

LEARNING NOTE 3.2

ACCOUNTING FOR DIRECT COSTS

The assignment of direct labour and materials to cost objects merely involves the implementation of suitable clerical/computer procedures to identify the quantity and prices of the resources consumed. Indirect labour and material costs are classified as overheads and the costs are assigned to overhead accounts classified by the type and location of expense. For example, where workers are unoccupied for short periods of time it will be recommended that the costs should be charged to an idle time overhead account for each department. In some situations, indirect labour and materials costs may not be easily identifiable with a particular department and the costs will be assigned to an appropriate overhead account for the business unit as a whole. For example, you will see that materials handling expenses are charged to a material handling expenses overhead account for the whole business unit since it is not possible to identify the costs with a particular department.

The emphasis throughout this learning note is on how labour and materials costs that have already been incurred should be accumulated for allocating costs between costs of goods sold and inventories for internal and external profit reporting purposes. For decision-making the emphasis is on using future costs rather than past costs, so the accumulation of past costs is generally not relevant for decision-making. For example, many companies obtain customers' orders by submitting bids or quotations, which, if accepted become the agreed selling prices. The assignment of actual costs incurred may provide useful feedback information on the accuracy of the bids, and help to improve the accuracy of future bids, but past costs are normally not directly used for decision-making. Exceptions do exist, however, such as garages that charge for repairs on the basis of actual costs incurred.

An understanding of the process of accounting for labour and materials requires a knowledge of the appropriate recording procedures and documentation. To simplify the presentation, and help you understand the recording procedures, manual clerical procedures are described. You should note, however, that in most organizations the recording procedures are computerized. Nevertheless, the basic principles described in this chapter still apply.

ACCOUNTING FOR LABOUR COSTS

Accounting for labour costs can be divided into the following two distinct phases:

- 1 Computations of gross pay for each employee and calculation of payments to be made to employees, government, pension funds etc. (i.e. **Payroll accounting**).
- 2 Allocation of labour costs to cost objects such as products or services, individual customers' orders and overhead accounts (i.e. **labour cost accounting**).

PAYROLL ACCOUNTING

Payroll accounting requires the provision of information relating to an employee's attendance time, details of absenteeism, hourly rates of pay, and details of various deductions such as tax and National Insurance. **Clock cards** or absenteeism reports provide the basic information for the calculation of

attendance time, and the employee's personal record card provides details of the various deductions. Where incentive payment systems are in operation, **piecework tickets** contain details of the number of items produced by each employee, and this is multiplied by the rate per item to give the total weekly wage. Where **bonus schemes** are in operation, the total payment will be based on an attendance time (the time rate wage) plus a bonus. The time rate wage is obtained from the clock card and the bonus details from the job card. Under a bonus scheme, a set time is allowed for each operation and a bonus is paid based on the proportion of time that is saved. An illustration of a bonus system is given in Example LN3.1.

In the situation described in Example LN3.1 the time allowed will previously have been recorded on the job card, and the actual time taken will be entered on the card when the operation is completed. The bonus can then be calculated and recorded on the employee's record card, which becomes the basis for determining the total weekly bonus to be included on the payroll. In most organizations the payroll accounting function will be computerized.

You should note that the objective of an incentive scheme is to benefit both the employer and employee. Consider a situation where an employee is paid £8 per hour and in one hour produces 10 units. The average labour cost per unit will be £0.80. To stimulate production, a piecework system is introduced where workers are paid £0.70 per unit produced. Assuming that this results in an increase in productivity to 12 units per hour, the hourly rate would increase to £8.40 ($12 \times £0.70$). The overall effect is that there is an increase in the hourly rate of the employee and a reduction in the labour cost per unit produced for the employer (from £0.80 to £0.70).

LABOUR COST ACCOUNTING

The objective of labour cost accounting is to record the amount of time that employees have taken on various activities. The time spent on providing a service to a specific customer, or manufacturing a specific product, is recorded on source documents, such as time sheets or job cards. Details of the customer's account number, job number or the product's code are also entered on these documents. The employee's hourly rate of pay is then entered so that the direct labour cost for the employee can be assigned to the appropriate cost object. For indirect labour costs the same procedure applies with the overhead account number to which the costs should be assigned being entered on the source documents.

Sometimes productive workers will be unoccupied for short periods and **idle time cards** are used to record the amount of idle or waiting time incurred. The amount of idle time is costed at the hourly wage rate and charged to an idle time overhead account for each department. An entry should be made on the card indicating the reasons for the idle time. Periodically, a report should be compiled for each department, showing a breakdown of the idle time and the proportion that it represents of recorded direct labour hours. In many organizations the recording procedures for accounting for labour will be computerized and the source documents will only exist in the form of computer records.

Some categories of labour, such as general labourers or supervision, may be engaged on numerous activities and it would not be feasible to record minute amounts of time on each activity. The labour costs

EXAMPLE LN3.1

was 16 hours. A bonus scheme is in operation where employees receive a bonus of 50% of the time saved. The hourly wage rate is £8 per hour.

The employee, having worked for 16 hours, will receive a time rate wage of £128 (16 hours at £8) plus a bonus of £16 (50% of 4 hours saved at £8 per hour).

The time allowed for a specific operation is 20 hours and the actual time taken by an employee

of these employees should be derived from payroll details and charged to departmental overhead accounts for supervision or general labour.

ACCOUNTING TREATMENT OF VARIOUS LABOUR COST ITEMS

Holiday pay, overtime and shift premiums

Holiday pay received by employees whose labour cost is normally regarded as direct should be charged to activities by means of an inflated hourly rate. For example, if the employee is normally paid £8 per hour for a 40-hour week and is entitled to six weeks annual holiday he or she will receive a total of £1 920 holiday pay (six weeks at £320 per week). Assuming that the employee works the remaining 46 weeks, the attendance time will amount to 1 840 hours (46 weeks at 40 hours per week). Dividing £1 920 by 1 840 hours gives an addition of approximately £1.04 per hour to the employee's hourly wage rate to ensure that the holiday pay is recovered. The advantage of this approach is that holiday pay is treated as a direct labour cost.

Overtime premiums and **shift-work premiums** are included as part of overheads. If overtime premiums are charged directly to products/services or customers' orders undertaken during the overtime or night-shift period, they will bear higher costs than those produced during a regular working week. Overtime and night-shift work is usually necessitated by a generally high level of activity, not by specific products or customers. It is therefore inappropriate to record activities undertaken during overtime or night hours as being more costly than their counterparts undertaken during, say, a regular eight-hour day. If, however, the overtime or shift premiums are a direct result of a customer's urgent request for the completion of the order and not due to the general pressure of work, then the overtime or shift premiums should be charged directly to the customer. It is important that overtime and shift premiums are also analysed by departments for cost control purposes.

Let us now examine the comments made in the preceding paragraph with the aid of a simple illustration. Consider a situation where an employee is paid time and a half for weekly hours worked in excess of 40 hours. Assume that the employee works for 50 hours and that the 10 hours of overtime were spent on a particular activity. The hourly wage rate is £8. The employee's weekly wage will be calculated as follows:

Normal time rate wage: 50 hours at £8	£400
Overtime premium ($1/2 \times 10$ hours at £8)	£40
	<u>£440</u>

The normal time rate wage will be allocated to the activities on which the employee was engaged during the period, but if the overtime was a result of demand exceeding productive capacity, it would be unreasonable to charge the overtime premium to the particular activity merely because it was scheduled to be produced during the overtime period. In such circumstances it would be preferable to charge the overtime premium to the appropriate overhead account, the total of which would be apportioned to all activities worked on during the period.

Employment costs

In addition to the wage and salary payments to employees, the employer will incur a number of other costs that are incidental to their employment. These costs include such items as the employer's share of National Insurance contributions and pension fund contributions. Some firms record employment costs as overheads, but it is preferable to calculate an average hourly rate for employment costs and add this to the hourly wage rate paid to the employees. For example, the employer may be responsible for employment costs of £40 for an operative who is paid £8 per hour for a 40-hour week. Here we can establish that the employment costs are £1 per hour and this cost can be added to the hourly wage rate of £8 per hour,

giving a total rate of £9 per hour. This approach is conceptually preferable to the alternative of charging the £40 to an overhead account, since employment costs are a fundamental part of acquiring labour services.

MATERIALS RECORDING PROCEDURE

According to a survey by Drury and Tayles (2000) of 176 UK organizations the cost of direct materials represented the dominant costs in manufacturing organizations, averaging 51% of total costs for the responding organizations within the manufacturing sector. The accounting and control of materials is therefore of vital importance in manufacturing organizations. In the remainder of this learning note the mechanisms for recording and controlling materials are explained. Because of the importance to the manufacturing sector the focus is mainly on manufacturing organizations but the materials recording procedure that is described is also applicable to non-manufacturing organizations. The materials recording procedure involves the following stages:

- storage of materials;
- purchase of materials;
- receipt of materials;
- issue of materials;
- assigning the cost of materials to cost objects.

To simplify the presentation, and help you understand the recording procedures, the following sections describe the clerical procedures for each of the above stages. You should note, however, that in most organizations the recording procedure is computerized using barcoding and other forms of on-line information recording. The source documents that are described and illustrated are likely to exist only in the form of computer records.

Storage of materials

In a manufacturing organization the stores department will be responsible for ensuring that optimal stock levels are maintained for each item of material in stock. Thus, to control the quantity of stocks held, adequate records must be maintained for each stores item. When items of materials have reached their re-order point a **purchase requisition** is initiated requesting the purchase department to obtain the reorder quantity from an appropriate supplier. Methods that are used for establishing optimum stock levels, re-order points and re-order quantities are explained in Chapter 24.

Purchase of materials

Upon the receipt of a purchase requisition, purchasing department staff will select an appropriate supplier based on their expert knowledge, and then complete a **purchase order** requesting that the supplier supply the materials listed on the order. A copy of the purchase order is sent to the receiving section within the stores department for checking with the goods when they arrive.

Receipt of materials

When the goods are received by the receiving section they are inspected and checked with the supplier's delivery note and a copy of the purchase order. The receiving section then lists the materials received on a **goods received note** (GRN) and forwards copies of the GRN to the purchasing and accounting departments. The purchasing department will record that the order has been completed, and the accounting department will check the GRN with the supplier's invoice to ensure that payment is made only in respect of goods actually received. The department will also use the invoice to price each of the items listed on the GRN. The GRN is the source document for entering details of the items received in the receipts column of the appropriate **stores ledger account**. An illustration of a stores ledger account is provided in Exhibit 4.1

in Chapter 4. This document is merely a record of the quantity and value of each individual item of material stored by the organization.

Issue of materials

The formal authorization for the issue of materials is a **stores requisition**. The type and quantity of materials issued are listed on the requisition. This document also contains details of either the customer's order number, product/service code or overhead account for which the materials are required. Exhibit 4.2 in Chapter 4 provides an illustration of a typical stores requisition. Each of the items listed on the materials requisition are priced from the information recorded in the receipts column of the appropriate stores ledger account. The information for each of the items listed on the stores requisition is then recorded in the issues column of the appropriate stores ledger account and a balance of the quantity and value is calculated for each item of material.

Assigning the cost of materials to cost objects

The total cost of the items of material listed on the stores requisition is assigned to the appropriate customer's account number, overhead account or product or service code. The details on the material requisition thus represent the source information for assigning the cost of the materials to the appropriate cost object. Thus the accounting entries required for an issue of materials involve:

- 1 Reducing the value of raw materials stocks by recording the values issued in the issues column of the appropriate stores ledger account;
- 2 Assigning the cost of the issues to the appropriate customer's order number, product/service code or overhead account

PRICING THE ISSUES OF MATERIALS

In Chapter 4 a simplistic example was presented to provide you with an understanding of the implications of the three different methods of stores pricing. In practice pricing stores issues is likely to be more complex than the situation presented in Chapter 4. To ensure that you can price stores issues in more complex situations you should now refer to Example LN3.2 and then examine each of the entries in stores ledger accounts for the three different pricing methods that are presented in Exhibit LN3.1. Do remember, however, that in practice computer programs exist for pricing stores issues by the chosen method so it is most unlikely that the process will be carried out manually.

You should note in Exhibit LN3.1 that with the FIFO method the issue of 1 240 units on 15 September is at three different purchase prices. This is because 1 400 units out of the earliest purchase of 2 000 units have already been issued. The remaining 600 units are therefore the first items to be issued out of the 1 240 units on 15 September. The next earliest purchase of 520 units is now issued, leaving a balance of 120 units to be issued from the purchase of 5 August. The closing stock consists of the final purchase for the period of 1 000 units plus 40 units from the 22 August purchase that have not yet been issued.

Now refer to the LIFO method in Exhibit LN3.1 and look at the issue of 480 units on 14 October. This issue includes the 160 units at the 5 August purchase price of £11.50 because all of the units from the latest purchase on 22 August have previously been issued, together with 640 units from the next latest purchase of 5 August. Only 160 units from the 5 August purchase are available for issue. The balance of 320 units issued is at £10 as all the previous later purchases have already been issued. Hence LIFO does not always ensure that the issues are at the latest purchase price. The closing stock consists of 240 units at the latest purchase price of £11 plus 800 units at the earliest purchase price of £10.

Finally, with the average cost method shown in the third section of Exhibit LN3.1 you should note that each of the items are issued at the average cost per unit. This is calculated by dividing the total value of

EXAMPLE LN3.2

The purchase and issue of a raw material by the Midshire Water Authority for a five month period were as follows:

1 July	Received	2 000 units at £10 per unit
9 July	Received	520 units at £10.50 per unit
18 July	Issued	1 400 units
5 August	Received	800 units at £11.50 per unit
22 August	Received	600 units at £12.50 per unit
15 September	Issued	1 240 units
14 October	Issued	480 units
8 November	Received	1 000 units at £11 per unit
24 November	Issued	760 units

There was no opening stock of the raw material. You are required to prepare the stores ledger accounts when issues are priced, respectively, according to the FIFO, LIFO and average cost methods. Please refer to Exhibit 3.1 for the answer.

the material in stock by the total quantity in stock; after each new purchase. An illustration of the average unit cost calculations for the 9 July and 22 August purchases is shown in the third section of Exhibit LN3.1. An important point to note with the average cost method is that each item is issued at the latest average price and this average price changes only when a new purchase is received.

EXHIBIT LN3.1 Pricing stores issues for the Midshire Water Authority

Stores ledger account – FIFO method									
Material: Code: Maximum quantity: Minimum quantity:									
Date	Receipts				Issues			Stock	
	GRN no.	Quantity	Unit price (£)	Amount (£)	Quantity	Unit price (£)	Amount (£)	Quantity	Unit price (£)
July 1		2 000	10.00	20 000				2 000	20 000
9		520	10.50	5 460				2 520	25 460
18					1 400	10.00	14 000	1 120	11 460
Aug 5		800	11.50	9 200				1 920	20 660
Aug 22		600	12.50	7 500				2 520	28 160
Sept 15					600	10.00			
					520	10.50			
					120	11.50	12 840	1 280	15 320
Oct 14					480	11.50	5 520	800	9 800
Nov 8	1 000		11.00	11 000	200	11.50		1 800	20 800
Nov 24					560	12.50	9 300	1 040	11 500

The closing stock represents:

40 units at £12.50 per unit =	£ 500
1 000 units at £11.00 per unit =	<u>£11 000</u>
	<u>£11 500</u>

Stores ledger account – **LIFO method**

Material: Code: Maximum quantity:
Minimum quantity:

Date	Receipts				Issues				Stock		
	GRN no.	Quantity	Unit price		Quantity	Unit price (£)	Amount (£)		Unit Price		Amount
			(£)	(£)					(£)		
July 1		2 000	10.00	20 000					2 000		20 000
9		520	10.50	5 460					2 520		25 460
18					520	10.50					
					<u>880</u>	1 400	10.00	14 260	1 120		11 200
Aug 5		800	11.50	9 200					1 920		20 400
Aug 22		600	12.50	7 500					2 520		27 900
Sept 15					600	12.50					
					<u>640</u>	1 240	11.50	14 860	1 280		13 040
Oct 14					160	11.50					
					<u>320</u>	480	10.00	5 040	800		8 000
Nov 8		1 000	11.00	11 000					1 800		19 000
Nov 24					760	11.00	8 360		1 040		10 640

The closing stock represents:

800 units at £10.00 per unit =	£ 8 000
240 units at £11.00 per unit =	<u>£ 2 640</u>
	<u>£10 640</u>

Stores ledger account – **average?cost? method**

Material: Code: Maximum quantity:
Minimum quantity:

Date	Receipts				Issues				Stock		
	GRN no.	Quantity	Unit price		Stores req.	Quantity	Unit price (£)	Amount (£)	Quantity	Unit price	
			(£)	(£)						(£)	Amount (£)
July 1		2 000	10.00	20 000					2 000	10.00	20 000
9		520	10.50	5 460					2 520	10.1 032	25 460
18						1 400	10.1 032	14 144	1 120		11 316
Aug 5		800	11.50	9 200					1 920	10.6 854	20 516
Aug 22		600	12.50	7 500					2 520	11.1 175	28 016
Sept 15						1 240	11.1 175	13 785	1 280		14 231
Oct 14						480	11.1 175	5 536	800		8 895
Nov 8		1 000	11.00	11 000					1 800	11.0 528	19 895
Nov 24						760	11.0 528	8 400	1 040		11 495

$$9 \text{ July} = \frac{£25 460}{2 520 \text{ units}} = £10.1 032$$

$$22 \text{ August} = \frac{£28 016}{2 520 \text{ units}} = £11.1 175$$

ISSUES RELATING TO ACCOUNTING FOR MATERIALS

In this section three issues that relate to accounting for materials are examined. The issues relate to the treatment of:

- 1 stores losses;
- 2 materials delivery costs; and
- 3 materials handling costs.

Treatment of stores losses

To achieve accurate profit measurement, the clerical or computer record in respect of each item of materials in stock must be in agreement with the actual stock held. This means that the actual stock must be physically counted and compared with the clerical or computer record. For this to be done effectively, there must be either a **complete periodic stockcount** or some form of continuous stocktaking. The former refers to a situation where all the stores items are counted at one point in time, whereas the latter involves a sample of stores items being counted regularly on, say, a daily basis. If there is **continuous stocktaking** production is unlikely to be disrupted.

Sometimes it may be found that the actual stock level is different from the clerical or computer records. The reasons for this may be:

- 1 an entry having been made in the wrong stores ledger account;
- 2 the items having been placed in the wrong physical location;
- 3 arithmetical errors made when calculating the stores balance on the stores ledger when a manual system is operated;
- 4 theft of stock.

When a discrepancy arises the individual stores ledger accounts must be adjusted so that they are in agreement with the actual stock. Assume, for example, that the actual stock is less than the clerical or computer record. The quantity and value of the appropriate stores ledger account must be reduced and the difference charged to an overhead account for stores losses. The total amount charged to the stores losses overhead account should be allocated to cost objects based on the overhead procedure described in Chapter 3.

Treatment of materials delivery costs

Ideally, delivery charges made by suppliers should be included as part of the purchase price of the materials so that these costs can be charged as direct costs. Wherever possible, materials should be charged directly to cost objects rather than being grouped as indirect costs and apportioned to cost objects. The delivery charge will normally be shown separately on the invoice for the consignment of materials delivered. When the invoice is for one kind of material only, there is no problem in accounting for the materials and the resulting total entered as a receipt for the appropriate item of material. When the delivery charge refers to several different types of material, the charge must be apportioned to each type of material delivered. Such an apportionment could be made according to either the value or the weight of the materials. Alternatively, the clerical work could be simplified by charging delivery costs to an overhead account and apportioning these costs as part of the overhead procedure described in Chapter 3.

Treatment of materials handling costs

The term 'materials handling costs' refers to the expenses involved in receiving, storing, issuing and handling materials. Various approaches can be used to account for materials handling costs. They involve charging the costs to a materials handling overhead account and allocating these costs to cost objects based on the approaches described for traditional costing systems in Chapter 3 or those for activity-based

costing systems described in Chapter 11. Some companies establish a separate **materials handling rate**. Consider, for example, a situation where the materials handling costs for a period were £1 million and the direct materials issued during the period were valued at £5 million. In this situation the materials handling cost could be allocated to cost objects (i.e. products, services or customers) at a materials handling rate of 20% of the cost of direct materials issued (£1 million/£5 million) thus resulting in the £1 million materials handling cost being charged to cost objects.