**INSTRUCTOR NOTES: CHAPTER 2**

**BASIC COST MANAGEMENT CONCEPTS AND**

**ACCOUNTING FOR MASS CUSTOMIZATION OPERATIONS**

**Learning Objectives**

1. Explain what is meant by the word *cost*.

2. Distinguish among product costs, period costs, and expenses.

3. Describe the role of costs in published financial statements.

1. List five types of manufacturing operations and describe mass customization.
2. Give examples of three types of manufacturing costs.
3. Prepare a schedule of cost of goods manufactured, a schedule of cost of goods sold, and an income statement for a manufacturer.
4. Understand the importance of identifying an organization's cost drivers.
5. Describe the behavior of variable and fixed costs, in total and on a per-unit basis.
6. Distinguish among direct, indirect, controllable, and uncontrollable costs.
7. Define and give examples of an opportunity cost, an out-of-pocket cost, a sunk cost, a differential cost, a marginal cost, and an average cost.

**Chapter Overview**

I. What Do We Mean by a Cost?

A. Product costs, period costs, and expenses

II. Costs on Financial Statements

1. Income statement
   1. Selling and administrative costs
   2. Costs of manufactured inventory

B. Balance sheet

1. Raw-materials inventory

2. Work-in-process inventory

3. Finished-goods inventory

1. Manufacturing Operations and Manufacturing Costs
2. Job shop, batch, assembly line, continuous flow
3. Assembly manufacturing
4. Manufacturing costs
5. Direct material
6. Direct labor
7. Manufacturing overhead
8. Indirect material
9. Indirect labor
10. Other manufacturing costs
11. Conversion cost, prime cost
12. Manufacturing Cost Flows
13. Cost of goods manufactured
14. Production costs in service industry firms and nonprofit organizations

1. Basic Cost Management Concepts: Different Costs for Different Purposes
2. The cost driver team
3. Variable and fixed costs
4. The cost management and control team
5. Direct and indirect costs
6. Controllable and uncontrollable costs
7. The outsourcing action team
8. Opportunity costs
9. Out-of-pocket costs
10. Sunk costs
11. Differential and incremental costs
12. Marginal and average costs
13. Costs and benefits of information
14. Costs in the Service Industry
15. Product and period costs
16. Variable and fixed costs
17. Controllable and uncontrollable costs

D. Opportunity, out-of-pocket, and sunk costs

E. Differential, marginal, and average costs

**1. WHAT IS A COST?**

1. A **cost** is the sacrifice made, usually measured by the resources given up, to achieve a particular purpose (p. 36).
2. *There are different costs for different purposes*, with costs that are appropriate for one use being totally inappropriate for others (e.g., a cost that is used to determine inventory valuation may be irrelevant in deciding whether or not to manufacture that same product).

* An **expense** is defined as the cost incurred when an asset is used up or sold for the purpose of generating revenue. The terms "product cost" and "period cost" are used to describe the timing with which expenses are recognized.
* **Product costs** are the *costs of goods manufactured or the cost of goods purchased for resale*. These costs are inventoried until the goods are sold (p. 37). Product costs may be call **inventoriable cost.**

* **Period costs** are all other non-product costs in an organization (e.g., selling and administrative). Such costs are not inventoried but are expensed as time passes (p. 38).

**2. COSTS PRESENTATIONS ON FINANCIAL STATEMENTS**

1. Recall from financial accounting that every cost incurred is either capitalized or expensed, and if capitalized, will eventually be expensed as the benefit is consumed.
2. **Product costs** are shown as cost of goods sold on the income statement when goods are sold. Income statements of service enterprises lack a cost-of-goods-sold section and instead reveal a firm's operating expenses.
3. **Product costs**, housed on the balance sheet until sale, are found in three inventory accounts:

* **Raw materials—**materialsthat await production
* **Work in process—**partiallycompleted production
* **Finished goods—**completedproduction that awaits sale

1. **MANUFACTURING OPERATIONS AND MANUFACTURING COSTS**

* There are various types of production processes; for example:
* *Job shop—*low production volume, little standardization; one-of-a-kind products
* *Batch—*multiple products; low volume
* *Assembly line—*a few major products; higher volume
* *Continuous flow—*high volume; highly standardized commodity products

1. **Direct materials—**materials easily traced to a finished product (e.g., the seat on a bicycle)
2. **Direct labor—**the wages of anyone who works directly on the product (e.g., the assembly-line wages of the bicycle manufacturer)
3. **Manufacturing overhead—**all other manufacturing costs such as:

* **Indirect materials—**materials and supplies other than those classified as direct materials,
* **Indirect labor—**personnel who do not work directly on the product (e.g., manufacturing supervisors), and
* Other manufacturing costs not easily traceable to a finished good (insurance, property taxes, depreciation, utilities, and service/support department costs). Overtime premiums and the cost of idle time are also accounted for as overhead.
* **Idle time –** time that is not spent productively by an employee due to such events as equipment breakdowns or new setups of production runs.
* **Conversion cost** (the cost to convert direct materials into finished product): direct labor + manufacturing overhead
* **Prime cost:** direct material + direct labor

|  |
| --- |
| **NOTE:** THE UNDERSTANDING OF THE MANUFACTURING COST VOCABULARY IS AN IMPORTANT TAKE-AWAY IN THE COURSE. |

1. **MANUFACTURING COST FLOWS**
2. Manufacturing costs (direct materials, direct labor, and manufacturing overhead) are "put in process" and attached to work-in-process inventory. The goods are completed (finished goods), and the costs are then passed along to cost of goods sold upon sale.

* **Cost of goods manufactured:** Direct materials used + direct labor + manufacturing overhead + beginning work-in-process inventory - ending work-in-process inventory. (See textbook Exhibit 2-7)
* This amount is transferred from work-in-process inventory to finished-goods inventory when goods are completed.
* Product costs and cost of goods sold for a manufacturer:

Beginning Cost of Goods Ending

Inventory, + Manufactured - Inventory, = Cost of

Finished Goods to Completion Finished Goods Goods Sold

**Cost of Goods Sold**

**Ending**

**Finished**

**Goods**

**Cost of**

**Goods**

**Manu.**

**Beginning Finished Goods**

Supported by A schedule of Current Income

the prior year's production costs balance sheet statement

balance sheet

1. Production-cost concepts are applicable to service businesses and nonprofit organizations. For example, the direct-materials concept can be applied to the food consumed in a restaurant or the jet fuel used by an airline. Similarly, direct labor would be equivalent to the cooks in a restaurant and the flight crews of an airline.
2. **BASIC COST MANAGEMENT CONCEPTS (Different Costs for Different Purposes)**
3. **A COST DRIVER IS ANY EVENT OR ACTIVITY THAT CAUSES COSTS TO BE INCURRED**. Possible examples include labor hours in manual assembly work and machine hours in automated production settings. *A cost driver refers to the way that a cost changes in relation to changes in the activity of the organization* (p. 47).

* The higher the degree of correlation between a cost-pool increase and the increase in its cost driver, the better the cost management information.
* An **activity** refers to a measure of the organization’s output of products or services.

|  |
| --- |
| **NOTE:** Most of the basic introductory discussion in the text (and other managerial accounting texts and trade publications) *assumes that a single factor is associated with costs in producing a unit of output*, **i.e., a single unit-level cost driver***.* The basic model is crucial for understanding managerial accounting vocabulary and concepts. Later, we consider the cases of multiple unit-level cost drivers and of cost drivers that are not at the unit level: e.g. that are batch–level, product-level, or facility-level. |

* **Variable and Fixed costs**
* **Variable costs** move in direct proportion to a change in activity. For example, in the manufacture of bicycles, the total cost of bicycle seats goes up in proportion to the number of bicycles produced. However, the cost per unit (i.e., per seat) remains constant.

**Variable Costs** (p. 47) are identical for each incremental unit of activity; they *change in direct proportion with a change in volume within the relevant range* of activity. When graphed against activity, the higher the variable cost per unit of activity, the steeper the slope of the total cost function (see Exhibit 2-8, p. 48).

* **Fixed costs** *remain constant in total as the level of activity changes within the relevant range of activity*. For instance, straight-line depreciation of a bicycle plant remains the same whether 100 bicycles or 1,000 bicycles are produced. However, the depreciation cost per unit fluctuates because this constant total is spread over a smaller or greater volume.

**Fixed Costs** are costs that are *unrelated to unit-level activity*; that are *unchanged as volume changes within the relevant range of activity*. While fixed costs may respond to structural cost drivers and organizational cost drivers over time, they do not respond to short-run changes in unit-level activity cost drivers. When graphed against activity, the slope is flat (see Exhibit 2-9, p. 49).

|  |
| --- |
| **Understanding the concepts of fixed and variable costs are crucial take-ways from this course.**  In Chapter 6, we introduce step-fixed costs, step-variable costs, and Semivariable costs. |

* **Relevant Range**

The **Relevant Range** (key vocabulary term) refers to the activity levels within which a linear cost function (or linear approximation) is valid (i.e., for which the behavior in Exhibit 2-8 holds); **the range of activities within which a given total fixed cost or unit variable cost will be unchanged**. This term is discussed in Chapter 6 (p. 233). See:

<http://www.finance-lib.com/financial-term-relevant-range.html>, and <http://blog.accountingcoach.com/relevant-range-activity/>

**IN THIS COURSE, WE ASSUME THAT THE VARIABLE COST FUNCTION IS LINEAR WITHIN A RELEVANT RANGE.** Of course, the cost function might be curvilinear (discussed in Chapter 6).

|  |
| --- |
| **The simplifying assumption of a linear cost function within a relevant range helps make the analysis in the course relative straight-forward.**  Many Kelley students have engineering, logistics, or economics backgrounds and realize that many cost functions are not linear. *Examination of non-linear cost functions is beyond the scope of this course.* |

* **Direct and indirect costs**
* An entity (e.g., a specific product, service, or department) to which a cost is assigned is commonly known as a **cost object.**
* A **direct cost** is one that can be easily traced to a cost object.
* If a college department has been defined as the cost object, professors' salaries and administrative assistants' salaries are direct costs of the department (just as assembly workers' wages are direct costs of a manufacturing department).
* An **indirect cost** is a cost that cannot be easily traced to a cost object.
* For example, the costs of a university's controller, president, campus security, and groundskeeper cannot be directly traceable to a specific department, as these individuals service the entire university. (Similarly, a factory guard's salary is not traceable to only one depart­ment and is, thus, considered indirect to all departments.)
* A cost management system strives to trace costs to the objects that caused them so that managers can isolate responsibility for spending and objectively evaluate operations.

Indirect costs may be highly important in some contexts. For example, consider a hospital's medical and surgical supplies. Such items do not appear to be a primary target for trimming; however, these indirect costs often account for a sizable portion of a hospital's operating costs. Understanding indirect costs has become more valuable in a managed-care environment because it helps hospitals negotiate fixed-fee contracts.

* **Controllable and uncontrollable costs**
* **Controllable costs—**costs over which a manager has influence (e.g., direct materials)
* **Uncontrollable costs—**costsover which a manager has no influence (e.g., the salary of a firm's CEO from the production manager's viewpoint)

1. **COSTS AND DECISION MAKING**
2. **Opportunity cost—**thebenefit forgone by choosing an alternative course of action (e.g., the wages forgone when a student decides to attend college full-time rather than be employed)

* **Out-of-pocket cost—**a costthat requires a cash outlay
* **Sunk cost—**a cost incurred in the past that cannot be changed by future action (e.g., the cost of existing inventory or equipment)
* Such costs are not relevant for decision making.

1. **Differential cost—**the net difference in cost between two alternative courses of action

* **Incremental cost—**the increase in cost from one alternative to another

1. **Marginal cost—**theextra cost incurred when one additional unit is produced
2. **Average cost—**total cost divided by the units of activity

* The preceding costs are relevant in manufacturing entities as well as for service providers.

1. Accountants must weigh the benefits of providing information against the costs of generating, communicating, and using that information. The goal is to use information effectively and avoid information overload.