

The Expenditure Cycle Part II: Payroll Processing and Fixed Asset Procedures

LEARNING OBJECTIVES

After studying this chapter, you should:

- Recognize the fundamental tasks that constitute the payroll and fixed asset processes.
- Be able to identify the functional departments involved in payroll and fixed asset 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 payroll and fixed asset activities and recognize the controls that reduce these risks.
- Be aware of the operational features and the control implications of technology used in payroll and fixed asset systems.

This chapter is divided into two major sections. The first begins with a conceptual overview of the payroll process emphasizing logical tasks, key entities, sources and uses of information, and the flow of key documents through an organization. We illustrate these features first with a manual system and then consider the operational and control issues related to computer-based alternatives. The second section examines fixed asset systems. Fixed assets are the property, plant, and equipment used in the operation of a business. This discussion focuses on processes pertaining to the acquisition, maintenance, and disposal of its fixed assets. Finally, we illustrate these concepts with a real-time example.

The Conceptual Payroll System

Payroll processing is actually a special-case purchases system in which the organization purchases labor rather than raw materials or finished goods for resale. The nature of payroll processing, however, creates the need for specialized procedures, for the following reasons:

1. A firm can design general purchasing and disbursement procedures that apply to all vendors and inventory items. Payroll procedures, however, differ greatly among classes of employees. For example, different procedures are needed for hourly employees, salaried employees, piece workers, and commissioned employees. Also, payroll processing requires special accounting procedures for employee deductions and withholdings for taxes that do not apply to trade accounts.
2. General expenditure activities constitute a relatively steady stream of purchasing and disbursing transactions. Business organizations thus design purchasing systems to deal with their normal level of activity. Payroll activities, on the other hand, are discrete events in which disbursements to employees occur weekly, biweekly, or monthly. The task of periodically preparing large numbers of payroll checks in addition to the normal trade account checks can overload the general purchasing and cash disbursements system.
3. Writing checks to employees requires special controls. Combining payroll and trade transactions can encourage payroll fraud.

Although specific payroll procedures vary among firms, Figure 6-1 presents a data flow diagram (DFD) depicting the general tasks of the payroll system in a manufacturing firm. The key points of the process are described below.

Personnel Department

The personnel department prepares and submits **personnel action forms** to the prepare payroll function. These documents identify employees authorized to receive a paycheck and are used to reflect changes in hourly pay rates, payroll deductions, and job classification. Figure 6-2 shows a personnel action form used to advise payroll of an increase in an employee's salary.

Production Department

Production employees prepare two types of time records: job tickets and time cards. **Job tickets** capture the time that individual workers spend on each production job. Cost accounting uses these documents to allocate direct labor charges to work-in-process (WIP) accounts. **Time cards** capture the time the employee is at work. These are sent to the prepare payroll function for calculating the amount of the employee's paycheck. Figure 6-3 illustrates a job ticket, and Figure 6-4 illustrates a time card.

Each day at the beginning of the shift, employees place their time cards in a special clock that records the time. Typically, they clock out for lunch and at the end of the shift. This time card is the formal record of daily attendance. At the end of the week, the supervisor reviews, signs, and sends the time cards to the payroll department.

Update WIP Account

After cost accounting allocates labor costs to the WIP accounts, the charges are summarized in a **labor distribution summary** and forwarded to the general ledger function.

Prepare Payroll

The payroll department receives pay rate and withholding data from the personnel department and hours-worked data from the production department. A clerk in payroll then performs the following tasks.

1. Prepares the **payroll register** (Figure 6-5) showing gross pay, deductions, overtime pay, and net pay.
2. Enters the above information into the **employee payroll records** (Figure 6-6).
3. Prepares employee **paychecks** (Figure 6-7).
4. Sends the paychecks to the distribute paycheck function.
5. Files the time cards, personnel action form, and copy of the payroll register (not shown).

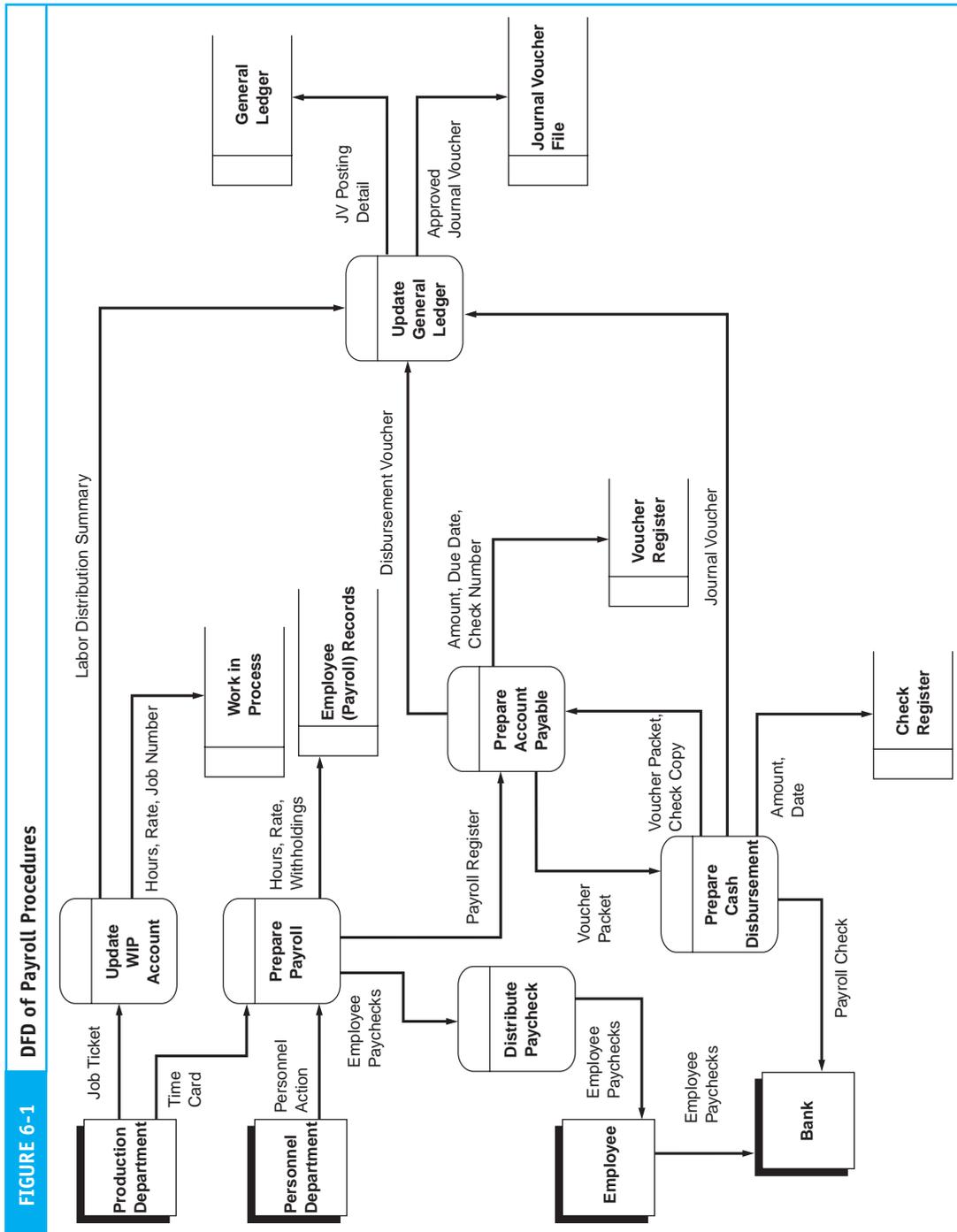


FIGURE 6-2 Personnel Action Form

Salary Increase Recommendation

Based on the attached appraisal form, the following recommendation is made for:

Name: *Jane Doe*
 Position: *Accounting Clerk*
 Social Security Number: *111 - 22 - 3333*
 Current Salary: *23,520.00*
 Current Bonus Level: *00%*
 Last Increase Date: *08/22/07*
 Next Increase Date: *08/22/08*

Current Performance Rating:
 (from attached appraisal) _____ *good*

Salary Increase Guidelines:

Outstanding:	6–9%	9–12 months
Superior:	4–6%	12 months
Good:	3–4%	12–15 months
Provisional:	0%	Review again in 90 days.

In view of the Current Performance and the Salary Increase Guidelines, I recommend the following salary treatment:

Percentage Increase: _____ *4* _____ %
 New Salary: \$ _____ *24,460* _____
 Effective Date: _____ *8 / 22 / 08* _____

Promotions:
 In the case of a promotion, a standard 5% increase for the promotion and a prorated merit increase (based on time since last merit increase) are appropriate. The next increase will be considered from the date of promotion.

Other Considerations:
 In some situations, it is possible to advance a salary beyond the above guidelines as an exception, with the President's approval. Some typical situations are, but are not limited to, equity adjustment and job reevaluation. If such is the case here, please provide justification below:

Approvals: _____ *J. R. Johnson* _____ Supervisor
 _____ *H. M. Morris* _____ Director of Personnel

Exception approval if needed: _____ *N/A* _____ President

FIGURE 6-3 Job Ticket

JOB TICKET	2154	14P10	Gear 5100	14	1	VRN	400										
	PART NO.																
		50		50	DEPT NO.	EMPLOYEE NO.	MACH. NO.	PIECES FINISHED	REORDER	OR NOT							
		25		25	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
					1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
					2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2
				25	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3
					4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4
			STOP		5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5
			START		6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6
	MAY 25 10.0	STOP		7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	
	MAY 25 08.0	START		8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	
	SUPERVISOR	DATE		9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	
			Donna Brown	5/30/07													

Distribute Paycheck

A form of payroll fraud involves submitting time cards for nonexistent employees. To prevent this, many companies use a paymaster to distribute the paychecks to employees. This individual is independent of the payroll process—not involved in payroll authorization or preparation tasks. If a valid employee does not claim a paycheck, the paymaster returns the check to payroll. The reason the check went unclaimed can then be investigated.

Prepare Accounts Payable

The accounts payable (AP) clerk reviews the payroll register for correctness and prepares copies of a cash disbursement voucher for the amount of the payroll. The clerk records the voucher in the voucher register and submits the voucher packet (voucher and payroll register) to cash disbursements. A copy of the disbursement voucher is sent to the general ledger function.

Prepare Cash Disbursement

Upon receipt of the voucher packet, the cash disbursements function prepares a single check for the entire amount of the payroll and deposits it in the **payroll imprest account**. The employee paychecks are drawn on this account, which is used only for payroll. Funds must be transferred from the general cash account to this imprest account before the paychecks can be cashed. The clerk sends a copy of the check along with the disbursement voucher and the payroll register to the AP department, where they are filed (not shown). Finally, a journal voucher is prepared and sent to the general ledger function.

Update General Ledger

The general ledger function receives the labor distribution summary from cost accounting, the disbursement voucher from AP, and the journal voucher from cash

FIGURE 6-4 Time Card

No. <u>447-32-4773</u>		Pay End <u>June 15, 2008</u>	
Name <u>Joe Smith</u>		Signature <u>JAM</u>	
	SUNDAY	MONDAY	TUESDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	SATURDAY	WEDNESDAY	THURSDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	FRIDAY	FRIDAY	SATURDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	THURSDAY	FRIDAY	SUNDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	WEDNESDAY	SATURDAY	MONDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	TUESDAY	FRIDAY	TUESDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	MONDAY	SATURDAY	WEDNESDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	SUNDAY	FRIDAY	THURSDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	SATURDAY	FRIDAY	WEDNESDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	FRIDAY	SATURDAY	MONDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	THURSDAY	FRIDAY	TUESDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	WEDNESDAY	SATURDAY	MONDAY
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	TUESDAY	FRIDAY	THURSDAY
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	MONDAY	SATURDAY	WEDNESDAY
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	FRIDAY	SATURDAY	MONDAY
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	MONDAY	SATURDAY	WEDNESDAY
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	SUNDAY	FRIDAY	TUESDAY
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	SATURDAY	FRIDAY	THURSDAY
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	FRIDAY	SATURDAY	MONDAY
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	TUESDAY	FRIDAY	THURSDAY
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	MONDAY	SATURDAY	WEDNESDAY
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	SUNDAY	FRIDAY	TUESDAY
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	In	In	In
	Out	Out	Out
	SATURDAY	FRIDAY	THURSDAY
	In	In	In
	Out	Out	Out
	In	In	In
	Out	Out	Out
	FRIDAY	SATURDAY	MONDAY
	In	In	In

FIGURE 6-5 Payroll Register

 HAMPSHIRE SUPPLY COMPANY					
Payroll register for period ending 10/31/08					
Checks: All					
Employee(s): All					

Check# 5000 Paid to Emp# CAS : CASEY, SUE					
PAY	Hours	Rate	Gross	DEDUCTIONS	
Regular	173.33		1,000.00	SD SDI	9.00
Overtime			0.00	HL INSUR	100.00
Sick			0.00	SV SAVINGS	100.00
Holiday			0.00		0.00
Vacation			0.00	Fed. withholding	16.25
			0.00	Addl. fed. withholding	0.00
				State withholding	21.77
Totals	173.33		1,000.00	Social Security	62.00
				Medicare	14.50
					676.48
Days worked	21			NET PAY	

Check# 5001 Paid to Emp# JON : JONES, JESSICA					
PAY	Hours	Rate	Gross	DEDUCTIONS	
Regular	173.33	15.00	2,599.95	SD SDI	23.40
Overtime		30.00	0.00	HL INSUR	100.00
Sick		15.00	0.00	SV SAVINGS	260.00
Holiday		45.00	0.00		0.00
Vacation		15.00	0.00	Fed. withholding	256.24
			0.00	Addl. fed. withholding	0.00
				State withholding	116.98
Totals	173.33		2,599.95	Social Security	161.20
				Medicare	37.70
					1,644.43
Days worked	21			NET PAY	

Check# 5002 Paid to Emp # ROB : ROBERTS, WILLIAM					
Regular	173.33	15.00	2,599.95	SD SDI	23.40
Overtime		30.00	0.00	HL INSUR	100.00
Sick		15.00	0.00	SV SAVINGS	260.00
Holiday		45.00	0.00		0.00
Vacation		15.00	0.00	Fed. withholding	396.07
			0.00	Addl. fed. withholding	0.00
				State withholding	208.04
Totals	173.33		2,599.95	Social Security	161.20
				Medicare	37.70
					1,413.54
Days worked	21			NET PAY	

FIGURE 6-6 Employee Payroll Record


HAMPSHIRE SUPPLY COMPANY

Employee pay and earnings information

Period Ending 10/31/08

Emp# : JON SS# : 682-63-0897 JESSICA JONES

Rate: 15.00/hour

Addl FITW/check: 0.00

Normal deduction(s)			Amount
Ded 1 SD	%	0.9000	0.00
Ded 2 HL	%	0.0000	100.00
Ded 3 SV	%	10.0000	0.00
Ded 4	%	0.0000	0.00

Earnings:	— Quarter to date —		— Year to date —	
	Hours	Amount	Hours	Amount
Regular	173.3	2,599.95	173.3	2,599.95
Overtime	0.0	0.00	0.0	0.00
Sick	0.0	0.00	0.0	0.00
Vacation	0.0	0.00	0.0	0.00
Holiday	0.0	0.00	0.0	0.00
	0.0	0.00	0.0	0.00
Withholding:				
FIT		256.24		256.24
SIT		116.98		116.98
Social Security		161.20		161.20
Medicare		37.70		37.70
Deductions:				
SDI		23.40		23.40
HEALTH INSUR		100.00		100.00
SAVINGS		260.00		260.00
		0.00		0.00

FIGURE 6-7

Employee Paycheck

H₂O HAMPSHIRE SUPPLY COMPANY								5001		
HOURS		RATE	REGULAR EARNINGS	OVERTIME EARNINGS	OTHER PAY			GROSS	PERIOD ENDING	
REGULAR	OVERTIME				UNITS	RATE	AMOUNT			
173.33	00.00	R 15/Hr OT 30/Hr	\$2,599.95	\$00.00	Holiday	45.00	00.00	2,599.95	10/31/08	
					Sick	15.00	00.00		TOTAL GROSS	
					Vacat.	15.00	00.00		2,599.95	
				DEDUCTIONS					CONTROL NUMBER	
F.I.C.A.		FED. W/H	STATE W/H	YEAR TO DATE					682-63-0897	
161.20		256.24	116.98	F.I.C.A.	FED. W/H	STATE W/H	OTHER			
37.70				161.20	256.24	116.98	SDI	23.40	TOTAL DEDUCTIONS	
								HI	100.00	955.52
								SAV	260.00	
EMPLOYEE'S NAME AND SOC. SEC. NO.				H₂O HAMPSHIRE SUPPLY COMPANY				NET PAY		
JONES, JESSICA 682-63-0897				406 LAKE AVE. PH. 323-555-7448 SEATTLE, CA 92801				1,644.43		

No. 5001

H₂O HAMPSHIRE SUPPLY COMPANY
406 LAKE AVE. PH. 323-555-7448
SEATTLE, CA 92801

STATE BANK
4000 PENNSYLVANIA AVE.
UMA CA 98210

PAY: One Thousand Six Hundred Forty-Four and 43/100 dollars **AMOUNT \$*****1,644.43**

TO THE ORDER OF

JESSICA JONES DATE
72 N. LOTUS AVE #1 October 31, 2008
SAN GABRIEL CA 91775-8321

00000 0 00000 00 0

disbursements. With this information, the general ledger clerk makes the following accounting entries:

FROM THE LABOR DISTRIBUTION SUMMARY

	DR	CR
Work-in-Process (Direct labor)	XXX.XX	
Factory Overhead (Indirect labor)	XXX.XX	
Wages Payable		XXX.XX

FROM DISBURSEMENT VOUCHER

	DR	CR
Wages Payable	XXX.XX	
Cash		XXX.XX
Federal Income Tax Withholdings Payable		XXX.XX
State Income Tax Withholdings Payable		XXX.XX
FICA Income Tax Withholdings Payable		XXX.XX
Group Insurance Premiums Payable		XXX.XX
Pension Fund Withholdings Payable		XXX.XX
Union Dues Payable		XXX.XX

The debits and credits from these entries must equal. If they do not, there is an error in the calculation of either labor distribution charges or payroll. When the equality has been verified, the clerk files the voucher and labor distribution summary.

Payroll Controls

Transaction Authorization

A form of payroll fraud involves submitting time cards for employees who no longer work for the firm. To prevent this, the personnel action form helps payroll keep the employee records current. This document describes additions, deletions, and other changes to the employee file and acts as an important authorization control to ensure that only the time cards of current and valid employees are processed.

Segregation of Duties

The time-keeping function and the personnel function should be separated. The personnel function provides payroll with pay rate information for authorized hourly employees. Typically, an organization will offer a range of valid pay rates based on experience, job classification, seniority, and merit. If the production (time-keeping) department provided this information, an employee might submit a higher rate and perpetrate a fraud.

For purposes of operational efficiency, the payroll function performs several tasks. Some of these are in contradiction with basic internal control objectives. For example, the payroll function has both asset custody (employee paychecks) and record-keeping responsibility (employee payroll records). This is the equivalent in the general purchases system of assigning accounts payable and cash disbursement responsibility to the same

person.¹ Segregating key aspects of the payroll transaction between AP and cash disbursement functions returns control to the process. AP reviews the work done by payroll (payroll register) and approves payment. Cash disbursements then writes the check to cover the total payroll. None of the employee paychecks is a negotiable instrument until the payroll check is deposited into the imprest account.

Supervision

Sometimes employees will clock in for another worker who is late or absent. Supervisors should observe the time-keeping process and reconcile the time cards with actual attendance.

Accounting Records

The audit trail for payroll includes the following documents:

1. Time cards, job tickets, and disbursement vouchers.
2. Journal information, which comes from the labor distribution summary and the payroll register.
3. Subsidiary ledger accounts, which contain the employee records and various expense accounts.
4. The general ledger accounts: payroll control, cash, and the payroll clearing (imprest) account.

Access Controls

The assets associated with the payroll system are labor and cash. Both can be misappropriated through improper access to accounting records. A dishonest individual can misrepresent the number of hours worked on the time cards and thus embezzle cash. Similarly, control over access to all journals, ledgers, and source documents in the payroll system is important, as it is in all expenditure cycle systems.

Independent Verification

The following are examples of independent verification controls in the payroll system:

1. *Verification of time.* Before sending time cards to payroll, the supervisor must verify their accuracy and sign them.
2. *Paymaster.* The use of an independent paymaster to distribute checks (rather than the normal supervisor) helps verify the existence of the employees. The supervisor may be party to a payroll fraud by pretending to distribute paychecks to nonexistent employees.
3. *Accounts payable.* The AP clerk verifies the accuracy of the payroll register before creating a disbursement voucher that transfers funds to the imprest account.
4. *General ledger.* The general ledger department provides verification of the overall process by reconciling the labor distribution summary and the payroll disbursement voucher.

The Physical Payroll System

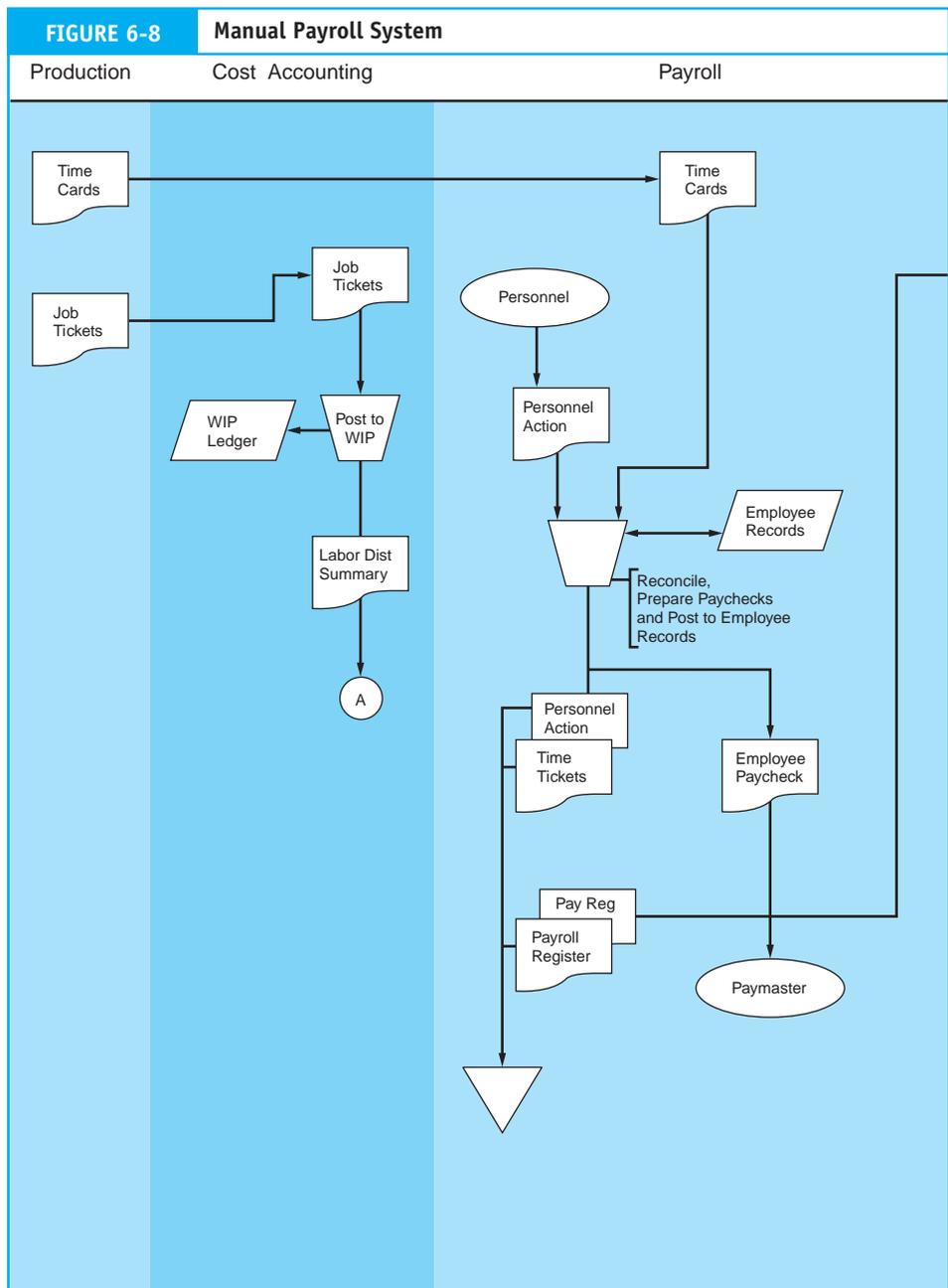
In this section we examine the physical payroll system. This begins with a very brief review of manual procedures.² We then move on to review examples of automated and reengineered payroll systems.

- 1 This opens the opportunity for the person to create a false liability to himself (or an agent), approve payment, and write the check.
- 2 At this point you should be able to navigate the payroll document flowchart with little need for supporting narrative.

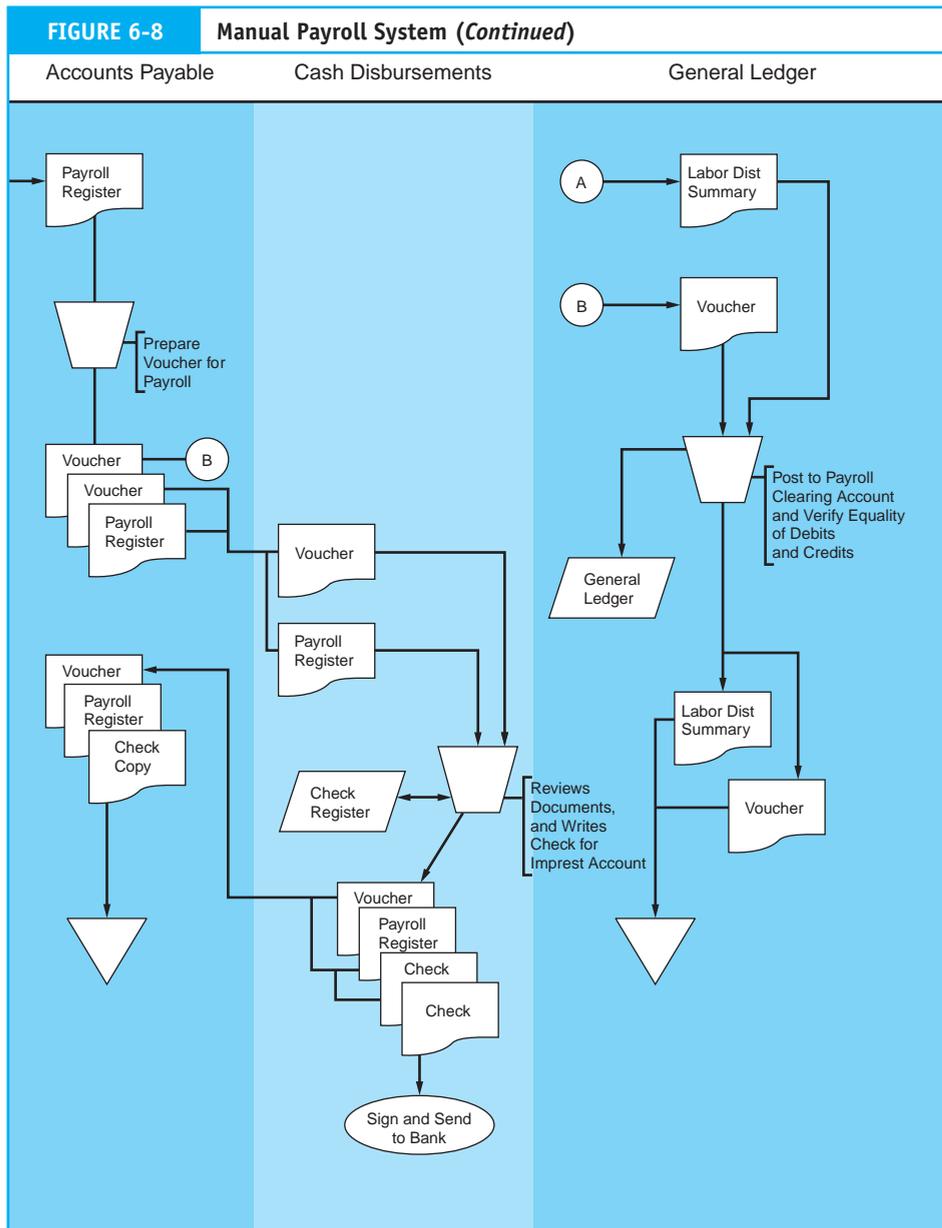
Manual Payroll System

Figure 6-8 presents a flowchart detailing the previous procedures in the context of a manual system. The following key tasks are discussed.

1. Payroll authorization and hours worked enter the payroll department from two different sources: personnel and production.



2. The payroll department reconciles this information, calculates the payroll, and distributes paychecks to the employees.
3. Cost accounting receives information regarding the time spent on each job from production. This is used for posting to WIP account.
4. AP receives payroll summary information from the payroll department and authorizes the cash disbursements department to deposit a single check, in the amount of the total payroll, in a bank imprest account on which the payroll is drawn.



5. The general ledger department reconciles summary information from cost accounting and AP. Control accounts are updated to reflect these transactions.

Computer-Based Payroll Systems

Automating the Payroll System Using Batch Processing

Because payroll systems run periodically (weekly or monthly), they are well suited to batch processing. Figure 6-9 shows a flowchart for such a system. The data processing department receives hard copy of the personnel action forms, job tickets, and time cards, which it converts to digital files. Batch computer programs perform the check writing, detailed record keeping, and general ledger functions.

Control Implications

The strengths and weaknesses of this system are similar to those in the batch system for general expenditures discussed earlier. This system promotes accounting accuracy and reduces check-writing errors. Beyond this, it does not significantly enhance operational efficiency; however, for many types of organizations, this level of technology is adequate.

Reengineering the Payroll System

For moderate-sized and large organizations, payroll processing is often integrated within the **human resource management (HRM) system**. The HRM system captures and processes a wide range of personnel-related data, including employee benefits, labor resource planning, employee relations, employee skills, and personnel actions (pay rates, deductions, and so on), as well as payroll. HRM systems need to provide real-time access to personnel files for purposes of direct inquiries and recording changes in employee status as they occur. Figure 6-10 illustrates a payroll system as part of an HRM system.

This system differs from the simple automated system in three ways: (1) the various departments transmit transactions to data processing via terminals, (2) direct access files are used for data storage, and (3) many processes are now performed in real time. We discuss the key operating features of this system next.

Personnel

The personnel department makes changes to the employee file in real time via terminals. These changes include additions of new employees, deletions of terminated employees, changes in dependents, changes in withholding, and changes in job status (pay rate).

Cost Accounting

The cost accounting department enters job cost data (real time or daily) to create the **labor usage file**.

Time-Keeping

Upon receipt of the approved time cards from the supervisor at the end of the week, the time-keeping department creates the current **attendance file**.

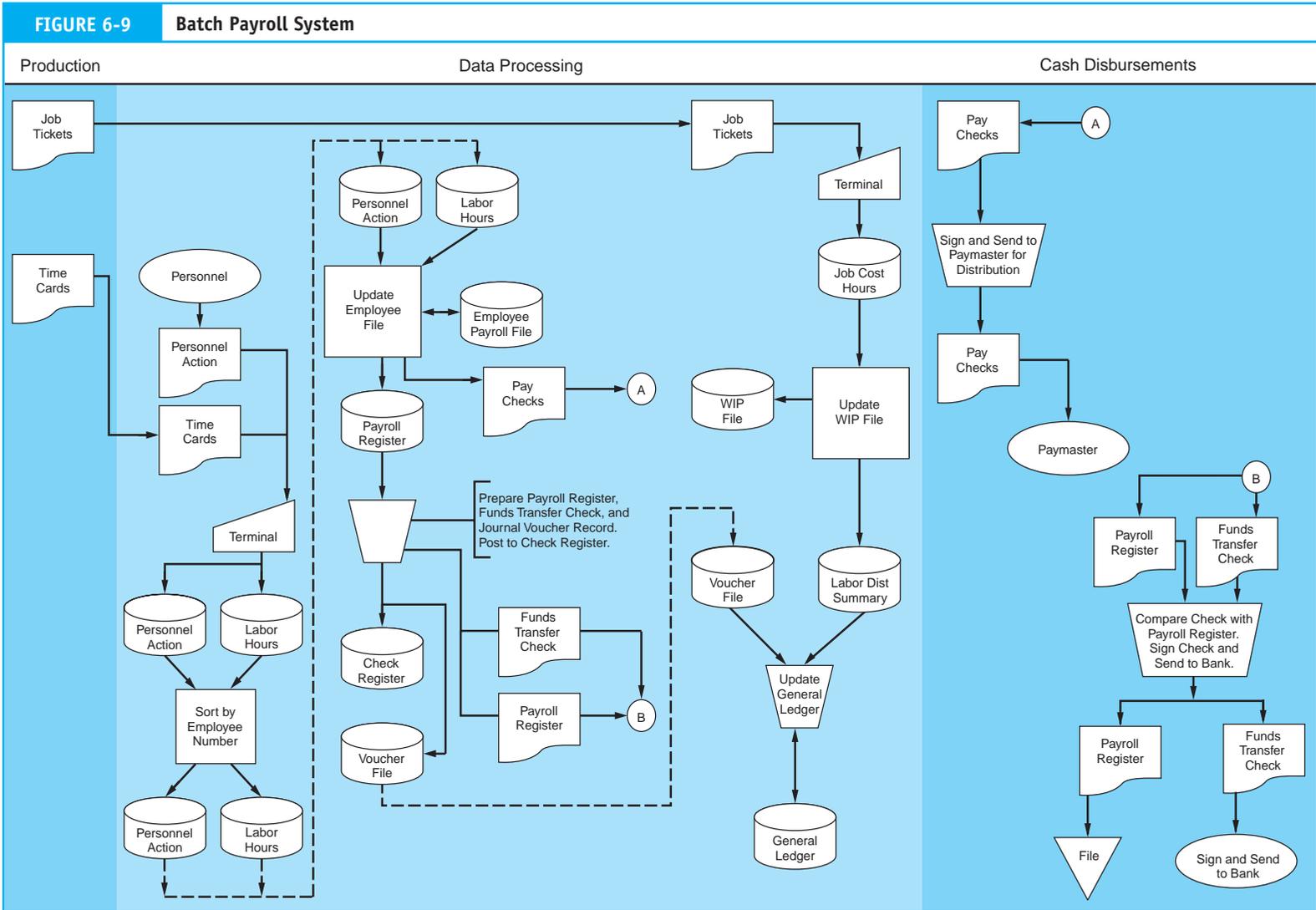
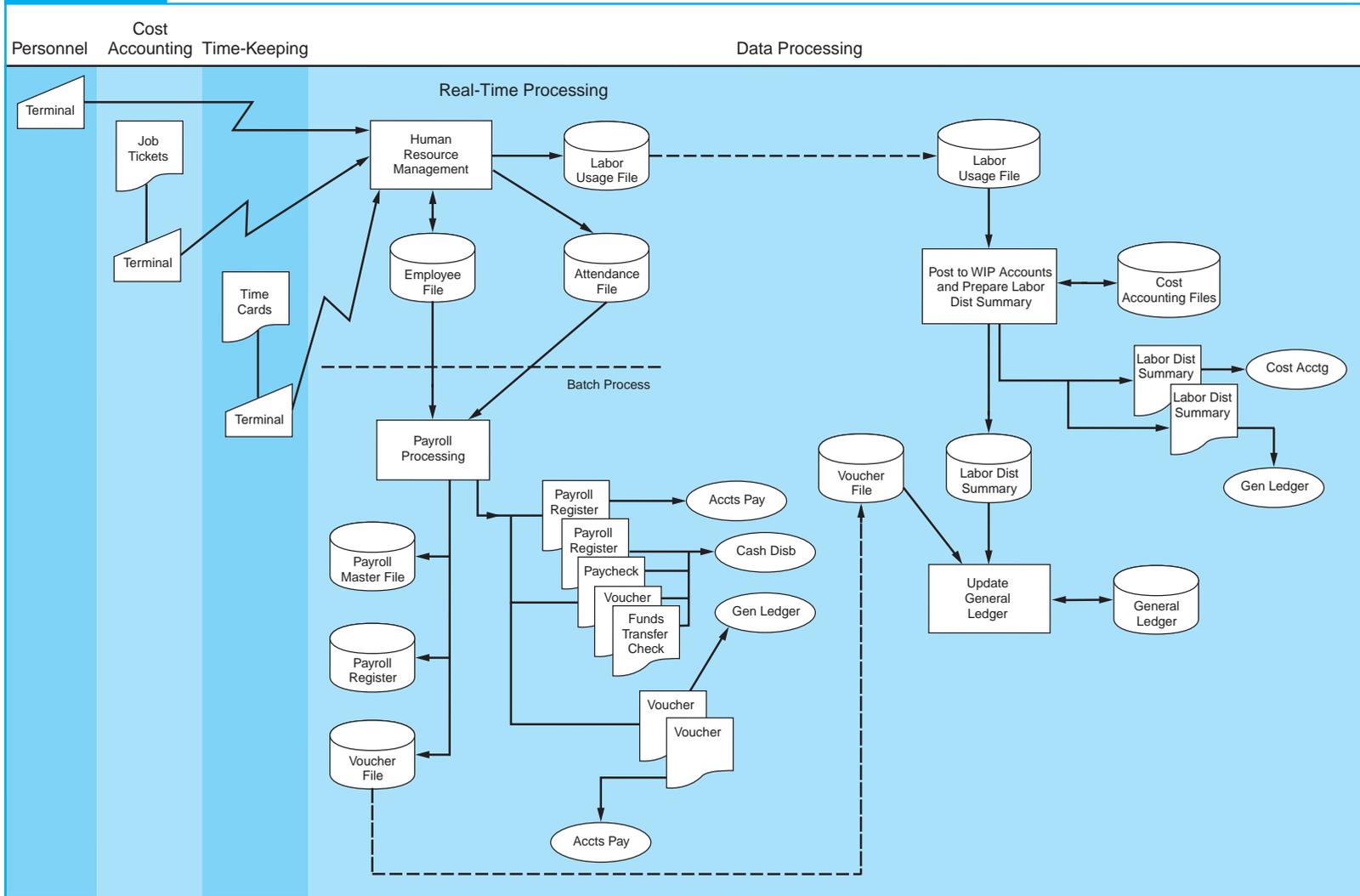


FIGURE 6-10 Payroll System with Real-Time Elements



Data Processing

At the end of the work period, the following tasks are performed in a batch process:

1. Labor costs are distributed to various WIP, overhead, and expense accounts.
2. An online labor distribution summary file is created. Copies of the file are sent to the cost accounting and general ledger departments.
3. An online payroll register is created from the attendance file and the **employee file**. Copies of the files are sent to the AP and cash disbursements departments.
4. The employee records file is updated.
5. Payroll checks are prepared and signed. They are sent to the treasurer for review and reconciliation with the payroll register. The paychecks are then distributed to the employees.³
6. The disbursement voucher file is updated and a check is prepared for the funds transfer to the payroll imprest account. The check and a hard copy of the disbursement voucher are sent to cash disbursements. One copy of the voucher is sent to the general ledger department, and the final copy is sent to AP.
7. At the end of processing, the system retrieves the labor distribution summary file and the disbursements voucher file and updates the general ledger file.

Control Implications

The real-time features of the payroll system provide many of the operational benefits discussed earlier, including reductions in paper, clerical labor, and the lag time between event occurrence and recording them. As mentioned before, these features carry control implications. Computer-based systems must produce adequate records for independent verification and audit purposes. Also, controls must be implemented to protect against unauthorized access to data files and computer programs.

The Conceptual Fixed Asset System

Fixed assets are the property, plant, and equipment used in the operation of a business. These are relatively permanent items that often collectively represent the largest financial investment by the organization. Examples of fixed assets include land, buildings, furniture, machinery, and motor vehicles. A firm's fixed asset system processes transactions pertaining to the acquisition, maintenance, and disposal of its fixed assets. The specific objectives of the fixed asset system are to:

1. Process the acquisition of fixed assets as needed and in accordance with formal management approval and procedures.
2. Maintain adequate accounting records of asset acquisition, cost, description, and physical location in the organization.
3. Maintain accurate depreciation records for depreciable assets in accordance with acceptable methods.
4. Provide management with information to help plan for future fixed asset investments.
5. Properly record the retirement and disposal of fixed assets.

3 For added internal control, many companies encourage their employees to have their checks directly deposited into their bank accounts.

The fixed asset system shares some characteristics with the expenditure cycle presented in Chapter 5, but two important differences distinguish these systems. First, the expenditure cycle processes routine acquisitions of raw material and finished goods inventories. The fixed asset system processes nonroutine transactions for a wider group of users in the organization. Managers in virtually all functional areas of the organization make capital investments in fixed assets, but these transactions occur with less regularity than inventory acquisitions. Because fixed asset transactions are unique, they require specific management approval and explicit authorization procedures. In contrast, organizations often automate the authorization procedures for routine acquisitions of inventories.

The second difference between these systems is that organizations usually treat inventory acquisitions as an expense of the current period, while they capitalize fixed assets that yield benefits for multiple periods. Because the productive life of a fixed asset extends beyond one year, its acquisition cost is apportioned over its lifetime and depreciated in accordance with accounting conventions and statutory requirements. Therefore, fixed asset accounting systems include cost allocation and matching procedures that are not part of routine expenditure systems.

The Logic of a Fixed Asset System

Figure 6-11 presents the general logic of the fixed asset system. The process involves three categories of tasks: asset acquisition, asset maintenance, and asset disposal.

Asset Acquisition

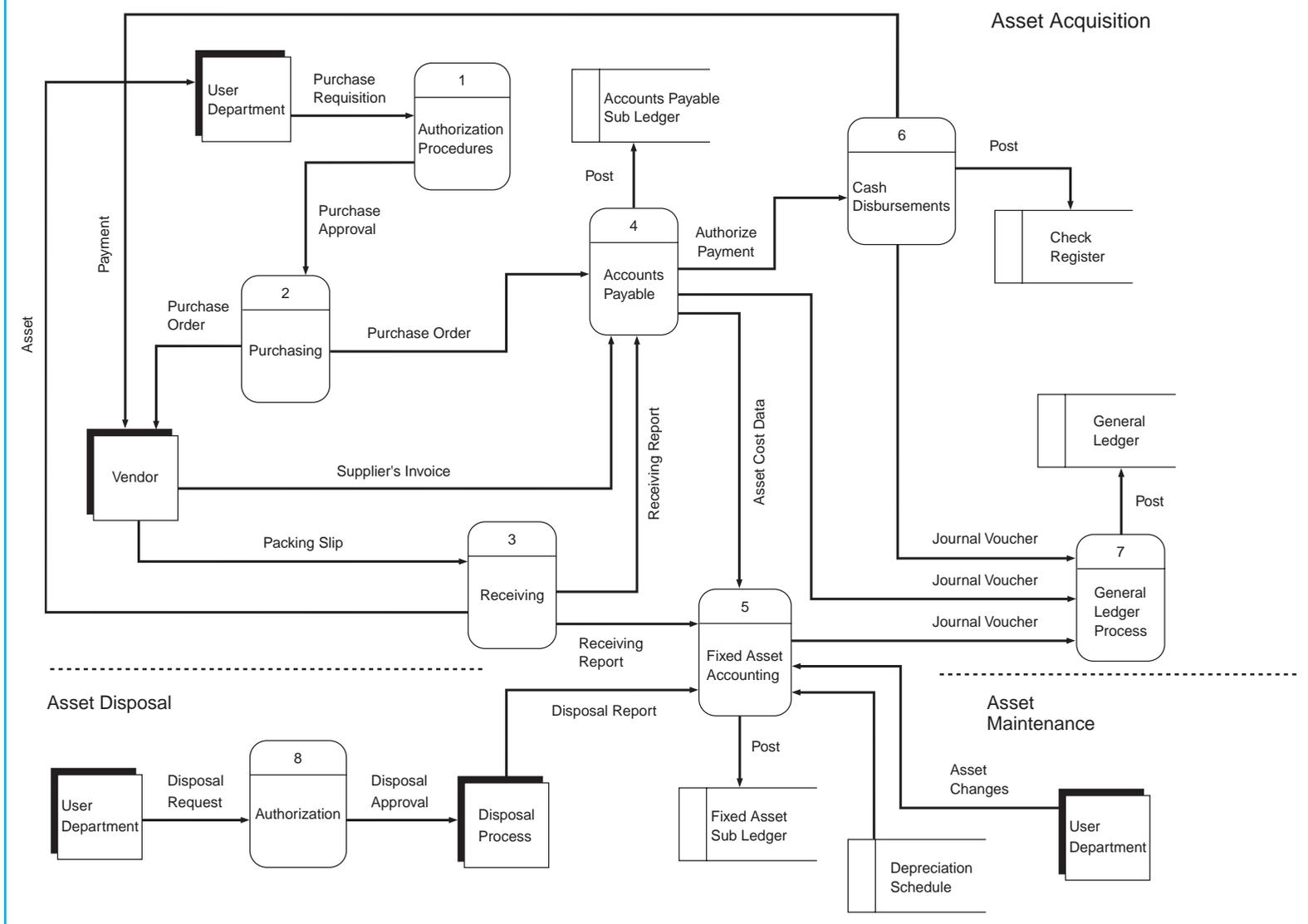
Asset acquisition usually begins with the departmental manager (user) recognizing the need to obtain a new asset or replace an existing one. Authorization and approval procedures over the transaction will depend on the asset's value. Department managers typically have authority to approve purchases below a certain materiality limit. Capital expenditures above the limit will require approval from the higher management levels. This may involve a formal cost-benefit analysis and the formal solicitation of bids from suppliers.

Once the request is approved and a supplier is selected, the fixed asset acquisition task is similar to the expenditure cycle procedures described in Chapter 5, with two noteworthy differences. First, the receiving department delivers the asset into the custody of the user/manager rather than a central store or warehouse. Second, the fixed asset department, not inventory control, performs the record-keeping function.

Asset Maintenance

Asset maintenance involves adjusting the fixed asset subsidiary account balances as the assets (excluding land) depreciate over time or with usage. Common depreciation methods in use are straight line, sum-of-the-years' digits, double-declining balance, and units of production. The method of depreciation and the period used should reflect, as closely as possible, the asset's actual decline in utility to the firm. Accounting conventions and IRS rules sometimes specify the depreciation method to be used. For example, businesses must depreciate new office buildings using the straight-line method and use a period of at least 40 years. The depreciation of fixed assets used to manufacture products is charged to manufacturing overhead and then allocated to WIP. Depreciation charges from assets not used in manufacturing are treated as expenses in the current period.

FIGURE 6-11 DFD for Fixed Asset System



Depreciation calculations are transactions that the fixed asset system must be designed to anticipate internally when no external event (source document) triggers the action. An important record used to initiate this task is the **depreciation schedule**. A separate depreciation schedule, such as the one illustrated in Figure 6-12, will be prepared by the system for each fixed asset in the fixed asset subsidiary ledger.

FIGURE 6-12 Depreciation Schedule

**OZMENT'S INDUSTRIAL SUPPLY
ASSET LISTING WITH DEPRECIATION SCHEDULES
FROM 200 THROUGH 200**

Code	Type	Description	Month#	Deprn. exp.	Acc. deprn.	Book value
200	OFF&F					
		OFFICE FURNITURE				
		Deprn. method: SYD				
		Life in years: 5				
		Date acquired 2/01/08				
		Date retired				
		Cost		5,500.00		
		Residual		500.00		
		Acc. Deprn.		2,222.23		
			1	138.89	138.89	5,361.11
			2	138.89	277.78	5,222.22
			3	138.89	416.67	5,083.33
			4	138.89	555.56	4,944.44
			5	138.89	694.45	4,805.55
			6	138.89	833.34	4,666.66
			7	138.89	972.23	4,527.77
			8	138.89	1,111.12	4,388.88
			9	138.89	1,250.01	4,249.99
			10	138.89	1,388.90	4,111.10
			•	•	•	•
			•	•	•	•
			•	•	•	•
			52	27.78	4,777.80	722.20
			53	27.78	4,805.58	694.42
			54	27.78	4,833.36	666.64
			55	27.78	4,861.14	638.86
			56	27.78	4,888.92	611.08
			57	27.78	4,916.70	583.30
			58	27.78	4,944.48	555.52
			59	27.78	4,972.26	527.74
			60	27.78	5,000.04	499.96

Assets listed: 1

A depreciation schedule shows when and how much depreciation to record. It also shows when to stop taking depreciation on fully depreciated assets. This information in a management report is also useful for planning asset retirement and replacement.

Asset maintenance also involves adjusting asset accounts to reflect the cost of physical improvements that increase the asset's value or extend its useful life. Such enhancements, which are themselves capital investments, are processed as new asset acquisitions.

Finally, the fixed asset system must promote accountability by keeping track of the physical location of each asset. Unlike inventories, which are usually consolidated in secure areas, fixed assets are distributed throughout the organization and are subject to risk from theft and misappropriation. When one department transfers custody of an asset to another department, information about the transfer should be recorded in the fixed asset subsidiary ledger. Each subsidiary record should indicate the current location of the asset. The ability to locate and verify the physical existence of fixed assets is an important component of the audit trail.

Asset Disposal

When an asset has reached the end of its useful life or when management decides to dispose of it, the asset must be removed from the fixed asset subsidiary ledger. The bottom left portion of Figure 6-11 illustrates the **asset disposal** process. It begins when the responsible manager issues a request to dispose of the asset. Like any other transaction, the disposal of an asset requires proper approval. The disposal options open to the firm are to sell, scrap, donate, or retire the asset in place. A disposal report describing the final disposition of the asset is sent to the fixed asset accounting department to authorize its removal from the ledger.

The Physical Fixed Asset System

Computer-Based Fixed Asset System

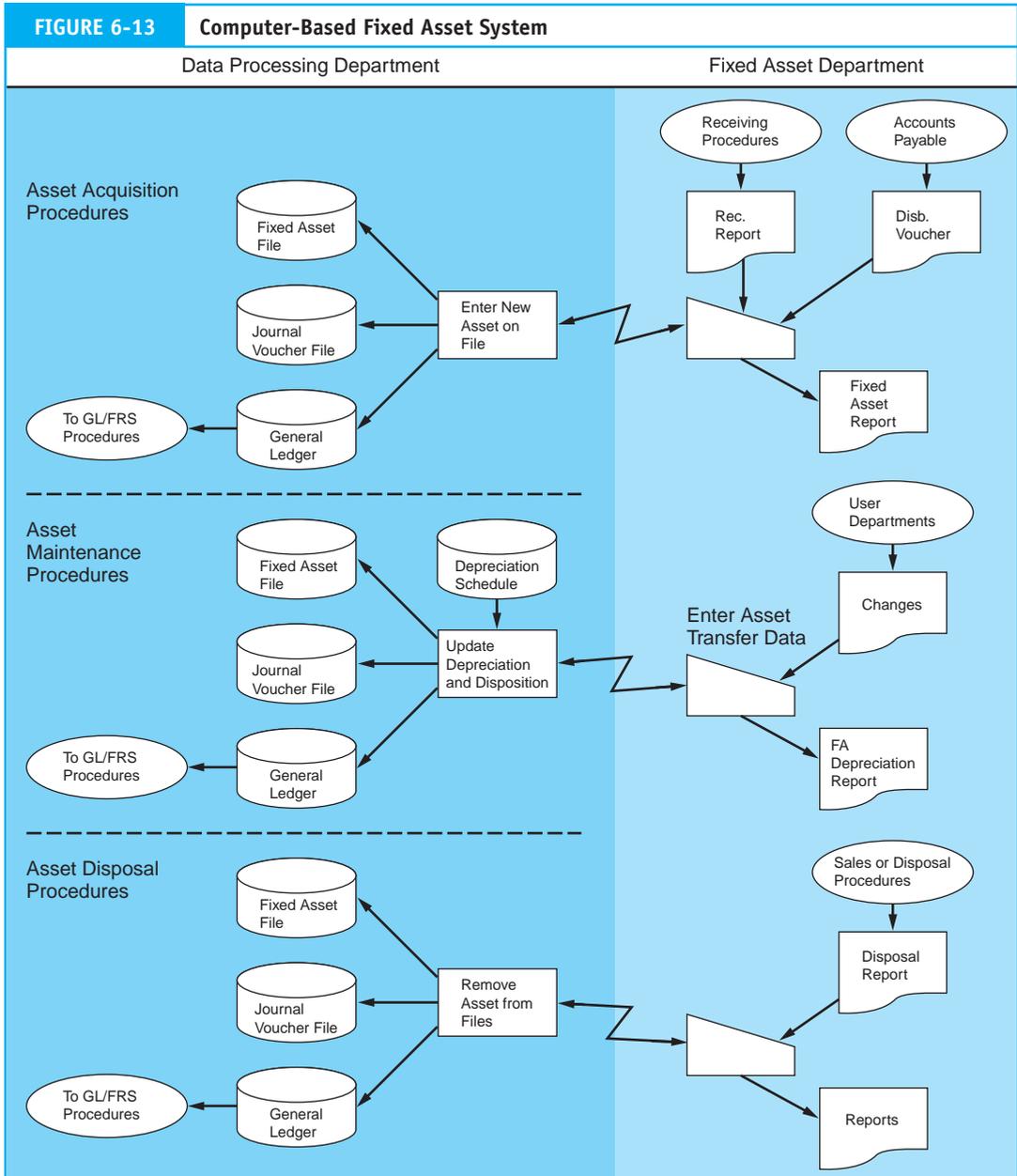
Because many of the tasks in the fixed asset system are similar in concept to the purchases system in Chapter 5, we will dispense with a review of manual procedures. Figure 6-13 illustrates a computer-based fixed asset system, which demonstrates real-time processing. The top portion of the flowchart presents the fixed asset acquisition procedures, the center portion presents fixed asset maintenance procedures, and the bottom portion presents the asset disposal procedures. To simplify the flowchart and focus on the key features of the system, we have omitted the processing steps for AP and cash disbursements.

Acquisition Procedures

The process begins when the fixed asset accounting clerk receives a receiving report and a cash disbursement voucher. These documents provide evidence that the firm has physically received the asset and show its cost. From the computer terminal, a clerk creates a record of the asset in the fixed asset subsidiary ledger. Figure 6-14 presents a possible record structure for this file.

Notice that in addition to the historic cost information, the record contains data specifying the asset's useful life, its salvage (residual) value, the depreciation method to be used, and the asset's location in the organization.

The fixed asset system automatically updates the fixed asset control account in the general ledger and prepares journal vouchers for the general ledger department as evidence



of the entry. The system also produces reports for accounting management. Figure 6-15 illustrates the fixed asset status report showing the cost, the accumulated depreciation (if any), and residual value for each of the firm’s fixed assets.

Based on the depreciation parameters contained in the fixed asset records, the system prepares a depreciation schedule for each asset when its acquisition is originally recorded. The schedule is stored on computer disk to permit future depreciation calculations.

FIGURE 6-14 Fixed Asset Record Structure

ITEM NUMBER	LOCATION	DESCRIP.	ASSET TYPE	ASSET LIFE/MONTHS	COST	RESIDUAL VALUE	DEPR. METHOD	PERIOD/MONTH	RETIRE DATE	ACCUM. DEPN.	BOOK VALUE
200	Rm. 182	Photocopier	Off&F	60	5,500.00	500.00	SYD	5	N/A	694.45	4,805.55

Asset Maintenance

The fixed asset system uses the depreciation schedules to record end-of-period depreciation transactions automatically. The specific tasks include (1) calculating the current period's depreciation, (2) updating the accumulated depreciation and book value fields in the subsidiary records, (3) posting the total amount of depreciation to the affected general ledger accounts (depreciation expense and accumulated depreciation), and (4) recording the depreciation transaction by adding a record to the journal voucher file. Finally, a fixed asset depreciation report, shown in Figure 6-16, is sent to the fixed asset department for review.

Department managers must report any changes in the custody or status of assets to the fixed asset department. From a computer terminal a clerk records such changes in the fixed asset subsidiary ledger.

Disposal Procedures

The disposal report formally authorizes the fixed asset department to remove from the ledger an asset disposed of by the user department. When the clerk deletes the record from the fixed asset subsidiary ledger, the system automatically (1) posts an adjusting entry to the fixed asset control account in the general ledger, (2) records any loss or gain associated with the disposal, and (3) prepares a journal voucher. A fixed asset status report containing details of the deletion is sent to the fixed asset department for review.

Controlling the Fixed Asset System

Because of the similarities between the fixed asset system and the expenditure cycle, many of the controls are the same and have already been discussed. Our discussion of fixed asset controls will thus focus on three areas of principal difference between these systems: authorization, supervision, and independent verification.

Authorization Controls

Fixed asset acquisitions should be formal and explicitly authorized. Each transaction should be initiated by a written request from the user or department. In the case of

FIGURE 6-15 Asset Status Report

OZMENT'S INDUSTRIAL SUPPLY ASSET LISTING		
Code	Type	Description
100	OFF&F	
	COMPUTER SYSTEM	
	Depr. method: SL	
	Life in years: 5	
	Date acquired 1/01/08	
	Date retired	
	Cost	40,000.00
	Residual	4,000.00
	Acc. Depr.	10,800.00
200	OFF&F	
	OFFICE FURNITURE	
	Depr. method: SL	
	Life in years: 5	
	Date acquired 2/01/08	
	Date retired	
	Cost	5,500.00
	Residual	500.00
	Acc. Depr.	2,222.23
300	MACH	
	SNOWBLOWER	
	Depr. method: DDB	
	Life in years: 5	
	Date acquired 2/01/08	
	Date retired	
	Cost	1,000.00
	Residual	0.00
	Acc. Depr.	499.96
400	MACH	
	TRUCK	
	Depr. method: SL	
	Life in years: 3	
	Date acquired 12/01/08	
	Date retired	
	Cost	2,000.00
	Residual	0.00
	Acc. Depr.	2,333.31

high-value items, there should be an independent approval process that evaluates the merits of the request on a cost-benefit basis.

Supervision Controls

Because capital assets are widely distributed throughout the organization, they are more susceptible to theft and misappropriation than inventories that are secured in a warehouse.

FIGURE 6-16 Fixed Asset Depreciation Report

OZMENT'S INDUSTRIAL SUPPLY DEPRECIATION CALCULATIONS LISTING THROUGH 6/30/07 POSTED AS BATCH #1327				
Code	Method		Description	Depn. Expense
100	SL	5 yr	COMPUTER SYSTEM	3,600.00
200	SYD	5 yr	OFFICE FURNITURE	694.44
300	DDB	5 yr	SNOWBLOWER	133.33
400	SL	3 yr	DELIVERY TRUCK	0.00
500	SL	3 yr	DELIVERY TRUCK	0.00
600	SL	3 yr	TRUCK	2,333.31
Assets listed: 6			Total	6,761.08
GL summary:				
615	DEPRECIATION EXPENSE		6,761.08	
151	ACCUM DEPN. EQUIPMENT			6,761.08

Therefore, management supervision is an important element in the physical security of fixed assets. Supervisors must ensure that fixed assets are being used in accordance with the organization's policies and business practices. For example, microcomputers purchased for individual employees should be secured in their proper location and should not be removed from the premises without explicit approval. Company vehicles should be secured in the organization's motor pool at the end of the shift and should not be taken home for personal use unless authorized by the appropriate supervisor.

Independent Verification Controls

Periodically, the internal auditor should review the asset acquisition and approval procedures to determine the reasonableness of factors used in the analysis. These include the useful life of the asset, the original financial cost, the proposed cost savings as a result of acquiring the asset, the discount rate used, and the capital budgeting method used in the analysis.

The internal auditor should verify the location, condition, and fair value of the organization's fixed assets against the fixed asset records in the subsidiary ledger. In addition, the automatic depreciation charges calculated by the fixed asset system should be reviewed and verified for accuracy and completeness. System errors that miscalculate depreciation can result in the material misstatement of operating expenses, reported earnings, and asset values.

Summary

The chapter began with an examination of payroll procedures. The discussion focused on fundamental tasks; the functional departments; and the documents, journals, and accounts that constitute the payroll system. Common exposures and controls that reduce risks inherent in payroll activities were explained. In addition, we reviewed the operational features and the control implications of technology used in payroll systems.

The second section of the chapter presented the typical features of the fixed asset system. Fixed asset accounting involves three classes of procedures: asset acquisition, asset maintenance, and asset disposal. We examined the files, procedures, and reports that constitute the fixed asset system. We concluded our discussion by reviewing the principal risks and controls in the system.

Key Terms

asset acquisition (302)	job tickets (286)
asset disposal (305)	labor distribution summary (286)
asset maintenance (302)	labor usage file (298)
attendance file (301)	paychecks (289)
depreciation schedule (304)	payroll imprest account (289)
employee file (301)	payroll register (289)
employee payroll records (289)	personnel action forms (286)
fixed assets (301)	time cards (286)
human resource management (HRM) system (298)	

Review Questions

- Which document is used by cost accounting to allocate direct labor charges to work-in-process?
- Which department authorizes changes in employee pay rates?
- Why should the employee's supervisor not distribute paychecks?
- Why should employee paychecks be drawn against a special checking account?
- Why should employees clocking on and off the job be supervised?
- What is a personnel action form?
- What tasks does a payroll clerk perform upon receipt of hours-worked data from the production department?
- What documents are included in the audit trail for payroll?
- What are the strengths and weaknesses of a batch process with sequential files?
- What are the strengths and weaknesses of a batch system with direct access files?
- What are the objectives of a fixed asset system?
- How do fixed asset systems differ from purchases systems?
- What are three tasks of the fixed asset system?
- What information is found on the depreciation schedule? How can this information be verified?
- Why is it crucial to the integrity of the financial statements that the fixed asset department be informed of asset improvements and disposals?
- What is the auditor's role with respect to the fixed asset system?
- Which department performs the formal record-keeping function for fixed assets?
- What document shows when fixed assets are fully depreciated?
- Who should authorize disposal of fixed assets?
- Assets used for production are secured in a warehouse. Who has custody of fixed assets?

Discussion Questions

1. What is the importance of the job ticket? Illustrate the flow of this document and its information from inception to impact on the financial statements.
2. Are any time lags in recording economic events typically experienced in payroll systems? If so, what are they? Discuss the accounting profession's view on this matter as it pertains to financial reporting.
3. What advantages are achieved in choosing a basic batch computer system over a manual system? A batch system with real-time data input over a basic batch system?
4. Discuss the major control implications of batch systems with real-time data input. What compensating procedures are available?
5. Discuss some specific examples in which information systems can reduce time lags and how the firm is positively affected by such time lags.
6. Discuss some service industries that may require their workers to use job tickets.
7. Payroll is often used as a good example of when batch processing by using magnetic tapes is considered appropriate. Why is payroll typically considered a good application for this type of storage device?
8. If an asset that is not fully depreciated is sold or disposed, but the fixed asset records are not adjusted, what effect will this have on the financial statements?
9. Discuss the fundamental risk and control issues associated with fixed assets that are different from raw materials and finished goods.
10. Describe an internal control that would prevent an employee from removing a computer and then reporting it as scrapped.
11. Describe an internal control that would prevent the payment of insurance premiums on an automobile the company no longer owns.
12. Describe an internal control that would prevent the charging of depreciation expense to the maintenance department for a sweeper that is now located in and used by the engineering department.
13. Describe an internal control that would prevent the acquisition of office equipment that the firm does not need.
14. What negative consequences result when fixed asset records include assets that the firm no longer owns?

Multiple-choice Questions

1. The document that captures the total amount of time that individual workers spend on each production job is called a
 - a. time card.
 - b. job ticket.
 - c. personnel action form.
 - d. labor distribution form.
2. An important reconciliation in the payroll system is when
 - a. the general ledger department compares the labor distribution summary from cost accounting to the disbursement voucher from AP.
 - b. the personnel department compares the number of employees authorized to receive a paycheck to the number of paychecks prepared.
 - c. the production department compares the number of hours reported on job tickets to the number of hours reported on time cards.
 - d. the payroll department compares the labor distribution summary to the hours reported on time cards.
3. Which internal control is not an important part of the payroll system?
 - a. supervisors verify the accuracy of employee time cards

- b. paychecks are distributed by an independent paymaster
 - c. the AP department verifies the accuracy of the payroll register before transferring payroll funds to the general checking account
 - d. the general ledger department reconciles the labor distribution summary and the payroll disbursement voucher
4. The department responsible for approving pay rate changes is
 - a. payroll
 - b. treasurer
 - c. personnel
 - d. cash disbursements
 5. Which function should distribute paychecks?
 - a. personnel
 - b. timekeeping
 - c. paymaster
 - d. payroll
 6. Which transaction is not processed in the fixed asset system?
 - a. purchase of building
 - b. repair of equipment
 - c. purchase of raw materials
 - d. sale of company van
 7. Depreciation
 - a. is calculated by the department that uses the fixed asset.
 - b. allocates the cost of the asset over its useful life.
 - c. is recorded weekly.
 - d. results in book value approximating fair market value.
 8. Depreciation records include all of the following information about fixed assets EXCEPT the
 - a. economic benefit of purchasing the asset.
 - b. cost of the asset.
 - c. depreciation method being used.
 - d. location of the asset.
 9. Which control is not a part of the fixed asset system?
 - a. formal analysis of the purchase request
 - b. review of the assumptions used in the capital budgeting model
 - c. development of an economic order quantity model
 - d. estimates of anticipated cost savings
 10. Objectives of the fixed asset system do NOT include
 - a. authorizing the acquisition of fixed assets.
 - b. recording depreciation expense.
 - c. computing gain and/or loss on the disposal of fixed assets.
 - d. maintaining a record of the fair market value of all fixed assets.
 11. Which of the following is NOT a characteristic of the fixed asset system?
 - a. acquisitions are routine transactions requiring general authorization
 - b. retirements are reported on an authorized disposal report form
 - c. acquisition cost is allocated over the expected life of the asset
 - d. transfer of fixed assets among departments is recorded in the fixed asset subsidiary ledger

Problems

1. Payroll Fraud

John Smith worked in the stockyard of a large building supply company. One day he unexpectedly left for California, never to return. His foreman seized the opportunity to continue to submit time cards for John to the payroll department. Each week, as part of his normal duties, the foreman received the employee paychecks

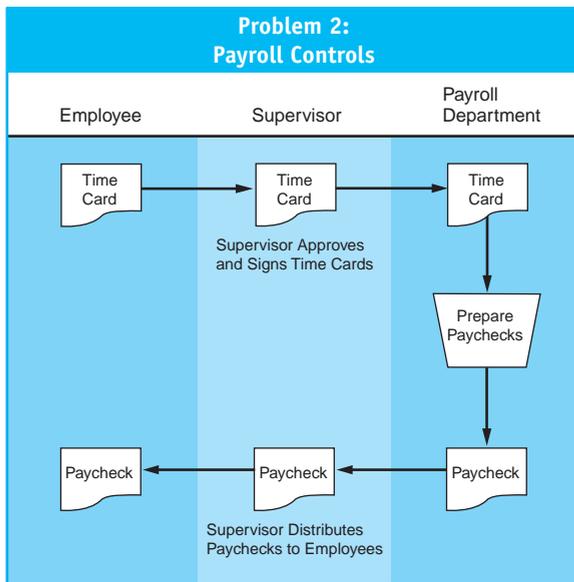
from payroll and distributed them to the workers on his shift. Because John was not present to collect his paycheck, the foreman forged John's name and cashed it.

Required:

Describe two control techniques to prevent or detect this fraud scheme.

2. Payroll Controls

Refer to the flowchart below.



Required:

- What risks are associated with the payroll procedures depicted in the flowchart?
- Discuss two control techniques that will reduce or eliminate the risks.

3. Payroll Controls

Sherman Company employs 400 production, maintenance, and janitorial workers in eight separate departments. In addition to supervising operations, the supervisors of the departments are responsible for recruiting, hiring, and firing workers within their areas of responsibility. The organization attracts casual labor and experiences a 20 to 30 percent turnover rate in employees per year.

Employees clock on and off the job each day to record their attendance on time cards. Each department has its own clock machine located in an unattended room away from the main production area. Each week, the supervisors gather the time cards, review them for accuracy, and sign and submit them to the payroll department for processing. In addition, the supervisors submit personnel action forms to reflect newly hired and terminated employees. From these documents, the payroll clerk prepares payroll

checks and updates the employee records. The supervisor of the payroll department signs the paychecks and sends them to the department supervisors for distribution to the employees. A payroll register is sent to AP for approval. Based on this approval, the cash disbursements clerk transfers funds into a payroll clearing account.

Required:

Discuss the risks for payroll fraud in the Sherman Company payroll system. What controls would you implement to reduce the risks? Use the Statement on Auditing Standards No. 78 framework of control activities to organize your response.

4. Internal Control

Discuss any control weaknesses found in the flowchart on the next page. Recommend any necessary changes.

5. Human Resource Data Management

In a payroll system with real-time processing of human resource management data, control issues become very important. List some items in this system that could be very sensitive or controversial. Also describe what types of data must be carefully guarded to ensure that they are not altered. Discuss some control procedures that might be put into place to guard against unwanted changes to employees' records.

6. Payroll Flowchart Analysis

Discuss the risks depicted by the payroll system flowchart on page 315. Describe the internal control improvements to the system that are needed to reduce these risks.

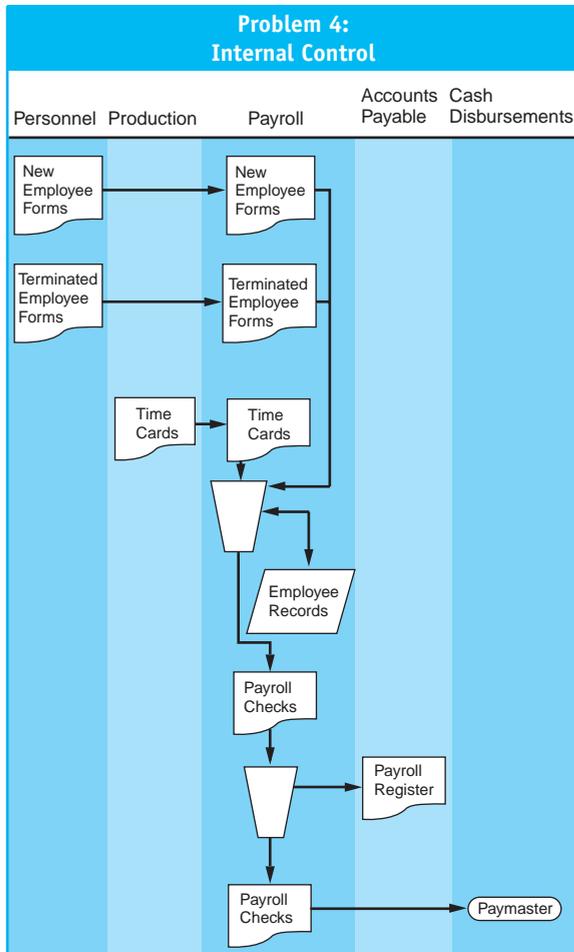
7. Comprehensive Flowchart Analysis

Discuss the internal control weaknesses in the expenditure cycle flowchart on page 316. Structure your answer in terms of SAS 78 control activities.

8. Fixed Asset System

The fixed asset acquisition procedures for Turner Brothers, Inc., are as follows:

Supervisors in the user departments determine their fixed asset needs and submit bids or orders directly to contractors, vendors, or



suppliers. In the case of competitive bidding, the user makes the final selection of the vendor and negotiates the prices paid. The assets are delivered directly to the user areas. The users inspect and formally receive the assets. They submit the invoice to the cash disbursements department for payment.

Required:

Discuss the risks associated with this process. Describe the controls that should be implemented to reduce these risks.

9. Fixed Asset System

Holder Co. maintains a large fleet of automobiles, trucks, and vans for their service and sales force. Supervisors in the various departments maintain the fixed asset records for these

vehicles, including routine maintenance, repairs, and mileage information. This information is periodically submitted to the fixed asset department, which uses it to calculate depreciation on the vehicle. To ensure a reliable fleet, the company disposes of vehicles when they accumulate 80,000 miles of service. Depending on usage, some vehicles reach this point sooner than others. When a vehicle reaches 80,000 miles, the supervisor is authorized to use it in trade for a new replacement vehicle or to sell it privately. Employees of the company are given the first option to bid on the retired vehicles. Upon disposal of the vehicle, the supervisor submits a disposal report to the fixed asset department, which writes off the asset.

Required:

Discuss the potential for abuse and fraud in this system. Describe the controls that should be implemented to reduce the risks.

10. Fixed Asset Flowchart Analysis

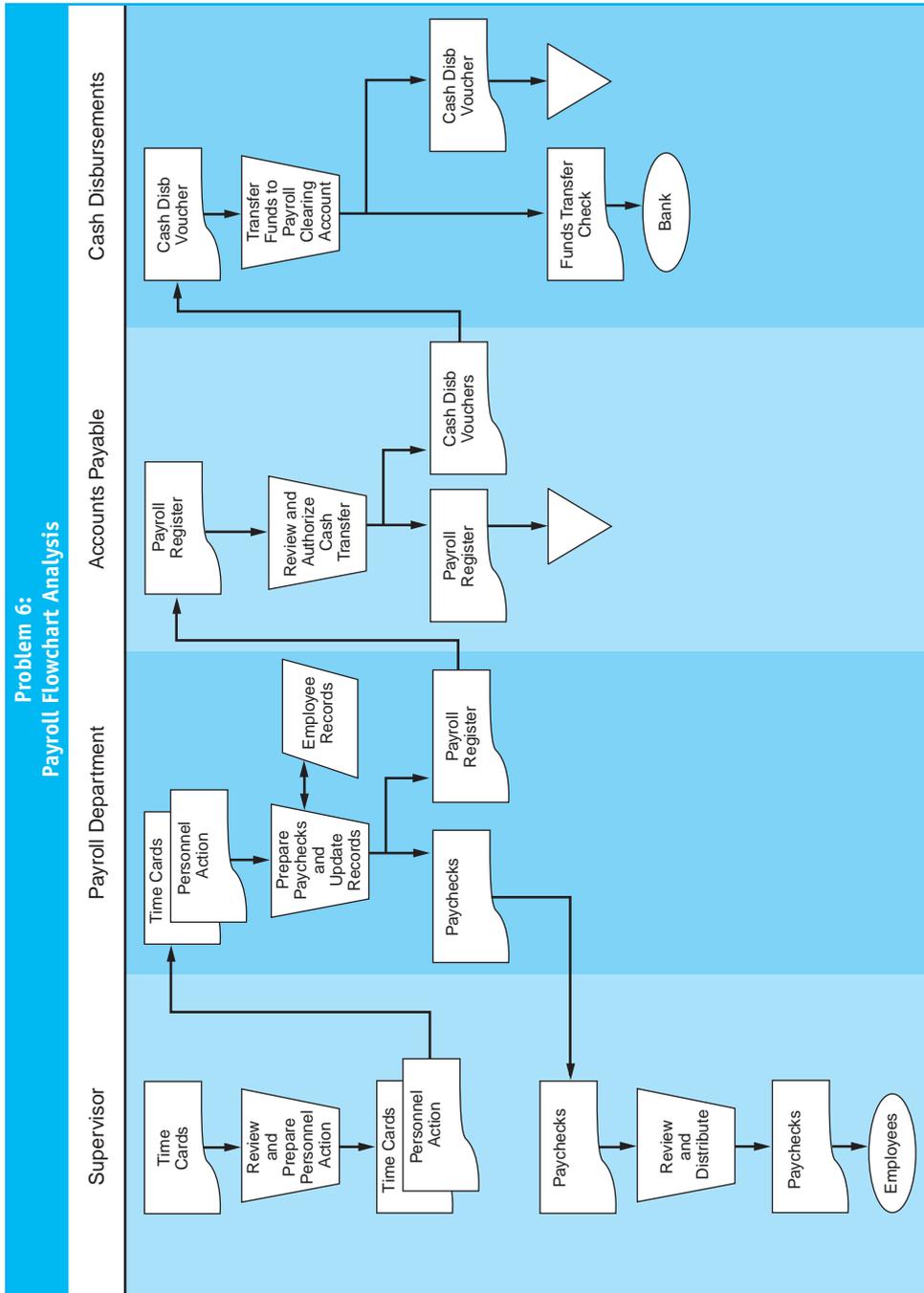
Discuss the risks depicted by the fixed asset system flowchart on page 317. Describe the internal control improvements to the system that are needed to reduce these risks.

11. Fixed Asset System

The treatment of fixed asset accounting also includes accounting for mineral reserves, such as oil and gas, coal, gold, diamonds, and silver. These costs must be capitalized and depleted over the estimated useful life of the asset. The depletion method used is the units of production method. An example of a source document for an oil and gas exploration firm is presented on page 318. The time to drill a well from start to completion may vary from 3 to 18 months, depending on the location. Further, the costs to drill two or more wells may be difficult to separate. For example, the second well may be easier to drill because more is known about the conditions of the field or reservoir, and the second well may be drilled to help extract the same reserves more quickly or efficiently.

Required:

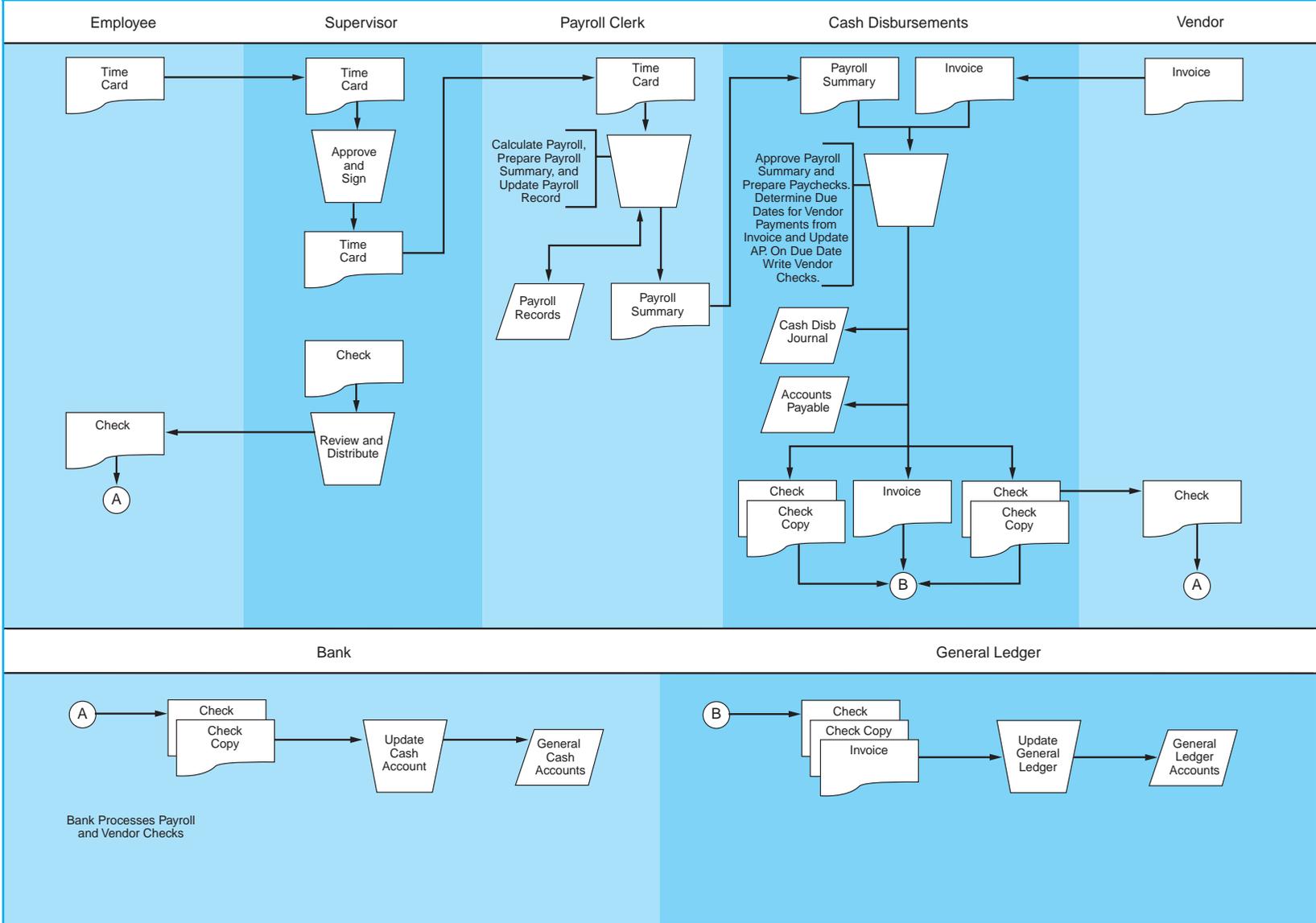
- In Figure 6-11, the source documents for the fixed asset accounting system come from

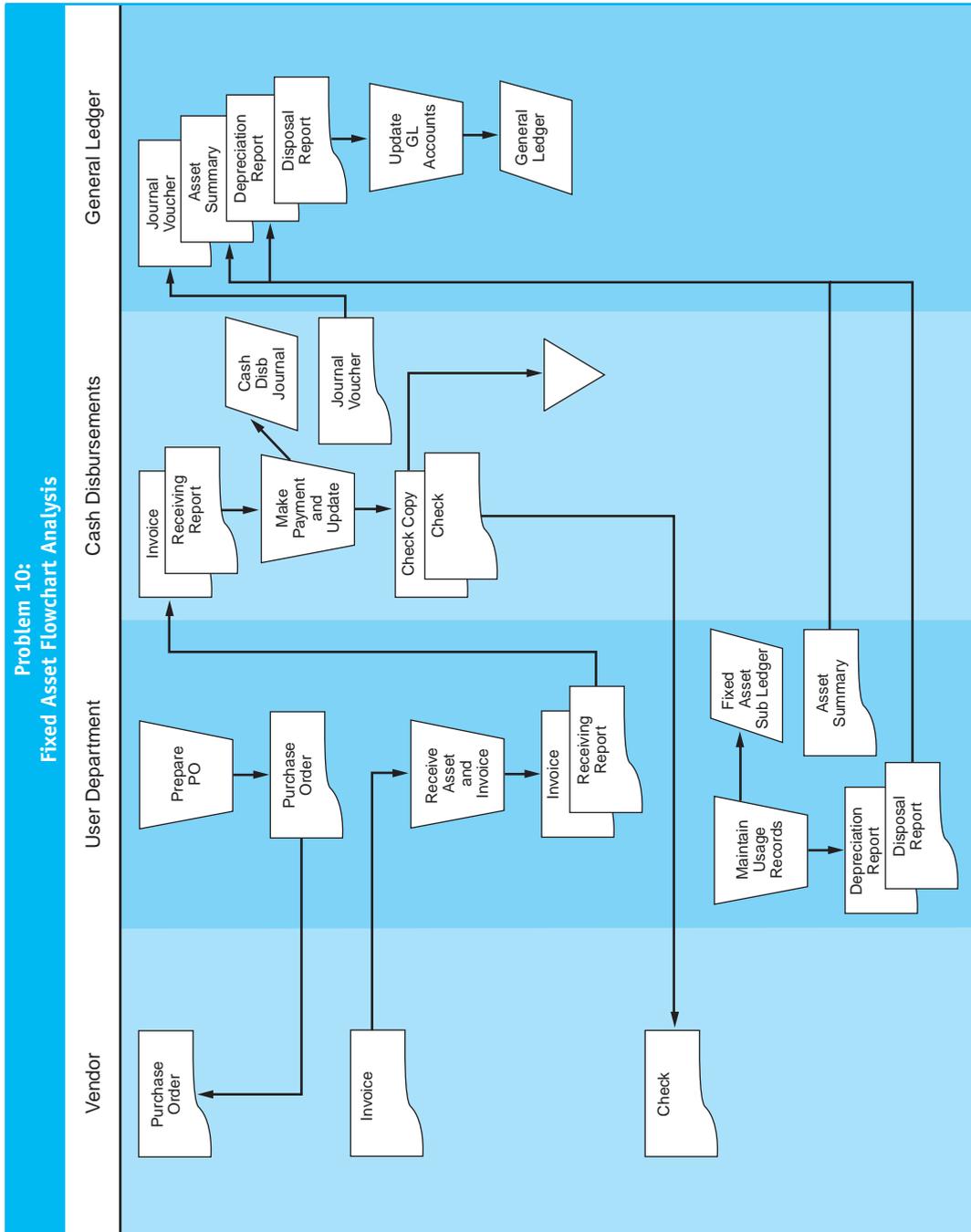


- the receiving department and the AP department. For an oil and gas firm, where do you think the source documents come from?
- Assume that a second well is drilled to help extract the reserves from the field. How would you allocate the drilling costs?

- The number of reserves to be extracted is an estimate. These estimates are constantly being revised. How does this affect the fixed asset department's job? Does Figure 6-13 need to be altered to reflect these adjustments?

Problem 7: Comprehensive Flowchart Analysis





- d. How does the auditor verify the numbers that the fixed asset department calculates at the end of the period?

12. Payroll Procedures

When employees arrive for work at Harlan Manufacturing, they punch their time cards

at a time clock in an unsupervised area. Mary, the time-keeping clerk, tries to keep track of the employees but is often distracted by other things. Every Friday, she submits the time cards to Marsha, the payroll clerk.

Marsha copies all time cards and files the copies in the employees' folders. She uses

**Problem 11:
Fixed Asset System**

WILDCAT EXPLORATION COMPANY
P.O. Box 5478
Baton Rouge, Louisiana 56758

JOINT INTEREST BILLING

INVOICE DATE: August 23, 2007
INVOICE NO.: DNS3948
TERM: net 20 days from receipt
BILLING PERIOD: September 19–August 19, 2008
Property: Dutch North Sea—K/11
Percentage Interest: .1875

DESCRIPTION	TOTAL AMOUNT	PERCENTAGE DUE
Tubing	\$291,876.69	\$ 37,851.88
Wellhead Assembly	976.25	183.05
Installation Cost	6,981.38	1,309.01
Permits	3,297.28	618.24
Site Prep & Cleanup	4,298.78	806.02
Contract Drilling	415,345.82	77,877.34
Bits	7,394.12	1,386.40
Equipment Rental	8,109.33	1,520.50
Communications	812.77	152.49
Testing and Drafting	15,980.23	2,996.29
Inspection	3,980.13	746.27
Completion Costs	1,980.11	371.27
TOTAL	\$761,032.89	\$125,818.76

employee wage records and tax tables to calculate the net pay for each employee. She sends a copy of the payroll register to the AP department and files a copy in the payroll department. She updates the employee records with the earnings and prepares the payroll summary and sends it to the cash disbursements department along with the paychecks.

After receiving the payroll summary, John, an AP clerk, authorizes the cash disbursements department to prepare paychecks. John then updates the cash disbursements journal. The

treasurer signs the paychecks and gives them to the supervisors for distribution. The supervisors distribute the checks to the employees and keep the falsified ones. Finally, both the AP and cash disbursements departments send a summary of transactions to the general ledger department.

Required:

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

- b. Make recommendations for improving the system.

13. Fixed Asset System

Fittipaldi Company recently purchased a patent for a radar detection device for \$8 million. This radar detection device has been proven to detect three times better than any existing radar detector on the market. Fittipaldi expects four years to pass before any competitor can devise a technology to beat its device.

Required:

- a. Why does the \$8 million represent an asset? Should the fixed asset department be responsible for its accounting?

- b. Where would the source documents come from?
- c. What happens if a competitor comes out with a new model in two years rather than four?
- d. How does the auditor verify the numbers that the fixed asset department calculated at the end of the period? Is it the auditor's responsibility to be aware of external regulatory conditions that might affect the value of the patent? For example, what if seven more states prohibit the use of radar detectors?

Internal Control Cases

1. Walker Books, Inc.—Payroll and Fixed Asset Systems

(Prepared by Alex Moser, Lehigh University)

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 out 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 relationships that Walker Books and many of its customers have are 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.

Fixed Asset and Payroll Procedures

In the various Walker Books business departments, employees clock in and out using their timesheets, which they are responsible for keeping at their desks or on their persons until Thursdays, when the manager or supervisor of their department approves them. The manager or supervisor then forwards these timesheets to Debby, the payroll clerk, who prepares checks for each employee's approved timesheet. She then posts to employee records and the payroll register using a laptop computer, which she is allowed to take home for work. A copy of the check is made and filed in the payroll department. The check is then mailed to the employee. Two summaries of the payroll register are printed, one of which is sent to the AP department, the other of which is sent to the general ledger department.

Any fixed assets each individual division needs are reported to the manager of that division, who decides if it's necessary. The manager submits a form stating the funds required for the fixed asset acquisition, which he or she must personally sign, showing approval to the purchasing department. The top manager of the fixed asset department, who is knowledgeable regarding fixed asset transactions, reviews any fixed asset request requiring more than \$10,000. The purchasing department clerk receives requests for funds and prepares a PO. Two copies of the PO are then made.

One is sent to the supplier, and one is filed in the purchasing department. Finally, the purchasing department sends a fixed asset change report to the fixed asset department.

The AP clerk receives the payroll summary and the fixed asset PO. She writes a check to the imprest account for the exact summation of the payroll and writes a check to the supplier for the amount of the purchase. Finally, when fixed assets are received, the packing slip, invoice, and completed blind copy are forwarded from the receiving department to the AP department, where the clerk reconciles them and posts to a journal voucher, which is subsequently sent to the general ledger department. The general ledger clerk posts journal vouchers and payroll summaries to the general ledger using a microcomputer terminal.

Required:

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

2. A&V Safety, Inc.—Payroll Processing System

(Prepared by Aneesh Varma, Lehigh University)

Supervisors collect and check time cards (including those from interns during the summer). These are then sent to the payroll department. Based on the employee ID on the time cards, the wage rates are pulled from the reference personnel file. Interns do not receive employee IDs because they are only there for 10 weeks. Their supervisors write their wage rates on the time cards.

The payroll department then prepares the checks and updates the payroll register. A copy of the payroll register is sent to the AP department, which duly updates the AP ledger. A summary

report is sent from the payroll department to the general ledger, which shows the distribution of wages across departments and projects. The used time cards are stored in a local file within the payroll department. The checks are then sent from the payroll department to the cash disbursement department, where they are signed and returned to supervisors who distribute them to their respective employees. Copies of the checks also sent to the payroll department, where they are matched to the payroll register and filed locally. The cash disbursements department also sends a verified list of recipients to the AP department, which updates the AP ledger to close out the payable salary accounts. A copy of the list of recipients is also sent from cash disbursements to the general ledger where, after verification from the summary report, the general ledger is updated. Cash disbursements also sends to the bank a copy of the employee list.

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. **Music Source, Inc.—Payroll and Fixed Assets**

(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.

Payroll System

All six sales offices' and the manufacturing plant's payrolls are processed biweekly through the same system. Every two weeks the employees enter data from their time cards into a terminal. The computer then runs a check on each of the employees through the employee history file to ensure that all the employees that have entered time are valid employees. After the verification, a personnel action form is created and forwarded to the payroll clerk in the payroll department.

The payroll clerk in the main office in Pennsylvania receives the time cards and the personnel action form from the manufacturing plant's production department and the sales offices' general managers' offices. The payroll clerk enters the information from these source documents into the employee records and then adds the employee hours to a payroll register reflecting employee pay rates, deductions, and job classifications. One copy of the payroll register, along with the time cards, is filed in the payroll department, and one copy is sent to the AP department. Next the payroll clerk sends the prepared employee paychecks to the cash disbursements department. The cash disbursements clerk then signs and distributes the checks to the employees.

The AP department prepares a cash disbursements voucher. Copies of the voucher and a copy of the payroll register are sent to the cash disbursements department. A second copy of the voucher, is sent to the general ledger department and posted to the general ledger. The cash disbursements clerk writes a check for the entire payroll and deposits it in the imprest cash account. Copies of the check, the disbursement voucher, and the payroll register are sent back to the accounts payable department, where they are filed.

Fixed Asset System

Asset acquisition begins when the department manager recognizes the need to obtain or replace an existing fixed asset. The manager prepares two copies of a purchase requisition; one is filed in the department, and one is sent to the purchasing department. The purchasing

department uses the purchase requisition to prepare three copies of a purchase order. One copy of the purchase order is sent to the supplier, another copy is sent to the AP department, and the third copy is filed in the purchasing department. The AP department receives the goods with an invoice and a packing slip from the vendor.

The AP clerk reconciles the purchase order received from the purchasing department with the packing slip and invoice. The clerk inputs the information into the computer terminal, and a liability is posted. The clerk also updates the purchase journal and prints out hard copies of a journal voucher and cash disbursement voucher. The journal voucher is sent to the general ledger department, and the cash disbursements voucher and the supplier's invoice are sent to the cash disbursements department. The purchase order and the packing slip are filed in the AP department. The cash disbursements clerk prepares and posts a check to the check register using the information from the supplier's invoice and the cash disbursements voucher and prints a hard copy of the check that is sent to the vendor. The cash disbursements voucher is sent on to the general ledger department.

The user department manager also handles asset maintenance and asset disposal. The manager adjusts the fixed asset subsidiary account balances as the assets depreciate over time. When an asset has reached the end of its useful life, the manager prepares a disposal report and sends a summary to the general ledger. The general ledger department clerk reconciles the cash disbursements voucher, the journal voucher, and the fixed asset summary and posts to the general ledger accounts and files the documents.

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. Green Mountain Coffee Roasters, Inc.—Payroll and Fixed Asset Systems
(Prepared by Christina Brown, Lehigh University)

Company Background

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 employs 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 that they purchase from Save the Trees, Inc.

Payroll System

In the Green Mountain production departments, each worker records the number of hours they have worked on a time card each day. The supervisor, Toni Holland, is

responsible for watching employees clock in and sending the time cards to the payroll department. Using a stand-alone microcomputer, the payroll department clerk inputs the time cards to prepare hard copies of the paychecks and post to employee records. The time cards are filed in payroll, and the employee checks are given to Toni to review and distribute. The payroll department also prepares three copies of a payroll register. Copies one and two are sent to AP and the general ledger department, respectively, and the third copy is filed in payroll. AP uses the payroll register to write a check for the imprest account. One copy of the check is signed and sent to the bank, and the other copy is filed. The general ledger department clerk inputs the payroll register information into a stand-alone microcomputer to post to the payroll clearing account and update the general ledger control accounts. The payroll register is then filed.

Fixed Asset System

Asset acquisition begins when the departmental manager (the user) recognizes the need to obtain a new or replace an existing fixed asset. The user prepares two copies of a purchase requisition, filing one copy in the user department and sending one copy to the purchasing department. The purchasing department uses the purchase requisition to prepare three copies of a purchase order. One is sent copy of the purchase order is sent to the supplier, one is sent to the AP department, and the last copy is filed in purchasing with the purchase requisition. AP receives the goods along with an invoice and a packing slip from the vendor. The AP clerk reconciles the purchase order sent from purchasing on a stand-alone microcomputer with the packing slip and invoice. The clerk uses the information to post a liability, update the purchases journal, and print hard copies of the journal voucher and cash disbursements voucher.

The journal voucher is sent to the general ledger department, and the cash disbursements voucher is sent to the cash disbursements department with the supplier's invoice. The re-

maining documents, the purchase order and the packing slip, are filed in AP. The cash disbursements clerk uses a stand-alone microcomputer to prepare and post a check to the check register using the information contained in the supplier's invoice and the cash disbursements voucher. The clerk then prints a hard copy of the check to send to the vendor. The cash disbursements voucher is then sent to the general ledger department.

The user department manager handles the asset maintenance and disposal. The manager adjusts the fixed asset subsidiary account balances as the assets depreciate over time and when an asset has reached the end of its useful life (in which case a disposal report is prepared). The user sends a summary to the general ledger. The general ledger department clerk reconciles the cash disbursements voucher, the journal voucher, and the fixed asset summary from the user with a stand-alone microcomputer, posts to the general ledger accounts, and files the remaining documents.

Required:

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

5. Sinclair's Chair Company—Payroll Systems

(Prepared by Sam Succop, Lehigh University)

Sinclair's Chair Company (SCC) was established in 1951 as a family-run manufacturer of plastic chairs, largely distributed to small universities and colleges. It has three manufacturing plants, located in Bethlehem, Pennsylvania; Pittsburgh, Pennsylvania; and Jersey City, New Jersey.

Payroll Processing System

All three manufacturing plants' payrolls are processed biweekly through the same system. The payroll clerk in SCC's main plant in Bethlehem receives the time cards from the production department. The payroll clerk enters the information from these time cards into the employee records and then adds the employee hours to a payroll register reflecting employee pay rates, necessary deductions, and job classifications. A copy of the payroll register, along with the time cards, is filed in the payroll department, and a copy is sent to the AP department. The payroll clerk then prepares the employee paychecks and sends them to the cash disbursements department.

The cash disbursements clerk signs the checks and distributes them to the employees. The AP department prepares a cash disbursements voucher. A copy of the disbursements voucher and a copy of the payroll register are sent to the cash disbursements department. The cash disbursements clerk posts to the check register and updates the general ledger. The clerk then writes a check for the entire payroll and deposits it in the imprest account. A copy of the check along with the disbursement voucher and the payroll register are sent back to the accounts payable department and filed.

Required:

- a. Create a data flow diagram of the payroll systems.
- b. Create a document flowchart of the payroll systems.
- 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.

6. Orbits—Comprehensive Case

(Prepared by Jaime Hesser, William Levien, and Rachel Sapir, Lehigh University)

In 1997, J.D. Orbits opened a cell phone accessory manufacturing plant named Orbits. Although the company began its operations at the local level with only 40 employees,

3 vendors, and 5 main customers, it experienced rapid success. By 2001, gross sales tripled and the enterprise expanded its customer, vendor, and employee base, and it now serves all major cell phone manufacturers. The success of Orbits is attributed to retention of talented employees and solicitation of large accounts.

Employees: Currently, Orbits has a total of 120 employees.

Executives: J.D. Orbits is the top executive. In 1999, he hired four people to serve as executive directors.

Executive Directors: The directors provide the independent verification control function by monitoring operating procedures. They are also responsible for the sales forecast and production schedule.

Sales Representatives: Sales representatives are crucial to the growth of Orbits. The company retained 10 members of the original staff and hired 30 more to represent the company. The Orbits sales representatives visit customer sites and take orders over the phone or receive orders online.

Office Personnel: Twenty people serve as office personnel to facilitate the paperwork involved in manual processes. Most of these employees work in the office facility, but a small portion work in the company warehouse. These individuals ensure that the inventory control account is properly measured.

Production Staff: Fifty people work on the manufacturing processes. This figure includes testers, maintenance staff, individuals who operate machinery, and individuals who transport goods to the warehouse.

Customers: Orbits sells to the outlet stores of distributors of Verizon, MCI, Cingular, and AT&T cellular phones in the tri-state area.

Materials and Suppliers: Manufacturing hands-free cell phone devices requires a number of different materials, none of which are made in-house. Orbits purchases most parts from 25 vendors. The more complex components used in the manufacturing process are purchased through

contracts with vendors. Premade circuitry and software (games), the microphone, and the battery pack are purchased. Everything else is assembled in the plant. Parts that are required to assemble the antennae, buttons, facade, and the wiring are relatively inexpensive. These components are made of either plastic or rubber. The raw materials are purchased from vendors according to price without a formal contract.

PPE (Fixed Assets):

Equipment: Plastic molding machine, button stamping machine, robotics assembly machines

Buildings:

Office Facility: Occupied by executives, sales representatives, office personnel, and programmers

Warehouse: Stores finished goods (awaiting sale or ready to ship), occupied by parts of office personnel and production staff

Factory Building: Occupied by production staff

Purchases System

The purchasing/inventory department prepares a purchase requisition when inventory levels drop below a predetermined reorder point. One copy of the purchase requisition is sent to AP, where the AP clerk files it in the AP pending file. A multipart purchase order is prepared for each vendor. One copy of the PO is sent to AP, where it is filed in the AP pending file and two copies are sent to the vendor.

One PO and the purchase requisition are used to update the inventory records and then are filed in the closed purchase order file. The receiving department inspects and counts the goods arriving from the vendor and prepares the receiving report. One copy of the receiving report is sent with the inventory to the raw materials storeroom, and another copy is sent to the purchasing/inventory department, where it is filed. Another copy is sent to the AP department, where it is filed in the AP pending file. The final copy is filed in the receiving department. Once the AP department receives the purchase requisition, purchase order, and receiving report,

the firm records the liability in the purchases journal and posts it to the supplier's account in the AP subsidiary ledger. The purchase requisition, purchase order, and receiving report are transferred to the open AP file. The AP clerk summarizes the transactions in the purchases journal for the period and prepares a journal voucher for the general ledger department. The general ledger department receives an account summary from the purchasing/inventory department and the invoice from the vendor. The clerk posts to the inventory and AP control accounts.

Payroll System

Production

Employees who work on the production floor are required to clock in and out on a computer every day while a production manager supervises. The production manager uses the information from the computer to compile time cards and job tickets. Time cards are a record of the total time an employee works, and job tickets are a record of the amount of time each worker spends on a specific job. Job tickets are sent to the cost department, and time cards are sent to the payroll department.

Cost

The cost department uses the job tickets to allocate labor and manufacturing overhead costs to the work-in-process (WIP) account.

Payroll

The payroll department receives the time cards and uses them to update the employee payroll records. The payroll department also prepares employee paychecks and creates a payroll register. The payroll register shows gross pay, overtime pay, net pay, and commission. A copy of the payroll register is sent to the AP department, and the paychecks are signed and sent to employees.

Accounts Payable

The AP department uses the payroll register to create a cash disbursements voucher. The voucher and the payroll register are sent to the cash disbursements department.

Cash Disbursements

The cash disbursements department uses the payroll register and the cash disbursements voucher to write a check for an imprest payroll account. The check is signed and sent to the bank in an amount equal to wages payable.

General Ledger

The general ledger uses the cash disbursements voucher to update payroll. The voucher is then filed.

Fixed Asset System

The acquisition, maintenance, and disposal of fixed assets demand special attention. Purchasing a fixed asset is much different from purchasing supplies for normal operations. Fixed assets are a larger investment for the company, and they are bought for long-term use. They also decrease in value as they expend their useful life, and their maintenance relies on a depreciation schedule. Executives must approve disposal of a fixed asset. It is possible for the sale of a fixed asset to result in a gain or a loss.

At Orbits, the purchasing/ordering department is responsible for monitoring the needs of user departments. Ordering determines if a user department needs a new fixed asset based on the estimated remaining useful life of the current asset and/or the ability of the asset to generate revenue/increase productivity. In certain circumstances, such as obsolescence or necessity, ordering will approve direct requests from user departments.

Acquiring a Fixed Asset

Ordering Department

The ordering department clerk creates a purchase order and sends a copy to the vendor. (When the vendor receives the order, they send an invoice to the AP department. The vendor sends the fixed asset and a packing slip to the ordering department.)

Accounts Payable Department

The AP department receives a copy of the vendor invoice and places it in the AP pending file.

Paying for a Fixed Asset

Ordering Department

The vendor ships the fixed asset and the packing slip to the ordering department. When the fixed asset is received, the ordering department creates a receiving report. The receiving report and the packing slip are sent to the AP department.

Accounts Payable Department

The receiving report is placed in the AP pending file with the vendor invoice. When the payment is due, the records are pulled from the AP pending file, a cash disbursement voucher is created, and the AP subsidiary ledger is updated. The voucher is sent to the cash disbursements department, and the invoice and packing slip are filed. A copy of the receiving report is sent to the fixed asset department.

Fixed Asset Department

At Orbits, the records of all fixed assets are kept in the fixed asset department. This department designates the method of depreciation and also estimates the salvage value and useful life. In turn, they create a depreciation schedule, a disposal report, and a record of physical location.

Cash Disbursements Department

The cash disbursements department is responsible for paying the vendor the amount that is recorded on the cash disbursements voucher. After the cash disbursements voucher is received, a check is prepared and sent to the vendor. The cash disbursements voucher is sent to the general ledger department.

General Ledger Department

After the general ledger department receives the cash disbursements voucher, accounts are updated, and the document is filed.

Maintaining a Fixed Asset

The fixed asset subsidiary ledger and the general ledger are updated throughout the useful life of the asset based on the depreciation schedule. Depreciation adjustments are made by debiting depreciation expense and crediting accumulated depreciation. Accumulated

depreciation is a contra account, and it reduces the value of the fixed asset.

Disposing of a Fixed Asset

There are a number of ways to retire an asset that is no longer useful to the company. Fixed assets can be sold, scrapped, or donated. In each case, the fixed asset account and the corresponding accumulated depreciation account must be eliminated. A gain or a loss on the disposal should also be recorded, and it will appear on the income statement. To record a disposal, accumulated depreciation is debited, and the fixed asset is credited (loss/gain may also be debited/credited).

Sales Order System

A customer places an order with an operator, who puts the order information in the order form. The sales order is filed in a database. A stock release, invoice, ledger copy, packing slip, and a shipping notice are all printed. The invoice and ledger copy are sent to billing, where the prices and information are added from the database, and the sales journal is updated via a user terminal. The invoice is then sent to the customer, and the ledger copy is sent to AR. The stock release is then sent to the warehouse, where the goods are picked and the stock records are updated in the database at a terminal. The stock release is sent to shipping, where it is reconciled with the packing slip, the shipping notice and bill of lading are prepared, and the shipping log is updated. The shipping notice is filed, and the bill of lading, product, and packing slip are then sent to the customer. The stock release is sent to AR, where it is reconciled with the ledger copy from billing. There the general ledger, AR, and inventory records are updated at a terminal, and a management summary is produced.

Cash Receipts System

The mail room receives the customer's check along with the remittance advice. The checks are sent to the cash receipts department, and the remittance advices are transferred to the accounts receivable department. The cash receipts department records the cash receipts

in the cash receipts journal. The clerk then prepares a bank deposit slip and transfers the checks and two copies of the deposit slip to the bank. After the funds are deposited, the bank returns a deposit slip to the cash receipts department, where it is reconciled with cash receipts and AR batch totals. The accounts receivable department reviews the remittance advices and updates the accounts receivable subsidiary ledger and the general ledger from a terminal and then files the remittance advices in the department.

Required:

- Create a data flow diagram of the current system.
- Create a document flowchart of the existing system.
- Analyze the internal control weaknesses in the system. Model your response according to the six categories of physical control activities specified in SAS 78.

7. Green Leaf Produce Company— Comprehensive Case

*(Prepared by Glenn Adams and
Nausheena Rahim, Lehigh University)*

Green Leaf Produce Company, a wholesale distributor nestled in the coal-mining regions of Pennsylvania, generates revenues of \$90 million per year and currently employs 187 people while servicing the northeastern United States. Its customer base is composed of restaurants, public schools, universities, and hospitals. This family-owned operation competes against the likes of national food distributors Sysco and US Foods. The competition among these rivals can be fierce at times, as pricing strategies are employed to gain market share.

Green Leaf Produce Company first opened its doors to the general public in the 1930s. The local ice company in town rented a small storefront to Green Leaf, giving birth to this mom-and-pop operation. During this time, small merchant businesses were on the rise as they tried their hand at entrepreneurship. Green Leaf succeeded, as it captured the local

market selling fruits and vegetables to the people of bustling Main Street.

Through the 1930s until the late 1950s, Green Leaf Produce continued to expand its operations to meet the ever-changing demands of its customers. Land, building, trucks, and equipment were purchased as revenues and earnings increased substantially. Over the years, its product base was expanded to include a line of frozen foods, seafood, and fresh meats to enhance the company's product mix.

Green Leaf Produce purchases its inventory items from growers, manufacturers, and processors domestically and from around the world. Since the company's inception, Green Leaf Produce has formed strategic partnerships with more than 47 different suppliers, including industry giants such as Frosty Acres, Tyson Food, H.J. Heinz, and Iceland Seafood.

Following another 40 years of growth servicing restaurants, public schools, universities, and hospitals, Green Leaf Produce relocated once again to its new 100,000-square-foot state-of-the-art distribution center. The new facility has a refrigeration capacity of more than 2 million cubic feet, which will position them to meet the challenges of the twenty-first century.

Sales Order Processing

Green Leaf's credit approval system operates in a real-time processing environment. The sales order process begins with the receipt of customer orders indicating the type of product and quantity being requested. Green Leaf receives customer orders two ways, via a toll-free in which a customer service representative keys the order into the computer system, and from a sales representative located in the field who transmits orders to the plant from a wireless laptop. Customer records are then matched with the company's database and checked for flags and credit limits before an approval is generated. If the customer's account has been flagged, a message appears that notifies the representative that the account is under review by the credit department. The customer is notified at this point that a decision will be rendered within the hour. In real time, the flagged account is transmitted to the

credit manager's queue to ensure that proper application of the firm's credit policies and procedures are followed. One aspect of the credit manager's job function is to review customer accounts regularly for creditworthiness and to set appropriate high credit limits. A second look, also performed by the credit manager, is a process of reviewing customer orders for possibly missed sales opportunities or to give proper attention to past-due accounts. Once a decision has been made regarding the order placed, the credit manager overrides the system, the sales order file is updated, and the customer is notified of the decision made.

A normal business day ends at 5:00 PM, and no new orders are accepted for delivery the next day. A manager in the computer operations department who maintains and operates the system sorts and compiles the orders that were processed and approved during the course of that day's business transactions. At this point, the sales journal is updated. Once the orders have been compiled, records are matched against inventory levels to confirm whether the items are in stock. An inventory report is then generated and sent to purchasing, notifying them of unavailable items to replenish inventory levels.

The sorted and compiled sales orders are then downloaded to the logistics department, where the sales orders are segregated according to geographic area. The groupings of sales orders are determined by the logistics program and are assigned to a truck. Once the sales orders have been routed, they are uploaded to the mainframe in computer operations and stored in the routed deliveries file. The manager of the logistics department then runs the billing/invoice program from his terminal. The billing program accesses the records in computer operations and produces a three-part invoice along with the truck summary report detailing the customer stops. The first copy is sent to the credit department, is temporarily filed, and acts as a control copy in case of missing invoices.

Copies 2 and 3 of the invoice and the truck summary report are sent to shipping and temporarily filed. When the billing/invoice program is run, the accounts receivable and

inventory records are updated in computer operations along with the journal voucher file.

The clerk in the computer operations department then accesses the routed delivery file and runs the order-picking program that generates the stock release and picking labels that go to the warehouse.

The labels, which contain customer number, name, truck to be loaded, product name, number, and quantity, are distributed to warehouse workers. Based on the information contained on the labels, goods are picked and loaded onto skids and shrink-wrapped. The stock release is filed in the warehouse, and the picked goods are sent directly to shipping, where the skids are loaded onto the trucks in reverse order of customer delivery.

Once the trucks are loaded with the customer orders, the shipping clerk pulls the second and third copies of the invoice, along with the truck summary report, and hands them to the driver with the deliveries for the day. After the driver unloads the orders, the driver has the customers sign the second invoice copy, which acts as Green Leaf's binding contract, and gives the customer the other copy. At the end of the day, the driver delivers the truck summary report and the second copy of the invoices to the credit department.

A clerk in the credit department then reconciles the truck summary report and the invoice copy. Once they have been reconciled, the invoice is imaged into the optical control reader and stored in the imaged file. This allows invoices to be viewed online to answer customer questions about billing. In addition, this added feature provides internal controls by affording Green Leaf the capability of running spot checks by querying invoices by account number, customer name, amount, or date of invoice.

At 4:00 AM, the computer operations manager begins the end-of-day batch update process. The journal vouchers are sorted, and the general ledger program is run to update the general journal for the previous day's business transactions. After the general journal is updated, three management reports are produced: the sales recap report and the truck recap report, which are sent to the controller,

and the account receivable control summary, which is distributed to the credit manager.

Cash Receipts Procedures

Green Leaf's receptionist, Helen, greets all incoming visitors as they arrive. Each day the mail carrier delivers all the mail for the entire plant, which includes customer payments from orders previously delivered. Helen sorts the mail, separating customer payments from the rest of the mail. As each payment is opened, Helen carefully records the account number along with the business name in the memo section of the check and disposes of the remittance advice. Helen then delivers all the checks documented with customer account number and name to the accounting department to be posted to the respective accounts.

The AR clerk posts the payments to each of the customers' accounts and updates the AR ledger and cash receipts journal by entering the information into the computer terminal. All records and files are stored in the data processing department. After all payments are posted, two copies of the payment posting summary are generated. One is sent to the controller's office and will later be reconciled with the validated deposit slip from the bank. The other payment summary is delivered to the manager of the AR department. Next the clerk prepares three deposit slips, one of which will accompany the deposit to the bank. One of the copies is filed within the department, and the other is sent with the summary report to the controller's office. When the validated deposit slip arrives from the bank, the controller reconciles the payment summary report and deposit slip against the validated deposit slip from the bank. The general journal and control accounts are updated.

Purchases System

The purchasing agent reviews stock reports by category to determine what needs to be ordered based on sales demand and seasonal demand. The order quantity is determined by sales demand/frequency and quantity on hand from the inventory file via a terminal. A full weekly stock reorder report is prepared. The purchasing agent then calls all the suppliers on the suppliers

list for prices. The supplier with the best price is contracted, and a purchase order is sent. Two copies of the purchase order are made; one is attached to the stock reorder report, and both are permanently filed. The other purchase order is sent to the receiving area.

Once the goods arrive in the receiving area, the receiving clerk compares the purchase order to the goods and notes any discrepancies. A receiving report is prepared and a copy is made. The receiving report, packing slip, and bill of lading are sent to the AP department, where they are temporarily filed, awaiting the invoice. The copy of the receiving report is sent with the purchase order to the purchasing department, where they are reconciled with the stock reorder report in the open purchases file; the documents are then permanently filed. Inventory records are updated via a terminal in the receiving area, and the goods are sent to the warehouse. The receiving clerk prepares a journal voucher and sends it to the general accounting clerk to key into the general ledger control account file.

After the accounts payable department receives the invoice from the supplier, it is reconciled with the packing slip and receiving report. Once reconciled, the purchases journal is posted to and the supplier's account is updated in the AP subsidiary ledger. The invoice is then filed by due date. The AP clerk prepares a summary of the entries in journal voucher form and sends it to the general accounting clerk to key into the general ledger control account file.

Current Cash Disbursements System

As the due dates approach, the AP clerk writes a check to the supplier indicating the invoice number and amount due. The check is sent to the general accounting department comptroller for a signature. The check is signed, a copy made, and the check is mailed. The check copy is stamped as paid and is sent back to AP. The AP clerk then updates the AP subsidiary ledger to reflect the payments, prepares and sends an account summary to the general ledger, and permanently files the documents. The AP clerk also updates the check register, summarizes

it, and sends a journal voucher to the general accounting clerk for keying into the general ledger control account file via a terminal.

Fixed Asset System

Daniel Jefferson has been the fixed asset manager for 16 years. He is a trusted employee of Green Leaf Produce and has been given greater responsibility in recent years. Daniel is in charge of the acquisition, maintenance, and time logging of the fixed assets the company owns. In his tenure, he has implemented a program to buy all delivery trucks rather than lease them. The added equity that owning provides over leasing has allowed Green Leaf Produce to employ leverage in acquiring new assets. Recently, however, management has become concerned about the rise in maintenance costs. The average maintenance bill has increased by 15 percent over the last two years. Management is considering leasing once again and selling the trucks they now own. Before taking any major steps, they have decided to investigate the fixed asset department.

Daniel is responsible for selecting repair companies and negotiating maintenance and repair contracts. Daniel selected Fix 'Em All Repairs for all of the needed work. Jessica Jefferson, his wife, is the office manager of the repair shop. Daniel fills out the work orders as maintenance comes due and repairs are needed. Fix 'Em All Repairs bills Green Leaf Produce at the end of the month for services rendered. Upon receipt of the bill, the AP department processes the payment, which takes five business days. Daniel makes the necessary entries to the general ledger.

Payroll System

Management at Green Leaf Produce trusts the employees to be accurate in recording hours worked. Jim Richmond, treasurer of the company, has been working in the AP department since the early 1970s. Because of his extended service, he has been entrusted with many responsibilities. One of his responsibilities is to maintain the personnel files. He supplies this information for payroll processing purposes.

The employees prepare their timesheets when they arrive and note when they leave.

At the end of the workweek, each department sends the employee timesheets to Jim for approval. After he approves the timesheets, he sends them and the personnel action form to the payroll office to be processed. The paychecks are drawn on the company's general cash account. After preparing the payroll register, the payroll department sends the paychecks and the payroll register to the AP department for review. AP then sends a journal voucher to the general ledger department, files the payroll register, and sends the paychecks to Jim for signing and distribution to the employees.

Required:

- a. Create a data flow diagram for the fixed asset and payroll systems.
- b. Create a document flowchart for the fixed asset and payroll systems.
- c. Analyze the internal control weaknesses in each of the two systems. Model your response according to the six categories of physical control activities specified in SAS 78.
- d. Prepare a system flowchart for each of the two redesigned computer-based systems resolves the control weaknesses that you identified.