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THE RELATIONAL DATABASE AS A LINK BETWEEN OPERATIONS AND COST ACCOUNTING

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ABSTRACT

Business managers have indicated that the technical skill most lacking in recent accounting graduates is an understanding of the costing of products. This is particularly disturbing, as the accurate costing of products has gained increased emphasis as organizations are making critical restructuring changes and reengineering their total business processes. Accounting students continue to be exposed to spreadsheet analysis through financial accounting applications and some alternative internal decision making exercises. Their exposure to relational databases is still limited and primarily directed toward sales and inventory applications. This paper discusses the use of a relational database approach in the cost accounting course that lets the students design and operate a cost system that gives them a practical hands on feel for the problems and solutions to costing products and services.

INTRODUCTION

Cost accounting has long been the lost course in an otherwise financial accounting curriculum. It is usually the least emphasized and enjoyed class by the accounting students. Even the recent changes in accounting pedagogy to emphasize the internal information value of accounting has ignored cost accounting.

The general inadequacy of accounting education and the need to redirect it in the 1990's has been acknowledged but the relationship of this inadequacy and the skill level of accounting students to accurately cost products has not been emphasized.

GENERALLY STATED INADEQUACIES IN ACCOUNTING EDUCATION

The emphasis on management accounting as opposed to cost accounting can be seen by briefly reviewing the criticisms that started the accounting curriculum changes. The Bedford committee found accounting graduates lacking in personal skills of communication, creative and logical thinking, and interpersonal relations. The technical skills deficiencies were primarily related to understanding the dynamics and psychology of organizational management structures and systems including the impact of accounting information in

the formulation of goals, strategies, and policies [Bedford and Shenkir 1987].

The Accounting Education Change Committee (AECC) and other groups have followed with pronouncements and recommendations that concentrate on the communication of accounting information and the management and organizational skills required of accountants but neglected the basic understanding of the importance of the development of accurate cost information [Jayson 1993]. Obviously, the volume of publications on activity based costing (ABC) has emphasized the importance of accurate costing systems, but teaching ABC usually gets involved in terminology (unit, batch, product level costs) and the difference in cost drivers and traditional overhead bases. The actual importance of cost management and its use in organizations is usually lost on the students.

THE EXPERIENTIAL EXERCISE

The exercise emphasizes the determination of cost and the alternative treatment of those costs depending on the use of that cost information. The exercise is the foundation for the course and uses the cost management philosophy of The Caterpillar Corporation. Caterpillar's cost information system (CIS) focuses on providing the most accurate cost for the question asked [Fredman 1994]. Its goal is not to agree with financial statements but to provide product costs for decision making. If a manager is making a sourcing decision, one cost may be appropriate, whereas another cost may be more accurate for a marketing decision. But to accurately determine these costs a complete knowledge of the production and organization activities are needed. Past costs, standards and variances are not emphasized in the exercise. Current costs, target costs, and future costs are the goal of the exercise.

The Class Project

A relational data base concept is used to show that cost information has to use one common collection of data input by various providers of goods (materials) and services (labor and overhead). These goods and services are the resources of the organization and

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their cost must first be accumulated in such a way as to trace the benefit of their use to a particular cost object. The project begins with a review of basic concepts of database design and operation such as relations, normalization's, keys, integrity, joins, and data dictionary. The building of a conceptual model with entity-relationships and attributes is covered next.

The student's function both as sources of data input into the database and as users of information that comes from the database. As sources of data, the class is divided into various groups with responsibilities for typical operations in a manufacturing organization. They are given a product to produce, such as a chair and then are required to determine the various functions that would be used in producing that chair. Once production is ready to begin, they are divided into groups representing a different production function and they input their use of resources as the chairs come into their areas. The group must input their data into the existing database design that the class has agreed upon. The instructor is also imputing various data from non-manufacturing groups and also changing the product to be produced. (The products change to add different features and different customer demands).

The typical database designed will contain tables for material, labor and overhead items. But the design will not include nearly enough entity-relationships (E-R) for the information needed for accurate cost for various types of decisions. The students now are asked to take the role of users of information and determine the user's perspective of the data elements in the system. They interview the various groups to determine the new attributes and associations that are required to produce the information required. At this stage they are using each user's view to determine the E-R construct and the data element required in the association. In effect they are defining each attribute and its location in the system.

The process described above enables the students to see the detail required and most importantly how that detailed item is related to other items in the process of production.

Costing the Product

Now the students learn to combine the various elements in the database into accurate costs for the decision. First, they must revise the database for the changes required from their analysis of the various user views. Second, revised input

must be made into the system. This process is an iterative one that requires continual changes in the design. The objective is to demonstrate that cost systems are continually changing, a concept that students do not appreciate from traditional cost accounting.

The product cost is simply a function of how you treat the various cost elements. In a database they are all treated the same- as resources required in production. Now the students are required to use their own judgements in determining, for various decisions that they are given, what cost should be used and reported as a cost for that purpose. They have access to the same database. The total cost incurred by the company is the same for all. But now they see that it is how they choose to report the cost that determines the cost reported to management.

This flexible concept provided by using a relational database forces the students to look for logical relations between data elements and to look for logical relations between cost elements and the management decision. This approach gets away from the more static approach of activity based costing (ABC) where the emphasis is a cost or activity driver that is used the same for all products and results in students relying more on overhead rate determination than on the relation of a cost element to cost decision.

SUMMARY

This project is a semester/quarter long assignment that is used in conjunction with current articles on database design, activity based costing, and other current literature rather than a traditional textbook. The assignments are primarily group oriented, with written progress reports required throughout the project to test the level of understanding at various points. -

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