

# Managerial Accounting for Arborists

## Part 3: Cost Classification and Depreciation

By James Komen



This is the third article in a five-part series on Managerial Accounting. It relies upon terminology introduced in Part 1: Accounting Basics.

This article introduces cost classification – differentiating between costs that are dependent upon different driving variables. It also introduces the principle of matching and the concept of depreciation, a means of handling the accounting for large purchases.

### Cost Classification

Costs are classified differently based on how they behave. **Period costs** are costs that are accrued proportionally to the amount of time they are used. They are also known as fixed overhead. They include rent, **depreciation** (see the next section), insurance, bonding, and some licenses. Regardless of the performance of the business in the short term, these costs are still accrued at a constant rate. For example, even if sales drop to zero for a month, the business will still owe its rent.

**Variable costs** are costs that are accrued proportionally to another catalyst. Variable costs include fuel costs, disposal costs, equipment repair costs, and sales commissions. For example, transportation fuel costs are proportionate to the number of miles the company truck drives; disposal costs are proportionate to the number of trips to the disposal site; equipment repair costs are proportionate to the number of engine-hours the equipment is run; and sales commissions are proportionate to the income generated by salespeople.

A common practice is to group all costs together instead of separating them by their different behaviors. This makes it difficult to predict the outcome of a proposed change to the business because multiple variables become confounded together when performing analysis.

Suppose a manager wanted to know what would happen if the business were to hire a new commission-only salesperson:

- Sales would increase by a given amount.
- Sales commission paid would increase proportionately to the increase in sales.
- Direct labor hours would increase proportionately to the increase in sales.
- Worker's compensation premiums would increase proportionately to the increase in direct labor hours.
- Machine hours would increase on heavy equipment used for the new jobs.
- Office rent would remain the same.
- And so forth...

While it may be tempting to think that hiring a new salesperson to increase sales would only affect the sales income account, it would have an effect on many other accounts. By separating out each account based on the behavior of the costs, the manager may more accurately predict the outcome of the proposed change and make a more informed decision of whether to proceed with it.

If all the expenses were grouped together in one amalgamated account, the manager would have a hard time predicting how the profit and loss sheet would change as a result of hiring a new salesperson. When they are separated out, making the proposed If-Then adjustments is fairly straightforward for the manager.

For the above example, a manager may create accounts for the different costs:

- Income
  - » Sales Revenue: This account is driven by the number of and magnitude of the tree service contracts sold by the company. It is not related to the cost of performing these contracts.
- Expense
  - » Cost of Goods Sold (COGS)
    - ♦ Direct Labor: This account is driven by the number of labor hours worked and the hourly rate paid to the workers.
    - ♦ Worker's Compensation: This account is driven by the amount of Direct Labor expense and the Worker's Compensation Insurance percentage multiplier.
  - » Operating Expenses
    - ♦ Sales Commissions Payable: This account is driven by the magnitude of the sales revenue generated.

In this example, it is not affected by the costs of performing the contract.

- ◆ Repairs and Maintenance: This account is driven by the number of machine hours used on jobs and the magnitude of repair expense relative to the number of machine hours.
- ◆ Rent: This account is driven strictly by time and the monthly rent from the company's lease. The amount of rent charged does not change based on the number of jobs sold or the cost of performing those contracts.

This example may be intuitive, but it was chosen as a simplistic illustration of the concept of cost classification. When managerial decisions become larger and involve more moving parts, predicting their outcome becomes a prohibitive or even an impossible task unless costs are classified according to their behavior.

Every time there is delineation between cost or income flows that behave differently, a manager may create a new set of nested subaccounts. Direct Labor may be further subdivided into Tree Planting Labor, Tree Pruning Labor, or Plant Health Care Labor, for example. Tree Pruning Labor may be subdivided into accounts based on the rate paid to each job classification: Ground Worker Direct Labor, Climber Direct Labor, etc..., as shown in the example below:

- Direct Labor
  - » Tree Planting Labor
  - » Tree Pruning Labor
    - ◆ Ground Worker Labor
    - ◆ Climber Labor
    - ◆ Etc.
  - » Plant Health Care Labor
  - » Etc.

With each new account classification, the accounting records increase in complexity, but managers have a more detailed picture of the breakdown of how costs are incurred and income is earned within the company.

### Depreciation

**Depreciation** is a concept that reflects the nature of fixed assets losing their value over time. Equipment, vehicles, and developed structures on real estate all have finite **useful lives**. At the end of an asset's useful life, it may be disposed of or sold for **salvage**. The difference between the amount paid to obtain the asset and the amount received at the time of disposal or salvage is the amount of value "used" over the useful life of the asset. This value may be allocated over that period using journal entries that credit the asset account and debit the depreciation expense account.

The reason for depreciation is accounting's **principle of matching** that requires income be matched to the expenses

used to generate it. If the full cost of a fixed asset such as a chipper were accounted as an expense during the period it was purchased, the company's profit and loss report would display a poor performance during the period in which the chipper is purchased and a high-skewing distortion of company profit during the chipper's entire useful life. Dividing portions of the cost of the fixed asset over time helps portray its true contribution to the company's operating costs.

The useful life of a fixed asset is the amount of time that it is expected to be used by the company. It is not necessarily the amount of time that the asset may be expected to function entirely. A company may decide its own expected useful life for each of its assets, or it may use the published IRS **recovery periods** for various asset classes. For example, vehicles and equipment have published recovery periods of 7 years and commercial real estate buildings have a published recovery period of 39 years.

A fixed asset's **cost basis** is the amount paid to obtain a fixed asset plus all the associated transactional costs. The cost basis includes applicable sales tax, delivery, installation, and setup for the asset. Salvage value is the amount that can be obtained from the sale of a fixed asset at the end of its useful life to the company. Fixed assets do not always have salvage value. The difference between the cost basis and salvage value of an asset is the amount depreciated over the period of its ownership.

There are several different forms of depreciation. The most commonly utilized is called **straight-line depreciation**. It divides the total depreciation evenly over the time periods over which the asset is placed in service. It assumes that the fixed asset will provide a constant level of benefits over its useful life. **Accelerated depreciation** accounts for larger amounts of depreciation in the periods immediately after the asset is placed in service than towards the end of its useful life. It is more reflective of the change in the asset's market value, rather

Continued on Page 10

Figure 1: Example ledger showing the journal entries for straight-line depreciation of a typical fixed asset over a 7 year useful life with a salvage value of \$5,000 at the end of the final year of service.

|         | Chipper Asset Account |         |          | Depreciation Expense |        |          |
|---------|-----------------------|---------|----------|----------------------|--------|----------|
|         | Debit                 | Credit  | Balance  | Debit                | Credit | Balance  |
| Year 0  | \$40,000              | \$0     | \$40,000 | \$5,000              |        | \$0      |
| Year 1  | \$0                   | \$5,000 | \$35,000 | \$5,000              |        | \$5,000  |
| Year 2  | \$0                   | \$5,000 | \$30,000 | \$5,000              |        | \$10,000 |
| Year 3  | \$0                   | \$5,000 | \$25,000 | \$5,000              |        | \$15,000 |
| Year 4  | \$0                   | \$5,000 | \$20,000 | \$5,000              |        | \$20,000 |
| Year 5  | \$0                   | \$5,000 | \$15,000 | \$5,000              |        | \$25,000 |
| Year 6  | \$0                   | \$5,000 | \$10,000 | \$5,000              |        | \$30,000 |
| Year 7  | \$0                   | \$5,000 | \$5,000  | \$5,000              |        | \$35,000 |
| Salvage | \$0                   | \$5,000 | \$0      | \$0                  |        | \$35,000 |

# Managerial Accounting

Continued from Page 9

than its value to the company. Depending on the goals of management, a company may use either form of depreciation.

Sometimes, a company will use one form of depreciation for its internal record-keeping and a different form of depreciation for tax purposes.

It is important for managers to make decisions about the useful life of an asset and its anticipated salvage value. If the chosen useful life is longer than the actual useful life of the asset, then the remaining balance of the asset account must be written off as an unanticipated loss in the final period. All of the profit and loss reports between the purchase of the asset and its loss would have been distorted to show more profit than was actually generated.

Conversely, when the chosen useful life is too short, the profit and loss reports will show the company is performing more poorly because more of the asset will be depreciated in each period. This may lead managers to believe that certain company activities are unprofitable and they may erroneously discontinue them. If salvage value is estimated

too low or too high, then the amount of depreciation may be too much or too little respectively, resulting in a similar distortion of the profit and loss report.

Rather, to avoid the aforementioned distortions, it is best for managers to estimate the useful life of an asset as close as possible to the amount of time the business will actually use the asset.

## Conclusion

Cost classification can make a manager's job of predicting outcomes of changes to the company easier by dividing accounts down to their primary driving forces. Depreciation helps managers more clearly see how businesses are utilizing their large purchases by dividing their cost over the useful life of the asset. Both techniques can give a clearer picture of the company's financial health.

The next article in this series discusses the various ways that employee payroll can be allocated on the profit and loss report.

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