Activity Based Costing\(^1\)

1. The Rationale for Activity Costing

In some costing systems we have examined, overhead costs were allocated to individual products in the following simple way. One identified a rate base (activity measure) such as direct labor hours or machine hours and determined a standard rate giving the charge in overhead costs per unit of the rate base. If direct labor hours are the rate base, then the overhead cost charged to a product is directly proportional to the direct labor content of that product.

Critics of this traditional approach to product costing argue that it is simplistic and that in many cases the resulting allocation of overhead cost will distort the true cost of the different products. As a consequence, managers will be misled when they use product cost information to price products, bid on contracts and special orders, or drop products they perceive to be unprofitable.

Activity based accounting (or simply activity costing) seeks to refine this procedure. The basic observation is that overhead costs are caused by a variety of activities such as material handling, set-ups, maintenance, inspection, etc. However, different products may consume these activities in different proportions. For example, product A may require more components than product B and therefore a larger share of the material handling activity is caused by product A. The overall goal of activity costing is to establish a better cause-and-effect relation between products and the overhead costs. This requires a detailed examination of the activities which cause the overhead costs, and an understanding of the activities that a particular product or process requires.

An ABC system provides a finer partitioning of indirect costs than absorption costs and a different way of assigning these costs to products. Indirect costs are broken into unit-level costs, batch-level costs, product-line costs, and facility-sustaining costs. These costs are not allocated directly to units produced using a volume-related measure but rather are assigned using the cost driver most closely associated with how costs vary in each

\(^1\) Based on part on a note by Stefan Reichelstein
category (e.g., number of batches, number of products, number of part numbers). These costs may or may not be allocated to the unit level, but usually are. The distinction between ABC and absorption costing is that the latter allocates all costs using a unit-based volume measure. ABC allocates batch and product line costs using measures other than production volume. Advocates of activity-based cost systems assert that ABC improves decision-making by:

- making product costs closer to relevant costs for many common problems (new technology acquisition, process improvement, managing customer relationships);
- focusing managers’ attention on “true” cost drivers;
- suggesting new ways to cut product costs; and,
- suggesting product design.

The last point is particularly important. Often, there is more than one way to make a product that conforms to design specifications. Ideally, the product engineer should choose among alternative designs by comparing production costs. The design associated with the lowest cost should be adopted. This prescription for choosing among alternative designs is only as good as the underlying cost calculation is accurate. For instance, if the “cheapest” design creates an unanticipated serious bottleneck around a critical piece of machinery or yields a product that requires stockpiling of so many specialized components that purchasing and warehousing costs increase sharply and unexpectedly, then the ABC system has failed. The bottleneck and warehousing costs are part of the cost of manufacturing the product. These costs should be built into the ABC system if it is to be useful in product design. If the ABC system omits key components of cost, then the product engineer cannot rely on the system alone in making design choices.

2. Caveats

ABC also has the following disadvantages:

- It is costly to implement and operate.
- Organization problems can increase since ABC systems sacrifice central control over decisions in order to obtain more accurate local product costs.
The last objection is subtle. ABC is supposed to result in very accurate product costs. We shall see elsewhere in this course that it can be beneficial to distort product costs because this alters the decisions managers make. Using a centrally constructed cost system to evaluate and compensate managers permits headquarters to influence decision making by stipulating how costs are to be calculated. For instance, innovation and experimentation could be encouraged by subsidizing the cost of using new machinery by placing it in a cost pool with other equipment, even though a more accurate cost system would treat the machine as a separate cost pool. As another example, suppose top management has made a strategic decision to automate production processes wherever possible. Allocating overhead on the basis of direct labor hours causes machine-intensive operations to appear cheap in the eyes of operating managers, while labor-intensive operations seem dear. Consistent with top management objectives, this would cause operating managers to adopt automated processes. Adopting ABC and delegating the design of the product cost system to operating managers reduces headquarters’ ability to use the cost system as a motivational device.\(^2\)

Could the centrally administered system (for motivation purposes) exist side by side with a local ABC system (so that local production decisions are made with the benefit of the most accurate cost figures)? It may not be possible for headquarters to have its cake and eat it too. If an ABC system is allowed to emerge in parallel with a centrally administered traditional cost system, then confusion arises over which set of costs should be used for purposes of performance evaluation. Since few firms use ABC for internal and external reporting, one must ask whether the benefits of ABC exceed its costs in the typical production setting.

3. The Mechanics of Activity Costing

For all direct costs the accounting is as before. However, overhead costs are allocated in a two-step procedure. To perform this allocation one needs to identify:

- overhead line items (e.g., depreciation, rent, power, maintenance);

\(^2\) It is a mistake to let an inaccurate, centrally administered, traditional cost system create a strategy for a firm by systematically distorting costs if the inaccuracies arise through inattention or ignorance. The point is that inaccuracies could well be introduced intentionally.
• cost pools, which typically center on activities like machining, purchasing, or assembly; and,

• allocation bases (or cost drivers) which reflect the cause-effect relationships between overhead line items, activities, and products.

Step 1: For a given overhead item, pick a suitable allocation base and assign the item accordingly to the cost pools. For example, suppose the overhead item is rent. The allocation base is floor space and the cost pools are the machines. Then the rent expense is allocated to the individual machines in proportion to the floor space they occupy.

Step 2: For each cost pool choose an allocation base to assign the cost collected in the pool to the different products.