THE USE OF BCIS ELEMENTAL COST DATA BY QUANTITY SURVEYORS AS PART OF COST PLANNING TECHNIQUES: THE PRACTITIONERS' PERSPECTIVE

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Professional Quantity surveyors' main service to clients is to forecast likely construction costs. This is a service that they are best qualified to provide amongst the plethora of construction professionals. However, criticism can be levelled at the profession regarding the accuracy of this cost planning service, and hence, by inference, the quality of cost information used in preparation of these cost forecasts.

A pilot study of West Midlands Quantity Surveying Practices has indicated that more practices than ever are offering cost planning services, and that they are increasingly accurate and rely upon BCIS cost data for this accuracy. The most used BCIS cost data is: elemental data; cost per m^2 GFA; and tender price indices. Reservations still exist within the QS profession regarding whether the elemental approach is the best way to relay cost information and also that the BCIS databank should move away from its reliance on tender prices to incorporate 'as built' costs.

This research indicates that inaccuracies in cost plans, in QSs' opinions, are most likely to be as a result of poor communication amongst other design team members. Most notably in terms of variations by designers, poor initial client brief, client led changes and insufficient specification information.

Keywords: BCIS, cost estimating, cost planning, quantity surveying, reliability.

INTRODUCTION

Cost planning arose out of the need to plan effectively the cost of a construction project from inception through design and continuing throughout the construction phase. Seeley (1996) supports this view as he states "the essence of cost planning is to enable the architect to control the cost of a project (within the target) whilst he is still designing". Seeley further suggests that the earlier cost planning is introduced into the design process "the greater the measure of control that can be exercised"

Prior to cost planning, design decisions had to be taken and tenders invited, with the resultant cost only being known upon receipt of tender. Often, as a result of the tender sum being greater than the client originally contemplated, abortive and/or remedial measures would then have to be taken, which in themselves involved additional costs. Ashworth (1994) suggests that the consequence of such actions leads to a "dissatisfied and disillusioned client".

Emerging from this background, cost planning was born, with Morris (1995) identifying that cost planning began life in 1945 as a means of rationing the building process, to ensure target costs for buildings were not exceeded. This was achieved by separating the cost of building elements against which the design could be monitored.

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During the inter war years prior to 1945, the Royal Institution of Chartered Surveyors (RICS), indicated that "there was no real need for cost control development" as "prices remained stable – fluctuating within 12.5% either side of mean" (RICS 1976). This situation post-1945 became unsustainable due the large rebuilding programmes necessary to replenish war damage.

In the early 1950s the Ministry of Education developed elemental cost planning mainly "in response to the extensive school building programme" (Willis, Ashworth and Willis 1994). The RICS responding to the need for cost information set up its own Cost Research Panel around the same time and introduced comparative cost planning. Seeley (1996) explains that this latter method involved examining different ways in which the design may be performed along with the costs associated with each alternative. This approach then provided an 'options' approach to design, which the architect could select from, so as to balance the financial, functional and aesthetic considerations of the project.

From these beginnings, the enduring need for a systematic and technical approach to cost planning grew within the surveying profession. To achieve these aims there was a necessity to create a body of cost knowledge and data upon which the whole of the quantity surveying profession could call. To this end the Building Cost Information Service (BCIS) was formed under the auspices of the RICS in April 1962.

The remit of the BCIS was to persuade 'professional' quantity surveying practices (i.e. representing the client) to submit their cost information, in elemental analyses form, to the BCIS who would then collate this information and disseminate it amongst those members who subscribed to the service. Robertson (1995) states that the BCIS succeeded in producing its first form of elemental cost analysis in 1963, and it took a further six years before the elemental format could truly be called a 'standard form of cost analysis'.

However, elemental analyses being historical in nature were considered to be only of partial value and as such required the elemental data to be "supplemented with other more general information on trends and economic indicators" (Ferry and Brandon 1991). Ferry and Brandon go on to suggest that this data is "a valuable source in the industry". They further propounded, that, due to the expense and time taken in producing elemental cost analyses, the idea of a 'central databank' was not popular amongst the profession; indeed initially there was only in the region of about fifty detailed elemental analyses submitted per annum. However Robertson (1995) reports that there are approximately 11,000 cost analyses on the BCIS host computer, with the annual figure now in the region of approximately 125 analyses being submitted.

Analysis of current BCIS numbers, indicate that they published approximately 80 detailed analyses per annum, with another seventy available via the BCIS computer on-line service, BCIS Bulletin Service and elemental analysis subscription service. Comparing these returns with the size of the profession (629 registered practices on the RICS Directory of Members within the UK) and the number of projects let per year, the numbers tend to give credence to Ferry and Brandon's statement (Ferry and Brandon 1991) that the BCIS' central databank concept is not well supported by the QS profession.

Southgate (1988a) reporting on the Gleeds approach (Anon 1989), suggests that there is a future for elemental analyses, but not necessarily in its current format. Southgate (1988a) emphasizes the importance of getting the initial cost figure right and that the figure given to the Client "should be based on sound principles, both as to methods of

calculation and records of project costs". It is further contended that the present "cost planning methods do not measure up to this need", and that the main reason for this is that the current structure of the elemental cost analyses is more suited to later design stages rather than at the initial concept stage.

Southgate (1988a) continues that the BCIS standard cost planning elements no longer reflect the way in which buildings are constructed and as such need reviewing. The changes indicated by Southgate and supported by Anon (1989) are said not to be too radical, but are more a fine tuning of the structure and positioning of some of the current elements. The significant change is that the Gleeds' approach (Anon 1989) refers to the new list of building components as functions rather than elements.

In a later article, Southgate (1988b) suggests that the repositioning of cost data into the Gleeds' format will allow better and wider application of cost data for other projects. This belief is based on the premise that all work of a like function is kept together rather than, as currently, being dissipated through different BCIS elements. Anon (1989) sees this as a major advantage and cites the example of structural work, the province of the structural engineer, as being kept discrete. Anon (1989) further contends that the new 'functions' are more closely related to the "critical stages in the construction of a building" and this promotes a direct link between the cost plan and the construction programme. This tying together of the cost plan to the construction programme will, according to Anon (1989), lead to greater accuracy in terms of both the cost plan and construction programme.

Southgate (1988b) does however recognize that to compile and change existing detailed analyses into Gleeds' suggested format is beyond the scope of individual practices and suggests that the BCIS must take the lead in this.

Worryingly, Cartlidge (1973) commented on the "staggeringly small proportion of practising surveyors" who undertook price planning at that time and reported that only 55% of those questioned did so. In contrast, Morris (1995) paints a different and very bright future for cost planning. He pictures the evolving use of cost planning suggesting an inevitable move towards a fully integrated design and cost planning computerized system. This was alluded to earlier by Southgate (1988a) who supported the view towards greater computerization, indicating that cost data would require recalculation.

Another learned approach is to consider cost planning's main role as being a communication function. Bowen and Edwards (1994) intimates this and continues that during the design phase of a project, one of the main client functions is to communicate their needs and objectives to the Design Team, whose role it is to interpret those needs.

In Willis, Ashworth and Willis' (1994) view, success in cost planning requires the surveyor to have 'ready and willing co-operation of the architect and Client". RICS (1976) referring particularly to services installations suggest that these are often treated as "separate design problems" and not "an integral part of the whole". They further contend that this approach is likely to lead to the undermining of an "attempt to produce a unified and realistic cost plan".

Whilst Bowen and Edwards (1994) contend that the "quality of the brief impacts on the quality of the solutions proposed by the design team", they also suggest that quantity surveyors in general are reactive rather than pro-active in relation to cost matters. This criticism is equally levelled at the doors of clients and architects alike,

in as much as they suggest that neither of these parties take a pro-active approach in "facilitating quantity surveyors' understanding of the brief".

To assist in the understanding of briefing documents, Bowen and Edwards (1994) investigated the use of a 'pro forma brief', but their findings reveal little evidence of its use and its validity was questionable on the basis that the "brief is an evolutionary process". However Seeley (1996) disagrees, and suggests that "it is desirable for the brief to be drafted on the basis of a questionnaire".

Bowen and Edwards (1994) contend that the communication of the resultant cost plan to the client needs to avoid the "excessive use of technical terms and jargon" and "should be explicit in its treatment of factors such as the quality specification of the proposed project, the uncertainty attached to any cost plan, current market conditions, the cost model used, the source of cost data, and the cost indices used for adjustment purposes.

ANALYSIS OF SURVEY DATA

The aim of the research was to investigate the use of cost planning within the quantity surveying profession, initially via a pilot study based in the West Midlands, with a view to determining the validity scope and future use of BCIS elemental cost data.

The research carried out by postal questionnaire, had the following objectives:

1. to ascertain the extent to which quantity surveying practices located within the West Midlands conurbation use cost planning;
2. to establish the extent of the use of BCIS elemental analysis within those practices;
3. to verify the level of accuracy achieved between the initial cost plan (following briefing) and the final account figure;
4. to identify the main reasons for variances between the initial cost plan and the final account.

The overall aim of the research was to establish whether cost planning was widely used by quantity surveyors and to ascertain whether improvements to the existing cost planning approach i.e. currently reliant on the BCIS, could be established. If the aims were satisfied, then this pilot research could then be extended nation-wide.

To determine the extent of the use of cost planning in the West Midlands and the usage of the BCIS elemental items, an anonymous structured postal questionnaire was issued to one hundred and eight West Midlands surveying members, and a total of sixty two replies were received (57%). The questionnaire contained a variety of pre-determined responses, with the option of further comments. Commercial sensitivity was dealt with by anonymity.

Written evaluation of the findings are supported by descriptive statistics, and where appropriate, some correlation tests were undertaken. In addition, some questions looked for open-ended comments.

Questions were grouped under the following areas of cost planning services:

1. numbers of practices offering cost planning services;
2. BCIS data usage, usefulness and accuracy;
3. suggested changes to the presentation and content of the BCIS databank;
4. accuracy of cost planning as a cost forecasting tool.

The key findings of the questionnaire analysis are now considered. First, in respect of the quantity surveying organizations who responded, it can be seen that there has been a slight improvement in the proportion using cost planning, increasing from the fifty 5% indicated by Cartlidge (1973) to a proportion currently within the West Midlands of 59% (although it is noted that Cartlidge's data was based nationally). It should be considered that in the intervening twenty eight years a relatively modest four percent in usage cannot be considered a quantity surveying success! Furthermore some organizations listed as 'quantity surveying practices' offered no service to clients in this field of pre-contract services.

In terms of subscription to the BCIS, the data indicated a 59% subscription rate. This percentage mirrors the mean cost planning usage indicated previously, suggesting an obvious link between these two aspects. It can be concluded that as such it is necessary to widen subscription to the BCIS to encourage a wider usage of cost planning within the quantity surveying profession. However, lack of subscription to the BCIS does not itself necessarily indicate that practices do not undertake cost planning, merely that their source of cost data is not supplied by the BCIS.

BCIS data usage, usefulness and accuracy for forecasting purposes provided questionnaire results which indicate an inextricable link between these three aspects of cost planning. Elemental data, cost per m^2, gross floor area and tender price indices were considered by the profession as being the most popular items of cost related data surveyed. In contrast, functional data (i.e. cost per 'units' of certain building types, for example, cost per hospital bed, cost per seat in a cinema etc.) received very little support amongst the profession with as little as 9% considering it helpful in forecasting future project costs accurately. Whilst tender prices were ranked the third most prevalent data in regular use within West Midlands QS practices, it was ranked as the first most useful item of cost information provided by the BCIS. A relatively close second was the cost per square metre data with elemental cost data being ranked in third place.

This reversal is open to obvious speculation that professional quantity surveyors supplement the BCIS databank with their own historical research and as such find this cost information more relevant than data with which they have had no involvement in producing. Or, equally, the information contained within the BCIS databank may simply not be appropriate for West Midlands quantity surveying practices.

The questionnaire then asked questions of practitioners as to the accuracy of constituent parts of the BCIS databank. Statistical comparisons indicated that there was a large disparity between data in regular use and that considered accurate in forecasting future projects, illustrating practitioners' doubts and reservations as to the validity and efficacy of the range of data produced by the BCIS.

Further evaluation of this part of the questionnaire indicated that practitioners ranked tender price indices as the most accurate BCIS measure in use when forecasting construction costs. Additional evaluation of data in terms of the various parts of the BCIS in most regular usage however, indicated these sections as cost per square metre, elemental cost data and tender price indices.

It thus has been shown by the response that there appears to be close correlation between the ranking of cost per metre square data, elemental cost data and tender price indices across the three areas researched i.e. regular usage, those considered most useful and those considered most accurate. In each of these cases these three sets of cost data were ranked in the top three positions. One can then deduce that

there is some confidence (albeit by a geographical minority) by the quantity surveying profession in using certain aspects of the BCIS data.

Analysis was then undertaken to indicate how many practices subscribing to BCIS also supplied cost data to the service. A figure of just under seventy five percent of practices was the result. It is the reciprocity of cost information that will make the BCIS databank more accurate and more used , but it relies on the input of quantity surveying practices to raise those parameters. As the BCIS is dependant solely on cost information submitted by quantity surveying practices it would appear powerless to improve the percentage of practices submitting cost information.

The thrust of the questions then moved to illustrate the shortcomings of the existing BCIS databank, with particular reference to the information provided within a standard elemental cost analysis. A high number of respondents i.e. eight out of ten, indicated that the current format was about right in its approach to the cost analysis of existing schemes.

The main shortcomings of BCIS data resulting from the research were identified as insufficient specification; lack of comprehensive elemental unit quantities; and lack of comprehensive elemental unit rates. The findings concur with Southgate's (1988a) view that elemental data needs to be addressed and provide data which is more meaningful to today's buildings. However, there was little call from the profession to reduce the number of elements included in the current BCIS approach.

Any changes to standard elemental cost analysis lies firmly in the hands of the profession itself. The providers of the BCIS data must be persuaded to incorporate all facets of the elemental data analysis, not omitting certain sections for the sake of time and their own convenience, as failure to include all relevant data renders elemental cost analyses much less useful.

Respondents did identify areas of additional information that they would have liked to be included within the cost analyses, and these are listed as follows:

- more international references;
- clear identification of abnormals;
- more detailed services information; and
- as built/final account analyses.

The last of these points has a great deal of merit, in as much as it reflects the total i.e. actual cost of the building under consideration. In addition, there must however be a rigorous structure for dealing with 'claim amounts' so that these are identified as such within each elemental cost analysis.

The majority of organizations who responded produced their own elemental cost data in a BCIS 'standard' format – albeit that a sizeable proportion (twenty seven percent) did not. Those who did not use the BCIS standard format were generally unwilling to share their format for research purposes, and as such sharing of good practice is being thwarted by the reluctance of the profession itself to share good practice.

Evaluation of responses to the area of questioning regarding accuracy of cost planning techniques in forecasting project costs gave a mean among responses of between plus or minus 8.3%. Furthermore more than half the respondent practices indicated that between seventy five and one hundred percent of their cost plans reflected the final cost of the project. This indicates either extremely high levels of professional expertise within the profession or high levels of modesty!

Where inaccuracies in cost plans did occur the four main reasons given by practitioners (for this) were:

1. variations in design by architects;
2. poor initial client brief;
3. client led changes; and
4. insufficient specification.

These are arguably outside the control of the quantity surveyor preparing the cost plan. The underlying problem, prevalent in all of the four aspect listed above, appears to be lack of, or poor communication of what is needed by the QS in order to be reliable in forecasting project costs at the project inception stage; reiterating Bowen and Edward's (1994) research.

CONCLUSIONS

This paper has identified that a majority of West Midlands QS practices still promote cost advice and cost planning as key services. Practices rely on the BCIS for providing the cost information used in forecasting construction costs and the resultant cost advice is reported as being increasingly accurate.

However there are still many challenges to the profession in terms of the reliability of cost advice and dissemination of cost planning data, arguably the biggest challenge to quantity surveyors is accepting that change is inevitable if quantity surveyors are to remain at the forefront of construction cost advice.

In order to enhance this 'snapshot' of cost planning services information obtained from West Midlands practices, the next logical step in research terms is:

1. to obtain the national perspective on the use of cost planning services;
2. to redefine elemental cost data into a more usable standard format;
3. to make functional data more efficacious and valid; and
4. to promote the gathering of a wider database of cost plans and final project costs.

In addition, further attention is needed, led by a combination of the major proponents of the cost planning service, namely surveying practices, the RICS and the BCIS. Actions to be made by these organizations include:

- the BCIS, who must adopt an aggressive marketing stance to widen the uptake of subscription of their cost information services through a targeted marketing campaign. The campaign would be best served by raising its profile by publishing BCIS material in major publications, notably Chartered Surveyor Monthly;
- the BCIS to respond to the criticism levied against their elemental data format by providing more detailed specification information and ensuring that elemental unit quantities and elemental unit rates are provided as standard;
- the BCIS to focus resources on providing good data for aspects which are most widely used, such as elemental cost data, cost per m^2 and tender price indices;
- the BCIS to provide elemental cost analyses on a post contract basis rather than tender basis;
- the RICS, who should raise the profile of cost planning as a design tool;
- the RICS to tackle at source the apparent intransigence of the profession to share good practice;

- the RICS to raise the profile of and stress the importance of communication in the design team and promote the importance of project briefing. They may ultimately wish to develop an industry standard pro-forms briefing document which can be used as a checklist specifically for use during the cost planning process;
- both the BCIS and RICS to encourage wider participation by the surveying profession in submitting elemental cost data for inclusion in the central 'cost databank', particularly with reference to providing better geographical representation of cost plans and technical changes; and
- the scope of the information provided by QS practices should include more detailed services information.

In conclusion there should be encouraged the gathering of the widest possible database of cost plans and project costs, supplied by QS practices, evaluated and disseminated by the BCIS and actively promoted by the RICS as part of an invaluable, unique and reliable 'value-for-money' service provided for clients solely by chartered quantity surveyors.

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