The report presents this information in a format that permits comparisons. Managers can compare their institution's performance to that of institutions of similar size, type, and educational purpose.

Other information, although not nearly as comprehensive as APPA's report, is published periodically in various trade journals. For example, *American School & University* magazine annually publishes maintenance and operations cost survey, with costs analyzed as follows:

a. Custodial salaries, stated in dollars per student and per square foot
b. Maintenance salaries, stated in dollars per student and per square foot
c. Heat, other utilities, and other costs, stated in dollars and per square foot
d. Average custodial and maintenance salaries
e. Square feet per custodian

The above data are presented for each of ten regions of the United States, including Alaska and Hawaii. At best, published indicators can serve only as a guide. Large differences are often noticeable, even among similar organizations. These wide variations reflect the differences not only in costs but also in methods of accounting for costs. For this reason, caution is required in using such comparative data.

A better approach to comparative analysis is benchmarking, which is discussed later in this chapter.

CONSTANT-DOLLAR ANALYSIS

This analysis is a primary concern for institutions and indicates the impact of inflation on the institution's budget. These are several sources that can be used for comparison; an example is the Higher Education Price Index, from which an institution-specific cost index can be developed.

PERFORMANCE ANALYSIS

This analysis seeks to establish standards other than budgets against which to measure and compare actual performance. These standards are frequently nonmonetary and are intended to complement, not replace, budgets. In many cases these standards provide the detail on which budgets are built.

Performance standards may be generated internally, or they may come from outside sources. Both are useful. Internal standards usually relate to the budget in some way or to an individual department's unique goals and objectives. Examples of internal standards are the following:

rb = Business risk associated with an individual firm as a result of the business cycle, technological change, availability of materials, etc.

rf = Financial risk

rpp = Purchasing power, which accounts for inflation

rt = Tax-related issues

Risk and return are closely tied together; one cannot be calculated without the other. If the rate of return increases, so will the risk, and vice versa.

FINANCIAL PLANNING AND CONTROL

BREAK-EVEN ANALYSIS

A major task for every manager is to choose financial alternatives. The motivation behind analyzing various alternatives is to utilize the funds available for getting a particular job done in the most cost-effective manner. Some typical problems are as follows:

a. Whether to contract certain services, such as elevator maintenance, or to use in-house crews
b. Whether to buy certain equipment that will make maintenance more productive
c. Whether to generate utilities or buy from a utility company
d. Whether to purchase computers and other equipment or lease from a third party
e. How frequently and in what quantities stock items should be ordered

A technique that can be used in making such decisions is called *break-even analysis.* One methodology, which can be illustrated with the last item in the preceding list, is commonly referred to as the *economic order quantity* (EOQ).

There are many costs associated with maintaining an inventory, such as carrying costs, ordering costs, and stock out costs. Carrying costs refer to the cost of capital tie-up in inventory, storage costs, insurance, depreciation, and obsolescence costs. Ordering costs refer to the cost of placing an order (including production setup costs, if appropriate), shipping and handling costs, and loss of quantity discount savings. Stocks out costs include added expenses that might be incurred because of loss of good will. The idea is to minimize the total cost as shown below:

$$TC = \tfrac{1}{2} QC_1 + D \times C_o/Q$$

Where

TC = Total cost

Q = Quantity to be ordered

2. Customer perspective: "To achieve our vision, how must we look to our customers?"

Internal perspective: "To satisfy our customers, what management processes must we excel at?"

3. Organizational learning: "To achieve our vision, how must our organization learn and improve?"

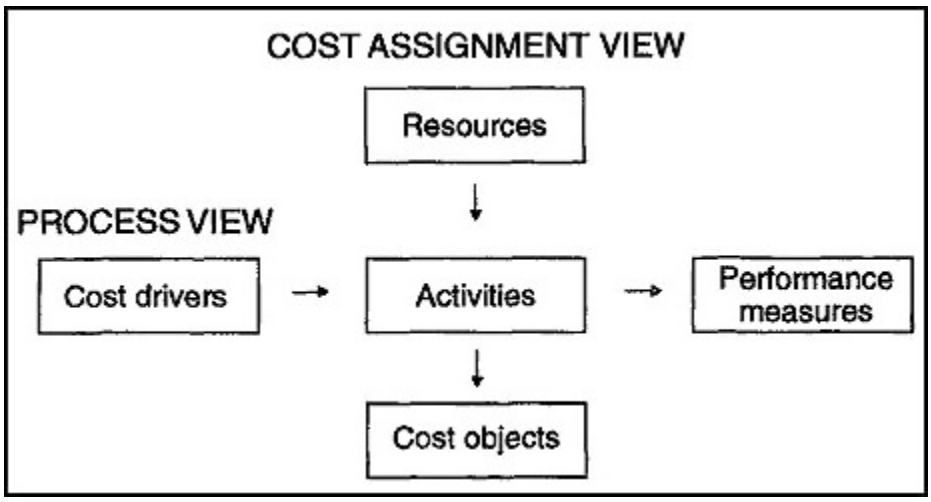

Figure1. Cost Assignment and Process Views

Every activity in the process is a customer of another activity and in turn has its own customers. In other words, all activities are part of a customer chain and work together to provide value to the outside customer.

After activities have been defined, the next phase of ABM is to do a value analysis for every activity. The purpose of this step is to determine whether value is being added in every step, for which the value is being added, and whether this value is something for which the customer is willing to pay. In higher education, rather than using a binary "value-added/non-value-added" label for every activity, a more appropriate approach is dividing the activities into four categories: essential, incremental, sustaining, and waste.

a. *Essential activities* are those that add value for both internal and external customers. Thus, institutions would like to maximize their efforts and resources for these activities.
b. *Incremental activities* provide value only to the supplier, with no stated requirement from the customer. Institutions need to assess whether such activities are truly necessary.
c. *Sustaining activities* are performed in response to internal and external regulations, institutional policies that add no value to the internal/external customer. Institutions