

Workbook/Study Guide
for use with

MANAGERIAL
ACCOUNTING
CONCEPTS FOR
PLANNING, CONTROL,
DECISION MAKING

Eighth Edition

Ray H. Garrison
Eric W. Noreen

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Preface

To The Student

This study guide is designed to supplement the eighth edition of *Managerial Accounting* by Ray H. Garrison and Eric W. Noreen. Each chapter of the study guide contains three major sections:

1. *Chapter Study Suggestions* to help you to study more efficiently.
2. *Chapter Highlights* that summarize in outline form the essential points in a chapter.
3. *Review and Self Test* questions and exercises that test your knowledge of the material in the chapter. Solutions are provided. *Caution:* If you want to score well on exams, you *must* work out each solution on your own and *then* check to see whether your solution is correct by comparing it to the solution in the study guide. You cannot learn the material by simply reading the solution provided in the study guide. This does not work.

This study guide can be used as an integral part of the process of learning the material in a chapter. When used for this purpose, we recommend that you follow the steps below:

1. Before reading the chapter in your textbook, read the *Chapter Study Suggestions* in this study guide.
2. Read the textbook chapter.
3. Read the outline in the *Chapter Highlights* section of the study guide. If you run across anything in the outline you don't understand, refer back to the textbook for a more detailed discussion.
4. Work the questions and exercises in the study guide and then compare your answers to those given in the study guide. If you find something you don't understand, refer to the textbook for help.
5. Work the homework problems assigned by your instructor.

Alternatively, the study guide can also be used as a very effective way to study for exams. Before reading the chapter in your textbook, read the *Chapter Study Suggestions* in this study guide. Then lay the study guide aside until it is time to prepare for an exam. The *Chapter Highlights* section of the study guide can then be used to review the essential material covered in the chapter. The *Review and Self Test* provides lots of questions and exercises that can be used to practice for the exam. The questions and exercises in the study guide are particularly effective used in this way since they are likely to be similar to the questions and exercises your instructor will ask on an exam.

Remember, the study guide is not a substitute for the textbook. Rather, its purpose is to *supplement* the textbook by helping you to learn the material.

We welcome your suggestions and comments. You can write to us at the following address:

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Chapter 1

Managerial Accounting and the Business Environment

Chapter Study Suggestions

The chapter describes the work that managers do and the kinds of information they need in order to do this work effectively. The chapter also describes important aspects of the contemporary business environment. The chapter is unusual in that there are almost no numerical problems to be worked. However, there are many new terms to be learned. Study these new terms with care.

CHAPTER HIGHLIGHTS

A. An organization is a group of people united for a common purpose. Organizations are run by managers who carry out three major activities: planning, directing and motivating, and controlling. All three of these activities involve making decisions.

1. *Planning* involves identifying alternatives and selecting the alternative that best furthers the organization's objectives.

2. *Directing and motivating* involves mobilizing people to carry out the plans and overseeing day-to-day activities.

3. *Controlling* involves obtaining feedback to ensure that all parts of the organization are following the plans.

B. There are at least six major differences between financial and managerial accounting. In contrast to financial accounting, managerial accounting:

1. Focuses on providing data for internal uses.

2. Places more emphasis on the future.

3. Emphasizes relevance and flexibility rather than precision.

4. Emphasizes the segments of an organization, rather than just looking at the organization as a whole.

5. Is not governed by Generally Acceptable Accounting Practice.

6. Is not mandatory.

C. In many industries today, a company that does not continually improve will find itself quickly overtaken by competitors. The text discusses five major approaches to improvement—Just-In-Time (JIT), Total Quality Management (TQM), Process Reengineering, Automation, and the Theory of Constraints (TOC). These approaches can be combined—using one does not preclude using another as well.

D. The Just-In-Time (JIT) approach is based on the insight that reducing inventories—particularly work in process inventories—can be the key to improving operations. Companies have work in process inventories to protect against disruptions in the production process and as a consequence of

using large batch sizes; however, they have a number of drawbacks:

1. Work in process inventories tie up funds and take up space.

2. Work in process inventories increase the *throughput time*, which is the amount of time required to make a product. If there is an average of two weeks of work in process inventories, then it takes two weeks longer to complete a unit than if there were no work in process inventories. Long throughput time makes it difficult to respond quickly to customers and can be a major competitive disadvantage.

3. When work in process inventories are large, units sit idle for long periods of time before being passed to the next work station. Therefore, defects may not be noticed for quite some time. If a machine is out of calibration, many defective units will be produced before the problem is discovered. And when the defects are discovered, it may be very difficult to track down the source of the problem since it may have occurred long ago.

4. Because of the long throughput time, units may be obsolete or out of fashion by the time they are finally completed.

5. Large work in process inventories encourage sloppy procedures and mask inefficiencies and problems in the production process. When inventories are reduced, these problems are uncovered and can be identified and dealt with.

E. *Just-In-Time (JIT)* seeks improvement by reducing inventories to the absolute minimum levels possible.

1. "Just in time" means that raw materials are received just in time to go into production, sub-assemblies are completed just in time to be assembled into products, and products are completed just in time to be shipped to customers.

2. In JIT, the flow of goods is controlled by a "pull" approach; work is initiated only in response to customer orders.

- a. At the final assembly stage, a signal is sent to preceding workstations as to the exact amounts of parts and materials that will be needed

over the next few hours to assemble products ordered by customers.

b. In contrast, under conventional systems parts and material are "pushed" forward to the next workstation regardless of need. The result is a needless buildup of inventory.

F. A successful JIT system involves five key elements.

1. A company must learn to rely on a few suppliers who are willing to make frequent (even daily) deliveries in small lots.

2. A company often must improve its product flow lines by creating an individual flow line for each separate product. This may involve setting up a *focused factory* in which all the machines needed to make a particular product or family of products are brought together in one location. This is in contrast to a conventional, "functional plant layout" in which similar machines are grouped together in one location. When a functional plant layout is used, units must be moved long distances between work centers to be completed.

3. A company must reduce the setup time that is required between production runs. *Setups* consist of the activities that must be performed whenever production is switched over from making one type of unit to another.

4. A company should strive for zero defects. If any units in an order are defective, the whole production process would have to be restarted in order to replace the defective units. This would make it impossible to deliver the order on time. In a JIT system, suppliers are required to deliver defect-free parts and production workers are given responsibility for continuously monitoring the quality of units they work on.

5. A company must develop a multi-skilled and flexible work force that is capable of operating many different machines and of performing routine maintenance on the machines.

G. Many benefits result from a JIT system. The most important are:

1. Working capital is bolstered by recovering funds that were tied up in inventories.

2. Usable space is increased. Areas previously used to store inventories are made available for other, more productive uses.

3. Throughput time is reduced, resulting in greater potential output and quicker response to customer needs.

4. Defect rates are reduced, resulting in less waste and greater customer satisfaction.

H. *Total Quality Management (TQM)* is an approach to continuous improvement that focuses on the customer and that involves systematic problem-solving using teams of front-line workers. A variety of specific tools are available in TQM to aid teams in their problem solving. Two of these tools are benchmarking and the Plan-Do-Check-Act Cycle.

1. *Benchmarking* involves studying how a successful "world-class" company runs a particular operation. For example, a company trying to improve its customer service might study the employee training program of a company that is well-known for customer satisfaction such as Disney.

2. The *Plan-Do-Check-Act (PDCA) Cycle* is a systematic, fact-based approach to continuous improvement that resembles the scientific method. Exhibit 1-6 in the text illustrates the PDCA Cycle.

- a. In the Plan phase, the current process is studied, data are collected, and possible causes of the problem at hand are identified. A plan is developed to deal with the problem.

- b. In the Do phase, the plan is implemented and data are collected. This is done on a small scale if possible since at this point the team is rarely sure that the plan will work.

- c. In the Check phase, the data collected in the Do phase are analyzed to verify whether the expected improvement actually occurred.

- d. In the Act phase, the plan is implemented on a large scale if it was successful. If the plan was not successful in eliminating the problem, the cycle is started again with the Plan phase.

3. Perhaps the most important characteristics of TQM are that it empowers front-line workers to solve problems and it focuses energy on solving problems rather than on finger-pointing.

I. *Process Reengineering* is a more radical approach to improvement than TQM. It involves completely redesigning business processes and it is often implemented by outside consultants.

1. In Process Reengineering, the process under examination is thoroughly diagrammed in the form of a process flowchart. The flowchart, when completed, usually reveals unnecessary steps, called *non-value-added activities*.

2. The process is then completely redesigned from the ground up, eliminating non-value-added activities.

3. If successful, Process Reengineering will result in a streamlined process that will get the job done using fewer resources in less time and with fewer errors.

4. However, there is a trap that some managers fall into. If Process Reengineering results in laying off workers who are no longer needed, employees will resist further Process Reengineering efforts.

J. *Automation* may be used to improve processes.

1. While automation is expensive, there can be substantial benefits in terms of reductions in setup time, flexibility, reductions in defects, and increases in the rate of output.

2. A *flexible manufacturing system (FMS)* is a product flow line controlled by a central computer in which automated machines are linked together by an automated material-handling system. Setup times are minimal since the machines are computer controlled.

K. *The Theory of Constraints (TOC)* is based on the idea that every organization has at least one constraint that prevents it from obtaining more of its objective. For example, a machine that is slower than other machines on an assembly line will prevent the company from increasing its rate of output. To improve (in other words, increase its rate of output), the company must focus its improvement efforts on the constraint. Improvement efforts focused on machines that are not constraints will be largely wasted.

L. *Organizational Structure*.

1. Almost all organizations are decentralized to some degree. *Decentralization* involves delegating decision making authority to lower levels in the organization.

2. An *organization chart* shows the levels of responsibility and formal channels of communication in an organization. In other words, it shows who reports to who in the organization. There is an example of an organization chart in Exhibit 1-8 in the text.

3. A manager may occupy either a line position or a staff position.

a. *Line positions* are directly related to achieving the basic objectives of the organization.

b. *Staff positions* provide service, assistance, and specialized support to the line positions. They do not have direct authority over line positions. Accounting is a staff position.

4. The *controller* is the manager of the accounting department and often acts as a key adviser to top management.

M. *Ethics* plays a vital role in an advanced market economy.

1. If people were generally dishonest, it would become more difficult for companies to raise investment funds, the quality of goods and services would decline, fewer goods and services would be available for sale, and prices would be higher.

2. The Institute of Management Accountants has issued *The Standards of Ethical Conduct for Management Accountants*. This is a useful, practical guide for general managers as well as management accountants. The *Standards for Ethical Conduct* are reproduced in Exhibit 1-10 in the text. You should study this exhibit carefully.

REVIEW AND SELF TEST

Questions and Exercises

True or False

For each of the following statements, enter a T or an F in the blank to indicate whether the statement is true or false.

- ☐ 1. Managerial accounting is as concerned with providing information to stockholders as it is with providing information to managers.
- ☐ 2. When carrying out their control function, managers obtain feedback to ensure that each part of the organization is following the plan.
- ☐ 3. When carrying out their planning function, managers mobilize the organization's resources and oversee day-to-day operations.
- ☐ 4. The planning, directing and motivating, and control activities of a manager are kept separate from the manager's decision-making responsibilities.
- ☐ 5. Managerial accounting focuses more on the segments of an organization than on the organization as a whole.
- ☐ 6. Managerial accounting need not follow Generally Accepted Accounting Principles.
- ☐ 7. An objective of a JIT inventory system is to complete products just in time to ship to customers.
- ☐ 8. Under JIT, partially completed units are "pushed" from one workstation to another to ensure all workstations have enough work to keep busy.
- ☐ 9. The maintenance of large work in process inventories helps reduce the number of defective units that are produced.
- ☐ 10. A company will typically have fewer suppliers under JIT than under a conventional system.
- ☐ 11. For JIT to operate successfully, all similar pieces of equipment (such as lathes or drill presses) must be grouped together.
- ☐ 12. JIT requires an increase in funds to finance additional inventories.

☐ 13. Total Quality Management involves a focus on serving the customer and systematic problem-solving using teams made up of front-line workers.

☐ 14. The Plan-Do-Check-Act Cycle is used in the Theory of Constraints to eliminate constraints.

☐ 15. In the plan phase of the Plan-Do-Check-Act Cycle, data are analyzed to identify the possible causes of a problem and a solution is proposed.

☐ 16. Process Reengineering is less likely to result in employee resistance than Total Quality Management.

☐ 17. Non-value-added activities are the constraints in the system.

☐ 18. Efforts that are designed to improve the rate of output of a work station should generally be focused on the constraint.

☐ 19. The Standards of Ethical Conduct for Management Accountants promulgated by the Institute of Management Accountants specifically states, among other things, that a management accountant should refuse all gifts and hospitality offered by one of the company's suppliers.

Multiple Choice

Choose the best answer or response by placing the identifying letter in the space provided.

- ☐ 1. Staff positions: a) are not shown on the organization chart; b) are superior in authority to line positions; c) are subordinate in authority to line positions; d) none of these.
- ☐ 2. The controller: a) occupies a staff position; b) occupies a line position; c) has little influence in the decision-making process; d) none of these.
- ☐ 3. Managerial accounting: a) is governed by Generally Accepted Accounting Principles; b) places more emphasis on precision of data than does financial accounting; c) is not mandatory; d) is

geared primarily to the past rather than to the future.

___ 4. Financial and managerial accounting are similar in that: a) both emphasize reporting the performance of the entire organization rather than segments of the organization; b) both rely on the same accounting database; c) both focus on providing data for internal uses; d) none of these.

___ 5. In a decentralized organization, decisions are made: a) only by top management; b) only by managers occupying staff positions; c) at the lowest managerial level possible in the organization; d) none of these.

___ 6. In large part, "control" in an organization is achieved through: a) decentralization of decision making authority; b) obtaining feedback on how well the organization is moving toward its objectives; c) preparing an organization chart that shows both line and staff functions; d) none of these.

___ 7. Under JIT: a) the plant floor is laid out in a functional format with similar machines grouped together; b) focused factories are used; c) the plant floor is laid out in a single flow line through which all products pass; d) work in process inventories are maximized in order to ensure that all work stations have enough work to stay busy.

___ 8. Which of the following involves systematic problem-solving by teams consisting of front-line workers? a) The Theory of Constraints; b) Total Quality Management; c) Process Reengineering; d) Automation.

___ 9. The Plan-Do-Check Act Cycle is used to: a) solve problems in Total Quality Management; b) manage constraints in The Theory of Constraints; c) redesign processes in Process Reengineering; d) none of these.

Exercises

1-1. Mary Karston was hired by a popular fast-food restaurant as an order-taker and cashier. Shortly after taking the job, she was shocked to overhear an employee bragging to a friend about short-changing customers. She confronted the employee who then snapped back: "Mind your own business. Besides, everyone does it and the customers never miss the money." Mary didn't know how to respond to this aggressive stance.

What would be the practical consequences if cashiers generally short-changed customers at every opportunity?

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Answers to Questions and Exercises

True or False

1. F The central purpose of managerial accounting is to provide information to managers. The information needs of stockholders are provided through financial accounting.
2. T This is what is meant by control.
3. F Planning involves deciding on the actions to be taken in order to achieve the organization's objectives; it does not involve overseeing day-to-day activities.
4. F Decision making is an integral part of the planning, organizing, and controlling functions.
5. T The primary concern of managerial accounting is with the segments of an organization, rather than with the organization as a whole.
6. T There is no requirement that managerial accounting follow GAAP.
7. T Under JIT, goods are produced and shipped only as needed to satisfy customer orders.
8. F JIT operates under a "pull" approach in which partially completed units are passed to the next work station only as needed to fill customer orders.
9. F Large work in process inventories increase defect rates. Because of delays in passing units on to the next work station, problems are not detected until after many units have been affected.
10. T Under JIT, a company uses only a few suppliers who are bound under firm contracts to deliver materials on a frequent basis.
11. F Typically under JIT, all of the different pieces of equipment needed to manufacture a product are placed on a single flow line, thus breaking up groupings of similar equipment.
12. F JIT reduces inventories and the need for funds to finance them.
13. T These are common characteristics of TQM.
14. F The Plan-Do-Check-Act Cycle is used in TQM, not TOC.
15. T This statement correctly describes the plan phase of the PDCA Cycle.
16. F The reverse is true. Process Reengineering tends to be imposed from above using outside specialists and it may lead to loss of jobs.
17. F A non-value-added activity is an activity that consumes resources or takes time that adds nothing of value. It may or may not be a constraint.
18. T The rate of output of the constraint determines the output of the entire system. Therefore, improvement efforts should ordinarily be focused on the constraint.
19. F The Standards state that the management accountant should "refuse any gift, favor, or hospitality that would influence or would appear to influence their actions." There is no absolute prohibition. For example, it would be okay to let a supplier pay for one's dinner while on a fact-finding trip to the supplier's plant. This is a common courtesy and it is extremely unlikely that this small favor would influence the management accountant's judgment in matters relating to the supplier.

Multiple Choice

1. d Staff positions (such as Accounting) do appear on the organization chart, but they are neither superior nor equal in authority to line positions. They serve the needs of line positions by providing essential services.
2. a The controller occupies a staff position that provides support to other positions within the organization.
3. c Managerial accounting is not required by any external law or regulation.

Chapter 1

- 4. b Since it would be a waste of money to have two data collecting systems existing side by side, managerial accounting largely uses the data generated by the financial accounting system.
- 5. c The purpose of decentralization is to move all decisions to the lowest managerial level possible in an organization.
- 6. b By obtaining feedback, management can see how well an organization is moving toward its objectives and thus control is maintained.
- 7. b Under JIT, the plant floor is laid out into many product flow lines—one for each family of products.
- 8. b Total Quality Management involves systematic problem-solving by teams consisting of front-line workers.
- 9. a The Plan-Do-Check-Act Cycle is used to solve problems in TQM.

Exercises

1-1. If cashiers routinely short-changed customers whenever the opportunity presented itself, most of us would be careful to count our change before leaving the counter. Imagine what effect this would have on the line at your favorite fast-food restaurant. How would you like to wait in line while each and every customer laboriously counts out his or her change? Additionally, if you can't trust the cashiers to give honest change, can you trust the cooks to take the time to follow health precautions such as washing their hands? If you can't trust anyone at the restaurant would you even want to eat out?

Generally, when we buy goods and services in the free market, we assume we are buying from people who have a certain level of ethical standards. If we could not trust people to maintain those standards, we would be reluctant to buy. The net result of widespread dishonesty would be a shrunken economy with a lower growth rate and fewer goods and services for sale at a lower overall quality level.

Chapter 2

Cost Terms, Concepts, and Classifications

Chapter Study Suggestions

This chapter introduces general cost terms that will be used throughout the remainder of the book. The chapter also gives a broad outline of the flow of costs in a manufacturing company. (Chapter 3 covers cost flows in more depth.) As you read the chapter, note each new term and be sure you understand its meaning. It is important to keep in mind that costs are classified in many ways, depending upon how the costs will be used. This is the reason for so many different cost terms. To fit the cost terms into a framework, you should frequently refer to Exhibit 2-7 as you go through the chapter.

Exhibit 2-3 presents the *schedule of cost of goods manufactured*. You should memorize the format of this schedule, as well as the material in Exhibit 2-5. Learning this material will help you in Chapter 3 and will also lay a foundation for many chapters that follow.

CHAPTER HIGHLIGHTS

A. *Manufacturing costs* are the costs involved in making a product. Manufacturing costs can be subdivided into three basic elements: direct materials, direct labor, and manufacturing overhead.

1. *Direct materials* include those materials that become an integral part of a finished product, and can be conveniently traced into it.

a. An example of direct materials would be the steel used to make a file cabinet.

b. Small material items, such as glue, are classified as *indirect materials* rather than as direct materials. It is too costly and inconvenient to trace such small costs to the individual units that are produced.

2. *Direct labor* consists of those labor costs that can be easily (i.e., physically and conveniently) traced to the creation of products. Direct labor is sometimes called touch labor.

a. An example of direct labor cost would be a worker on a manufacturing assembly line.

b. Other labor costs, such as supervisors and janitors, are treated as *indirect labor* rather than as direct labor. These costs cannot be traced to individual units of product since these individuals do not directly work on the product.

3. *Manufacturing overhead* consists of all manufacturing costs except direct materials and direct labor.

a. Manufacturing overhead includes indirect materials, indirect labor, and other manufacturing costs such as factory rent, factory utilities, and depreciation on factory equipment and facilities.

b. Synonyms for manufacturing overhead include factory overhead, factory burden, and indirect manufacturing costs.

4. Sometimes the terms prime cost and conversion cost are used.

a. *Prime cost* consists of direct materials plus direct labor.

b. *Conversion cost* consists of direct labor plus manufacturing overhead.

B. *Nonmanufacturing costs* are those costs involved with selling and administrative activities.

1. *Selling, or marketing, costs* include all costs associated with marketing finished products, including commissions, depreciation of delivery equipment, depreciation of finished goods warehouses, and advertising.

2. *Administrative costs* include all costs associated with the general administration of an organization, including secretarial salaries, depreciation of general administrative facilities and equipment, and executive compensation.

C. For purposes of external financial reports, costs can be classified as product costs or period costs.

1. *Period costs* are expensed on the income statement in the period in which they are incurred.

2. *Product costs* are matched with units of product and are recognized as an expense on the income statement only when the units are sold. Until that time, product costs are considered to be assets and are recognized on the balance sheet as inventory.

3. In a manufacturing company, product costs include direct materials, direct labor, and manufacturing overhead. Thus, in a manufacturing company, product costs and manufacturing costs are synonymous.

4. In a manufacturing company, period costs and nonmanufacturing costs are synonymous terms. Thus, the period costs are selling and administrative costs.

5. In a merchandising company such as Macy's or K-mart, product costs consist solely of the costs of products purchased from suppliers for resale to customers. All other costs are period costs.

D. The income statements and balance sheets prepared by manufacturing firms differ in important respects from those prepared by merchandising firms.

1. The balance sheet of a manufacturing firm contains three inventory accounts: Raw Materials, Work in Process, and Finished Goods. By contrast, the balance sheet of a merchandising firm contains only one inventory account—Merchandise Inventory.

a. *Raw Materials* consists of materials on hand that will be used to make products.

b. *Work in Process* consists of unfinished products.

c. *Finished Goods* consists of units of product that are completed and ready for sale.

2. The income statement of a manufacturing firm contains an element termed *cost of goods manufactured*. You should study the schedule of cost of goods manufactured in Exhibit 2-3 in the text very carefully. If you have difficulty understanding this exhibit, look at Exhibit 2-4, which shows the same information in a different format.

E. Manufacturing costs (direct materials, direct labor, and overhead) are also known as *inventoriable costs*.

1. The term inventoriable costs is used since direct materials, direct labor, and overhead go into Work in Process and Finished Goods, which are inventory accounts. Therefore, direct materials, direct labor, and overhead can end up on the balance sheet as part of these inventory accounts (as assets) if goods are either not completed or not sold at the end of a period.

2. You should study Exhibit 2-5 in the text with great care. It shows the flow of manufacturing costs through inventory accounts and the way these costs become an expense (cost of goods sold) on the income statement. *This is a key exhibit for Chapter 2.*

3. We can summarize manufacturing and non-manufacturing cost terms as follows:

<i>Synonymous Cost Terms</i>	<i>Costs Involved</i>
• Manufacturing costs	• Direct materials, direct
• Product costs	labor, and manufactur-
• Inventoriable costs	ing overhead
• Nonmanufacturing costs	• Selling and administrative
• Period costs	expenses

F. For purposes of describing how costs behave in response to changes in activity, costs are often classified as variable or fixed. For example, one might be interested in describing how the costs of admitting patients to a hospital behave in response to changes in the number of patients admitted. Or, one might be interested in how much it would cost

for paint in a furniture factory if the output of the factory were increased by 10%.

1. *Variable costs* are those costs that vary, in total, in direct proportion to changes in the volume or level of activity within the relevant range. Exhibit 2-8 illustrates variable cost behavior. Examples of variable costs include direct materials, (usually) direct labor, commissions to salespersons, and cost of goods sold in a merchandising company such as a shoe store.

2. *Fixed costs* are those costs that remain constant in total amount within the relevant range. They include, for example, depreciation, supervisory salaries, and rent. Exhibit 2-8 illustrates fixed cost behavior.

3. The *relevant range* is the range of activity within which the assumptions about cost behavior can be considered valid. If there is a big enough change in activity (for example, a ten-fold increase in volume), even the "fixed" costs are likely to change.

G. For purposes of assigning costs to objects, costs are classified as direct or indirect.

1. Managers often want to know how much something (e.g., a product, a department, or a customer) costs. The item for which a cost is desired is called a cost object.

2. A *direct cost* is a cost that can be conveniently traced to the cost object under consideration. For example, if the cost object under consideration is a unit of product, then the materials and labor involved in its manufacture would both be direct costs.

3. An *indirect cost* is a cost that cannot be conveniently traced to the cost object. For example, if the cost object is a unit of product, then the manufacturing overhead involved in its manufacture would be an indirect cost.

H. For purposes of making decisions, the following cost terms are often used: differential costs, opportunity costs, and sunk costs.

1. Every decision involves choosing from among at least two alternatives. A difference in cost between two alternatives is called a *differential cost*.

2. An *opportunity cost* is the potential benefit given up by selecting one alternative over another.

a. Every alternative facing a manager has opportunity costs attached to it.

b. Opportunity costs are not recorded in the accounting records. They represent a lost benefit rather than an out-of-pocket cost.

3. A *sunk cost* is a cost that has already been incurred and that cannot be changed by any decision made now or in the future. Sunk costs are never differential costs and should always be ignored when making decisions.

Appendix 2A: Further Classification of Labor Costs

A. Labor costs can be broken down into five main categories: direct labor, indirect labor, idle time, overtime premium, and labor fringe benefits.

1. As mentioned earlier, direct labor consists of those factory labor costs that can be easily traced to products.

2. Indirect labor consists of factory labor costs that are supportive or supervisory in nature. These include the costs of supervisors, superintendents, custodians, maintenance persons, and others whose services are essential to factory operations, but who do not work directly on the product.

3. *Idle time* represents the costs of direct labor workers who are unable to perform their assign-

ments due to material shortages, power failures, and the like. Idle time is treated as part of manufacturing overhead.

4. *Overtime premium* consists of any amount paid above an employee's base hourly rate.

a. For example, if the base rate is \$6 per hour and the employee is paid time-and-a-half for overtime, then the overtime premium would be \$3 per hour (not \$9 per hour).

b. Overtime premium is ordinarily not charged to specific jobs, but rather is included as part of manufacturing overhead. An exception is when a customer specifically requests a rush job that results in having to work overtime. In such a case, the overtime premium may be charged directly to that job.

5. *Labor fringe benefits* include employment related costs paid by the employer, such as insurance programs, retirement plans, etc.

a. Many firms include all such costs as part of manufacturing overhead.

b. Other firms include only the labor fringe benefits relating to indirect labor as part of manufacturing overhead and treat those benefits relating to direct labor as added direct labor costs. This is the preferred method.