Accounting is the process of accumulating, classifying, interpreting, and presenting financial information. Financial accounting is that basic process with management, investors, creditors, and other external parties as the users of the accounting information. Management accounting involves accumulating, classifying, interpreting, and presenting financial data primarily for management and other insiders. Financial accounting is governed by generally accepted accounting principles (GAAP), customs that have been adopted over time, and procedures and rules put forth by the Financial Accounting Standards Board (FASB). GAAP applies only to those cost accounting procedures that affect cost data, such as cost of goods sold and inventory used in financial statements. Generally, cost accounting is not subject to GAAP Management uses cost accounting, a subset of management accounting, for planning and controlling operations and for decision making. The guiding light for cost accountants is usefulness. The cost data must be accumulated, classified, interpreted, and presented in ways that are useful to managers for decision making.

A budget, the key to planning and controlling, involves cost accounting data. Where to set an optimal price for a product or service cannot be decided without knowing the cost of what is to be sold.
Although many of the examples in this course are product-related (cost accounting being traditionally viewed as a manufacturing support system), cost accounting is prevalent in and very useful to service-oriented firms. In fact, many financial service firms, like banks and insurance companies, make successful use of cost accounting to control, plan, and price their services. What is being tracked in a cost accounting system is some type of cost object. A cost object is the cost of anything that management believes is important. For example, a cost object could be the cost of a product, the annual cost of running a department, the cost of maintaining a machine, or the cost of a checking account.

THE ROLE OF COST ACCOUNTING TODAY

In the recent past, cost accounting was often the tool used to calculate an inventory cost for balance sheet presentation and to calculate the cost of goods sold for the income statement. Today cost accounting is much more than an inventory cost tracking system. Cost accounting involves determining the costs of products and activities, but it does have a broader role: to furnish management with information used in planning and controlling activities, in improving quality and efficiency, and in formulating strategic policy. To be more specific, cost accounting can help management achieve the following:

1. Formulating and implementing plans and budgets that motivate employees toward the achievement of company goals.
2. Establishing cost tracking methods that allow control of operations, cost savings, and improvements in quality.
3. Controlling inventory cost, minimizing inventory investment, and determining the cost of each product or service.
4. Pricing products and services in ways that are congruent with organizational goals.
5. Making prudent decisions that impact both short-term and long-term revenues and expenses.

State-of-the-art cost accounting in today's competitive global marketplace does not resemble the cost accounting systems in place two decades ago. Production automation has grown at a rapid pace as efficient production processes have become the real economic comparative advantage of the late 20th and early 21st centuries. Production technology includes the use of robotics and computers to perform the tasks executed by humans in decades past. Tracking the costs of these technologies along with their effect on overhead costs is a major challenge of today's cost accountant. Technology and a new type of cost accounting called activity based costing, have allowed cost accountants to directly trace more costs to particular jobs or batches of products, thereby lowering the amount of estimating used to put a cost on overhead costs consumed. Other changes in production technology that have
affected cost accounting practices include just-in-time (JIT) production and computer-integrated manufacturing.

Technological changes and management innovations are drastically changing the nature of costs. Many technologically advanced companies have lower inventory levels, use less labor, and often experience increasing levels of fixed costs. These developments are interesting and exciting, but they are also challenging cost accounting systems to provide reliable, useful information, data that can be used to keep a company efficient and, most of all, competitive in the global market.

THE USES OF COST DATA

Data provided by the cost accounting function have a variety of uses, some of which serve the controllership function as well as the manufacturing function.

Cost Estimating and Price Setting

In a business where the price of a product is based upon its estimated cost, cost accounting plays a vital role in ensuring that an accurate estimate is prepared. Prime material and labor hours data are generally supplied by engineering. Cost accounting takes these data and adds anticipated variances based upon historical performance of similar products to arrive at a selling price. Cost accounting is also responsible for using the proper labor rates, taking into consideration anticipated inflationary factors resulting from fluctuations in the economy. Other items, such as overhead and engineering, are generally added by cost accounting.

Decision Making

Company executives are constantly faced with making various decisions: whether to establish a new product line, whether to make or buy something, how to handle special price orders, what new tools and facilities to acquire, and the like. Cost accounting plays an important role in providing the information needed for such decisions.

Cost Control

Cost control is exercised by creating a series of budgets annually to project business activity anticipated during the coming year. The budget is the principal tool by which members of management measure where they have been, where they are now, and where they are going. Changing conditions, such as a radical increase or decrease in the business, can render some of the budgets obsolete. In such cases the budget is revised or replaced by a forecast.

Basic to cost control is a series of reports to management that explain deviations from the budget on an exception basis. Cost control is discussed in Chapter 9.
COST ACCUMULATION METHODS

In order to accumulate costs for their various uses, systems must be devised to gather data, refine them, and put them in the proper format. A variety of methods are available today for systematizing data. In some industries, a specific system is almost mandatory; in others, several methods are available. Care must be exercised in determining the one to be used. Basically, the method should be readily understood by the users. Nothing discredits the cost accounting function more than a system that provides data that lack credibility. Also, the system must satisfy the Internal Revenue Service with regard to taxes, depreciation methods, and so forth.

In actual practice, there are two types of cost: historical and estimated. Historical costs are those from some period of time in the past over which no control can be exercised now but which represent data that can be used in forecasting or predicting future performance. Estimated costs are those costs expected to be realized in the future. The methods to be described briefly here can be applied to either historical or estimated costs. It should be understood from the beginning, however, that there is no such thing as an actual cost, even though many individuals in business use the expression. Dividing expenditures by the number of pieces produced to arrive at a so-called actual cost does not mean that cost is the true cost, since there can be discrepancies in the quantity produced. Additionally, if the true actual cost could be determined, each unit produced in a given period would have a different value. At best, the true meaning of the cost of a product for any given period is the average cost for the period, not the actual cost.

Standard Costs

Standard costs are carefully projected theoretical costs—expected costs. Although in this course standard costs are treated separately, they are not in themselves a cost method. All of the other methods to be discussed in this course can be measured the same way: using standards of performance and developing variances. Standard costs are discussed in Chapter 6.

The Process Cost Method

The process cost method is used where it is impractical to break down the end product into its subdivisions or where the various products show very few cost differences regardless of differences in design. Industries dealing in such things as chemicals and light bulbs use process costs. Another characteristic of companies using the process cost method is the large volume they manufacture. For example, in the manufacture of bases for light bulbs, there may be a slight difference in the cost of the material for the various bulb sizes. However, the labor expended may not make it practical to keep track of the differences, since automatic machines are generally used to manufacture the products, since one employee can tend more than one machine, and since many thousands of bulbs are turned out in a single shift. Expenditures for a period are spread over the number of pieces produced, and there is no incen-
tive to separate the cost of supporting functions (overhead) from the costs related to the machine operator. A problem with the process cost method is that it relies heavily on estimates of the equivalent number of pieces remaining in inventory at the end of the accounting period. Process costing is discussed in depth in Chapter 3.

Job Order Costing

Job order costs come the closest to what might be called actual costs. In the job order method, costs are collected against a special order number, and the final average unit cost is determined by dividing the total costs expended by the number of units produced. Job order costing is best used in an industry where the product is very large, very few units are produced, and the manufacturing cycle is long (as long as three years). Industries involved in the manufacture of large steam turbines or ship building are prime candidates for job order costing. This method may also be used successfully in industries where the products are made to the buyer's specifications and the initial order, once completed, is rarely followed by additional orders. Job order costing is covered in depth in Chapter 2.

THE ELEMENTS OF COST THAT MAKE UP THE PRODUCT SELLING PRICE

Throughout the remainder of this course, the various elements of cost will be introduced. Not all of these elements are the responsibility of the manufacturing managers; however, it is useful for them to be familiar with the elements that make up the selling price of the average product. Once the manufacturing managers have acquired a knowledge of what constitutes the various cost elements of a product, they may be able to play a part in controlling or reducing a particular element. For example, warranty is a specific cost element in which a certain amount is set aside to cover the cost of repairing deficiencies found in a product after it has been shipped to the customer. But before the product is shipped, discrepancies or defects are the responsibility of manufacturing. Manufacturing managers can help reduce warranty cost by taking greater care that a product is free from defects when it leaves the plant.

Elements of cost include the following:

1. Direct material. Direct material is any raw material or finished, purchased part that can be physically identified with the finished product. The variations that occur from time to time with regard to direct material are discussed in Chapter 2.

2. Direct labor. Direct labor is defined as any human operation that furthers the physical progress made toward the end product. This definition is also discussed in Chapter 2.

3. Indirect Manufacturing Cost. This element of cost has many names, such as manufacturing burden, indirect expense, and indirect manufacturing
expense (shortened to IME). Indirect expense includes all expenditures that are the responsibility of the manufacturing organization other than direct material and direct labor. This element of cost is discussed in Chapter 3.

4. Total factory cost. Total factory cost is the sum of direct material, direct labor, and indirect expense. Thus, it represents the total cost of the product for which the manufacturing organization is responsible. This element is sometimes known as shop cost.

5. Special tools. This element represents all of the dies, jigs, fixtures, patterns, and so forth that are designed specifically for the manufacture of the end product. Other tools, such as cutters and screwdrivers, which are inexpensive or short-lived, are charged to expense. The test of whether a tool should be classified as "special" is to ask, "What use would there be for this tool if the product for which it was acquired should cease production?" If the answer is that it could not be used in the manufacture of another product without considerable modification, it is classified as special and is charged to this account. If the tool could be used on any product, it is generally charged to indirect expense. Manufacturing is usually responsible for the design, maintenance, and economic use of special tools. The maintenance of special tools and their replacement, once they have reached the end of their useful life, is charged to indirect expense in most businesses.

6. Engineering costs. This element includes all of the cost of designing new products, including the manufacture of test models and the testing of the models to see that they meet the desired performance specifications. In many companies, these costs are included in the price of a current product. This means that today's business provides the funds for tomorrow's new products. The day-to-day engineering required by manufacturing when problems arise is sometimes charged as an element of indirect manufacturing expense.

7. General and administrative expense. This element includes all expenses of a general nature that cannot be traced to a specific product and that do not come under the definition of any of the elements described previously. Expenses of a corporate nature, such as the salary and expenses of corporate officers, and advertising and sales promotion are charged to this element.

8. Warranty. It is a fact of business life that customers sometimes experience trouble in using a product no matter how well it was manufactured. Some defects cannot be discovered in the testing that takes place before the product leaves the plant; they only show up when the customer starts using the product. These defects are called service revealed defects (shortened to SRDs). All defects discovered after the product leaves the plant are charged to the warranty account. This element of cost is sometimes called the reserve for replacement under guarantees, since it is used to charge the replacement cost for a product that does not last for the guaranteed life specified. If the product is advertised as having a useful life of 100 hours and it fails before reaching that point, the cost of the replace-
ment (or an agreed-upon fraction of the replacement cost) is charged to this account. The warranty account is also used to charge the expense of individuals who assist the consumer in getting the best use out of the product as well as the cost of bulletins that show the customer how to use the product. Sometimes the warranty portion is separated from the support cost and the two are listed as separate elements.

The above elements make up the cost of a product. In addition, certain other terms are helpful to know in relation to the components of cost:

1. Total cost. This element is the sum of all of the elements described previously.
2. Selling price. This is the price charged to the customer. It is sometimes determined on the basis of competition and, therefore, bears no relationship to the total cost element mentioned above. At other times it is determined by applying a profit rate (percent) to the total cost.
3. Profit. This is not an element of cost. It represents the difference between the total cost and the selling price. If the difference is positive, a profit has been realized; if the difference is negative, a loss has been incurred.

COST OBJECTS

A cost object is any unit or activity for which management wants to accumulate and measure a cost. The unit or activity may be a product or service unit; a batch of like units; or a contract, project, process, function, goal, department, business segment, or other subdivision of a company. The idea of a cost object is central to cost accounting. A cost object is always present when accumulation, measurement, allocation, or reporting of costs occurs. The concept of a cost object is woven throughout this course. Cost accounting often involves the calculation of the cost of something—that something is a cost object.
Cost accounting serves the ever-changing needs of management. Unlike financial accounting, where GAAP determines what must be reported and how it is reported, the guiding light for cost accounting is usefulness. Managers find it useful to accumulate cost data via a process cost or job order cost system so that pricing, planning, control, quality, and policy decisions can be made.

Cost accounting data are accumulated via a cost accounting system and allocated to various cost objects to facilitate intelligent decision making. In the chapters that follow, cost accounting methods, techniques, and theories are explored, all of which exist to help managers make decisions that will lead to the accomplishment of company objectives.
1. Which of the following is not true about financial accounting?
   (a) Financial accounting serves the needs of management, investors, creditors, and other external parties.
   (b) Financial accounting is governed by generally accepted accounting principles (GAAP).
   (c) Cost accounting is a subset of financial accounting.
   (d) Financial accounting principles have evolved from customs that have been adopted over time and procedures and rules put forth by the Financial Accounting Standards Board.

2. Which of the following is true about cost accounting?
   (a) Cost accounting is used by management for planning and controlling operations.
   (b) Cost accounting is a subset of financial accounting.
   (c) Cost accounting is governed by generally accepted accounting principles (GAAP).
   (d) There is no link between cost accounting and financial accounting.

3. Cost accounting is used:
   (a) in only manufacturing environments.
   (b) in only service-oriented firms.
   (c) for inventory valuation only.
   (d) in both manufacturing and service-oriented companies.
4. The calculation of inventory cost for both ________ and ________ is one traditional use of cost accounting.
   (a) inventory ... cost of goods sold
   (b) insiders ... outsiders
   (c) creditors ... investors
   (d) supplies... revenues

5. Cost accounting can help management achieve all but which of the following:
   (a) Formulation and implementation of plans and budgets that motivate employees toward the achievement of company goals
   (b) Controlling inventory cost, minimizing inventory investment, determining the cost of each product or service
   (c) Lower taxes
   (d) The pricing of products and services in ways that are congruent with organizational goals

6. Which of the following statements best captures the state of cost accounting today?
   (a) Cost accounting tools and techniques have remained virtually unchanged for decades.
   (b) Technological changes are drastically changing the way costs are measured.
   (c) Computers and other innovative practices are making cost accounting almost unnecessary.
   (d) More and more costs are difficult to trace directly to products and services.

7. Cost accounting plays a vital role in ________ the cost of a product and then ________ that product.
   (a) charging off ... selling
   (b) charging off ... pricing
   (c) estimating ... selling;
   (d) estimating ... pricing

8. ________ is exercised by creating a series of budgets.
   (a) Cost control
   (b) Organizational profitability
   (c) Spending authority
   (d) Strategic policy

9. A standard cost is:
   (a) a cost object.
   (b) what an actual cost should be.
   (c) never a historical or estimated cost.
   (d) always a historical cost.
10. A cost object is:
   (a) a standard cost.
   (b) always a product or service cost.
   (c) any cost of a unit or activity management wants measured.
   (d) only the cost of physical objects.

10. (c)