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# Value management practices of leading UK cost consultants

ROBERT C. T. ELLIS<sup>1</sup>, GERARD D. WOOD<sup>2\*</sup> and DAVID A. KEEL<sup>1</sup>

<sup>1</sup>*School of the Built Environment, Leeds Metropolitan University, Brunswick Building, Leeds LS2 8BU, UK*

<sup>2</sup>*School of Construction and Property Management, University of Salford, Bridgewater Building, Salford, Greater Manchester M7 1NU, UK*

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Value management (VM) is widely accepted as an important tool in the management of projects. Through a series of semi-structured interviews, this paper attempts to add to the qualitative exploration of VM, by investigating the attitudes and experiences of VM facilitators within major UK cost consultancies. Clients cut across all sectors, but relatively few subscribe to a formal VM process. Despite the acknowledged importance of early interventions, the focus for many VM studies tends to be at spaces and element levels, rather than at the earlier concept level. VM continues to be used as a cost-cutting exercise, particularly so on projects which are experiencing problems. Formal VM rarely extends beyond tender stage. Workshops remain the common format, but these are often compressed, due to commercial pressures, into a half-day. Techniques are adapted to suit the needs of the project, team and client rather than being rigidly applied according to the theoretical approaches outlined in the literature. The potential to integrate VM and risk management (RM) services is recognized by all, although such integration is yet to be fully developed and implemented.

**Keywords:** Quantity surveying practice, risk management, value management

## Introduction

Having originated within USA manufacturing, the business technique of Value Engineering (VE) was first applied to UK construction projects during the mid-1980s. Quantity surveying (QS) firms first learned of the process from their North American associate companies and initially offered a service based on the cost-driven, retrospective 40-hour workshop model. Kelly and Male (1988) undertook research funded by the RICS into value engineering and quantity surveying practice and concluded that VE had a place within the industry but that its form would need to be adapted to suit UK practice. In 1990, the CIOB (Green and Popper, 1990) published an Occasional Paper which clearly outlined and advocated the American VE methodology. This was characterized by the pre-existence of a design solution, an alternative design team and the five key stages of information, speculation, evaluation, development and presentation, originally developed by Miles (1972), now commonly

referred to as the Job Plan. In the same year the CIOB published a Technical Information Sheet (Palmer, 1990), warning that the 40-hour workshop, with a different team, may not be the method most suited to Britain and that a value study should not only comment on technical solutions but on the very concept of design. During the 1990s VE evolved into a much broader-based approach to achieving best value and the term value management (VM) became more popular. Authors (Kelly *et al.*, 1993; Green, 1994) began to differentiate between a range of possible value interventions and more sophisticated techniques of analysis such as SMART (Green, 1992, 1994) and FAST (Kelly and Male, 1993) were applied.

As a new and innovative technique, VM was identified by Kelly and Poynter-Brown (1990) as a natural progression for the QS and as an opportunity for them to develop their leading-edge skills. It is suggested that on the common run of construction projects the VM service has been largely championed by the QS/Cost Consultant organization, and some have argued (Norton and McElligott, 1995) that VM is of greater importance than, and should precede, cost

\*Author for correspondence. E-mail: g.d.wood@salford.ac.uk

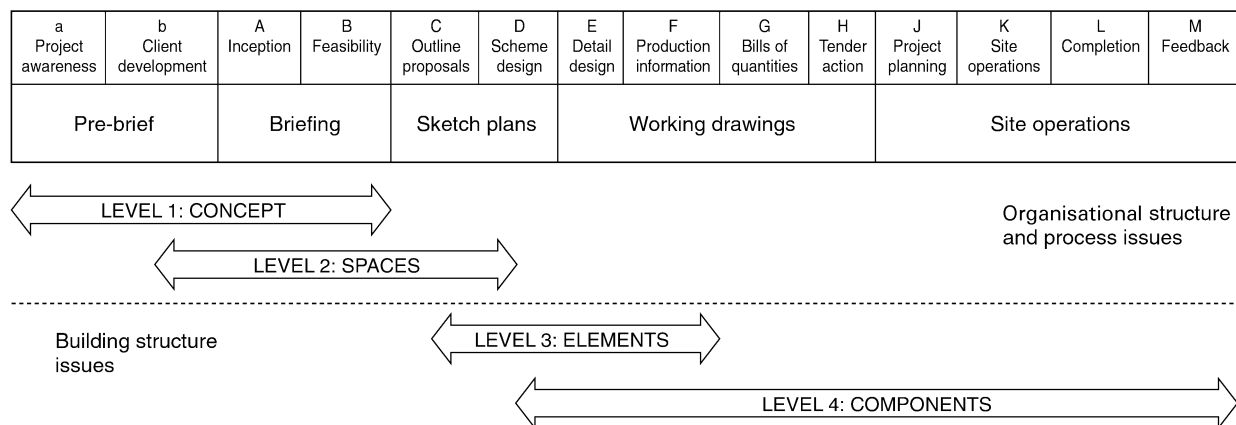
management efforts. Conversely, Hogg's (1999) research into the application of VM by QS practitioners observes, rather surprisingly, reluctance on the part of the QS profession to develop the service. The premise of this paper is, therefore, that the current practice and application of VM by QS consultants is worthy of investigation.

## Literature review

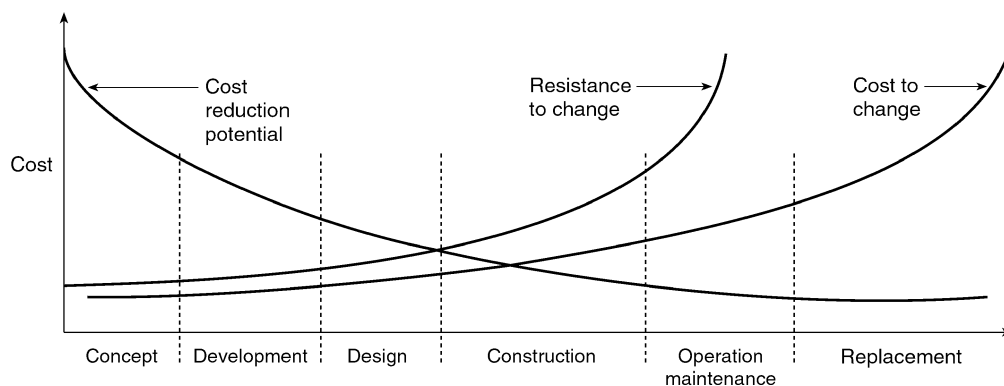
VM is now widely accepted as an important tool in the management of projects and in recent years a number of bodies have documents which aim to provide guidance for practitioners undertaking the VM process. Examples include: CIRIA (Connaughton and Green, 1996), HM Treasury (1996), ICE (1996), BSRIA (Hayden and Parsloe, 1996), DTI (1997), Defence Estates Organization (1998) and BRE (2000; Hayles and Simister, 2000a, 2000b). There is now a British Standard, BS EN 12973:2000 (BSI, 2000a), with a supplement offering practical guidance as to its use and intent (BSI, 2000b). A comprehensive international

review of VM practice across construction and manufacturing was undertaken by Male *et al.* (1998a, 1998b) and the results provide a synthesized framework of good practice for construction clients and practitioners. Rather than being a prescription for blanket application, their document provides a frame of reference for undertaking the VM process on projects.

The guidance documents cited adopt a positivist approach in so far as they propose a systematic and disciplined procedure which helps derive *the* solution to *the* problem. There are three significant characteristics which are common to all of their recommendations: first, that there are various levels at which VM may be productively engaged, generally reflecting Kelly and Male's (1993) analysis of concept, spaces, elements and components (see Figure 1); secondly, that there are opportunities for a sequence of VM interventions, at pre-brief, briefing, concept, outline sketch design, final sketch design and during site operations, but that the earlier it is introduced within the project cycle, the greater the potential impact (see Figure 2). Thirdly, VM interventions, at whatever level or stage, should follow the Job Plan sequence



**Figure 1** Decision levels and the project life cycle (Source: Male, Kelly *et al.*, 1998a)



**Figure 2** Opportunities and potential savings through VM (Source: BRE, 2000)

(or something very similar to it) using analysis techniques such as SMART and FAST. Indeed Green (1999a) claims that SMART VM has been assimilated into best practice.

While there is no shortage of texts on the theory and potential applications of VM, Simister and Green (1997) have observed previously that the research base of VM remains strangely neglected. Much of the work focuses on methodological issues advocating a soft systems approach to VM (Green and Simister, 1996; Green, 1999a; Liu and Leung, 2002; Shen and Chung, 2002) particularly at the early stages of a project where the problem is ill-defined, dynamic and complex. The emphasis here is on a learning approach to problem solving which cannot be implemented within the conventional 'one-off' VM workshop, but requires a mixture of activities over a sustained period of time (Green, 1999a). Thiry (2001) adopts a similar constructivist perspective and argues that VM workshops and studies need to be restructured to allow time for sensemaking so that stakeholders can construct a shared view of a situation, and its solution, through interaction.

Concurrently, the parallel development and application of risk management (RM) techniques within the construction industry has led some authors to suggest that VM and RM ought to be combined (Kirk, 1995; Green, 1999b; Hiley and Paliokostas, 2001; Phillips, 2002). Their views are based on the assertion that the optimum intervention points for VM and RM are likely to coincide, especially during the early phases of a project, and that they ought to be integrated not only to avoid duplication of effort but to increase effectiveness and credibility. CIRIA has commissioned two related studies: the first into managing value and risks (CIRIA, 2003a); and the second into an integrated tool for risk and value management in public-private partnership projects (CIRIA, 2003b), although the complete findings of both studies are unavailable in open publication at the time of writing.

To a large extent the body of work reviewed assists our abstract understanding of VM, and also identifies a plethora of intervention opportunities, tools, techniques and methodologies which might be employed in the VM process. In addition to this work Simister and Green (1997) provide some qualitative research into the issues which influence the outcomes of VM as perceived by practitioners, and Pasquire and Maruo (2001) offer a comparative study of various approaches to VM practice in the UK, USA and Japan. However, what is generally lacking in the field is interpretative research into the nature and development of VM practice in the construction industry. This paper therefore attempts to add to the qualitative exploration of VM by pursuing the following questions: does VM

practice follow the theoretical characteristics recommended by much of the literature in terms of the timing and level of interventions, and the techniques used; are theoretically driven methodologies informing VM practice; and is the integration of VM and RM practical or desirable?

## Methodology

The purpose of this study is to investigate the linkages between VM theory and practice within the UK construction industry. Many researchers recognize the difficulties of using quantitative techniques to investigate management practice (Tesch, 1990; Neuman, 1991). Rouse and Dick (1994) suggest that qualitative research techniques are needed to capture holistic real-world answers to real-world problems in a way that is not possible in a quantitative context. Therefore a qualitative approach, consistent with that adopted by Wood and Ellis (2003), has been used to generate rich data relating to the experiences and practice of VM facilitators.

As suggested earlier, because the concept of VE/VM was first applied on construction projects, cost consultancies have often facilitated the service and Hogg (1999) identifies the major private QS practices as most active in this area. Accordingly, the research study sample is drawn from the practitioners representing some of the UK's leading QS firms. The *Building* magazine league tables, published between 1998 and 2002 based on an analysis of fee turnover and the number of employees, were used to identify the sample. Organizations employing more than 100 chartered staff were approached and 12 companies subsequently agreed to take part in the study. The literature review, together with a pilot interview with an acknowledged expert in the field, helped to formulate a series of ideas which were examined further in a series of semi-structured interviews. Practitioners within each organization are experts in their field and are, in many instances, the respective heads of research and specialist consultancy units. As such, all interviewees are principal VM facilitators with experience ranging from 4 to 14 years. However, the authors recognize that contemporary value management work is also carried out by micro, small and medium-sized enterprises and that this restricted sample places limitations on any observations and conclusions resulting from the study.

Rouse and Dick (1994) recommend the use of NUDIST data management software to structure qualitative data analysis, believing that it assists in providing new insights and observations. Furthermore, the quantity of data generated by this research project

(89 000 words; 276 pages of interview transcripts) lends weight to their view that the automation of coding activities provides essential support for conclusion drawing and verification.

A provisional start-list of codes was based upon issues arising from the exploratory interview, a method preferred by Miles and Huberman (1994), and revised upon closer examination of the data. Transcripts were broken into meaningful text segments applying the revised coding categories. The text segments were then de-contextualized from the narrative of the interview and copied into coded folders. This allows some quasi-quantification of agreement/disagreement and the constant comparison that Glaser and Strauss (1967) recommend. Manifest items, i.e. those which are physically present in the content (Robson, 2002), were also identified to avoid any reliance on latent content which is a matter for inference or interpretation. Thus, direct quotations are used in the presentation of findings, and italicized in the script for clarity.

### Findings: timing, level of investigation and techniques

Ninety per cent of respondents expressed an aspiration to become involved at as early a stage as possible, what might be termed a strategic stage, to examine the business case or fundamental business needs. Ideally this would then be followed by a series of VM events as the project unfolded. Two participants had exemplar commissions where this was happening; for example: on one project there were to be 26 VM events over an 8-year period. However, on the common run of projects VM seems to be instigated at key decision points or project milestones, where there is already a fairly firm idea or proposal, and a clear choice has to be made between options. Without prompting, all respondents referred to examples at outline design/sketch design stage and it is clear that this is the most common project phase for VM to be undertaken, i.e. when there is a proposed solution which can be interrogated.

A third of respondents bemoan a tendency to be called in too late in the process when things had gone wrong, using phrases to describe their work such as 'fire-fighting', and clients wanting 'a second bite of the cherry'. Perhaps more worrying for VM purists was a common reference to a 'cost-cutting' mentality, or at least a need to bring the project back on budget, and it was suggested that this was to some extent the legacy of the 1980s approach to Value Engineering.

All respondents suggest that in the majority of cases there is a minimum of a single VM intervention ranging

to a maximum of three exercises on a project, depending upon client requirements and project value. The more educated clients, it seems, are those who welcome a series of interventions. However, hardly ever does the process go beyond tender stage and although the value of post-completion exercises to inform future project decision-making was identified as particularly useful by a third of respondents, it is rarely carried out.

In addition, two-thirds of respondents expressed the view that some clients (notably in the public sector) had a tick-box approach to VM. In such cases company policies, project process manuals or standing orders require VM to be undertaken and they were simply complying with that requirement, but paying little more than lip-service to the VM philosophy.

More positively, a quarter of respondents noted that that the VM process encouraged a shared understanding and broader value-based thinking amongst the design team thereby adding value *between* interventions.

As with all group activities, clear guidance and easily understood objectives are essential. Not surprisingly, all facilitators interviewed identified the need to follow a clear agenda. However, not all adhere strictly to the Job Plan approach as some participants do not like the rigidity it imposes.

*It's almost too structured and tends to turn people off.*

Some form of clear structure is deemed necessary and the basic sequence of analysis, creativity, evaluation and development are generally present, as this helps participants understand the route map that they are following through the process. It is the manner in which the stages are managed and the techniques that are used, that are most subject to variation.

Workshop approaches may vary between projects and according to the stage in the project lifecycle. For example, a judgement may need to be made about whether the workshop is an information-processing workshop or a learning workshop.

*Sometimes they [workshops] are primarily for people to come out understanding the project, not necessarily having done much information processing.*

In early workshops, such learning may be the significant feature. The approach adopted will be that which will ensure that the key project parameters and priorities are determined and understood. Achieving this requires creative thinking, but it must not be hampered by the use of unfamiliar methods or terminology. One respondent would not, at this stage, use construction terminology or expressions such as mission statements, preferring simply to identify 'what will make the project successful'. Others use a pre-scripted mission statement, based on pre-workshop discussions with the client. However, this does not undermine the importance of the workshop discussion

because it may result in the modification of the statement.

Twenty-five per cent of interviewees noted that later workshops, where drawings and proposals exist, may start with brief presentations from the architect or engineer on the design proposals. These are questioned and value opportunities can be prioritised. Placing plans on the wall where participants stand, discuss and identify priorities with coloured dots, may assist in this. Other approaches for workshops at this stage, involve dividing participants into teams, to review different aspects of the proposals.

Respondents' opinions and experience regarding the techniques used during VM interventions are addressed under the sub-headings of: information and analysis; creativity; evaluation; and development.

### Information and analysis

The importance of early analysis and prioritization is generally recognized. However, the extent to which formal techniques are used such as functional hierarchies, FAST diagrams and SMART techniques is less certain. Individual facilitators have different preferences according to experience, training, the understanding and openness of the workshop team, the needs of the particular project and the view of specific clients.

Seventy-five per cent of facilitators interviewed use some form of function hierarchy. FAST diagrams are sometimes used, but not without some reservations regarding the formality of the approach. Such diagrams are recognised as being difficult tools to use and some groups can be 'totally switched off by them'. One respondent described the verb-noun abridgement used in FAST diagramming as 'a load of rubbish' which only confuses participants.

All such tools and techniques are considered to lose their value if used inappropriately. However, they can be beneficial if applied carefully.

*You can do a quick and dirty function tree but it's about right. We're getting towards the end of the attention span of the group, so it'll do for the purpose; leave it as it is and work with it.*

Views on the degree of analysis which is appropriate also differ, some always show primary, secondary and tertiary functions while others focus on the important areas without differentiating functional level. The number of analysis levels varies from detailed multilevel FAST diagrams to those which adopt single order considerations. Not only does the technique have to make sense to participants but they must also feel comfortable with the level of analysis. Because of this, some practitioners prefer other diagrammatic representation, one using radar diagrams which are more easily understood. There is a consensus that the key is

to stimulate and maintain the participants' level of interest and to avoid the 'glazed eyes' response which can occur if the analysis phase becomes protracted.

The importance of determining client functional requirements is unanimously accepted. The scale, rigidity and systematization of the approach are the factors subject to variation, appropriateness being seen as the principal determinant. One respondent identified intelligent, repeat clients (such as national food retailers) as having a very clear and detailed understanding of their functional requirements and project objectives.

The SMART technique using weighted value trees was not found to be widely used. However, some form of multi-attribute rating as a decision-making methodology was used regularly by 25% of practitioners. A mathematical approach to evaluating alternatives is felt to be preferred by surveyors, engineers and others within the construction industry.

### Creativity

The ability to think creatively, to identify innovative, alternative solutions, and generally indulge in some 'out-of-the-box' thinking is, arguably, a key aspect of VM. While, the identification of issues, problems and value mismatches is an essential starting point, without the ability to generate alternatives that will enhance value, the process will itself offer little value improvement. Traditionally brainstorming has played an important role in the generation of ideas and its rules of use are widely known. It was found to be an almost universal technique in the respondents' armoury although a variety of approaches are used.

An important prerequisite for effective brainstorming is that the workshop participants also feel comfortable with each other and both the brainstorming and the VM processes. If the VM process is perceived as a threat to the participants' professional contribution or integrity, then there may well be a reluctance to actively contribute and offer creative alternative solutions. This may be a particular problem where design team participants are operating on fixed fees and do not wish to propose alternative solutions that either require additional work, or lead to alternative with associated cost savings and lower fees. Furthermore, if the team that has created the 'box' in the first place is subsequently expected to 'think outside of the box' there can be difficulties: there may even be some passive resistance.

In order to maintain the momentum in brainstorming, two respondents adopt the round robin approach, although most think this of limited benefit. It has been suggested that individuals using *Post-it*<sup>®</sup> notes is a useful aid, and that participants might be asked to think

of ideas prior to the workshop, though these approaches risk missing out on the spontaneity and triggering of ideas potentially present within a live brainstorming session.

One facilitator uses the de Bono concept of different hats, in which participants are asked to adopt different personas and produce appropriate suggestions; for example, they may be asked to adopt the persona of Mr Silly, or Mr Sensible. It is not felt that this detracts from the workshop, but is an aid because it encourages the breaking down of barriers that might otherwise hinder creativity.

## Evaluation

Depending on circumstances, the creative phase may have possibly produced up to 300 or 400 options. Clearly, some form of evaluation is essential as there is a cost attached to the development of alternative solutions. Methods of evaluation are many and varied from the 'leave it' approach where, if no support is given within, for instance, 10 seconds the suggestion is deleted, through the use of coloured dots applied by members of the team to identify their favoured options to some form of ranking scale. The use of coloured dots provides a speedy sorting mechanism and helps to retain team engagement within the process. One facilitator uses different coloured dots for the different team members to identify their differing viewpoints and then the allocation is discussed prior to coming to a consensus. Twenty-five per cent of practitioners prefer debate and would not wish to use any numerical sorting scale. However, others use decision matrices, particularly where there are fewer options in total, or after a first-pass sort has reduced the initial options. One facilitator applies four tests in evaluating options.

*Functionally acceptable; technically feasible; client acceptable; financially viable. A ranking scale of 1 to 5 may be applied.*

Whatever method is used, the common view is that engagement is the key: the livelier the workshop, the more involved the team is, the better the results.

## Development

The most likely options may need some more detailed development, post-workshop, in terms of cost, re-design, implications on time and quality, what road-blocks there may be, etc. While decisions may be made at the end of the workshop, it is often not possible.

*You may not have the time, you might not have the right people there [but] you don't want to force somebody to committing to cost when they don't feel comfortable to do so.*

Where further development work is to be conducted post-workshop, it is important that the nature of the work, the timescale for action and who is responsible for it, is clearly identified for each forward action. Two respondents use action sheets, although these can be time-consuming to complete at the end of a workshop. To speed up this process, syndicate groups can be used, each group completing a number of action sheets for presentation and confirmation prior to workshop close. Post-workshop costing may include calculation of whole life costs although 75% of facilitators indicate that this is very rarely the case.

*Specific operational cost savings are often not defined. Cost advice is still very much focused on capital cost.*

However, life-cycle issues may be considered specifically where it is a client-driven requirement. Only one respondent placed particular emphasis on the importance of life-cycle costs, and this was in the context of commissions linked to PFI bidding.

*Life-cycle costs were as important as capital costs because they impact on the present value of the bid, and hence whether it would be successful or not.*

## Findings: methodologies

Current VM practice on almost every occasion falls into the three phases of pre-workshop, workshop and post-workshop.

### Pre-workshop

All respondents undertake pre-workshop activity. The research indicates two aspects of pre-planning, i.e. the value manager briefing, and the briefing of workshop participants. The former is necessary to ensure that the value manager understands the client's key 'functionality aspects'. Such clarity enables the facilitator to more effectively manage the workshop participants. The latter is felt necessary to ensure that participants, influenced by their own professional traditions and background and who are often solution-driven, understand both the need for a broader, functional, analytical approach to value management and the essential multidisciplinary nature of the activity.

The approach to, and outcomes of, such pre-planning vary although the objectives tend to be consistent. Generally there are discussions with the client representative and workshop participants, either in a pre-workshop meeting, individual meetings or, at the very least, a series of telephone calls, the latter being more likely for later workshops in a series of interventions. Discussion with the client helps identify priorities and formulate objectives for the workshops.

Twenty-five per cent of respondents undertake some functional analysis, particularly where workshop time will be limited.

*To maximize the use of the people in the room, you'll need to do preparation on functional analysis with the client. If you go into the workshop ... and tell the team what it is, then they can do their ideas generation and evaluation quite well.*

Pre-meetings with participants enable them to come to the workshop, reassured and effectively prepared.

*We sit down with designers to reassure them that it's not just going to be a hatchet job.*

The outcome of such preparatory activity varies, although normally includes some form of information pack or briefing document. The detail will depend on the circumstances but generally includes organizational information on the workshop, an agenda, objectives of both the workshop and the project as a whole, and any available data on cost or design (where appropriate). For workshops later in the project life cycle, the outcomes of previous workshops would be circulated.

## Workshop

The commonly agreed format for a VM event is a workshop environment with all project stakeholders in attendance. The comments of respondents clearly indicate that there is a trend towards reducing the duration of the workshop. While two respondents are, on rare occasions, involved in workshops of up to 4 days, all commented that half- or 1-day sessions are the norms, reducing to 2 hours in certain circumstances. The reasons given for this are twofold. First, there are commercial pressures: shorter workshops keep the cost down for the client and the many demands upon participants' time generally mean that realistically the most they can commit is a half-day.

*[Clients] have a horror of spending more than £4000–5000 on me [as facilitator] and a horror of having 16 people sitting round the table – 'This is costing me money!'*

Secondly, there are psychological reasons. With the advent of several business processes and techniques now seeking to bring teams together, people are 'workshopped-out', suffer from 'workshop fatigue' or have become cynical about the BOGSAT (bunch of guys sat around talking) approach. To achieve maximum effectiveness from the workshop activity, pre-planning, appropriate facilitation and adequate follow-up are considered essential. In addition the education of clients and other workshop participants is considered to be crucially important to the continuing development and use of VM.

*We suffer from what happened in the 1980s where value engineering was very much deployed as a cost cutting tool. The legacy of that is still with us. Designers still perceive*

*value techniques as basically being used to drive the design and the costs down.*

## Post-workshop

The post-workshop activities are considered to be essential to the success of VM. Ideas may need further development prior to a decision, and the implementation of decisions made need to be followed through. Follow-up or wrap-up meetings are occasionally held 2–3 weeks after the workshop, although the most common practice is to produce a report or summary of decisions and actions following the workshop. Follow-up is sometimes through the normal, regular, design team meetings or, again less commonly, is undertaken by the Project Manager or Value Manager.

*These [meetings] are not as common as we'd like. Perhaps 60% of projects have a meeting although for 100% of projects we will take it upon ourselves to make a few nagging follow-up calls.*

This is seen by the majority of interviewees as crucial to ensure that ideas are not dropped, either because individual participants responsible for the development of a specific proposal were not fully committed to the initial decision, or they are too busy to undertake the development work.

## Findings: VM/RM integration

In the experience of the respondents, although clients span all industry sectors, the majority of VM commissions are related to major construction projects or property transactions. While there is some evidence that firms offer management consultancy services to, for example, the manufacturing sector, this is not widespread. Unlike RM, where consultants are tending to be involved in more strategic 'business-level' decisions, there is a consensus among respondents that the potential of VM both upstream into concepts and downstream into components and materials and thereby the whole supply chain is not being realised.

Fifty per cent of participants advocate a combined approach to value and risk at the beginning of a project, in order to address some of the objectives the industry is attempting to achieve i.e. maximizing functionality, minimizing whole life costs and improving the integration of the supply chain.

*Risk and value management in a planned and structured process could help the project team make the best decisions at the right time.*

Rather than perpetuating a process of 'adding things in because of risk' and 'taking them out because of



value', it is suggested that the two techniques once put together will eliminate the constant recycling of ideas. Despite logistical difficulties, some consultants are developing new approaches that seek to integrate both concepts. These are based upon 'objective hierarchies' and 'positive/negative' approaches to dealing with uncertainty, although most concede that a reliable vehicle has yet to be found. One consultant has adopted the umbrella term 'Value Improvement' for a range of services which includes VM, RM, post-project review and knowledge transfer and capture.

However, this pro-integration view is not unanimous as an equal number are less convinced of the desirability of combined workshops. The concern is that it leads to less clarity of purpose, confused thinking and subsequently less effective results. Three respondents suggest that pressure from clients to deliver VM and RM in less time is the real driving force for integration.

## Discussion

### Timing, level of investigation and techniques

The value opportunities identified by Male *et al.* (1998b) at pre-brief, briefing, concept, outline sketch design, final sketch design and site operations exist in practice but to varying degrees: the majority of commissions occur around the sketch design stage. In addition, a further point at which VM is undertaken in practice is during detailed design or sometimes at tender stage when a project has gone over budget. Consequently, commissions tend to be focused on the spaces, elements and component levels. Hence, although there is a desire on the part of the VM practitioner to be involved at pre-brief and briefing stages, this is not the norm. The corollary is that many clients may well be missing the greatest potential savings that VM theorists (for example BRE, 2000) claim can occur during these early phases.

It is apparent that most practitioners follow something akin to the Job Plan sequence as originally defined by Miles (1972). The techniques used for information analysis do not adhere rigidly to either the FAST or SMART theories referred to in much of the literature. Although some practitioners use informal value trees, there is certainly no evidence that the SMART technique has been assimilated into best practice, as claimed by Green (1999a). This reflects the findings of the survey by Pasquire and Maruo (2001), which makes no mention of SMART in their comparison of VM methodologies in practice. What they do observe is the relaxed use of the FAST technique by practitioners

and a tendency to give up on partially completed FAST diagrams when difficulties are encountered. Again this is supported by the findings of this study: the FAST 'verb-noun' abridgement described by Norton and McElligott (1995) is generally avoided, and the 'how-why' convention associated with functional hierarchy models are only loosely applied.

Brainstorming is the technique most widely adopted for generating new ideas and some of the more dynamic practitioners reflect the thinking of Elligant (1999), the internationally renowned Value Facilitator, who encourages participants to contribute at least one suggestion for which they might be sacked!

Evaluation of ideas usually takes place at the workshop and attempts are made, in a variety of ways, to obtain some form of consensus. However, the evidence suggests that only limited use is made of numerical methods to support decision making. The development of ideas is often carried out after the workshop because of time constraints. Perhaps most surprisingly, there is very restricted use of life-cycle costing as a comparative technique, despite the widely accepted view that VM is seeking best value over the whole life of the project.

### Methodologies

The evidence presented in this paper suggests that practice has a positivist perspective and is moving towards the more efficient delivery of VM rather than creating more space for it within the project programme. This is demonstrated by: the separation of pre-workshop activity which, it can be argued, to some extent pre-empts the deliberations of the workshop; the reduction in time made available for the workshop itself; and the common focus of the workshop on interrogating existing proposals.

Some respondents mention the idea of a 'learning' workshop and others the development of 'value-based thinking' between workshops. Both observations can be linked with a constructivist position. In addition, responses indicate that some form of functional analysis is commonplace on VM interventions and Thiry (2001) argues that such functional analysis, or its equivalent, is the basis of sensemaking in the VM process. Beyond that, there is little evidence from this survey that soft systems methodologies (SSM) are informing current practice.

However, this is perhaps not surprising given that the majority of VM interventions are based on a pre-existing design solution. They can therefore be classified as hard situations where the problem statement is readily accepted and the over-riding objective is optimisation. It is unnecessary, therefore, to construct new paradigms and so the case for investing significant amounts of precious time in sensemaking and learning

methodologies made by Green (1999a), Thiry (2001) and Liu and Leung (2002) has less relevance in this context. If, as they would prefer, VM consultants were engaged more often at conceptual or strategic stages when ambiguity and uncertainty are higher, then the argument for SSM would be much stronger. However, at the moment the evidence confirms Green's (1999a) observation that VM practitioners feel SSM to be so far removed from existing VM procedures, it would be difficult to secure the engagement of clients. Hence, the additional input of time and resources over a sustained period is simply not available and in the worst cases clients can have a tick-box mentality towards VM.

Current VM practice therefore reflects the positivist leanings of much of the guidance documentation referred to in the literature review and particularly to the definition of VM as a structured process, appraising existing or generated solutions to a problem by reference to the value requirements of the client (Male *et al.*, 1998a).

### VM/RM integration

Half the respondents acknowledge the potential benefits of integrating VM and RM and view the research work in progress at CIRIA (2003a, 2003b) as being influential. There is good reason to think, therefore, that these publications might be enthusiastically received by many VM practitioners. There is also some evidence here that integration is already being attempted and it could be that, as Hiley and Paliokostas (2001) found, practice is ahead of theory in this respect. However, an equal number of respondents are concerned that a combined VM/RM workshop could lead to confusion and while it may offer time savings, it could reduce the overall effectiveness. There is also a concern that it is commercial pressure which is forcing the two together. This would seem to reflect the sometimes equivocal attitude of clients to RM found by Wood and Ellis (2003).

### Conclusions

This paper attempts to explore the relationship between VM theory and practice in the UK construction industry. In particular it compares the practice of cost consultants with published VM theory and methodologies and examines whether the integration of VM and RM, as recommended by some authors, might be successful.

The evidence in this survey suggests that while most VM practitioners aspire to being involved as early as possible, most commonly they receive a commission at

a later stage than they would prefer. Hence, the advice offered in many of the guidance documents that VM has greatest impact at the inception stage of a project, is seemingly unheeded by clients. The emphasis tends to remain at the sketch design stages and at the spaces/elements level (as was the original focus of VE). The consequence of this later involvement can often result in VM interventions that become cost-cutting, rather than value-enhancing exercises. There is widespread use of quasi-functional analysis but it is not applied rigorously in accordance with either FAST or SMART theories and there is limited use of any numerical techniques to support decision-making.

The VM practices covered by this study are characterized by a positivist perspective, and constructivist or soft-systems methodologies seem to be having little influence. Nor do they seem appropriate in the context of the timing and scope of typical commissions. Paradoxically, despite the widespread belief in the enormous potential gains arising from VM, the amount of time clients are willing to dedicate to VM studies is becoming evermore compressed. Although multidisciplinary workshops are still commonplace, the evidence suggests that half-day sessions are becoming the norm, with some of the activities being re-assigned to pre- and post-workshops.

There is some evidence of a move towards integration with the related business technique of RM. However, opinions are divided on whether, in a frenetic commercial environment, this is a marriage driven by effectiveness or efficiency.

Finally, the research does not confirm Hogg's (1999) observation that QS firms are reluctant to develop the VM service, although the difference in samples may go some way to explaining this.

The implications of these findings are that practice is pragmatic and competent, if not particularly sophisticated. The immediate commercial imperative, i.e. capital cost and no delays, remains and this impacts upon the focus and timescale of VM activity. Further research is necessary to examine client perceptions of VM with a view to exploring why they seem reluctant to invest time and money in the process, and why it is not commissioned more often in the supposedly fertile early phases. This would then inform the development of VM theory and methodologies which might be more rigorously applied to achieve greater value improvement.

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## References

- BRE (2000) *Value From Construction: getting started in Value Management*, BRE, Watford.
- BSI (2000a) *BS EN 12973:2000 – Value Management*, BSI, London.
- BSI (2000b) *PD 6663: Guidelines to BS EN 12973: Value Management – practical guidance to its use and intent*, BSI, London.
- CIRIA (2003) *Developing an Integrated Tool For Risk and Value Management in Public-Private Partnership Projects (RP643)*. Available at: [http://www.ciria.org/rp643\\_developing\\_an\\_integrated\\_tool\\_for\\_risk\\_and\\_value\\_management\\_in\\_public\\_private\\_partnership\\_projects.htm](http://www.ciria.org/rp643_developing_an_integrated_tool_for_risk_and_value_management_in_public_private_partnership_projects.htm).
- CIRIA (2003) *Managing value, risks, uncertainties and opportunities (RP639)*. Available at: [http://www.ciria.org/rp639\\_managing\\_value\\_risks\\_uncertainties\\_and\\_opportunities\\_stage%202.html](http://www.ciria.org/rp639_managing_value_risks_uncertainties_and_opportunities_stage%202.html).
- Connaughton, J.N. and Green, S.D. (1996) *Value Management in Construction: a Client's Guide – CIRIA Special Publication no. 129*, CIRIA, London.
- Defence Estates Organization (1998) *Value Planning and Management – Technical Bulletin 98/26*, DEO, Sutton Coldfield.
- DTI (1997) *Value Management – a quick guide*. Available at: <http://www.dti.gov.uk/mbp/bpgt/m9bd13001/m9bd130011.html>.
- Elligant, H. (1997) *Modern VM for Design and Construction*, SAVE VM Training workshop, Heriot-Watt University.
- Glazer, B.G. and Strauss, A.L. (1967) *The Discovery of Grounded Theory: strategies for qualitative research*, Aldien, Chicago, IL.
- Green, S.D. (1992) *A SMART methodology for value management – Occasional Paper no.53*, CIOB, Ascot.
- Green, S.D. (1994) Beyond value engineering: SMART value management for building projects. *International Journal of Project Management*, 12(1), 49–56.
- Green, S.D. (1999a) A participative research strategy for propagating soft methodologies in value management practice. *Construction Management and Economics*, 17(3), 329–40.
- Green, S.D. (1999b) Towards an integrated script for risk and value management, in Bowen, P.A. and Hindle, R.D. (eds) *Proceedings of the CIB W-55 and W-65 Joint Triennial Symposium: Customer Satisfaction*, Cape Town, pp. 906–15.
- Green, S.D. and Popper, P.A. (1990) *Value Engineering: the search for unnecessary cost – Occasional Paper no. 39*, CIOB, Ascot.
- Green, S.D. and Simister, S. (1996) Theoretical perspectives on the development of meta-methodology for value management, in Taylor, R.G. (ed.) *Proceedings of the CIB W-92 Symposium, Procurement Systems: North meets South*, Durban, pp. 169–81.
- Hayden, G.W. and Parsloe, C.J. (1996) *Value Engineering of Building Services – Application Guide 15/96*, BSRIA, Bracknell.
- Hayles, C. and Simister, S. (2000a) *The Value Workshop: concise guidance on the VM workshop*, BRE, Watford.
- Hayles, C. and Simister, S. (2000b) *The F.A.S.T. approach: functional analysis and diagramming techniques*, BRE, Watford.
- Hiley, A. and Paliokostas, P.P. (2001) Value management and risk management: an examination of the potential for their integration and acceptance as a combined management tool in the UK construction industry, in *Proceedings of the RICS Foundation Construction and Building Research Conference*, Glasgow, pp. 27–36.
- HM Treasury (1996) *CUP Guidance No. 54 – Value Management*, HM Treasury Central Unit on Procurement, London.
- Hogg, K. (1999) Value Management: a failing opportunity?, in *Proceedings of the RICS Foundation Construction and Building Research Conference*, Glasgow, pp. 133–40.
- ICE (1996) *Creating Value in Engineering*, Thomas Telford, London.
- Kelly, J. and Male, S. (1988) *A Study of Value Management and Quantity Surveying Practice – RICS Occasional Paper*, Surveyors Publications, London.
- Kelly, J. and Male, S. (1993) *Value Management in Design and Construction: the economic management of projects*, E&FN Spon, London.
- Kelly, J. and Poynter-Brown, R. (1990) Value Management, in Brandon, P.S. (ed.) *Quantity Surveying Techniques: New Directions*, BSP, Oxford, pp. 54–74.
- Kelly, J., Male, S. and MacPherson, S. (1993) *Value Management – A Proposed Practice Manual for the Briefing Process – Paper no.34*, RICS, London.
- Kirk, D.Q. (1995) The integration of value management and risk management, in *Proceedings of the SAVE Annual Conference 1995*. Available at: [http://www.value-eng.org/pdf\\_docs/conference\\_proceedings/1995/9509.PDF](http://www.value-eng.org/pdf_docs/conference_proceedings/1995/9509.PDF).
- Liu, A. and Leung, M. (2002) Developing a soft value management model. *International Journal of Project Management*, 20(2002), 341–9.
- Male, S., Kelly, J., Fernie, S., Gronqvist, M. and Bowles, G. (1998a) *The Value Management Benchmark: research results of an international benchmarking study*, Thomas Telford, London.
- Male, S., Kelly, J., Fernie, S., Gronqvist, M. and Bowles, G. (1998b) *The Value Management Benchmark: a good practice framework for clients and practitioners*, Thomas Telford, London.
- Miles, L.D. (1972) *The Techniques of Value Analysis and Engineering*, 3rd edition, Lawrence Miles Foundation, McGraw-Hill, New York.
- Miles, M.B. and Huberman, A.M. (1994) *Qualitative Data Analysis*, 2nd edition, SAGE Publications, California.
- Neuman, W.L. (1997) *Social Research Methods*, 3rd edition, Allyn & Bacon, Boston, MA.
- Norton, B.R. and McElligott, W.C. (1995) *Value Management in Construction: a Practical Guide*, Macmillan, Basingstoke.
- Palmer, A. (1990) A critique of value management, *Technical Information Sheet no.124*, CIOB, Ascot.
- Pasquire, C. and Maruo, K. (2001) A comparison of value management methodology in the UK, USA and Japan. *Journal of Financial Management of Property and Construction*, 6(1), 19–29.

- Phillips, M. (2002) A value and risk management approach to project development. *Proceedings of the Institution of Civil Engineers*, **150**(May), 67–74.
- Robson, C. (2002) *Real World Research: a resource for social scientists and practitioner – researchers*, 2nd edition, Blackwell, Oxford.
- Rouse, A. and Dick, M. (1994) The use of NUDIST, a computerized analytical tool, to support qualitative information systems research. *Information Technology and People*, **7**(3), 50–62.
- Shen, Q. and Chung, J. (2002) A group decision support system for value management studies in the construction industry. *International Journal of Project Management*, **20**(2002), 247–52.
- Simister, S. and Green, S.D. (1997) Recurring themes in value management practice. *Engineering, Construction and Architectural Management*, **4**(2), 113–25.
- Tesch, R. (1991) Software for qualitative researchers: analysis needs and program capabilities, in Fielding, N.G. and Lee, R.M. (eds) *Using Computers in Qualitative Research*, Sage, London, pp. 16–37.
- Thiry, M. (2001) Sensemaking in value management practice. *International Journal of Project Management*, **19**(2001), 71–7.
- Wood, G.D. and Ellis, R.C.T. (2003) Risk management practices of leading UK cost consultants. *Engineering, Construction and Architectural Management*, **10**(4), 254–62.