

# CHAPTER 2

## An Introduction to Cost Terms and Purposes

### TRANSITION NOTES

This chapter has been rewritten to place more emphasis on the role of managerial decisions. Exhibits have been changed so the students can more easily follow the concepts. This chapter continues building on the framework begun in Chapter 1, emphasizing (1) calculating the cost of products or other cost objects, (2) obtaining information for planning and control as well as performance evaluation, and (3) identifying relevant information for decision-making. It introduces concepts essential to topics covered in later chapters.

### Learning Outcomes

*After studying this chapter, a student should be able to:*

1. Identify and distinguish between two manufacturing cost classification systems: direct and indirect, prime and conversion
2. Differentiate fixed from variable cost behaviour and explain the relationship of cost behaviour to direct and indirect classifications
3. Interpret unitized fixed costs appropriately when making cost management decisions
4. Apply cost information to produce a GAAP-compliant income statement showing proper cost of goods sold and a balance sheet showing proper inventory valuation
5. Explain cost identification classification, and management systems and their use within the decision framework

## CHAPTER OVERVIEW

Chapter 2 defines and explains important cost accounting terms and concepts that will be discussed in the following chapters. Understanding the concepts and terms discussed in this chapter is a prerequisite to successfully completing the remaining chapters of the text. One guiding principle is that the term **cost** is a relative term, dependent both on the “cost object” chosen and the *purpose* for which cost is being calculated and reported.

Costs are a critical element in most business decisions. Students also need to recognize that companies pay particular attention to costs because every dollar in cost reduction is one more dollar of **operating income**, whereas one more dollar of sales does not necessarily result in the same impact due to the additional costs that may be incurred in generating those sales.

“Cost” is often actually “estimated cost” due to difficulties involved in cost tracing and allocation, relevant range issues, which cost method is used, and the cost-benefit approach to measuring costs. Although there are certain standard costing and reporting methods followed by all, companies calculate and report the same types of data differently depending on their industry and sector. Companies commonly operate in the merchandising, manufacturing, and service sectors.

## POINTS OF EMPHASIS

1. Although terminology can be boring, it is important that the students grasp and understand the terms introduced in this chapter. They will have some familiarity with some of the terms; however, remind them that these words may have meanings that are different in a cost accounting context.
2. The distinction between inventoriable (or product) cost and period cost is an important one that students may have some trouble grasping, as they are accustomed to treating items such as wages, rent, utilities, and the like as expenses of the period. Likewise, the term *conversion cost* is one that should be mastered early on.

**TEACHING TIP:** *Begin the session on chapter with an overview of the chapter. Make the major points in a three to five minute opening statement. Use the foregoing to guide your comments. At the end of the session, close with a reiteration of the same points.*

**TEACHING TIP:** *Hand out the quiz questions (quiz fits multiple 8.5 by 11 sheets) at the beginning of the lecture so that students can write their answer and or make a correction as necessary. The quiz paper gives the opportunity to make a note about the correct answer as explained during feedback session.*

## CHAPTER OUTLINE

### *Learning Outcome 1*

#### **Identify and distinguish between two manufacturing cost classification systems: direct and indirect, prime and conversion**

##### **I. Cost and Cost Terminology**

**Cost** is a resource sacrificed or foregone to achieve a specific objective. It is measured as the monetary amount that must be paid to acquire goods or services.

An **actual cost** has been incurred in the past (historical).

A **budgeted cost** is expected or predicted to occur in the future (forecast).

**Cost object**, anything for which a measurement of costs is desired.

**Cost accumulation** is the collection (accumulation) of actual cost data in an organized way. Management accountants refer to accumulated costs as **cost pools**. This is not to be confused with what financial accountants collect in general ledger accounts, though on first glance they appear the same.

**Cost assignment** systematically links a pool of actual costs to a distinct cost object.

##### **A. Direct and Indirect Costs**

**Direct costs** of a cost object are related to the distinct cost object and can be *traced* to it in a cost-effective way using manual or electronic documentation.

**Indirect costs** of a cost object are necessary but cannot be traced to a specific cost object in a cost-effective way because the benefits from use of the resources are shared among diverse cost objects.

Typical indirect manufacturing costs are often referred to as **manufacturing overhead (MOH)**

**Upstream costs** are costs incurred prior to production.

**Downstream costs** are costs incurred after production.

*Cost assignment* is a general term that encompasses both;

1. Tracing direct costs to a distinct cost object.
2. Allocating indirect costs among diverse cost objects.

Exhibit 2-2, on page 30, depicts upstream, production, and downstream direct and indirect costs with both forms of cost assignment: cost tracing and cost allocation.

## **B. Factors Affecting Direct/Indirect Cost Classifications**

Balancing several factors that influence cost classification requires professional judgment:

- Selection of the distinct cost object
- The materiality of significance of the cost in question
- Available information-gathering technology
- Design of operations.

## **C. Prime Costs and Conversion Costs**

The process framework or logic partitions all inventoriable costs into either of two classifications, prime or conversion

1. **Prime costs** are significant costs of inputs, usually direct materials is the most significant single cost in the process costing system. Direct manufacturing labour can be significant enough to be included in prime cost.
2. **Conversion costs** include immaterial amounts of labour and all the other costs necessary to complete a large number of units of output flowing through a manufacturing process where one unit of output is not distinguishable from another unit.

This classification aids management in monitoring and controlling the costs and to predict profit performance.

**Do Chapter Quiz multiple choice questions 1 to 3.**

**In-class exercise 2-16**

**Assign Exercise 2-17**

*Learning Outcome 2:*

**Differentiate fixed from variable cost behaviour and explain the relationship of cost behaviour to direct and indirect classifications**

## **II. Cost-Behaviour Patterns: Variable Costs and Fixed Costs**

### **A. Variable Costs**

A **variable cost (VC)** changes in proportion to changes in the related level of total activity or volume within a relevant range, because the cost per unit is constant.

**Relevant** range means that either below a minimum or above a maximum quantity the cost per unit of input changes.

## **B. Fixed Costs**

**Fixed cost** is constant within a relevant range of finished outputs produced. However, when expressed on a per-unit basis, fixed costs would decline with an increase in activity.

**Mixed costs pool** comprises both variable and fixed costs.

## **C. Relationship Among Cost Classifications and Cost Behaviour**

Costs are not inherently fixed or variable; it depends on the defined cost object. They may be variable with respect to level of activity and fixed for another

## **D. Cost Drivers**

A **cost driver** is a variable, such as the level of activity or volume that causally affects costs over a given time span. There is a cause-and-effect relationship between the level of activity of the cost driver and the cost incurred.

**Do Chapter Quiz multiple choice questions 4 and 5.**

**In-class exercise 2-26**

**Assign Exercise 2-28**

*Learning Outcome 3:*

**Interpret unitized fixed costs appropriately when making cost management decisions**

## **III. Interpreting Unitized Fixed Costs**

Failure to understand the variability of unitized cost rates causes poor decisions. For example, assume that the manager forecasting the Spartanburg budget for next year predicts volume will increase from 50 to 80 X5 units produced per month. If the manager doesn't change the unitized fixed cost, the resulting fixed cost assigned per vehicle will be wrong-with potentially disastrous effects. [*Refer to Exhibit 2-6 on page 37*]

**Do Chapter Quiz multiple choice questions 6.**

**In-class exercise 2-19**

*Learning Outcome 4:*

**Apply cost information to produce a GAAP-compliant income statement showing proper cost of goods sold and a balance sheet showing proper inventory valuation**

## **IV. Cost of Goods Sold and The Income Statement**

**Cost of goods manufactured (COGM)** is the cost of producing the total volume of finished goods in a specific time periods, both sold and unsold.

On the income statement, the cost of goods sold (COGS) must be reported in compliance with GAAP. GAAP rules on inventory and COGS for Canadian companies trading on the Toronto Stock Exchange (TSX) are identical whether finished goods are produced in Canada, the US, or Europe. *[Refer to Exhibit 2-7 on page 38 for Finished Goods Ending Inventory Valuation]*

*[Refer to Exhibits 2-8, Gross Margin Percentage, and 2-9 Income Statement for one Month, on page 39]*

By summing unitized costs throughout the value chain, manager calculate the total unitized cost of each product or service they deliver and determine the profitability of each product or service at full cost.

### **A. Inventory Valuation and The Balance Sheet**

There are three economic sectors in which businesses operate:

1. Manufacturing-sector companies
2. Merchandising-sector companies
3. Service-sector companies

**Inventoriable costs** – are considered assets, and methods of classification are defined by GAAP. Unless the business engages in manufacturing, it will have no inventoriable costs. If no finished goods are sold, then all manufacturing costs are costs of goods available for sale.

### **B. Types of Inventory**

The accounting system of a manufacturing company is more complex than for a merchandising or service company. The main reason for this complexity is in the inventories held by a manufacturer. These companies will have three types of inventory.

1. **Direct material inventory (DM)** or simply Materials Inventory, consists of materials being held by the company, ready to begin the conversion process into a finished product

2. **Work-in process inventory** (WIP) represents product partially worked on but not yet completed. WIP is a representation of what is on the factory floor.
3. **Finished goods inventory** (FG) is product that has been completed and has not yet been sold.

Merchandising companies purchase products in their completed form and do not make changes in their basic form. An inventory account for a merchandising company is called *Merchandise Inventory*.

### C. Commonly Used Classifications of Manufacturing costs

Three terms commonly used when describing manufacturing costs are *direct material costs*, *direct manufacturing labour costs*, and *indirect manufacturing costs*.

1. **Direct material costs** are the costs of materials that become part of the cost object and can be traced to the cost object in an economically feasible manner.
2. **Direct manufacturing labour costs** include compensation of manufacturing labour that can be traced to the cost object in an economically feasible manner. This includes labour of workers who work directly on the product.
3. **Indirect manufacturing costs** are all manufacturing costs that are not direct materials or direct labour. These costs are allocated rather than traced. Other terms for this category include manufacturing overhead or **factory overhead costs**.

### D. Inventoriable Costs

**Inventoriable costs** are all costs of a product that are considered assets on the balance sheet. These costs are direct materials, direct labour, and factory overhead. They become a part of the cost of the product and are assets until sold, when they become cost of goods sold. These are also known as **product costs**.

### E. Period Costs

**Period costs** are all costs on the income statement other than cost of goods sold. Period costs are treated as expenses of the period in which they are incurred. They are also referred to as *upstream and downstream costs*, *non manufacturing costs*, *operating expenses and non-inventoriable costs*. According to GAAP, period costs are expensed when incurred.

### F. Illustrating The Flow of Inventoriable Costs: a Manufacturing-Sector Example

Interest expense is incurred during a specific time period, but it is a financing, not an operating, cost. The value-chain business functions exclude finance decisions. Finance decisions are closely coordinated with strategic and operating decisions, including production. Similarly, tax expense is not an operating expense despite being a period cost. It is a regulatory cost of doing business in any country.

## G. Inventoriable Costs and Period Costs For a Merchandising Company

Inventoriable costs and period costs flow through the income statement at a merchandising company similarly to the way costs flow at a manufacturing company. A merchandising-sector company also has a variety of period costs, such as marketing, distribution, and customer-service costs. In an income statement, period costs are deducted from revenues without ever having been included as part of inventory. [Refer to Exhibit 2-11 on page 44]

**Do Chapter Quiz multiple choice questions 7 to 9.**

**In-class exercise 2-21**

**Assign Exercise 2-22**

*Learning Outcome 5:*

**Explain cost identification classification, and management systems and their use within the decision framework**

## V. Measuring and Classifying Costs Requires Judgment

Costs can be defined and classified in alternative ways. Different companies and even different subunits within the same company may define and classify the same costs differently. Definition and classification of costs depends on the decision that needs to be made, the cost object, and the company.

### A. Measuring Labour Costs

Although manufacturing labour cost classifications vary among companies, most companies have a list of categories. The list includes a variety of hourly wage and salaried indirect labour. Indirect labour costs comprise a wide range of hourly wages, which are variable costs, plus statutory benefits.

It is important to be alert regarding whether or not these costs are classified as indirect manufacturing costs is because there is some flexibility in GAAP when including costs in COGM and COGS. Management salaries may legitimately be classified as operating expenses when plant managers also spend time doing overall corporate work. This flexibility means the gross margin and gross margin percentage will differ among similar companies depending on how factory management salaries are classified.

Two issues in cost measurement that require special attention are idle time and overtime premium. **Idle time** is wage paid for unproductive time caused by lack of orders, machine breakdowns, or other reasons. **Overtime premium** is the wage rate paid to workers in excess of their regular straight-time wage rate. Both of these are considered as overhead rather than direct labour costs.

## B. Decision Framework and Flexibility of Costing Methods

**Product cost** is the sum of the costs assigned to a product to make a specific decision. Different decisions often require different measures of product cost. [*Refer to Exhibit 2-12 on page 47*]

1. **Pricing and product-mix decisions** – decisions require an emphasis on the total profitability of different products and would assign costs incurred in all business functions to the product.
2. **Contracting with government agencies.** Government contracts often reimburse contractors on the basis of the cost plus a specific markup percentage. Government will clearly state all eligible and ineligible costs. Some contracts explicitly exclude non-manufacturing costs, while others include only a few of the costs in the value chain. [*Refer to the second bracket in Exhibit 2-12 on page 47*]
3. **Preparing financial statements for external reporting under GAAP.** Under GAAP, only manufacturing costs can be assigned to inventories in the financial statements. For the purpose of calculating inventory costs and COGS, product costs include only inventoriable (manufacturing) costs.

Using the *five-step decision-making process* described in Chapter 1, the different ways to classify costs depending on the decision to be made can be understood.

**Do Chapter Quiz multiple choice question 10.**

**In-class exercise 2-43**

**Assign Exercise 2-30**

**MyAccountingLab**

[www.myaccountinglab.com](http://www.myaccountinglab.com)

Pearson's MyAccountingLab is available for students, and includes an online version of the text, along with a vast array of assessment material. Any questions marked in red in the textbook are found on MyAccountingLab for students to practise as often as they want, and also receive step-by-step guided instructions to get the answer.

## CHAPTER 2 QUIZ

1. Tanner Co. management desires cost information regarding their Rawhide brand. The Rawhide brand is a(n)
  - a. cost object.
  - b. cost driver.
  - c. cost assignment.
  - d. actual cost.
  
2. The cost of replacement light bulbs on campus would be a direct cost to a college but would need to be allocated as an indirect cost to
  - a. departments.
  - b. buildings.
  - c. schools.
  - d. individual student instruction.
  
3. Three part classification of inventoriable costs are:
  - a. Indirect costs are the only conversion costs
  - b. Direct manufacturing labour is the only conversion cost
  - c. Direct material costs are the only prime costs
  - d. Direct labour and indirect manufacturing labour are the only conversion costs
  
4. What is the total fixed cost of the shipping department of EZ-Mail Clothing Co. if it has the following information for 2002?

Salaries	\$800,000	75% of employees on guaranteed contracts
Packaging	\$400,000	depending on size of item(s) shipped
Postage	\$500,000	depending on weight of item(s) shipped
Rent of warehouse space	\$250,000	annual lease

  - a. \$850,000
  - b. \$900,000
  - c. \$1,050,000
  - d. \$1,950,000
  
5. The manager wants to know where the cost of goods sold figure has been calculated. The following are being considered, which one is the correct one:
  - a. Beginning inventory plus purchases.
  - b. Cost of goods available
  - c. Cost of goods available less ending inventory
  - d. Ending inventory plus purchases

6. Morton Graphics successfully bid on a job printing standard notebook covers during the year using last year's price of \$0.27 per cover. This amount was calculated from prior year costs, noting that no changes in any costs had occurred from the past year to the current year. At the end of the year, the company manager was shocked to discover that the company had suffered a loss. "How could this be?" she exclaimed. "We had no increases in cost and our price was the same as last year. Last year we had a healthy income." What could explain the company's loss in income this current year?
  - a. Their costs were all variable costs and the amount produced and sold increased.
  - b. Their costs were mostly fixed costs and the amount produced this year was less than last year.
  - c. They used a different cost object this year than the previous year.
  - d. Their costs last year were actual costs but they used budgeted costs to make their bids.
  
7. The three categories of inventories commonly found in many manufacturing companies are:
  - a. Direct materials, direct labour, and indirect manufacturing costs.
  - b. Purchased goods, period costs, and cost of goods sold.
  - c. Direct materials, work in process, and finished goods.
  - d. LIFO, FIFO, and weighted average.
  
8. Inventoriable costs are
  - a. only purchased goods for resale.
  - b. a category of costs used only for manufacturing companies.
  - c. recorded as expenses when incurred and later reclassified as assets.
  - d. recorded as assets when incurred.
  
9. Period costs are
  - a. all costs in the income statement other than cost of goods sold.
  - b. defined as manufacturing costs incurred this period on the schedule of cost of goods manufactured.
  - c. always recorded as assets when first incurred.
  - d. those costs that benefit future periods.
  
10. Beta Corp has entered into an agreement with the local government to receive a property tax rebate for specific costs that it incurs for land development in the first two years of business. This is an example of:
  - a. product period costs
  - b. product inventoriable costs
  - c. identifying costs for cost control purposes
  - d. expenses

## CHAPTER 2 QUIZ SOLUTIONS:

1. [a]
2. [d]
3. [a]
4. [a]
5. [c]
6. [b]
7. [c]
8. [d]
9. [a]
10. [c]

## WRITING/DISCUSSION EXERCISES

### 1. Define and illustrate a cost object.

- Describe and give an example of “cost” other than one with a conventional meaning (cash outlay).

*Everything has a cost. Not all costs are evident or can they be identified and measured in a more conventional manner – but they are costs nevertheless.*

*Some costs are named but not accounted for in the traditional sense. One example is opportunity cost [defined in text at later point] that can be associated with any cost object. Though financial amounts may be associated with this cost, they do not appear in the accounting records.*

*“Human costs” are another example of costs that may be associated with most cost objects. The text emphasizes the importance of using a management accounting system to help individuals do their jobs better. Sometimes companies engage in cost management that benefits the company by costing their employees (and society) on a personal basis. Mandatory overtime for parents of young children may save a company the cost of additional employees but deprive the children of time spent with their parents or contribute to “latch-key” situations and the lack of adult supervision and interaction.*

*Environmental costs may also be assigned to most cost objects. Though these costs have been highlighted with legislation and are being identified and measured more often, they may exist in less obvious ways. The interesting story of Easter Island and how it came to be uninhabitable could be used as an example of using up resources to the point of changing an environment so much that the damage is irreparable.*

*Until recently, unused capacity was not identified as a cost. In a later chapter costs are attached to this situation and cost objects identified.*

**2. Distinguish between direct costs and indirect costs.**

- If a cost can be traced directly to its cost object, why might a company choose not to trace but to include that cost in the indirect cost category and allocate on some arbitrary basis? Explain the advantage and disadvantage of tracing versus not tracing.

Advantages

- ❖ Cost may be feasible to trace but not in an economical manner
- ❖ Cost may be more “costly” to trace than the benefit of accuracy provided by tracing (materiality taken in context of all costs)

Disadvantage

- ❖ Loss of accuracy

**3. Explain cost drivers, variable costs, and fixed costs.**

- How can a cost driver/cost relationship be developed?

*The development of a relationship is similar to that of developing a working model (often labeled the “scientific method”). Thoughtful observation is primary. As one observes recorded data, both financial and nonfinancial, noting relevant changes in related factors, causal relationships can be inferred. From the inferences, assessment can be made about the plausibility of such a cause-effect relationship.*

*Most relationships are complex and all of the interrelationships cannot be discerned, therefore a model cannot be as accurate and reliable as the actual relationship. Models must be simplistic in order to be useful (cost-benefit approach). They must also be updated from time to time or cast off for a new approach as things change. Models can be relied upon to eliminate some errors that could occur without their use. If a model is used like a “checklist” then inexperienced workers can be productive more quickly by following an “experience model” before they gain complete understanding. Artificial intelligence is based upon human models of thinking about a particular task. In the example of filling out income tax returns, the “model” gave right answers more often than the professionals did because the professionals sometimes forget to include a minor item or consideration.*

**4. Distinguish among, merchandising companies, and manufacturing companies, and service-sector companies.**

- Why would a service-sector company need cost accounting when they do not have product inventories or cost of goods sold?

*Service-sector companies do have products and need to know if the revenues generated by those “products” or services exceed the cost of furnishing the service. For financial accounting the service cannot be inventoried because it does not exist until it is performed, at which time it becomes an expense. The expense is not labeled “cost of goods sold” because it is not a “good” in the traditional meaning. Cost accounting is more than costing a product that can be inventoried. Costs must be accumulated and assigned for service-sector companies. The greater context of cost management is also important for service-sector companies.*

**5. Interpret unit costs cautiously.**

- Explain why a variable cost stays the same per unit and a fixed cost changes per unit. Which cost would decision makers prefer to use as a per unit cost and why?

*In calculating a per unit cost, division is used. Variable costs derive the name variable from their total cost behaviour. As the numerator changes (the cost), the denominator (the cost driver) also changes in proportion so that the quotient is the same at any level within the relevant range. A fixed cost, however, means that the numerator is fixed in total within the relevant range. As the denominator changes, the numerator does not, and the resulting quotient changes with each change in the denominator. The name of the cost is based upon total cost behaviour and does not apply to per unit cost behaviour, but in fact, the unit behaviour can be described as the opposite of how the total behaviour is described.*

*Most decision makers would do well to use only variable costs on a per unit basis. Decisions are about the future, and in predicting costs, one would want to use a cost for which the behaviour was more easily predictable. Fixed costs can be predicted more easily in total. To use them as unit costs, one would have to carefully predict a level of activity for the cost driver. If another activity level were to be considered, the per unit cost would have to be recalculated; whereas for the variable cost, several levels of activity could be used without recalculating the per unit cost (relevant range concept).*

**6. Explain why product costs are computed in different ways for different purposes.**

- If costs can be assigned in different ways for different purposes, how does one know what costs to combine?

*The purpose for which costs are to be developed must be clearly defined. From that clear purpose, a cost object can be identified so costs can then be appropriately assigned. In the situations in which the cost object may be defined commonly as the*

*“product cost” but for which differing amounts of the same costs are assigned, one can look more closely at the particular purposes. The cost object, though appearing to be the same “product” in various situations, is not. For purposes of pricing, the “product” must cover all costs of the organization for that is the means by which the company would earn a profit. For purposes of costing the “product” for a specific contract, the terms of the contract would have to be met. For financial accounting purposes, the cost of the “product” would have to meet the definition given under GAAP. Using a common label for a cost object such as “product cost” is not enough to define the combining of cost but one must look to the particular purpose and its full meaning.*

## BEWARE OF UNIT COSTS

	<b>Total</b>	<b>Unit</b>
<b>Variable</b>	<b>“Varies”</b>	<b>Same</b>
<b>Fixed</b>	<b>“Fixed”</b>	<b>Changes</b>

## Schedule of Cost of Goods Manufactured and Sold

Beginning direct materials inventory
+ Purchases
<hr/>
Available for use
- Ending direct materials inventory
<hr/>
Direct materials used
Direct manufacturing labour
Indirect manufacturing costs (Listing)
Variable
Fixed
<hr/>
Total Manufacturing costs incurred during current period
+ Beginning work in process inventory
<hr/>
Total manufacturing costs to account for
- Ending work in process inventory
<hr/>
Cost of goods manufactured
+ Beginning finished goods inventory
<hr/>
Goods available for sale
- Ending finished goods inventory
<hr/>
<u>Cost of goods sold (to income statement)</u>

## Income Statement

Revenue (Sales)
- Cost of goods sold (from schedule)
<hr/>
Gross margin
- Operating costs
<hr/>
<u>Operating income</u>