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Management Accounting

7th Edition

- Link 4.A –
Bookkeeping Entries

The first activity is the share issue. We only notice that the activity increases the cash/Bank item by 400,000.00 GBP. Next the company takes a bank loan and receives 200,000.00 GBP upon issue. 20,000.00 GBP are paid off at the end of the first accounting period. Hence, PENOR PLC owes the bank: $200,000 - 20,000 = 180,000.00$ GBP. The value of cash/bank is: $400,000 + 180,000 = 580,000.00$ GBP.

After cutting short some items, we rework our Bookkeeping entries.

We consider the following Bookkeeping entries for Management Accounting:¹

The next following Bookkeeping entries are identified by capital letters to distinguish them from Financial Accounting records in the previous chapter (3).

(A) Establishment of the business:

DR Cash/Bank	400,000.00 GBP
CR Issued Capital	400,000.00 GBP

(B) Taking the bank loan:

DR Cash/Bank	200,000.00 GBP
CR Interest Bearing Liabilities	200,000.00 GBP

(C) Payment for interest and pay-off:

DR Interest	6,000.00 GBP
DR Interest Bearing Liabilities .	20,000.00 GBP
CR Cash/Bank	26,000.00 GBP

(D) Acquisition of the saws:

DR P, P, E saws	150,000.00 GBP
DR VAT	30,000.00 GBP
CR Cash/Bank	180,000.00 GBP

(E) Depreciation on the saws. We do not run an asset management and credit the

P, P, E-account although it is regarded old-fashioned amongst Bookkeepers.

DR Depreciation Production Dep..	30,000.00 GBP
CR P, P, E saws	30,000.00 GBP

(F) Rent:

¹ Note, we consider cash/bank and receivables and payables for aspects of cash flow statements and liquidity planning further below.

DR Rent	90,000.00	GBP
CR Cash/Bank	90,000.00	GBP

(G) Purchase of aluminium profiles:

DR Purchase	600,000.00	GBP
DR VAT	120,000.00	GBP
CR Cash/Bank	720,000.00	GBP

(H) Purchase of hinges:

DR Purchase	450,000.00	GBP
DR VAT	90,000.00	GBP
CR Accounts Payables	270,000.00	GBP
CR Cash/Bank	270,000.00	GBP

(I) Purchase of glass panes:

DR Purchase	600,000.00	GBP
DR VAT	120,000.00	GBP
CR Accounts Payables	720,000.00	GBP

(J) Purchase of aluminium sheets at a standard price of 50.77 GBP/u. The total value equals: $50.77 \times 1,300 = 66,001.00$ GBP.

DR Purchase	66,001.00	GBP
DR VAT	13,200.20	GBP
CR Cash/Bank	79,201.20	GBP

(K) Purchase of sealing strips at the discounted price of: $27,000 \times 10 \times (1 - 5\%) = 256,500.00$ GBP:

DR Purchase	256,500.00	GBP
DR VAT	51,300.00	GBP
CR Cash/Bank	307,800.00	GBP

(L) Purchase of 90°-fastener at the number that takes returns into account: $(50,000 - 500) \times 25 = 1,237,500.00$ GBP:

DR Purchase	1,237,500.00	GBP
DR VAT	247,500.00	GBP
CR Cash/Bank	1,485,000.00	GBP

(M) *Purchase of self-tapping-screws:*

DR Purchase	20,000.00	GBP
DR VAT	4,000.00	GBP
CR Cash/Bank	24,000.00	GBP

(N) *Labour including social security contribution by PENOR PLC to the extent* *of: 1,750,000 + 250,000 = 2,000,000.00 GBP.*

DR Labour	2,000,000.00	GBP
CR Cash/Bank	2,000,000.00	GBP

(O) *Revenue recognition:*

DR Cash/Bank	6,062,280.00	GBP
CR VAT	1,010,380.00	GBP
CR Revenue	5,051,900.00	GBP

Below, we provide you with the adjusted data sheet for PENOR PLC based on Management Accounting data.

Data Sheet for PENOR PLC

Classification: Manufacturing;
 Bank loan: 200,000.00 GBP; bank loan fees: 1,500.00 GBP; interest: 3 %/a, Pay-off: 20,000.00 GBP; settlement values apply;
 Saws' cost of acquisition: 5 × 30,000 GBP, useful life: 5 years;

Rent for factory building: 7,500.00 GBP/m;
 Material prices: see Figure 3.5
 Labour: 2,000,000.00 GBP;
 Production: 5,000 windows; 1,000 doors;
 Sales: 4,678 windows; 873 doors;
 Net selling prices: 800.00 GBP/window; 1,500.00 GBP/door;
 VAT 20%.

Find below in Figure 1 the accounts recorded for Managerial Accounting.

D Cash/Bank C/B C		D Issued capital ISS C	
(A) 400,000.00	(C) 26,000.00		(A) 400,000.00
(B) 200,000.00	(D) 180,000.00		
(O) 6,062,280.00	(F) 90,000.00		
	(G) 720,000.00		
	(H) 270,000.00		
	(J) 79,201.20		
	(K) 307,800.00		
	(L) 1,485,000.00		
	(N) 2,000,000.00		
	(M) 24,000.00		

D Interest bearing liabilities IBL C		D Interest-20X1 INT C	
(C) 20,000.00	(B) 200,000.00	(C) 6,000.00	

D P, P, E saws PPE C		D Value added tax VAT [20%] C	
(D) 150,000.00	(E) 30,000.00	(D) 30,000.00	(O) 1,010,380.00
		(G) 120,000.00	
		(H) 90,000.00	
		(I) 120,000.00	
		(J) 13,200.20	
		(K) 51,300.00	
		(L) 247,500.00	
		(M) 4,000.00	

D Depreciation production department DPR C		D Rent-20X1 RNT C	
(E) 30,000.00		(F) 90,000.00	

D Purchase-20X1 PUR C		D Accounts payables A/P C	
(G) 600,000.00			(H) 270,000.00
(H) 450,000.00			(I) 720,000.00
(I) 600,000.00			
(J) 66,001.00			
(K) 256,500.00			
(L) 1,237,500.00			
(M) 20,000.00			

D Labour-20X1 LAB C		D Revenue-20X1 REV C	
(N) 2,000,000.00			(O) 5,051,900.00

Figure 1: Management Accounting accounts

In contrast to the recordings in chapter (3), we acknowledge a substantial simplification in the accounts. Accounts relevant only for the legit preparation of financial statements do not show anymore. We even could ignore more real accounts, like Interest Bearing Liability account, the Accounts Payables account, the P, P, E account and the VAT account as information is redundant to Financial Accounting. We merely disclose these accounts for teaching purposes and to show complete Bookkeeping entries based on the double entry system.

Next, we describe a Management Accounting system which provides cost allocations. We therefore must separate costs, allocate cost to cost centres and products/services and calculate profit for PENOR PLC. We demonstrate that more detailed information is provided which allows us to answer to the above prepared five Management Accounting questions. As you will see, most of our Accounting work is about allocations.

The features of the Management Accounting system depend on the questions we are asking.

The first one was about the unit costs of the finished goods. To answer the question, we calculate PENOR PLC's products, which are windows and doors. The unit costs are for internal purposes only, like for price calculations and product mix decisions – but not for

inventory valuations as we don't prepare a balance sheet in Management Accounting.

Following the account approach, all calculations are recorded 'inside of the accounts'. We trust you find this easier than calculations in workings as applied in the previous chapter (3).

The part of Management Accounting that deals with product calculation in an industrial environment is called Manufacturing Accounting. It gives the total and unit costs of manufacturing. ***The cost of manufacturing are all costs that are directly or indirectly attributable to the product/service.*** Non-manufacturing costs such as Marketing, Accounting or Human Resource costs are not allocated to goods/services. The reason for this is simple. If the number of production amounts changes the apportioned costs per product vary and unit costs become volatile, which we do not want.

Our product calculation requires a perpetual inventory system for materials.² That way, materials are recorded once received and at the time of stock releases. In contrast, PENOR PLC's Financial Accounting follows the periodic approach. Under the periodic system, stock additions are recorded but only once per Accounting period, PENOR PLC takes stock to measure materials consumption.

The perpetual system in Management Accounting requires to immediately add purchased goods to the Inventory

² Check our Basics, chapter (26).

accounts. We provide inventory accounts for each material (aluminium profiles, glass panes, hinges etc.). We also need to know inventory levels at any time for precise production planning and to avoid delays caused by missing parts.

For product calculation, we apply one Work-in-Process accounts per product (door, window) and Manufacturing Overhead accounts for the cost centres. Below, we discuss the procedure of product calculation for PENOR PLC. We assume, the company only has 2 departments (cost centres), Production department and an Administration Office. Our records support a profit calculation based on the cost of sales format.

A profitability analysis is the income statement for Management Accounting. In contrast to the financial statements, the profitability analysis is based on Management Accounting data, hence, it is prepared for budgeted and actual values, and it frequently is linked to monthly Accounting periods.

At PENOR PLC, the first step is assigning materials to the Raw Materials Inventory accounts. The same Inventory accounts apply as in chapter (3). We use the same abbreviations.³

Observe adding aluminium profiles to the Raw Materials (alu) account:

DR Raw Materials (alu)	600,000.00 GBP
CR Purchase	600,000.00 GBP

Adding hinges to the Raw Materials (hin) account:

DR Raw Materials (hin)	450,000.00 GBP
CR Purchase	450,000.00 GBP

Adding glass panes to the Raw Materials (pan) account:

DR Raw Materials (pan)	600,000.00 GBP
CR Purchase	600,000.00 GBP

Adding aluminium sheets to the Raw Materials (sht) account:

DR Raw Materials (sht)	66,001.00 GBP
CR Purchase	66,001.00 GBP

³ For internal allocations we indicate the contra account by its 3-letter-code.

Adding sealing strips to the Raw Materials (str) account:

DR Raw Materials (str)	256,500.00 GBP
CR Purchase	256,500.00 GBP

Adding 90°-fasteners to the Raw Materials (fst) account:

DR Raw Materials (fst)	1,237,500.00 GBP
CR Purchase	1,237,500.00 GBP

Adding self-tapping-screws to the Raw Materials (scr) account:

DR Raw Materials (scr)	20,000.00 GBP
CR Purchase	20,000.00 GBP

In Management Accounting, we distinguish direct and indirect costs. **Direct costs are those costs that can be assigned straight to the product, e.g., based on the bill of materials documents or working sheets.** Indirect costs occur for different products and are called overheads. They require cost allocations. Direct costs are debited to the WIP-accounts whereas indirect costs are recorded as overheads. Most common direct costs are direct materials and direct labour. **Overhead costs are costs that apply for more than one product.** They are assigned to cost centres and are later allocated to products based on cost rates. Examples for overheads are supervisor's salary, factory rent, security service, material procurement costs etc.

At PENOR PLC, the aluminium profiles, the hinges, the glass panes, the sealing-

strips, the 90°-fasteners and the aluminium sheets are direct materials. Screws are not. Consider screws provided in a box without recording the consumption. No cost tracing takes place – we get back to that later. Next, we assign raw materials to products based on the recorded inventory movements in the factory.

The WIP-Window account receives in total:

- Aluminium profiles worth 400,000.00 GBP.
- Hinges worth 300,000.00 GBP.
- Glass panes worth 500,000.00 GBP.
- Sealing strips worth 190,000.00 GBP.
- 90°-fasteners worth 1,000,000.00 GBP.

The WIP-Door account receives in total:

- Aluminium profiles worth 120,000.00 GBP.
- Hinges worth 90,000.00 GBP.

- Aluminium sheets worth: $1,000 \times 50.77 = 50,770.00 \text{ GBP}$.
- Sealing strips worth 57,000.00 GBP.
- 90°-Fasteners worth 200,000.00 GBP.

We do not record the self-tapping-screws in an extra inventory account but carry them in the Purchase account. We do so as the self-tapping-screws are regarded as indirect materials consumed in the production process. The movements of self-tapping-screws are not registered and, therefore, are not recorded. The screw consumption is calculated based on a periodical inventory system where we close off the purchases and closing stock to a kind of Trading account. The reason is that the value of the self-tapping-screws does not rectify the extra effort of record keeping. Similar reasons apply for further supplies, like cooling liquids, water, oil, petrol etc.

We get back to the self-tapping-screws once we discuss manufacturing overheads further below. For now, we ignore their consumption and keep in mind to take care of them at the period's end.

For batch calculation the Work-in-Process account (WIP-account) applies.⁴ **A WIP-account is a product or service related account where all direct costs and portions of overheads are allocated to.** It applies in production and service rendering firms. The terms work-in-process and work-in-progress are used interchangeably in literature. We mostly say WIP.

PENOR PLC applies two WIP-accounts, one for the windows and another one for the doors. By the next step, the direct materials, such as aluminium profiles, hinges, glass panes, aluminium sheets, sealing strips and 90°-fasteners, are allocated to the goods manufactured which means they are debited either to the WIP-Window-account or WIP-Door-account. At PENOR PLC, no direct labour applies because all workers work on doors and windows as well.

All overheads are allocated to Production or the Administration Office. We call the Overhead account for Production 'Manufacturing Overheads account'. The Manufacturing Overheads account is common in production firms. **A Manufacturing Overhead account is used in production firms and service rendering companies in order to allocate all manufacturing overheads to products.** Manufacturing Overhead accounts are closed-off to the WIP-accounts. This is referred to as overhead application. Non-manufacturing overhead accounts take overheads too, but those accounts are closed-off directly to the Profit and Loss account. As the non-manufacturing overheads go straight to profit or loss a company cannot allocate them to products. They fall under period costs.

At PINOR PLC, labour is added to an extent of 60 % to the Manufacturing Overheads account (MOH) and to 40 % to the Administration Overheads account (given).

⁴ Read our textbook *Basics of Accounting*, chapter (25).

DR MOH Account 1,200,000.00 GBP
CR Labour 1,200,000.00 GBP

DR Admin Overheads 800,000.00 GBP
CR Labour 800,000.00 GBP

Next, we deal with the screws: At PINOR PLC, self-tapping-screws are considered overheads. No documentation, such as a material release form, is recorded when self-tapping-screws are taken out of their containers. The supervisor looks after the self-tapping-screws. PENOR

PLC records the consumption of the self-tapping-screws taking inventory. At the end of the Accounting period 20X1, stock amounts to 5,000.00 GBP (= 1,000 containers). Hence, the consumption of self-tapping-screws was: 20,000 – 5,000 = 15,000.00 GBP.⁵

DR MOH Account 15,000.00 GBP
CR Raw Materials (scr) 15,000.00 GBP

Rent is for the factory building only and, hence, is fully added to the Manufacturing Overheads account. At

PENOR PLC, the Administration Office is not in the factory building.

DR MOH Account 90,000.00 GBP
CR Rent 90,000.00 GBP

Depreciation is fully allocated to the Manufacturing Overheads account. It is

for the saws in the Production department only.

DR MOH Account 30,000.00 GBP
CR Depreciation 30,000.00 GBP

Look at the accounts for checking the calculation so far:

⁵ Note, in a real case, a company takes stock every month, we keep this case study simple.

Figure 2: Manufacturing Accounting's accounts after 1st allocation

Figure 2: Manufacturing Accounting's accounts after 1st allocation (continued)

D	WIP window (WPw)	C	D	WIP door (WPd)	C
alu	400,000.00		alu	120,000.00	
hin	300,000.00		hin	90,000.00	
pan	500,000.00		slb	50,770.00	
str	190,000.00		str	57,000.00	
fst	1,000,000.00		fst	200,000.00	

D	Admin overheads (AOH)	C
Lab	800,000.00	

Figure 2: Manufacturing Accounting's accounts after 1st allocation (continued)

Next, we apply the overheads, meaning we allocate overheads, like labour, screw consumption, depreciation and rent (all together), to PENOR PLC's products, windows and doors.

The application of overheads is the transfer of costs from the Manufacturing Overheads account to the Work-in-Process account(s). The Overhead application is recorded as debit entry in a WIP-account and credit entry in a MOH-account. The overhead application frequently is based on cost rates, such as a GBP/hour rate. The concept is to collect overheads first in the Manufacturing Overhead accounts and to apply them all together. As the cost rates are based on budgeted data, they are calculated as budgeted costs divided by the planned output (performance). Actual data are likely to differ from the predetermined overhead allocation rate which results in differences, referred to as over- and

under-applied overheads. In those cases, too many or too less costs are transferred from a MOH-account to a WIP-account. In case of under-applied overheads, the remainder stays in the Manufacturing Overheads account. The account later is closed-off to the Profit and Loss account or to the Cost of Sales account to assign the overheads to the Accounting period they occurred in.

For the case study's cost allocation, PENOR PLC allocates labour based on the measured throughput time and all other manufacturing overheads by piece count, see below:

The costs for labour are allocated based on a measured 1 : 2 ratio between door and window throughput time (given). Hence, $(2/3) \times 1,200,000 = 800,000.00$ GBP are allocated to all windows and: $1,200,000 - 800,000 = 400,000.00$ GBP to all doors.

DR WIP Account Window.....	800,000.00 GBP
CR MOH Account.....	800,000.00 GBP

DR WIP Account Door	400,000.00 GBP
CR MOH Account	400,000.00 GBP

All other overheads, together to the extent of: $1,335,000 - 1,200,000 = 135,000.00$ GBP, are allocated on piece count basis. This means: $(135,000 \times 5,000) / 6,000 = 112,500.00$ GBP are allocated to the WIP-Window account and: $135,000 - 112,500 = 22,500.00$ GBP are allocated to the WIP-Door account. No predetermined overhead allocation rate applies for PENOR PLC (simplification). All manufacturing

overheads are allocated based on given ratios or on piece count. This is a very simple method of applying overheads. This way, no over- or under-application of overheads can happen. However, costs vary by the product numbers. In contrast, a manufacturer who calculates a predetermined overhead allocation rate adds constant overheads to the products but also is likely to over- or under-apply overheads.⁶

DR WIP Account Window	112,500.00 GBP
CR MOH Account	112,500.00 GBP

DR WIP Account Door	22,500.00 GBP
CR MOH Account	22,500.00 GBP

⁶ Check the case study RIEBEECK-KASTEEL (Pty) Ltd. in our textbook *Financial Statements*, chapter (9).

Thereafter, the two WIP-accounts show all manufacturing costs. The balance of the WIP-account is referred to as batch costs. Dividing the batch costs by the lot size, we calculate the unit costs of manufacturing.

At PENOR PLC, the unit costs of manufacturing per window equal: $3,302,500 / 5,000 = 660.50 \text{ GBP/u}$. The unit costs of manufacturing per door are: $940,270 / 1,000 = 940.27 \text{ GBP/u}$. The costs per door slightly differs from the calculated unit costs in chapter (3) as

we now calculate the product based on standard prices. The average price per aluminium sheet is 50.77 GBP/u, instead of 50.00 GBP/u or 52.00 GBP/u. By applying standard prices instead of actual ones, we 'smoothed' calculation but also make it inappropriate for use in Financial Accounting. No inventory valuation disclosed on financial statements is accepted if based on standard price calculations.