A pragmatic approach to product costing based on standard time estimation

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Abstract
Proposes a pragmatic approach to product costing. The approach involves two stages, namely the preparatory stage and the production stage. In the preparatory stage, standard routings are first extracted from existing products. A generic activity hierarchy is established according to the analysis of standard routings, where cost drivers for each activity are identified and summarized by appropriate Cost-related Design Features (CDFs). Then the Maynard Operation Sequence Technique (MOST) is employed to analyze each operation of standard routings to determine the associated standard time. Historical cost data are analyzed to induce the relationships between the CDFs and standard time, namely Time-Estimating Relationships (TERs). By allocating plant-wide overhead costs to standard routings, the unit price of standard time is established to indicate Cost-Estimating Relationships (CERs). A library of material costs is also summarized from existing products. In the production stage, CDFs are first induced from the schematic of a new design. Then a "dummy process plan" for this design can be inferred and used to retrieve the associated TERs to determine its time estimate. Once a standard time has been estimated, CERs can be applied to compile the total product cost by adding the estimated material costs. A case study conducted in an electronics enterprise is also reported.

Keywords
Product costs  Cost estimating  Activity-based costing  Time

Citation

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to invitation of bids. These functions are very important as the bid amount determines the fortunes of the firm, and if the department quotes competitive price they will hold high probability of engaging a project. Cost-based estimate methods are based on estimating the contractor's cost for materials, equipment, and labor for an item or a set of items. Estimated contractor overhead and profit are added. Contractors also generally utilize a cost-based estimating approach to prepare their bids. This method can be used to support the decision for contract award/rejection and to support any future price negotiations with the contractor after contract award. Cost-based estimates frequently focus on those items that comprise the largest dollar value of the project, typically 20\% of items of work that account for 80\% of project cost. The cost of the remainder of estimate line items can be determined using historical bid-based estimate methods. 5.2 Cost Estimation Methods. Learning Objective. Estimate costs using account analysis, the high-low method, the scattergraph method, and regression analysis. Alta Production, Inc., is using the account analysis approach to identify the behavior of production costs for a month in which it produced 350 units. The production manager was asked to review these costs and provide her best guess as to how they should be categorized. She responded with the following information. Based on the scattergraph prepared, all agreed that the data was relatively uniform and no outlying data points were identified. Susan: My staff has been working hard to determine what will happen to profit if sales volume increases.