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Process-Based Costing: The Best of Activity-Based Costing

Matti Sievanen and Katja Tornberg

Activity-based costing (ABC) is often claimed to be too complex and too expensive to support or, on the other hand, too general and incapable of providing necessary operational information. Process-based costing combines both an operational and strategic view, thus providing the best of ABC.

This research is based on a case study conducted in a high-tech manufacturing environment. The case demonstrates an application of process-based costing in operational use. The findings clearly show that defining processes and activities is crucial. Activities have to be defined as units of management and not as units of an information system. Processes are well-defined sets of activities consisting of activities, even from subcontractors.

Process-based costing systems are easy to support and can provide needed operational and strategic information.

THE NEED FOR STRATEGIC AND OPERATIONAL INFORMATION

Since its inception, activity-based costing (ABC) has been used mainly for product costing [2]. However, many companies have acknowledged that while the improved product cost information provided by ABC is useful, its real power is in its ability to identify cost reduction opportunities [1].

Furthermore, accounting systems should be able to do more than merely provide cost information and identify cost reduction opportunities. Corporate performance is improved by optimizing the system of processes, instead of separate activities. This means that processes become the core elements for performance management. Time, quality, and costs are often defined as a company's primary performance indicators. Such process-based techniques as just-in-time and total quality management aim at ensuring a company's performance regarding time and quality, respectively. However, costs are rarely managed at the process level. In fact, the accounting function is often called on to support decision-making regarding process improvement efforts.

These arguments clearly indicate the need for an intelligent costing system that can be used for both strategic costing and as operational improvements. For strategic costing, a relatively simple system will suffice, as this typically requires only an accuracy of +/- 10%; operational improvement needs detailed information about activities [4, 9, 10, 16].

The two-fold demands for a costing system create a challenge for design. How to design a system that is detailed enough to give information for operational improvement, while at the same time making the information for product costing easily obtainable? This is the issue examined in this paper.

SHORTCOMINGS OF ABC

The use of ABC models for both strategic costing as well as process improvement is often problematic for various reasons. First, the activities are often defined only in general terms. In fact, an activity is a plant-wide cost pool reflecting a class of activities. Thus, no detailed cost information about the activities may be at hand [10, 16].

Second, in contrast to the aggregation of activities, ABC systems can be designed to be too complex, with activities becoming defined in too much detail, i.e. at the task level. These systems offer the information needed, though they tend to be too complex and too expensive to support due to excessive detail [4, 11].

Third, ABC systems do not typically identify activities in terms of the processes to which they belong. In general, if a product requires the consumption of a given activity, it also consumes all the activities supporting it and preceding it in the process. For example, in analyzing the effect of an operational change on costs, say a change in production volume, it is necessary to identify all the activities that would be affected by the change. Thus, the lack of activity interrelationships makes ABC models unsuitable for operational use [10].

DESIGN OF AN INTELLIGENT COSTING SYSTEM

It has been proposed that the demands for both operational and strategic cost information can be met by building two separate systems that articulate with each other [3, 8]. The strategic costing system can be designed at the process level, while the operational improvement system can contain numerous activities. While the strategic system encompasses the entire company, the operational system would encompass only those areas where activity-based costing information is effective for improvement efforts. The articulation of the two systems takes place when the strategic costing system is periodically refreshed to reflect the latest values of the

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