

#### **2.4.4. Control of costs**

The budgeted income statement has limited but important application in controlling the cost to operate a construction firm. Before the costs of a project can be controlled, they must first be identified. During the pre-construction phase the initial project estimate is developed, alternate systems are analyzed, value engineering opportunities are determined and the project estimate is updated. The estimate provides a baseline for the assessment of financial performance during the project. To the extent that costs are within the detailed cost estimate, then the project is thought to be under financial control. Overruns in particular cost categories signal the possibility of problems and give an indication of exactly what problems are being encountered.

For control and monitoring purposes, the original detailed cost estimate is typically converted to a project budget, and the project budget is used subsequently as a guide for management. Expenses incurred during the course of a project are recorded in specific job cost accounts to be compared with the original cost estimates in each category. In addition to cost amounts, information on material quantities and labour inputs within each job account is also typically retained in the project budget. With this information, actual materials usage and labour employed can be compared.

Cost planning takes place in all stages of the project development and comprises cost estimation and the establishment of the project plan of costs. Therefore, cost control must be supported by a cost breakdown structure (CBS) and a corresponding cost coding system (CCS). However, project participants may not agree on a single CBS that may suit everyone's interest. Clients tend to prefer a FBS for the reasons mentioned above, whereas contractors normally select a PBS.

The contractor, however, views the project cost at the work item level because costs need to be estimated from scratch. Contractors tend to use unit rate estimating for building projects and operational estimating for most engineering projects, for example, road construction. In both cases, estimating is product oriented, although activities are closer to products in the latter case than in the former, as mentioned above. Therefore, in the contractors' interest CBS should be product oriented.

In view of the above, the client's and the contractor's standpoints for cost breakdown appears very different, possibly leading to irreconcilable data structures for cost planning. The way of overcoming this difficulty is to subdivide each work item, so that both the work comprised in

each functional element and the work included in each item of the bill of quantities may be tracked from the same database. Moreover, Portuguese contracting regulations for public projects specifically stipulate the BOQ as the basic cost management document, and so, it is in the interest of both contractors and clients that BOQs are built up from sufficiently detailed data

Unlike cost estimating which assigns a cost to each work item, budgeting allocates resources to cover costs incurred by performing work items. From the client viewpoint, resources are basically money whereas from the contractor's viewpoint they comprise money, labour, materials, plant and sub-contracts. Contrary to estimating, the concept of budgeting is associated with time, so that both the client and the contractor may wish to determine their expenditures over time. Accordingly, cost budgeting has the following objectives:

- to serve as a reference for the client for provision of funds as well as for disbursement of progress payments;
- to provide a basis for project cost forecasting, monitoring and control.

Generally, the client assigns a budget to each facility and facility components, so that a budget pyramid like the one presented in figure 3.1 may be established. Each work item of the project against which cost tracking is required against an assigned budget is a Cost Centre. The client may also wish to have a distribution of expenditures over time in each cost centre for budgeting control.

After the project is awarded, contractors must also establish a budget for it. Basic data they use is the estimate and the schedule produced for tendering, but the purpose now is to forecast resource consumptions over time. Resources required are assigned to each project activity and total resource consumptions are summed up for each time period (e.g. week). Therefore, for cost budgeting, contractors tend to structure data in a process oriented format, whereas for cost planning they prefer to structure it in a product oriented format.