Product diversity and costing system design choice

Two Australian firms, one with three divisions, and the second with two divisions were studied. One of the firms was a leader in the manufacture of products associated with wound management, orthopedics and consumer healthcare (‘health care firm’). Each of the three divisions was dedicated to a separate stage of the production of fabric-based first-aid dressings. Division HC1 wove the cloth for the bandages, HC2 applied adhesive gauze to the woven cloth and then slit the cloth into manageable widths for further processing and HC3 was involved in converting the strips into bandages and packaging. The divisions were located in different plants. The second firm is a leading fabric and textile producer. One division manufactures knitted fabrics (FT1) and the other manufactures woven fabrics (FT2).

HC1 and FT1 have the simplest costing systems with all of the overheads accumulated into a single cost pool with overheads allocated to products solely based on a single cost driver, namely direct labour hours (DLHs). In other words, a blanket overhead rate was used. HC2 and HC3 have almost identical costing systems. They have ‘work centre cost pools’ that reflect manufacturing processes (e.g. in the case of HC2 this includes three cost pools – adhesive mixing, spreading and slitting; in HC3 there were two cost pools). Overheads such as power are directly traced to the work centres. The remaining overheads are allocated to the work centres based on the respective levels of DLHs associated with each of the processes. The work centre overhead rate is then determined by dividing the work centre cost pool by the number of DLHs and allocating the costs to the product according to the consumption of DLHs in each of the work centres.

FT2 was the only research site that had a highly sophisticated costing system. Overheads are allocated to products via a multi-stage allocation process. First, the total budgeted manufacturing overheads are traced directly to nine ‘mill’ cost pools. Those costs that could not be traced directly are allocated to mills using reasonable allocation bases. For example, personnel department expenses are allocated to mills according to number of personnel and property expenses such as taxes, rates and gardening are allocated according to space occupancy. Each of the nine mill cost pools is divided into 30 ‘process’ cost pools. These represent the major manufacturing stages that products pass through during the manufacturing process. The vast majority of overheads are traced directly to individual processes. For example, each machine is fitted with a meter that enables power, electricity and water to be traced directly to process cost pools.

Once all of the overheads are accumulated in the ‘process’ cost pools they are allocated to products on the basis of one of two ‘unit’ level cost drivers, namely direct labour hours and machine hours. The overheads allocated based on DLHs include indirect labour associated with materials handling, packers and factory foremen. Overheads allocated on the basis of machine hours include costs that vary with machine time (e.g. power and electricity) as well as fixed costs such factory management and depreciation.

HC1, HC2 and FT1 all had low product diversity (i.e. products consumed organizational resources in similar proportions) and there was reasonable to high satisfaction with the information provided by the costing system. Both HC3 and FT2 had high levels of product diversity. FT2 had a relatively sophisticated costing system while HC3 maintained a simplistic system. The users of the costing system at FT2 were very satisfied with the system. The level of satisfaction at FT2 is in stark contrast to that found in HC3. Costing information at HC3 is particularly important for determining product costs. However, management believe that the costs are highly inaccurate and are inadequate for setting prices. Overheads were large and product diversity was high, creating the need for a relatively sophisticated costing
system. However, a simplistic costing system was implemented. This absence of ‘fit’
was a major dissatisfaction with the existing costing system. In contrast, there was a
‘fit’ between the costing systems and the level of product diversity in the four other
business units and a general satisfaction with the costing systems.

Source: Adapted from Abernathy, M.A. et al., Product diversity and costing system design choice: field