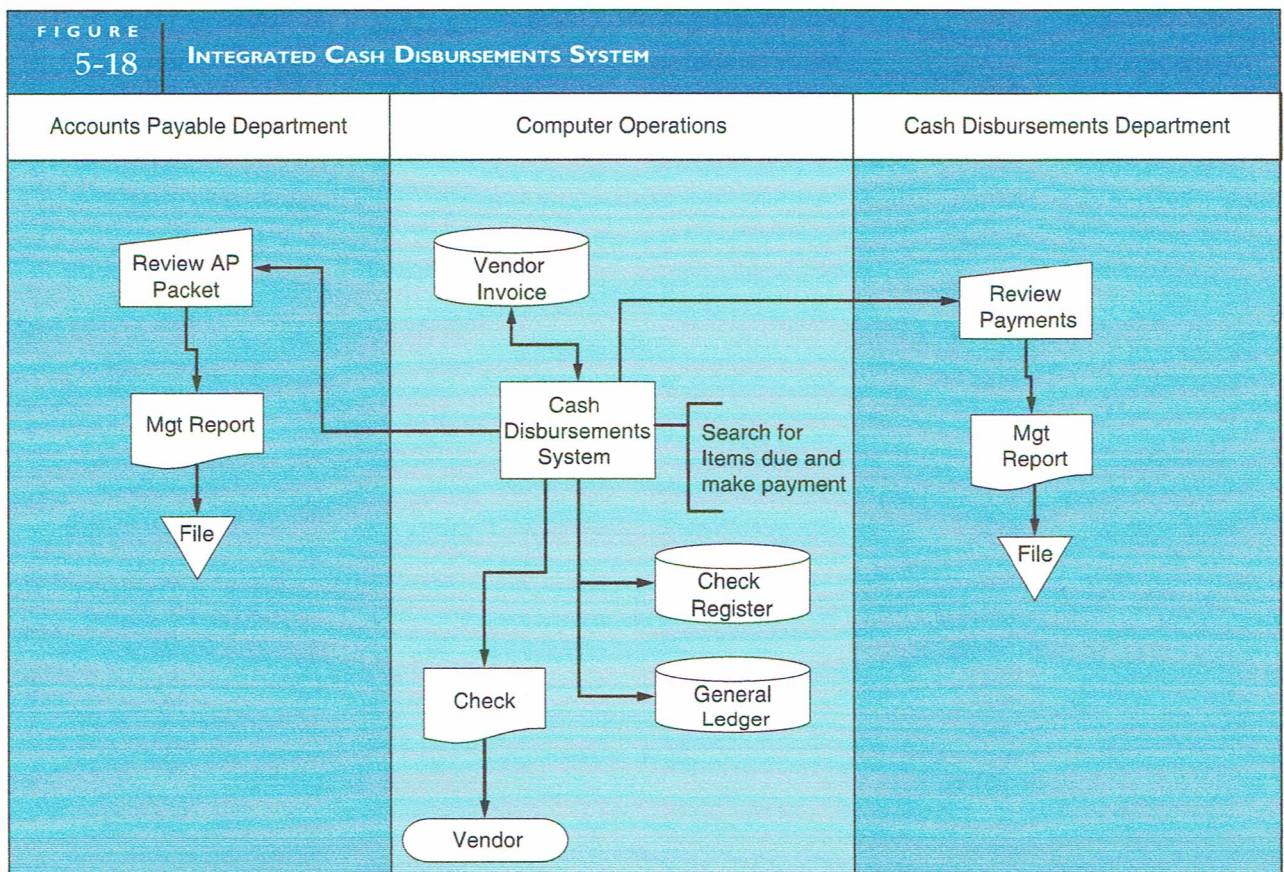
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Many companies engaged in business-to-business (B2B) transactions use the vendor invoice file as a substitute for the traditional purchases journal and accounts payable subsidiary ledger. The invoices in the file provide a chronological record of total purchases for the period (equivalent to the purchases journal), and the unpaid invoices at any point in time constitute the organization's accounts payable.

## INTEGRATED CASH DISBURSEMENTS SYSTEM

Figure 5-18 illustrates a cash disbursements system in which the organization makes vendor payments with hard-copy checks that are mailed to the vendor. Organizations that use electronic funds transfer (EFT) to transmit payments employ different procedures that are described in Chapter 12. Each day, the DUE DATE fields of the vendor invoice records are scanned for items due to be paid. The following procedures are performed on items that are due.

1. Checks are automatically printed, signed, and distributed to the mail room for mailing to vendors. Checks above a preset materiality threshold will receive additional signatures (not shown) prior to being mailed.
2. The payments are automatically recorded in the check register file.
3. Vendor invoices are closed by placing the check number in the closed flag field (see Figure 5-16).
4. The general ledger AP control and cash accounts are updated.
5. Reports detailing these transactions are transmitted via a terminal to the AP and cash disbursements departments for management review and filing.



## EXPENDITURE CYCLE RISKS AND INTERNAL CONTROLS

An objective of internal control is to mitigate the risk from errors and fraud. The following are the primary risks associated with expenditure cycle transactions:

- Unauthorized inventory purchases
- Receiving wrong items, incorrect quantities, or damaged goods
- Inaccurately recording purchases and cash disbursement transactions in journals and accounts
- Misappropriation of cash and inventory
- Unauthorized access to accounting records and confidential reports

To reiterate an important concept introduced in Chapter 3, internal control activities consist of: 1) physical controls, and 2) IT controls. The purpose of physical controls is to control the actions of people. These consist of six classes of internal control activities: transaction authorization, segregation of duties, supervision, accounting records, access control, and independent verification. IT controls are comprised of general controls and application controls. General controls are not specific to a particular cycle or subsystem and thus do not apply to expenditure cycle risks directly. Computer application controls consist of: input controls, processing controls, and output controls. The discussion that follows examines and compares how physical and IT control techniques apply in both basic technology and advanced technology systems to reduce the risks identified above. Table 5-1 at the end of the section provides a summary of this material.

### Risk of Unauthorized Inventory Purchases

Unauthorized inventory purchases places the decision of what to buy, when to buy, and from whom to buy solely at the discretion of the purchasing agent. This 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. Furthermore, such discretion can lead to frauds such as kick-backs to purchasing agents from unapproved suppliers who charge above-market prices for their inventory.

### Physical Controls

**TRANSACTION AUTHORIZATION.** The objective of transaction authorization is to ensure that only valid transactions are processed. When inventory levels drop to their predetermined reorder points, inventory control formally authorizes replenishment with a purchase requisition to trigger the purchasing function. Formalizing the authorization process promotes efficient inventory management and ensures the legitimacy of purchase transactions with valid vendors.

### IT Controls

**AUTOMATED PURCHASE APPROVAL.** The objective of automated purchase approval is to prevent unauthorized purchases from unapproved vendors. Therefore, computer logic, not a human being, decides when to purchase, what to purchase, and from which vendor. The key attributes needed to execute this logic come from the purchase requisition file and the valid vendor file. Proper functioning of this control depends on adequate procedures for identifying vendors and placing them on the valid vendor list. If access to the valid vendor file is not specifically controlled via password and/or encryption (discussed in Chapter 12), an unapproved vendor could be added to the file, and the control would be circumvented. To allow for operational flexibility in unusual circumstances, however, the system should provide a management override option to purchase from unapproved vendors, which may be performed only by a supervisor. Any such overrides should be fully documented in management reports.

## Risk of Receiving Incorrect Items, Quantities, or Damaged Goods

The receiving department is responsible for inspecting and counting large quantities of valuable assets that arrive from vendors. Once inspected, a receiving report is prepared and the inventories are stored in the warehouse. Failure to perform the receiving task correctly places the firm at risk of accepting incorrect items, incomplete orders and damaged goods.

### Physical Controls

**INDEPENDENT VERIFICATION.** When goods arrive from the supplier, receiving clerks verify that the items are correct in type and quantity and inspect them for condition (damage, spoilage, and so on). To perform this verification the clerk obtains 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 quantity information, which is needed for the receiving report, the receiving personnel are forced to physically count and inspect the goods.

**SUPERVISION.** Supervision is critical at this point to ensure that the clerks properly carry out these important duties. Packing slips, which contain quantity information, and could be used to circumvent the inspection process, typically accompany the incoming goods. A supervisor should take custody of the packing slip while receiving clerks count and inspect the goods. If receiving clerks are provided with quantity information via an open PO or packing slip they may be tempted to transfer this information to the receiving report without performing a physical count and inspection.

### IT Controls

**SCANNER TECHNOLOGY.** The basic concept of inspection can be enhanced through the use of IT controls. Product code scanners in the receiving department and warehouse will reduce the risk of human error in receiving and storing incorrect products. When scanned by the receiving clerk and the warehouse, the system will verify that the items received match those on the purchase order.

## Risk of Inaccurately Recording Transactions in Journals and Ledgers

Inaccurate record keeping can take many forms. The following outlines some common expenditure cycle errors but is not intended to be an exhaustive list.

- Purchases from vendors are incorrectly calculated.
- Accounts Payable go unrecorded or are recorded in the wrong period.
- Vendor bills customers for items they did not receive (back ordered).
- Vendor cash payments are inaccurately posted to AP or are posted to the wrong vendor AP.
- Summaries of purchases, accounts payable, cash disbursements, and inventory levels are incorrectly posted to their respective general ledger accounts.

### Physical Controls

**TRANSACTION AUTHORIZATION.** The AP function authorizes cash disbursements via the AP packet. To provide effective control over the flow of cash from the firm, the cash disbursement function should not write checks without this explicit authorization.

**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, 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, in an attempt to intentionally underreport liabilities. 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.

**INDEPENDENT VERIFICATION.** 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. Many transaction errors that might occur in the source subsystems will be flagged by discrepancies in the summary numbers that they submit.

### IT Controls

**INPUT DATA EDITS.** Recall that a basic assumption in transaction processing system design is that master files, such as inventory, accounts payable, and the general ledger are “clean” and error free. Transaction data, in contrast, are assumed to be “dirty” and contain various errors such as transposed digits in account numbers, invalid inventory part numbers, and clerical errors. If not detected before being processed, these errors will corrupt the master files of the system.

Input controls are edits that focus on the integrity of transaction data being entered into the application. The following edits are programed into the system to minimize the risk from data input errors.

1. Controls, including checks for missing data, numeric-alphabetic data, and invalid data values, will reduce the risk of undetected data entry errors by clerks in the accounts payable, inventory control, receiving, and cash disbursements departments.
2. Check digit control will provide control over accessing the wrong accounts. Long vendor and inventory account numbers are susceptible to transcription and transposition errors during data entry. A check digit control will reduce the risk of such errors when department clerks enter account numbers into their systems.

**ERROR MESSAGES.** When posting to the inventory and AP subsidiary ledgers, the computer program logic must correctly identify the inventory and vendor records being updated by matching the inventory item numbers and the vendor account numbers in the receiving report and supplier’s invoice to those in the inventory and AP subsidiary files, respectively. Any mismatch conditions should produce an error message to the computer operator.

**AUTOMATED POSTINGS TO SUBSIDIARY AND GL ACCOUNTS.** The record keeping functions, which in basic technology systems are performed manually by accounting clerks, are automated in the advanced technology system. In a manual environment, segregation of duties between inventory control, purchasing, accounts payable, cash disbursements, and the general ledger functions are important physical controls designed to prevent or detect human errors and fraud. In the advanced technology system, a computer application, which is not subject to human failings such as yielding to situational pressures and/or lacking ethical standards, decides which accounts to update and by how much. By eliminating the human element from accounting activities, the potential for errors and opportunities for fraud are significantly reduced. Also, since these are labor intensive activities, automating them greatly improves efficiency of operations.

These automation benefits depend upon the proper functioning of the computer applications that perform accounting tasks. An undetected program error may affect thousands or even millions of transactions with devastating consequences to the financial statements. An organization's systems development and program change process is therefore critical to ensuring that computer applications do what they are intended to do when they are placed into service and are protected from accidental, malicious, or fraudulent modifications over their service lifetime. In assessing application integrity, auditors seek answers to such questions as: Is the logic of the computer program correct? Has anyone tampered with the application since it was last tested? Have changes been made to the program that could have caused an undisclosed error? The general controls and audit tests that provide answers to these questions are discussed at length in Chapter 17.

**FILE BACKUP.** The physical loss, destruction, or corruption of digital accounting records are serious concerns that were discussed in Chapter 3. File backup procedures need to be in place as part of the daily processing of transaction data. The accountant should verify that such procedures are performed for all subsidiary and general ledger files.

### Risk of Misappropriation of Cash and Inventory

The greatest risk of inventory theft occurs in the receiving department and the warehouse. Misappropriation of cash may take the form of fraudulent payments to individuals posing as vendors. It may also involve erroneous payments for items not ordered or not received. These risks can be reduced through controls such as supervision, independent verification, segregation of duties, and automated procedures.

### Physical Controls

**SUPERVISION.** Receiving departments are sometimes hectic and cluttered during busy periods. In this environment, incoming inventories are exposed to theft until they are secured in the warehouse. Inadequate supervision can create an environment conducive to the theft of inventories in transit.

**INDEPENDENT VERIFICATION.** 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. This control is called a three-way match and involves the following three documents:

1. The PO, which shows that the purchasing agent ordered only the needed inventories from a valid vendor.
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 to pay.
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.

**SEGREGATION OF DUTIES—INVENTORY CONTROL FROM INVENTORY WAREHOUSE.** This point was made in Chapter 4. Inventory control keeps the detailed records of the asset, while the warehouse (stores) has asset custody. These tasks should be kept separate. At any point, an auditor should be able to reconcile inventory records to the physical inventory.

**SEGREGATION OF DUTIES—ACCOUNTS PAYABLE FROM CASH DISBURSEMENTS.**

An individual with combined responsibilities for establishing accounts payable and for writing checks to vendors in payment of accounts payable could perpetrate a fraud against the firm. For instance, he or she could establish fraudulent liabilities (to an associate posing as a vendor company) and then write checks to discharge the phony obligations. Segregating these functions greatly reduce the potential for this type of fraud.

## IT Controls

### Automated Three-Way Match and Payment Approval

An automated three-way match replicates the manual counterpart as follows: When the AP clerk receives the supplier's invoice, the clerk accesses the system and adds a record to the vendor invoice file. This act prompts the system to automatically create a virtual AP packet by linking the vendor invoice to the associated purchase order and receiving report records, using the PO number as a common attribute. The application then reconciles the supporting documents, using programmed criteria for assessing discrepancies. For example, the system may be programmed to approve payment of any invoice amount that does not exceed \$100 and 1 percent of the estimated price on the purchase order. Items that fall within limits are automatically approved and paid on their due date. Discrepancies in excess of the threshold are submitted to management for review and manual approval. Through the virtual AP packet screen, management may view the supporting documents and exercise an override of the system controls to force payment. The override should be performed only by authorized management and should be fully documented in management reports.

**MULTILEVEL SECURITY.** Is a programmed technique that allows multiple individuals to simultaneously access a system, but provides segregation of duties to limit their access privileges and activities. This technique is discussed further in the next section.

### Risk of Unauthorized Access to Accounting Records and Reports

Accounting information is at risk to unauthorized access from outsiders as well employees of the organization. The motives for accessing accounting information include:

- Attempts to perpetrate a vendor fraud.
- Theft of physical inventory. Access to inventory records allows the perpetrator to conceal the theft.
- Malicious acts such as corrupting or deleting financial data.

## Physical Controls

**ACCESS CONTROL.** 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.

**SEGREGATION OF DUTIES.** An objective of segregation of duties provided in Chapter 3 states that:

*The organization should be so structured that the perpetration of a fraud requires collusion between two or more individuals.*

To achieve this objective, certain record-keeping tasks should be separated. Specifically, subsidiary ledgers (AP and inventory), journals (purchases and cash disbursements), and the general ledger should be separately maintained. An individual with total record-keeping responsibility, in collusion with someone with asset custody, is in a position to perpetrate a fraud. Although not entirely eliminated, the risk of collusion is reduced while segregating these tasks. The more people involved in a task the more difficult it is to collude and greater the risk of detection. This will have a deterrent effect on those contemplating fraud.

### IT Controls

**PASSWORD CONTROL.** In Chapter 4, we discussed how digital accounting records are vulnerable to unauthorized access. To mitigate these risks, organization management should implement a robust password control policy to prevent unauthorized access to computer files and programs that reside in each of the departments. The application logic should require, and prompt, users to change passwords periodically. Corporate policy should require strong passwords of six or eight characters that consist of both alphabetic and numeric characters. We examine password control issues in detail in Chapter 16.

**MULTILEVEL SECURITY.** Chapter 4 introduced the concept of multilevel security, which employs programmed techniques that permit simultaneous access to a central system by many users with different access privileges, but prevents them from obtaining information for which they lack authorization. Two methods for achieving multilevel security are the access control list (ACL) and role-based access control (RBAC). Through these techniques, purchasing, receiving, accounts payable, cash disbursements, and general ledger personnel are limited in their access based on the privileges assigned to them. ACL and RBAC are discussed in greater detail in later chapters.

<b>TABLE 5-1 SUMMARY OF EXPENDITURE CYCLE RISKS AND CONTROLS</b>		
<u>Risk</u>	<u>Physical Control</u>	<u>IT Control</u>
Unauthorized inventory purchases Receiving Incorrect Items	Transaction Authorization—formal purchase requisition Independent verification—Receiving Department reconciles receipt with PO Supervision in Receiving Department	Automated purchase approval Scanner technology
Inaccurate record keeping	Transaction authorization—AP department authorizes cash disbursements to make payment Accounting records—audit trail documents, journals, accounts, and files Independent verification—inventory control, AP, cash disbursements, and GL	Input data edits Error Messages Automated posting to accounts File backup
Misappropriation of Cash and inventory	Supervision—receiving department Independent verification—three-way match Segregation of duties—cash disbursements, general ledger, AP function, warehouse, inventory records	Automated three-way match Multilevel Security to provide segregation of duties
Unauthorized access to data	Access control—source documents, journals, ledgers Segregation of duties—sub-ledgers, GL, asset custody	Password control Multilevel security to prevent unauthorized access to data

## REENGINEERING USING EDI

We saw in Chapter 4 that EDI technology was devised to expedite routine transaction processing between manufacturers, wholesalers, and retailers by connecting buyer and seller computers via a private network or the Internet. When the buyer's computer system detects the need to order inventory, it automatically transmits a purchase order to the seller, which is approved and processed by the vendor system with little or no human involvement.

A key element of successful EDI is the implementation of a trading partner agreement to eliminate the discrepancies that require human involvement to resolve. In particular, the receiving function and the accounts payable task of reconciling purchase orders, receiving reports, and supplier invoices are labor-intensive and costly. The following examples show how reengineering these activities can produce considerable cost 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 POs. These discrepancies were the result of too many vendors and unreliable vendors. The first step in solving the problem was to change the business environment; therefore, Ford initiated trading partner agreements with a reduced number of suppliers. The parties agreed in advance to terms of trade such as price, quality, quantities to be shipped, discounts, and lead times. Also, each item used by Ford would be supplied by a single vendor. With key sources of discrepancy eliminated, Ford reengineered their work flow to take advantage of the new environment. The key features of the system are as follows:

1. As inventory needs are detected, the system automatically sends a digital EDI purchase order to the vendor.
2. When the goods arrive, receiving personnel perform only cursory inspection since quality and quantity are guaranteed by the trading partner agreement.
3. 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 three-way match for the majority of purchase transactions.
4. Payment is made automatically by electronic funds transfer (EFT) directly to the vendor's bank account.

As a result of its reengineering effort, Ford was able to simplify its workflow and reduce its AP staff from 500 to 125.

Some organizations have taken reengineering even further by eliminating the receiving function entirely. The objective of this is to send goods directly to the production department and thus bypass the receiving area and avoid production delays and the associated handling costs. An accounting and auditing problem that must be overcome is how to account for inventory receipts when there is no receiving function and no receiving report. One way of dealing with this is to calculate the number of parts received based on the products produced in which the parts are components. Supplier payments are distributed based on production (part usage), and by having only one supplier per part, the question of which supplier to pay is self-evident. An additional problem to deal with is accounting for scrap in the production process. Since scrap does not end up in finished production, it will not be counted, and vendors will not be paid for materials that were scrapped. Separate accounting procedures need to be implemented to record and monitor scrap. This issue is examined in Chapter 7.

### EDI Control Issues

EDI poses unique risks for organizations that need to be recognized and controlled. One of them is ensuring that, in the absence of explicit authorization, only valid transactions are processed. Another risk is that a trading partner, or someone masquerading as a trading partner, will access the firm's accounting records in a way that is unauthorized by the trading partner agreement. Chapter 12 presents EDI in more detail and its implications for business. EDI control issues are discussed in Chapter 16.

## Summary

This chapter is organized into two primary sections. The first examined conceptually the expenditure cycle of a typical merchandising firm and focused on (1) the functional areas and the flow of transaction information that triggers key tasks, and (2) the documents, journals, and accounts that support audit trails, decision making, and financial reporting.

The second section examined physical expenditure cycle systems that lie at different points on the technology/human continuum. The objectives of this section were to (1) illustrate

system functionality, efficiency issues, and workflow characteristics of different technologies, and (2) demonstrate how internal control issues differ between systems at various points on the technology/human continuum. The section reviewed physical controls and computer controls associated with basic technology systems and advanced integrated systems. The chapter concluded by outlining the benefits, key features, and risks associated with electronic data interchange (EDI) systems. EDI systems are discussed in detail in later chapters.

## Key Terms

actual cost inventory ledger (214)

AP packet (215)

AP pending file (214)

AP subsidiary ledger (215)

blind copy (212)

cash disbursement vouchers (215)

cash disbursements journal (218)

check register (218)

closed AP file (218)

open AP file (215)

open purchase order file (220)

open purchase requisition file (220)

open/closed purchase order file (212)

purchase order (212)

purchase requisition (210)

purchase requisition file (220)

receiving report (214)

receiving report file (214)

standard cost system (214)

supplier's invoice (214)

valid vendor file (210)

vendor's invoice (234)

voucher register (216)

vouchers payable file (217)

vouchers payable system (215)

## Review Questions

1. Differentiate between a purchase requisition and a purchase order.
2. What purpose does a purchasing department serve?
3. Distinguish between an accounts payable 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 risks can close supervision of the receiving department reduce?
7. What is a three-way match?
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. Some organizations do not use an AP subsidiary ledger or a purchases journal. How is this possible?
11. What is the purpose of the blind copy of a purchase order?
12. Give one advantage of using a vouchers payable system.