

THE MANAGEMENT OF OVERHEAD COSTS IN CONSTRUCTION COMPANIES

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Costs not directly attributable to or recoverable from production and sales are often loosely referred to as overhead costs. In construction, some of these result from the organisation structure, size and form of the enterprise, some apply more directly to site operations and some may lie somewhere in between. Overhead costs largely represent the enterprise's operational capacity, including aspects of both physical capacity such as plant and equipment and intellectual capacity such as data, records, expertise, experience and knowledge. The fluctuating nature of the construction market periodically compels enterprises, for competitive and survival reasons, to adopt shrinkage strategies. These may include retrenchments and downscaling of office and other facilities and often represents loss of capacity. When markets again expand, replacing lost capacity is problematic. Budgeting for overheads when bidding and recovering them from contract revenues in a dynamic market is a further challenging factor in optimally balancing overheads against capacity. By means of a review of literature and the results of preliminary surveys among large and medium-sized contractors, this paper presents progress on current research into managing overheads in South African construction enterprises. The objective of the project is to promote productivity through optimal management of overheads.

Keywords: construction overheads; contracting; fixed costs; management.

INTRODUCTION

Unlike most manufacturing industries, the construction industry is unable, or only vaguely able, to forecast its annual business volume, client base and profit performance for any longer than a relatively short term into the future. The competitive tendering system, by which the majority of construction work becomes available to contractors, also does not assist contractors in regulating annual business volumes.

Firms may experience fluctuating levels of activity, especially when upward or downward trends occur in the construction cycle or, independently of industry conditions, because of varying success in securing business by tendering or other means. A firm's production capacity (its capability to produce goods and services) and its cost structure are inter-related. Broadly, costs are classified as fixed and variable costs, the latter being those directly incurred in producing a unit of product and therefore they vary in direct proportion to the number of units produced.

Fixed costs (overheads), however, remain constant for varying levels of production volumes. Overheads to a great extent represent corporate resources and support services that apply to the firm as a whole, e.g., management, marketing,

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administration, IT, data bases, records and particular skills. Resource factors such as special expertise may secure a certain competitive advantage for the firm.

Construction firms are constantly faced with the dilemma of having to adjust the level of their overheads. In periods when predetermined volume targets are not reached, whether caused by low activity in the construction cycle or because of unsuccessful bidding, firms may face severe financial difficulty, even insolvency, unless they reduce overheads. This is usually done by means of retrenchments, redundancies, disposal of facilities or assets, discontinuation of services, and non-maintenance of records and data bases. Such measures may affect the firm's ability to compete and, when a market recovery occurs, firms having reduced overhead may find themselves at a disadvantage from both capacity and competitive points of view.

Two types of overheads exist in construction firms – those that are site related, known as Preliminaries or Preliminary and General (P and G) or Establishment Costs, and those applying to the entire firm, known as office, general or corporate overheads.

RESEARCH OBJECTIVES AND METHODOLOGY

The purpose of this research is to investigate among construction firms of varying size, operating area, type of work and organisation structure: the basis and means of regulating their overheads for varying volumes of work, the factors which influence the overhead level, and the effects or potential effects of overheads out of proportion to expected or actual work volumes.

The project began with a review of related literature. Little of direct relevance to construction was found, hence generic cost and management accounting literature were the main sources. Empirical data were obtained by means of interviewing senior executives from 10 construction companies in two major geographic regions of South Africa. Persons interviewed were managing and financial directors, one estimating director and one human resources director. Eight of the firms were operating companies in the large, stock exchange listed construction groups in the country and two were long-established private companies mainly operating in one region. Of these latter two, one operated to a significant extent in the design-and-construct market. The other 9 firms operated predominantly in the tendering or negotiated work market.

This paper reports on the research to date, which has been of a preliminary and exploratory nature. Further research is envisaged, including greater detail, medium-sized and small firms which may be more sensitive to the overheads : work volume relationship, and other relevant aspects.

REVIEW OF RELATED LITERATURE

General Definitions and the Nature of Overhead Costs

Manufacturing overheads consist of all manufacturing costs other than direct labour, direct materials and direct expenses. Indirect manufacturing labour and material costs and indirect manufacturing expenses are thus included. Examples of indirect manufacturing expenses in a multi-product company are factory rent and machinery depreciation. (Drury, 2000 and Horngren *et al.*, 1999). To ascertain the total manufacturing cost of a product requires that the amounts of and prices paid for direct cost items and resources used, be appropriately recorded. The units of materials used, e.g., in making a particular product, are recorded on a stores requisition and the hours of direct labour used, on job cards. The product of the total of the resources used and

the price paid per unit of resources used provides the total of the direct costs or the prime cost for a product.

Manufacturing overheads cannot be directly traced to products and are assigned to products by means of cost allocations, the process of estimating the cost of resources consumed by products using surrogate, rather than direct measures.

Contract Costing

In terms of Statement AC 109 of 1995, which is based on and in principle does not differ from International Accounting Standard 11, (SAICA Handbook, 2000/2001), contract costs are those that relate directly to the specific contract, are generally attributable to contract activity and can be allocated to the contract, as well as those other costs specifically chargeable to the customer in terms of the contract.

Costs that relate directly to a specific contract include site labour costs, including site supervision; costs of materials used in construction; depreciation of plant and equipment used on the contract; costs of hiring plant and equipment; costs of moving plant, equipment and materials to and from the contract site; the estimated costs of rectification and guarantee work, including expected warranty costs; costs of design and technical assistance directly related to the contract; and claims from third parties.

These costs may be reduced by any incidental income that is not included in contract revenue, for example income from the sale of surplus materials and the disposal of plant and equipment at the end of the contract.

Costs that may be attributable to contract activity in general and can be allocated to specific contracts include insurance, costs of design and technical assistance that are not directly related to a specific contract, and construction overheads.

Such costs are allocated using methods that are systematic and rational and are applied consistently to all costs having similar characteristics. The allocation is based on the *normal level of construction activity*. Construction overheads include such costs as the preparation and processing of construction personnel payroll. Costs that may be attributable to contract activity in general and can be allocated to specific contracts also include *borrowing* costs when the contractor adopts the allowed alternative treatment in the statement on borrowing costs.

Costs that are specifically chargeable to the customer under the terms of the contract may include some general administration development costs for which reimbursement is specified in the terms of the contract.

Costs that cannot be attributed to contract activity or allocated to a contract are excluded from the costs of a contract. Such costs include general administration costs for which reimbursement is not specified in the contract; selling costs; research and development costs for which reimbursement is not specified in the contract, and depreciation of idle plant and equipment not used on a particular contract.

Contract costs include those attributable to a contract from the date of securing it to its final completion. Costs that relate directly to a contract and are incurred in securing it are also included as part of the contract costs if they can be separately identified and measured reliably and it is probable that the contract will materialise. When costs incurred in securing a contract are recognized as an expense in one period, they are not included in contract costs when the contract is obtained in a subsequent period.

Further Analysis of Overhead Costs that may be Attributed to Contract Activity in General and can be Allocated to Specific Contracts. These costs include, inter alia, construction overheads such as preparation and processing of construction personnel payroll and such similar costs. Also, borrowing costs and exchange differences can be allocated to specific contracts when the contractor adopts the allowed alternative treatment in the statement of borrowing costs and changes in foreign exchange rates respectively.

Borrowing costs: In terms of Statement of Generally Accepted Accounting Practice 114 (SAICA Handbook, 2000/2001), (virtually identical to International Accounting Standard 23), borrowing costs *directly* attributable to the acquisition or production of a qualifying asset should be capitalized as part of the cost of that asset. In general, borrowing costs are treated as an expense in the period they are incurred.

The borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset are those that would have been avoided if the expenditure on the qualifying asset had not been made. When an enterprise borrows funds specifically for the purpose of obtaining a particular qualifying asset, the borrowing costs that directly relate to that qualifying asset can be readily identified.

Capitalisation of borrowing costs should cease when substantially all the activities necessary to prepare the qualifying asset for its intended use or sale are complete.

Foreign Exchange Costs: The question of exchange losses in so far as they may be regarded as overheads arises. This matter is not specifically addressed in AC 109 (SAICA Handbook, 2000/2001), as was the case with borrowing costs, yet these two types of costs are very similar.

The relevant South African statement dealing with exchange differences is AC 112, (based on International Accounting Standard 21) (SAICA Handbook, 2000/2001). Except for a difference in certain disclosure requirements of an enterprise's foreign currency risk management policy, the statements are substantially the same.

In terms of AC 112 (SAICA Handbook 2000/2001), exchange gains or losses should generally be recognized as income or expense in the period in which they arise, with the exception of, inter alia, differences which arise from a *severe devaluation or depreciation of a currency* against which there is no practical means of hedging and that affects liabilities that cannot be settled and arise directly on the recent acquisition of an asset invoiced in a foreign currency. Such exchange differences should be included in the carrying amount of the related asset, if the adjusted carrying amount does not exceed the lower of replacement cost and the amount recoverable from the sale or use of the asset.

Exchange losses are part of the directly attributable costs of the asset when the liability cannot be settled and there is no practical means of hedging, for example when, as a result of exchange controls, there is a delay in obtaining foreign currency.

Basis for Allocating Overhead Costs

In terms of AC 108, fixed production overheads should be systematically allocated to units of production (contracts) on the basis of the *normal capacity* of the production facilities. AC 108 is based on International Accounting Standard 2 and differs only in respect of the use of LIFO as a basis for valuing inventories, which is not germane as regards construction companies. (SAICA Handbook, 2000/2001). Normal capacity is the production expected to be achieved on average over a number of periods or

seasons under normal circumstances, taking into account the loss of capacity resulting from planned maintenance.

It should be kept in mind that the amount of fixed production overheads allocated to each unit of production is not increased as a consequence of low production or idle plant. Such unallocated overheads are recognized as an expense in the period in which they are incurred.

Comparison between the Traditional System of Allocating Fixed Overheads and Activity Based Costing (ABC)

With traditional systems, fixed overheads are traced to products (contracts) on a volume related basis using labour or machine hours as the so-called cost driver. In ABC systems many cost drivers are used to allocate costs including non-volume related cost drivers, such as the number of purchase orders for the purchasing activity.

By using a greater number of cost centres or cost pools and cost drivers that cause activity resource consumption, and assigning activity costs to cost objects on the basis of cost driver usage, ABC systems can more accurately measure the resources consumed by cost objects

Focus on Current Practice in Connection with Activity Based Costing Systems

Caterpillar, Inc., a heavy equipment manufacturer and pioneer in the development and use of activity-based costing, divides its overhead costs into three large pools – the logistics cost pool, the manufacturing cost pool, and the general cost pool. In turn, these three cost pools are subdivided into scores of activity centres, with each centre having its own flexible budget from which variable and fixed overhead rates are developed. In Jones' (1991) description of the company's cost system, the systems manager stated that "the many manufacturing cost centre rates are the unique elements that set Caterpillar's system apart from simple cost systems."

Recognition of Contract Revenue and Expenditure

In terms of AC 109, when the outcome of a construction contract can be estimated reliably, contract revenue and contract costs associated with the construction contract should be recognized as revenue and expenses respectively by reference to the stage of completion of the contract activity at the balance sheet date. The stage of completion should be determined based on the work performed on the contract at the balance sheet date. An expected loss on the construction contract should be recognized as an expense immediately in accordance with paragraph .36 of this generally accepted accounting statement. (SAICA Handbook, 2000/2001).

This requirement ensures that those overheads which have been correctly allocated to a contract on an acceptable basis, will find their way to the income statement before the completion of the contract if a loss is ultimately expected on the contract.

Summary of Literature

Costs relating directly to a contract should be charged to that contract, as should other costs specifically chargeable to a customer under the terms of a specific contract.

Costs attributable to contract activity in general can be allocated to a contract in certain circumstances. Such costs include insurance, costs of design and technical assistance not directly related to a specific contract and construction overheads which include such costs as preparing and processing the construction payroll, borrowing

costs when the contractor adopts the allowed alternative treatment in terms of AC 114 and exchange differences when the contractor follows the allowed alternative treatment in terms of paragraph 23 of AC 112. (SAICA Handbook 2000/2001).

In allocating overheads the contractor should use methods that are systematic and rational based on the normal level of construction activity.

THE PRELIMINARY SURVEY AND FINDINGS

Representatives from 10 construction firms were interviewed, using a basic questionnaire with 14 discussion topics. Since the data are qualitative in nature, no statistical or numerical analysis was done. The following is a synthesis of the responses and comments under the topics:

Clarification of the term “overhead costs”

Respondents included all company costs that cannot directly be allocated or recovered from or attributed to sites. Other terms used by respondents were:

Costs of centralized and support functions; basic fixed costs of opening the front door every day; expenses incurred to run the firm; site preliminaries and general office costs; costs of head office and site management; office and plant yard running costs; unproductive people or non-productive staff.

Most respondents concentrated on “corporate overheads” in their definition. Some distinguished between corporate and site overheads and some included site overheads.

Problems in managing overhead costs

Some respondents experienced problems in managing overheads, some did not and some experienced problems sometimes. Some comments were:

A problem exists when overheads become too high; as the business grows, overheads grow disproportionately high – many small businesses have large overheads – then managing overheads becomes an issue; it is always a problem but it is managed – budgeted and controlled; overheads are not taken lightly.

The main problems were identified as:

The cyclic nature of the construction industry: if constant work volumes could be maintained, managing overheads would be simpler; different types of contracts require different resources and produce different levels of overhead; unbudgeted and unexpected items prevailing in the SA construction business climate, e.g., overseas travel; overheads are a problem when they become too high and can easily escalate unless they are constantly focused upon; work volume can fluctuate widely for constant overheads; late payments by clients result in increased overdraft and hence higher bank costs; problem contracts; constantly having to adjust to the market.

The factors causing problems in managing overheads seem to be the cyclic nature of the construction industry, adjusting overhead commensurate with work volume and the requirements of different contract types.

Basis of allowing for general (corporate) overhead in tenders

Allowing for corporate overheads by adding a percentage to total estimated project costs seemed to be the approach followed by all respondents. The percentage, or portion thereof that provides for corporate overhead, was viewed differently by respondents, as were the calculation and components thereof. The percentage was

influenced by historical data, a forecast of future activity, the ratio between main contractor's and sub-contract work, competitive conditions, the size, nature and duration of the project and an evaluation of risk. One respondent compared their percentage to an "industry norm" calculated by analyzing tender results.

Corporate overhead budgets, for 1 to 3 years in advance, are based on a percentage of estimated business volume. The percentage is a function of historical data, the estimated future market, business and strategic plans and expected staff costs. Site overheads are budgeted in the P and G section of the tender document. Corporate overhead includes key site staff and is recovered from site activity.

Differentiating between corporate and site overheads

Site overhead is specifically priced in the P and G section of the tender document. Corporate overhead has to be recovered from the revenue produced by each contract.

Budgeting for site overheads

Site overhead is budgeted for (priced) in the Preliminary and General section of the tender document by means of detailed analysis of such factors as pre-determined method, options and alternatives, the firm's and proposed site organization structure, time and schedule requirements, contract value, type of work, calculated use of resources, extent of decentralization in the firm and extent of corporate services. Respondents differed on whether the site overhead budget should be adjusted, in relation to the degree of competition, at bid finalization.

Planning and budgeting for corporate overheads

Overheads are planned on the basis of expected market conditions, for periods of 1 to 3 years ahead, with varying interim updating frequencies.

Corporate overhead budgeting is for periods of 1 month up to 3 years in advance. Various bases or a combination of bases are used. These include the business plan, people requirements, minimum support functions and expertise to run the business. One recurring aspect is that estimated business volume and an analysis of past overhead to establish a corporate overhead : business volume ratio are used as a basis.

Overhead and capacity are interrelated and both affect business volume. Prolonged periods of low volume necessitate reduction in overheads and this also reduces capacity. Given levels of overhead and capacity can cope with a range of levels of volume. Increasing volume levels, especially if sustained, require expanded capacity, which leads to higher overheads. Fluctuating capacity and expertise needs can be dealt with by inter-company transfers of staff and other resources, networking, partnering and similar arrangements. Long term staff and special expertise can thus be maintained while providing security of employment but retrenchments occur at times.

The basis on which contracts contribute to corporate overhead – pro rata by value, pro rata by time or other

According to nine respondents, contracts contribute on a pro rata basis according to contract value. The time factor does or can also be considered and this is used to allow for particular circumstances. Three respondents did not use a pro rata basis at all, but deducted corporate overhead from total gross profit recorded for all contracts.

The control of overheads

Site overheads are monitored monthly against the budget (priced P & G) taking time, progress, resources and other relevant factors into account.

Corporate overheads are monitored against the annual budget and business volume. Adjustments and reductions are effected by way of retrenchments and other means.

Measurement of overhead productivity

Overhead productivity is largely a subjective issue and not specifically measured. Site overhead is measured by means such as turnover and value generated per supervisor, overhead vs. value produced and by comparing sites. Corporate overhead is measured by means of relevant criteria for the corporate functions and performance review of functions or individuals.

The effects of outsourcing on overheads

Sub-contacting is the major element of outsourcing, although some administrative and support functions may also be outsourced. Responses to this point were mixed, some expressing the view that overheads are not affected, some that certain overheads increase, e.g., supervision, and some that certain overheads can be reduced by outsourcing. Sub-contracting and labour can require more supervision and hence higher site overheads. Outsourcing of administrative functions, e.g., wages and other services can reduce overheads.

The effects of IT applications on overheads

Responses to this topic were diverse. Respondents were not equally IT competent but all agreed that there was no choice but to commit to IT and to keep up to date. Some were of the view that the costs (human, software and hardware) were horrendous and it was questionable whether IT led to increased productivity and reduced overheads. Some felt that overheads were not affected but that the resultant better and faster information and processing were beneficial. Others felt that IT resulted in more efficient utilization of and reduction in overheads and in staff numbers.

Clear classification of the costs that constitute “overheads”

A classification of overhead cost elements depends on internal accounting and costing systems and on individual business modes. Respondents identified the following:

Management and administration: Head office and site managers' salaries.

Space: Rentals, services, computers, IT, office equipment, security, cleaning, water, electricity, refreshments, printing and stationery.

Communication: Telephones, cell phones, faxes, postage.

Travelling: Vehicles (cars, trucks, LDVs), accommodation, across-border activities, transportation of staff.

Human resources: Training, skills development, occupational health and safety, salaries, medical aid, pension, etc., industrial relations, holding costs of monthly and some hourly paid site staff, retrenchment packages, protective clothing.

Financial: Auditing, asset ownership, subscriptions, legal fees, depreciation, bank and finance charges, corporate insurances, professional membership fees, sponsorships, donations, group fees.

Yard and workshops: Plant, equipment and maintenance.

Work procurement / marketing: Tendering, estimating, advertising, entertainment, sales promotion, business development (research and development), special expertise in estimating, pre-qualification, presentations, design-and-construct bids.

Other: Engineering / technology back-up (e.g., as required for alternate bids), consumable tools, purchasing.

Related comments

Practicing quantity surveyors do not understand the difference between site and corporate overheads.

It is dangerous to have insufficient overhead; the loss of expertise and experience from reducing overhead increases risk; one needs intellectual capital.

The tendering system and procurement systems such as the various versions of design / construct / finance / operate introduce higher overhead costs.

Participation in further research

All respondents were amenable to participate in further research on this topic.

CONCLUSIONS

Accounting literature covers the principles of both site and corporate overhead, possibly discussing site overheads in greater detail. The findings of this and envisaged further research may result in more detailed identification and classification of construction overheads. This in turn would facilitate the estimating and pricing of construction work and the budgeting, allocation and management of overheads, with benefits for all stakeholders.

Larger construction firms generally are clear about the nature and extent of their overheads and monitor and manage their overheads carefully but may allow for both site and corporate overheads in bid prices arbitrarily, for competitive reasons. Managing overheads is affected by variations in business volume as result of fluctuations in the construction cycle and in the success rate of obtaining work. Reducing overheads and capacity by retrenchments and curtailing other aspects of competitive advantage can have negative effects on the firm's market position. Overhead budgets and allowances in tenders are based on past records, business strategy, market and business volume forecasts and estimated resource needs. Recovery of corporate overheads is done either on a pro rata basis according to contract values, or on an overall company basis. Outsourcing does not appear to have an appreciable effect on overheads. The effects of information technology on overheads have not been clearly identified as being beneficial or detrimental.

RECOMMENDED FURTHER RESEARCH

Since this study was exploratory in nature, further research is envisaged as follows:

More detailed work on large firms, such as a classification of overhead cost elements, their occurrence and extent in various types of work, their treatment in the pricing process, their monitoring and recovery.

The inclusion of medium and small firms.

Investigating the number, extent and consequential effects of liquidations, curatorships and other types of financial failure among construction firms that may be attributed to disproportionate overhead costs.

Examining means of realistic market forecasting of the various segments of the construction market, to enable contractors to regulate their work volumes and hence also their business strategy, overheads, etc.

A survey among quantity surveying practices, to determine that profession's perceptions and practices concerning contractors' overhead cost structures.

An investigation of specific effects concerning the relationship between intellectual capacity and overhead costs.

Determining specific overhead : business volume ratios for different sizes of firms and different categories of work.

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