Cost Planning in the 1980s?

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Context

The processes within the framework of design management have been identified as occurring within two dimensions[1] see figure A. The vertical dimension, design morphology, is a chronological sequence advancing from the abstract and general to the concrete and particular, this procedure can be understood by reference to the RIBA "Plan of Work". As a morphology is sequential and not iterative, any return from a later design stage to an earlier stage must be considered as a failure in the management of the design activity.

The horizontal dimension, ie the design process, is however, iterative and cyclic. Within this dimension there are four steps; analysis, synthesis, appraisal and decision which can be defined as follows:—

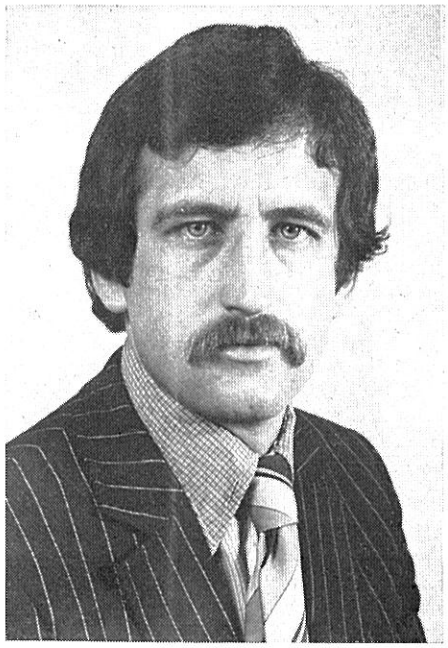
Analysis:	the understanding of the problem;
Synthesis:	producing a solution;
Appraisal:	establishing the performance of the solution;
Decision:	choice of the best solution.

It is within this horizontal dimension that cost planning has its greatest validity and particularly within the sphere of appraisal that cost planning techniques have developed as attempts have been made to represent the design solution (model) so that its performance may be measured (eg capital cost of provision) and the third stage within appraisal, ie that of evaluation can be completed.

Developments in Cost Planning

Elemental cost planning has evolved over the years and its development has been supported by data published by the Building Cost Information Service which was initiated in 1961 and now based on the Standard Form of Cost Analysis, first published in 1969. During the 70s a number of attempts were made to improve and refine the techniques of cost planning. Among these attempts an approach which attracted a lot of development time was that which used multiple regression analysis, with perhaps the main thrust of this work being carried out by Loughborough University.[2] This approach reflects perhaps one of the more successful applications of statistical model building. Models have been evolved which identify a link between the client cost of an element or number of elements and various design parameters.

A fundamentally different approach to the capital cost prediction of building works is that which was adopted by the Property Services Agency in the development of the COCO program (Cost of Contractors Operations). This program attempted to predict the cost of production of a proposed building by direct simulation, of the necessary production process. One of the consequences of the development of this program which has potential benefits for cost planning development was in the way in which different design solutions to a functional design problem, could be compared rapidly in terms of their contractor generated cost consequences, thus offering an efficient method of appraising designs.



C. Hardcastle

In the late 1970s an attempt was made at the University of Strathclyde to develop cost planning within the particular context of building conversion. This work which was sponsored by the Science Research Council[3] hypothesised an approach to cost prediction based upon the "space" as a cost prediction unit, but found, as in many attempts to develop cost planning using the existing communication documents, that the development was necessarily restricted by the quality of information.

Another, more sophisticated approach to cost planning development was adopted by J. Southwell in his attempt to reconcile the problem of pre contract production cost information.[4]

Cost in Use

Capital cost planning ought not to be divorced from the cost planning influence of recurrent costs and during the decade the concept of cost in use, now over twenty years old, has become more widely understood as have the techniques of Discounted Cash Flow which are utilised in the fulfilment of this concept. Indeed in more recent years, the philosophy of cost in use has been expanded into the theme of terotechnology, which can be defined as, a combination of management, financial engineering and other practices applied to physical assets in pursuit of economical life cycle costs. Thus terotechnology seeks to interpret the client's resource commitments which accrue not only as a direct consequence of the choice and orientation of the physical attributes but also as a result of the influence of the physical formation upon the performance of activities within the building.

The above summary does not claim to cover all innovations and modifications made or attempted during the past decade but only to indicate perhaps the direction in which cost planning philosophy was pointed. It is clear however, that during the seventies progress has been made in all aspects of cost planning from initial capital cost estimates through to detailed costs in use studies, if not quite to full implementation of terotechnology theory.

The profession has indeed been attempting to move forward to a position which would enable it to ensure that the resources of the construction industry are utilized to the best advantage of society.

However, quantity surveyors working to extend the frontiers of cost planning knowledge have not been totally unhindered by problematic areas. A major area of concern, and that which has far reaching consequences not only for cost planning as a philosophy but also as a series of techniques, is the validity of the information contained in the SMM based bill of quantities.

It is true to say that it is the research workers of the profession who have been most critical of the information contained in SMM based bills of quantities and who have led the investigations into methods of improving it, not always with the whole hearted support of those members in practice.[5] The progress achieved has not been however, so rapid as to allow radical changes in the philosophy of cost planning with the consequent result that progress in the development of cost planning techniques has been restricted.

The success of current cost estimating techniques which are so often based on historical information obtained from bills of quantities is not disputed. It is their success in producing economically efficient designs which may be questioned.

It has been suggested that the extent to which price reflects real cost in production might be of minor importance to designers and cost planners but of great importance to society as a whole as it creates the basis for optimal economic solutions and also promotes the development of more economic solutions.[6] If it is accepted that real cost is important for society as a whole then the building economist is under an obligation to strive to achieve a situation in which real cost can be assessed. It should be noted that "real production cost" exists