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Cost Sheet, Profitability Analysis and Reporting

10.1 INTRODUCTION

A Cost Sheet or Cost Statement is “a document which provides for the assembly of the detailed

Cost of a Cost Centre or Cost Unit”. It is a detailed statement depicting the sub-division of cost arranged in a logical order under different heads.

The main advantages of a Cost Sheet are as follows :

1. It provides the total cost figure as well as cost per unit of production.
2. It helps in cost comparison.
3. It facilitates the preparation of cost estimates required for submitting tenders.
4. It provides sufficient help in arriving at the figure of selling price.
5. It facilitates cost control by disclosing operational efficiency.

10.2 COST SHEETS IN THE TRADITIONAL ERA OF COST AND MANAGEMENT ACCOUNTING

The traditional era of cost accounting can be divided into the following two phases;

- 1st half of the 20th century – Costs were classified as Direct Costs and Manufacturing overheads.
- 2nd half of the 20th century – Costs were classified as Direct Costs, Fixed overheads and Variable overheads.



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10.2.1 Debatable issues regarding the use of Cost Sheet during the 1st half of the 20th century

Product Cost Sheets prepared during this era appeared to be as shown below:

Capacity : ——— units (in Rs.)

Description	Total cost	Direct Cost per unit	Overheads per unit	Cost per unit
Bill of Material Cost	xxx	xxx	———	xxx
Direct Labour	xxx	xxx	———	xxx
Manufacturing overheads	xxx	———	xxx	xxx
Marketing and administrative Overheads	xxx	———	xxx	xxx
Total cost per unit			xxx	
Add desired profit			xxx	
Desired selling price/unit			xxx	

There are two issues of contention which immediately cross ones mind on looking at the cost sheet shown above. They are;

1. #What volume of activity should be used to project overheads so as to arrive at unit cost?
2. What should be the criteria to determine desired profit?

#Possible answers to the volume of activity question, which needs to be addressed to determine the total unit cost, usually lean in the direction of expected volume, normal level of production or capacity of the plant.

The answer to the second question is generally subjective. However, the use of 'cost of capital' concepts remains the most widespread.

In case one looks carefully at the Cost Sheet drawn above, it shall be clear that whose ever prepares the Cost Sheet has got enough information on the volume of activity to be conducted by the concerned company, because only if this information is available can one actually predict the amount of manufacturing overheads to be incurred in a future period. In a competitive market, one may safely argue, one can only know the volume of activity to be performed by having in his mind a tentative Market Price, strangely however, this is one of the primary objective of a Cost Sheet. Similarly the issue of desired profit, the calculation and computation of which is extremely subjective and hence contentious.

10.2.2 Cost Sheet prepared during the 2nd half of the 20th century

As mentioned above, there are very subtle differences in the two types of cost sheets mentioned above. Unlike Cost Sheets of the 1st half the ones prepared during the latter period were characterised by the fixed and variable concepts. By doing so, they answered, **to a certain extent**, one of the contentious issues mentioned that is:



- Since variable cost of units is determined by engineering standards and other analytical techniques, they do away with the volume of activity question, which essentially then pertains to fixed costs.

Product Cost Sheets prepared during this era appeared to be as shown below;

Capacity : ——— units (in Rs.)

Description	Total Cost	Total Fixed Cost	Total Variable Cost	Fixed Cost per unit	Variable Cost per unit	Total Cost per unit
Bill of Material	xxx	————	xxx	————	xxx	xxx
Cost						
Direct Labour	xxx	————	xxx	————	xxx	xxx
Manufacturing overheads	xxx	xxx	xxx	xxx	xxx	xxx
Marketing and Administrative Overheads	xxx	xxx	xxx	xxx	xxx	xxx
Total cost per unit					xxx	xxx
Add desired profit						xxx
Desired selling price/unit						xxx

10.2.3 Activity Based Costing

The contentious issue of volume of activity remained in this era although it then concerned only the fixed overheads. As pointed out above, the concept of imputing fixed cost per unit had its own shortcomings.

To a large extent, such anomalies are done away with the use of Activity Based Costing (ABC). A Cost Sheet prepared with ABC concepts is shown below;

Cost Sheet (ABC)

Variable costs	Rs per Unit
Direct materials	Xx
Direct labour	Xx
Variable manufacturing overhead	
Variable with number of units	Xx
Variable with product complexity(number of batches)	Xx



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Variable with product diversity(number of products)	Xx
Variable marketing and administrative	Xx
Total variable cost per unit	Xx
Fixed cost	
Fixed manufacturing overhead	Xx
Fixed marketing and administrative	Xx
Total fixed cost per unit	Xx
Grand total cost per unit	Xx
Desired profit (mark up)	Xx
Target selling price per unit	Xx

A careful study of the differences in this era and the Activity Based Cost Sheet shows that ABC recognises two additional variable costs and is essentially designed to improve the accuracy of the total unit cost thereby impacting favourably the fixation of selling price. These two additional variable costs are as follows;

- Costs, which vary with product complexity, such as number of batches.
- Costs that vary with product diversity, such as number of products.

Although, there are many critics of ABC who contend that the technique is nothing but an improvement over the traditional concepts, it is easy to see how ABC would be a better tool during times when customers become demanding in terms of '**features**' of products because of which companies have to cater to slightly different types of production processes for essentially the same product. The Textile Machinery and Picture Tube industry in India faced such a situation during the mid 1990s when the government had allowed foreign companies to enter the Indian markets and the import duties on second hand goods, SKDs and CKDs were reduced drastically. Customers then had more choices; product diversity and complexity were the need of the hour. The benefits of ABC during such times are immense.

10.2.4 Market driven standard costs

Unlike traditional costing concepts where a target selling price is established after computing the cost of a product, Target Cost Sheets use the selling price it believes the market will allow in order to determine the allowable cost. Hence, the allowable or target cost per unit is a market driven standard cost that has to be met if the desired profit are to be achieved.

Cost per unit is computed as follows:

Target Cost Sheet (Rs per unit)

Selling price (prevailing in a competitive setting)	Xx
Less desired profit	Xx
Target or allowable cost	Xx



Hence in Target Costing what counts is the need to produce at an allowable cost. This idea may mean that now the distinction between fixed and variable components is immaterial. It also implies that in case one intends to continuously improve, this allowable target cost should be reduced over time. Such reductions shall need an empowered workforce because it is the one, which is nearest to the action and so in the best position to lead towards a path of continuous improvement.

10.3 PROFITABILITY STATEMENTS

10.3.1 Direct product profitability (DPP) : As traditional absorption costing, which normally uses labour hours as a basis for absorption, is rarely suitable for service and retail organizations other methods had to be devised. One relatively new way of spreading overheads in retail organisations, which is used in the grocery trade in particular, is direct product profitability (DPP). DPP started in the USA in the 1960s at General Electric, and was then taken up and used by Proctor and Gamble in the 1980s. In 1985 the Food Marketing Institute in the USA laid down a standard approach to the system and two years later DPP was taken up by the Institute of Grocery Distribution in the U.K. The system described below was introduced in the late 1980s and has since undergone transformation as activity based costing. In recent years DPP has developed considerably in parallel with activity-based costing. DPP has become much more sophisticated and is now very similar to activity-based costing. One of the reasons for its development during the 1990s has been the development of EPOS and EFTPOS (electronic point of sale and electronic funds transfer) systems that have enabled access to the detailed data needed for direct product cost and profitability calculations. Even in 1993 Doherty et al said that :

“DPP in retailing is not and cannot be fully-fledged costing system, where every last penny of expense has to be recovered. The level of cost information available to retailers is generally not detailed enough to allow for that.”

Since then technology has improved and it is quite possible to cost product lines with reasonable accuracy.

Benefits of DPP

- Better cost analysis
- Better pricing decisions
- Better management of stores and warehouse space

The rationalisation of product ranges.

Direct product profitability statement : Retail organisations traditionally deducted the bought-in cost of goods from the selling price to give a gross margin. The gross margin is useless measure for controlling the costs of the organisation itself or making decisions about the profitability of the different products. This is because none of the costs generated by the retail organisation itself are included in its calculation. For example, it does not include the storage costs of the different goods and these costs vary considerably from one good to another. A method was needed which related the indirect costs to the goods according to the



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way the goods used or created these costs.

Indirect costs, for DPP may be analysed into basic cost categories as follows :

- (i) *Overhead cost* : This is incurred through an activity that is not directly linked to a particular product.
- (ii) *Volume related cost* : The cost is incurred in relation to the space occupied by products. This includes storage and transport costs.
- (iii) *Product batch cost* : This cost is often a time based cost. If product items (that is a number of identical products which are handled together as a batch) are stocked on shelves a labour time cost is incurred.
- (iv) *Inventory financing costs* : This is the cost of tying up money in stock and is the cost of the product multiplied by interest rate per day or per week.

Table 1, given below shows the DPP for good A. Directly attributable costs have been grouped into three categories and are deducted from the gross margin to determine the good's DPP.

Table 1.

Direct product profit for good A

	Rs	Rs.
Selling price p.u.		1.50
Less : Bought-in price		<u>0.80</u>
Gross margin		0.70
Less : Direct product costs :		
Warehouse costs	0.16	
Transport costs	0.18	
Store costs	<u>0.22</u>	<u>0.56</u>
Direct product profit p.u.		<u>0.14</u>

Warehouse and store costs will include items such as labour, space and insurance costs, while transport costs will include labour, fuel and vehicle maintenance costs. The usual way to spread these costs across the different goods sold is in relation to volume or area occupied, as most costs increase in direct proportion to the volume of the good or the space it occupies. However, there are some exceptions to this; for example, insurance costs may be better spread on value or on a risk index. Risk is greater with refrigerated or perishable goods. Refrigeration costs must only be related to those products that need to be stored in the refrigerator.



The result of this type of DPP cost analysis may give information such as that given in the following Table :

Table-2

	Drop in Gross margin %	Reduction in DPP %
Profit		
Ice-cream	20.4	4.6
Baby food	11.0	5.5
Tooth paste	31.2	18.8
Wine	45.3	17.2
Paper tissues	15.7	0

Above table-2 shows that for ice-cream there is a considerable drop between the gross margin and the DPP because its refrigerated storage is expensive. It also shows that paper tissues, which had quite a healthy gross margin, are just breaking even with DPP; this is because they are very bulky relative to their price. While the supermarket or other retailer does not have the luxury of stopping selling paper tissues, because obviously it would lose considerable trade if it did not stock a complete range of goods, it does have other choices. The choices are merchandising ones, such as where to display the stock and in what position on the shelves. Stock at eye level sells more quickly than the above or below eye level. The brand with the greatest margin should be placed at eye level. Goods at the front of the store tend to sell faster than goods at the back. This explains why tissues are rarely found close to the entrance or the cash till. With manufactured products a cost per unit for the different products is often calculated and the products ranked. For a retail organisation DPP per unit may not be the best measure to use. DPP per unit of time adds another dimension to the measurement and DPP per unit of time per measure of space adds a third. This is automatically built in when overheads are spread if a cost each product uses this rate multiplied by the volume and the number of days or weeks in the system. In the example in Table 1, the store costs would be based on a rate per cubic centimeter or metre per day and the product can be costed according to its size and the time it takes to flow through the system. For example, if the store cost per cubic cm is Rs. 0.0073 per day and good A is 10 cubic cms and the average stay in the store is three days, the store cost per item is Rs. $0.0073 \times 10 \text{ cms.} \times 3 \text{ days} = \text{Rs. } 0.22$.

According to Doherty et al (1993) the single most valuable aspect of DPP lies in its diagnostic capabilities, allowing managers to ask questions, such as why did a product group over or under perform. Table-3 shows that product group A2 accounts for 3.07 per cent of sales but for 3.31 per cent of DPP. Upon investigation it emerged that stock-turn was managed particularly well in this group. Product B2 has 3.05 per cent of sales but accounts for only 2.85 per cent of DPP. An investigation of the warehouse costs might explain this or the opportunity of offering multipacks might reduce costs.



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Table-3

DPP values by Product Group. From Doherty et al 1993.

<i>Product Group</i>	<i>Sales as a % of total sales</i>	<i>DPP as a % of total DPP</i>
A1	3.20	3.40
A2	3.07	3.31
B1	2.84	2.89
B2	3.05	2.85
C1	2.75	2.66
A3	2.26	2.48

10.3.2 Customer profitability analysis : In many organisations it is just as important to cost customers as it is to cost products. Different customers or groups of customers differ in their profitability. This is a relatively new technique that ABC makes possible because it creates cost pools for activities. Customers use some activities but not all, and different groups of customers have different 'activity profiles'.

Service organisations, such as a bank or a hotel, in particular need to cost customers. A bank's activities for a customer will include the following types of activities :

- Withdrawal of cash
- Unauthorised overdraft
- Request for a statement
- Stopping a cheque
- Returning a cheque because of insufficient funds.

Different customers or categories of customers will each use different amounts of these activities and so customer profitability profiles can be built up, and customers can be charged according to the cost to serve them. A hotel may have activities that are provided for specific types of customers, such as well laid-out gardens, a swimming pool and a bar. Older guests may appreciate and use the garden, families use the swimming pool and business guests use the bar. If the activities are charged to the relevant guests a correct cost per bed occupied can be calculated for this type of category. This will show the relative profitability and lead to strategies for encouraging the more profitable guests.

Even a manufacturing organisation can benefit from costing its customers. Not all customers cost the same to serve even if they require the same products. Some customers may be located a long way from the factory and transport may cost more. Other customers may be disruptive and place rush orders that interrupt production scheduling and require immediate, special transport. Some customers need after sales service and help with technical matters, etc.



Illustration :

A manufacturing organisation has four different customers A, B, C and D. A single product is sold to them at different prices because of trade discount offered. Data is give for cost per unit of business activity. You are required to prepare customer profitability statement.

Information on four customers

<i>Customers</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
No. of units sold	60,000	80,000	1,00,000	70,000
Selling price net of discount	25p	23p	21p	22p
No. of sales visits	2	4	6	3
No. of purchase orders	30	20	40	20
No. of deliveries	10	15	25	14
Kilometres per journey	20	30	10	50
No. of rush deliveries	—	—	1	2

Cost of each activity

Sales visit	Rs. 210 per visit
Order placing	Rs. 60 per order
Product handling	Rs. 0.10 per item
Normal delivery cost	Rs. 2 per kilometre
Rushed delivery cost	Rs. 200 per delivery

Customer profitability Statement

<i>Customers</i>	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
	<i>Rs.</i>	<i>Rs.</i>	<i>Rs</i>	<i>Rs.</i>
Revenue net of discount	15,000	18,400	21,000	15,400
	(60,000 × Rs. 0.25)	(80,000 units × 0.23)	(1,00,000 × 0.21)	(70,000 × 0.22)

Costs :

Sales visits	420	840	1,260	630
Ordering processing	1,800	1,200	2,400	1,200
Product handling	6,000	8,000	10,000	7,000
Normal Delivery	400	900	500	1,400



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Rush deliveries	—	—	200	400
	8,620	10,940	14,360	10,630
Operating profit	6,380	7,460	6,640	4,770
Percentage profitability	43%	41%	32%	31%

It is apparent from above solution that all four customers are profitable, but customers C and D not particularly so when compared with customers A and B. There are several reasons for this range in profitability one reason is the negotiation of favourable terms such as higher trade discount as compared to other customers.

Benefits of customer profitability analysis.

1. It helps the supplier to identify which customers are eroding overall profitability and which customers are contributing to it.
2. It can help to provide a basis for constructive dialogue between buyer and seller to improve margins.

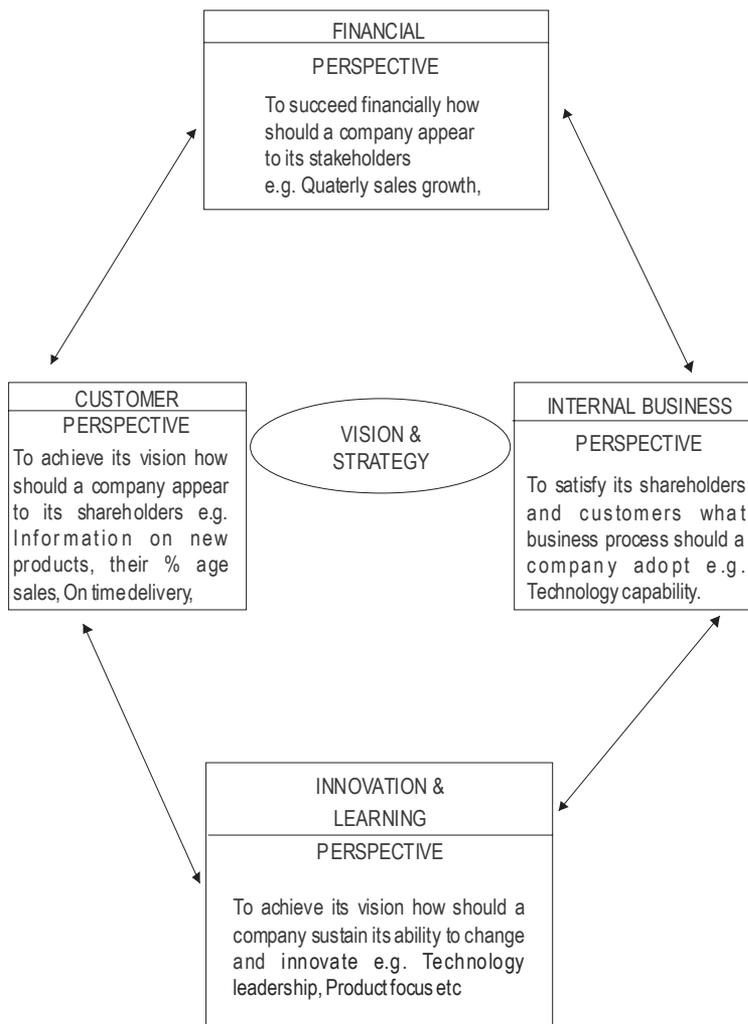
10.4 THE BALANCED SCORECARD

The Balanced Scorecard can be defined as 'an approach to the provision of information to management to assist strategic policy formulation and achievement'. It emphasizes the need to provide the user with a set of information, which addresses all relevant areas of performance in an objective and unbiased fashion. The information provided may include both financial and non financial elements, and cover areas such as profitability, customer satisfaction, internal efficiency and innovation'. It shall be clear from the above definition that the central idea of the Balanced Scorecard is that managers should develop the measures on which they manage the business from four different perspectives:

1. customer satisfaction
2. internal business process e.g., operating cycle time.
3. kaizen approach (can we continue to improve and create value)
4. financial e.g., operating income by segments.



The following figure summarises the ideas of a Balanced Scorecard:



The ultimate result of using the Balanced Scorecard approach should be an improved longterm financial performance. Since the scorecard gives equal importance to the relevant non – financial measures, it should discourage the short termism that leads to cuts in spending on new product development, human resource development etc which are ultimately detrimental for the future prospects of the company.

The responsibility to devise and implement a Balanced Scorecard should be that of the managers working with the business. Since every company is different, it shall need to work out for itself the various financial and non – financial measures, which need to be focussed upon for its own development. Since the Balanced Scorecard is recommended as a management tool used both for internal and external reporting purposes, it is again the manager's responsibility to decide as to what information needs to be disclosed and how any problems of confidentiality can best be overcome.



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The following are some reasons why Balanced Scorecards sometimes fail to provide for the desired results;

- Managers mistakenly think that since they already use non – financial measures, they already have a Balanced Scorecard.
- Senior executives misguidedly delegate the responsibility of the Scorecard implementation to middle level managers.
- Company's try to copy measures and strategies used by the best companies rather than developing their own measures suited for the environment under which they function.
- There are times when Balanced Scorecards are thought to be meant for reporting purposes only. This notion does not allow a Business to use the Scorecard to manage Business in a new and more effective way.

It may be noted that the above-mentioned difficulties refer to the internal use of the Scorecard, unless it is used internally successfully, it should not be used as a basis for external reporting.

SELF- EXAMINATION QUESTIONS

1. How is a conventional Cost Sheet different from Cost Sheets prepared for ABC and Target Costing purposes. Discuss
2. Briefly explain the meaning of Direct Product Profitability Statement and Customer Profitability Statement.
3. Explain the Procedure of work-in-progress inventory under job order costing method.