

# Accounting. practice of management accounting



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Statements on Management Accounting PRACTICE OF MANAGEMENT ACCOUNTING TITLE Definition and Measurement of Direct Material Cost

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. . . . . 3 3 4 4 CREDITS The Institute of Management Accountants appreciates the contribution of Michael J. Sandretto, Price Waterhouse & Co. , Columbus, Ohio, for his research and writing associated with this project. Published by National Association of Accountants 10 Paragon Drive Montvale, NJ 07645 www. imanet. org Copyright © 1986 in the United States of America by National Association of Accountants. All rights reserved ISBN 0-86641-146-1 PRACTICE OF MANAGEMENT ACCOUNTING

The term “ direct material cost” as used in practice, in literature, and in litigation has a wide variety of meanings. Unless the intended meaning in a given context is clear, confusion and misunderstanding are likely to result. The purpose of this Statement is to provide a conceptual definition of “ direct material cost” that, in the absence of a specified alternative, should be taken as the meaning of this term. This Statement makes the conceptual definition more concrete by describing how direct material costs should be measured. Measurement has two aspects: a.

The quantity of material that is to be included as direct material; that is, the inputs that are to be counted. b. The unit price by which each of these

quantities is multiplied to arrive at a monetary cost. Many of the examples used in this Statement refer to the direct material cost of goods produced in manufacturing companies. The examples apply equally well to the same or similar transactions for projects, services, and other cost objects. The allocation of joint product or by-product costs is not addressed in this Statement. In a manufacturing company, direct material cost is an element of inventory cost and of cost of sales.

Differences in how companies define this term result in variations in the amount recorded as direct material cost and the amount recorded as overhead or expense. Differences in the way material costs are accounted for in cost-type contracts, in projects, and for other cost objects also lead to differences in the amounts recorded as direct material cost and the amounts recorded as overhead or expense. If users do not understand what items are included in direct material cost in such situations, their interpretation of the information may be erroneous, and they may make unsound decisions.

**Definitions** **Direct Material Cost**—Quantities of material that can be specifically identified with a cost object in an economically feasible manner, priced at the unit price of direct material. **Cost Object**—A product, contract, project, organizational subdivision, function, or other unit for which costs are measured or estimated. **Direct Cost**—A cost that can be specifically identified with a cost object in an economically feasible manner. **Material Quantity**—A physical amount of material, such as a pound of copper, a 50-gallon drum of a chemical, or a batch of 100 semiconductors.

**Scrap**—Material residue from manufacturing operations that has some value. Examples of scrap include border material from stamping operations,

shavings, filings, borings, and turnings. Scrap may have relatively minor recovery value, as in the case of steel, or it may be of significant value, as in the case of gold. Waste—Material that is lost, evaporates, or shrinks in a manufacturing process or is a residue that has no significant recovery value in excess of its disposal costs. Defective Units—Production that does not meet quality standards. Defective units may be reworked and sold, or they may be rejected and disposed of for salvage value.

Material-Related Costs—Costs, other than direct material costs, that are incurred as a result of 1 PRACTICE OF MANAGEMENT ACCOUNTING the acquisition, inspection, storage, or movement of direct material quantities. Cost Item—A subdivision of cost, such as freight, duty, insurance, sales tax, or outside processing costs. Unit Price of Direct Material—Invoice price and acquisition-related cost items that can be specifically identified with direct material quantities in an economically feasible manner and that can be measured with reasonable accuracy.

Materiality If a cost item is immaterial, it should be accounted for in a manner that is economically feasible. Material Quantities If the cost object is the production of a manufactured or processed product, its direct material cost normally should include quantities of material that become a physical part of the cost object and those materials that are consumed in the manufacturing process that can be specifically identified with that cost object. If the cost object is the production of a service, its direct material cost normally should include all quantities of material that can be specifically identified with producing the service.

If the cost object is the production of a project, its direct material cost normally should include all quantities of material that can be specifically identified with the project. For a large project, direct material cost typically includes far more categories of direct material quantities than in a product because it is relatively easy to identify quantities of material specifically with a large project. Examples include fasteners, adhesives, lubricants, and other items whose unit costs are too low to be considered direct material costs for many manufactured products.

If a large project is broken down into a series of smaller projects, products, or subassemblies, the material categories listed in this paragraph typically are not included in the direct material cost of these subdivisions. Costs classified as direct material costs must be excluded from costs used in calculating overhead rates. For example, if one project is large enough to include fasteners and lubricants in direct material quantities, but those items are included in overhead for other projects, the cost of fasteners and lubricants should not be included in the overhead rate applied to the first project.

It follows that entities that define direct material costs differently for different cost objects will have two or more overhead rates. Material quantity should include the cost of packaging material to the extent it is included in the finished product. Examples include bottles for liquor and perfume and containers for cosmetics and medical products. Material quantity should include packing supplies necessary to deliver goods to customers, to the extent that the goods are packed with these supplies as part of the production process.

Material Lost in the Production Process Direct material cost should include the material cost of scrap, waste, and normally anticipated defective units that occur in the ordinary course of the production process. The following examples depict situations in which such costs should be classified as direct material costs: a. A part is stamped from a roll of strip steel, or a finished unit is produced by turning a casting. The amount of material lost in these 2 PRACTICE OF MANAGEMENT ACCOUNTING processes through ordinary scrap usually can be predicted with reasonable accuracy.

The cost of the predicted scrap should be included in the direct material cost of the part. b. A quantity is lost in the production process through evaporation, dehydration, spoilage, shrinkage, or similar causes. The amount of material that is lost in these processes usually can be predicted with reasonable accuracy. The cost of the predicted amount of lost material should be included in the direct material cost. c. Engineering estimates are developed for the percentage of defective units expected from a given production process, and they are reasonably accurate.

The cost of material in the estimated percentage of defective units should be included in the direct material cost of completed production. d. In most cases, the net salvage value of estimated scrap, waste, and defective units should reduce the direct material cost. The direct material cost should be increased, however, if the related costs exceed the salvage value, as in the case of certain chemical or nuclear wastes. Unanticipated quantities of scrap, waste, or defective units should not be included in direct material cost. These quantities should be included in manufacturing overhead or should be expensed.

Samples, Prototypes, and Initial Production Runs Routine quality assurance samples that are tested to destruction should be included in direct material cost. Nonroutine quality assurance samples taken due to quality problems should not be included in direct material cost. The material cost of marketing samples and prototypes should not be included in direct material cost. Unit Price of Direct Material The unit price of direct material should include the invoice price and other costs paid to vendors to deliver the material quantity to the production facility or to a point of free delivery.

The following costs are included in the unit price of direct material: G G G G G G Invoice price for direct material quantity, Invoice price for outside processing, Shipping costs (inward freight) paid or owed to outside vendors, Sales tax, Duty, and Cost of delivery containers and pallets, net of return refunds. Trade discounts, refunds, and rebates should be deducted in calculating the unit price of direct material. If cash discounts offered by the vendor exceed reasonable interest rates, the price of direct material should be reduced by the excess.

Demurrage charges should not be included in direct material cost. Royalty payments and licenses should be included in direct material cost if they are functions of direct material quantities used in producing the cost object. Use of Estimates Estimates of direct material quantities and unit prices may be used if they are sufficiently accurate to be considered “ specifically identified” with a cost object. The following situations are examples of estimates that are sufficiently accu- 3 PRACTICE OF MANAGEMENT ACCOUNTING rate to be considered direct material costs in most instances:

a.

A manufacturing firm establishes standard material quantities for its products, but its system does not trace variances to these products. Nevertheless, there is a reasonable expectation that variances are proportional to the standard quantities and thus that the actual material quantities are proportional to the standard quantities.

b. A manufacturing firm uses standard purchase prices for its materials. Although standard purchase prices are not necessarily the same as actual purchase prices, the firm is able to associate major deviations from standard purchase prices with specific products or product lines.

. Inward freight costs are added to direct material cost by a rate that approximates the actual cost, such as a percentage of price paid to the vendor or a percentage of the weight per unit of cost.

**Material-Related Costs** Certain costs are closely related to the quantity of material acquired or used, but they cannot be specifically identified with a cost object in an economically feasible manner. These indirect costs are material-related costs. Material-related costs should be allocated to cost objects on the basis of some measure of direct material quantity or cost rather than on direct labor hours or cost.

Costs for the following functions usually are considered material-related costs:

- Production process. Certain cost items may be closely related to material quantities and may be allocated to cost objects based on direct material quantities or costs. They are, however, more closely related to the production process than to the acquisition of material and are not typically considered material-related costs. Furthermore, they may be applicable to different time periods than the period in which the direct material cost was incurred. Examples of those cost items are:



G G G Material storage costs subsequent to entering the production process, Issuing costs for material subsequent to entering the production process, Production planning and control costs, and Internal transportation costs. Cost Systems This Statement does not discuss standard cost systems in detail and does not address how standards should be determined. In most cases, cost analysis and control are improved if the standard material quantity includes normal scrap and waste as defined in this Statement but excludes all lost or defective units.

Differentiating between good units and normally anticipated lost units helps focus management's attention on lost units. Additionally, including in direct material the standard material quantity of both good units and normally anticipated lost units helps focus management's attention on total material cost. The cost accounting systems of some firms, particularly retail firms, include many material-related costs as direct material cost. In such systems, direct material is defined more broadly than in this Statement. Nevertheless, if the relevant material-related costs are allocated on the

G Purchasing, Receiving, Receiving inspection, Material storage costs prior to purchased material entering production, and Issuing costs for material initially entering the 4 PRACTICE OF MANAGEMENT ACCOUNTING basis of direct material, the resulting product costs may be substantially the same under this Statement as under a broader definition of direct material cost. The broader definition is useful for certain management accounting purposes, however, it should be recognized that direct material cost as measured in such systems—and for other purposes—may be different from direct material cost as measured according to the concepts of this

Statement. The cost accounting systems of many firms allocate material-related costs on some measure of direct labor, as contrasted with a measure of direct material, as recommended by this Statement. Allocation based on direct labor is, in many cases, easier to compute. It is likely, however, that allocation on some measure of direct material yields a more accurate measure of both direct and total cost of a cost object. 5