

Managing Value as a Management Style for Projects

Steven Male¹ John Kelly² Marcus Gronqvist³ Drummond Graham⁴

Abstract: The authors' current thinking on Value Management (VM) as a methodological management style for managing value in projects is presented. Historical developments in value management and value engineering are discussed, together with conceptual thinking on the notion of a project value chain and the authors' own initiatives in taking VM further in UK construction. North American thinking dominated development in VM for the first four decades whilst recent developments in principally Europe, Australasia and China (notably Hong Kong) have also seen divergence of thinking emerge, and is reflected in different published national standards. Comparisons and contrasts are made between SAVE International thinking on the value methodology with that of the British Standard for Value Management and the new draft Australian / New Zealand standard, both of the latter viewing VM as a distinct management style. Lessons are drawn from the authors' and others published material, and, from our experience of conducting nearly 200 VM studies of different types for a variety of private and public sector clients on projects ranging from high profile national icon structures to public sector housing, undertaken at all project stages from inception to operation / facilities management, and under all forms of procurement. More recently VM has been used to underpin the development of a national asset strategy for the UK's Environment Agency. Lessons are distilled and different study styles for conducting value management are presented, some with the potential to take VM to its next stage of development.

Key words: Value management, value engineering, project management, benchmarking, construction industry.

1. INTRODUCTION

The impetus for the authors' continued work in value management for over nearly two decades has come from a number of studies conducted for the Royal Institution of Chartered Surveyors (RICS) during the mid to late 1980s, presented in Kelly and Male (1993), and subsequent work funded by the UK's Engineering and Physical Sciences Research Council (EPSRC) (Male et al 1998a, 1998b). EPSRC funded a twenty-six month international benchmarking study into value management. An extensive literature review supported international fieldwork comprising fifty-eight structured benchmarking interviews conducted during the course of that research using the authors' own benchmark datum to elicit data on the practice of VM and to gain insight into a host of other relevant issues such as culture, legislation and certification. Fourteen interviews were conducted in Australia, eighteen in North America, twenty-one in the UK and five in Europe. The interviews revealed, as expected, a diverse range of VM practice. The outcome from the study was an internationally benchmarked best practice methodology for value management as described in Male et al. (1998a, 1998b).

From 1998 onwards the authors subsequently tested for robustness and enhanced further that methodology through conducting in excess of two hundred action-research focused industrial studies and systematically analysing the outcomes. Methodologically, action research and grounded theory have been used as mutually reinforcing approaches and applied successfully to enhance the authors' understanding of VM. Action research is an approach to applied social research where the researcher and client

collaborate in the development of a diagnosis of and solution for a problem; it normally involves designing interventions in social processes and contributes to empirical knowledge from real world situations (Bryman 1989). The outcome is the improvement of practice itself, of the understanding by practitioners involved in the research process and of the situation within which action research takes place (Robson 2002). Action research tends to be total system focused and has close links with the real world soft systems methodology advocated by Checkland (1981). Grounded theory as a qualitative approach to research was originally developed by Glaser and Strauss (1967) and the fundamental principles are an enhanced understanding from fieldwork, theory grounded in reality, social meaning related to behaviour and action. Equally, the approach expects that experience for both the subject(s) under investigation and the researcher are constantly evolving and must be taken account of in the research process, and, finally, there is an emphasis on process, change, and the variability and complexity of life (Goulding 2002).

Action research studies have included those for clients wishing to develop long term partnering and supply chain arrangements; studies for consortia or clients involved in PPP/Private Finance Initiative, the UK's Ministry of Defence Prime Contracting and NHS Estates Procure 21 procurement systems; and, studies for clients or consortia involving organisational change and restructuring, implementing information technology systems, or, business process re-engineering of projects, teams and departments/divisions.

From this programme of research, the authors have been able to identify study styles related to interventions in projects and

1 Professor of Construction Management, School of Civil Engineering, University of Leeds, LS2 9JT UK; PH (44) 113 343 2263; FAX (44) 113 343 2243; email: s.male@leeds.ac.uk

2 Professor of Construction Innovation, School of the Natural and Built Environment, Glasgow Caledonian University, Glasgow G4 0BA PH (44) 141 331 863; FAX: +44 (0) 141 331 3696; email: J.R.Kelly@gcal.ac.uk

3 Managing Director, Value Solutions Ltd, Ilkley, LS29 9NE UK; PH (44) 780 339 5233; email: marcus@value-solutions.co.uk

4 Chairman and Managing Director, Thomson Bethune, 6 Forres Street, Edinburgh, EH3 6BJ PH (44) 131 220 1828; Fax (44) 131 226 2030; email: dgraham@thomsonbethune.co.uk

organizational practices. This has created a rich picture comprising elements of structure, process and organisational / project climate for value management (Checkland 1981). It has enhanced the interpretation of past, current and potentially future VM practice using reflection-in-action (Schon 1991). Over a period of a decade that research programme has seen the authors' paradigm for VM move from a focus on predominantly workshop based facilitation activity to one where it is seen as an advice laden and change-driven methodology to underpin effective project and organizational value-based problem solving.

This programme of action research has also determined a series of generic value management study styles, presented below, which represent how VM can be implemented as a style of management in different situations. Subsequently, it is argued here that the key to the enhanced status of value management lies in the ability of the value manager to formulate, design, and, implement an appropriate study style using theory and practice to guide and tailor the appropriate value intervention.

The paper commences with an overview of value management, presents the generic study styles and then discusses the implications for the further enhancement of value management theory and practice.

DEVELOPMENTS IN VALUE MANAGEMENT

Value management (VM) derives its power from being a team-based, process-driven methodology that uses function analysis to analyse and deliver a product, service or project at optimum whole life performance and cost without detriment to quality. Value management developments were initially dominated by North American thinking (Dell'Isola 1988, Fallon 1980, Kaufmann 1990, Miles 1972, 1989, Mudge 1990, O'Brien 1976, Parker 1985, Zimmerman & Hart 1982). It diversified during the late 1960s and into the 1970s internationally primarily through the manufacturing sector into Japan, the UK, Italy, Australia and Canada (Dell'Isola 1988).

From its origins in the USA, different perspectives also began to emerge internationally during the 1980s and into the 1990s with the use internationally of VM in construction. Some early adopter countries in manufacturing took forward a franchised version of VM from the US methodology, such as Japan and Korea, whilst others took up the methodology and subsequently melded it to take account of their national markets and cultures. Localisation occurred in Australia. Eric Adam (1993) remained more closely allied to a North American perspective, whilst Roy Barton from the University of Canberra became an active proponent of contextualisation in Australia as a result of his study tour to North America. The Australian New Zealand (ANZ) standard reflects this stance.

Kelly and Male (1993) in the UK followed a similar and almost simultaneous trajectory to Roy Barton during that period and contextualised VM in Britain. They consolidated their work from the mid 1980s on North American value engineering (VE) and subsequently developed it much further strategically and tactically within a value, programme management and project framework (Kelly, Male and Graham 2004). This mirrored the work of Thiry (1997, 2001, 2002), who took the methodology clearly into the strategic phase of programmes and projects. He argues that in more complex environments VM team members need to make sense of the ambiguities and complexities confronting them in studies and that more and not less time should be given to VM studies in these situations. Also, during the early to late 1990s in the UK, Stuart Green (1992, 1994, 1996, 1999) aligned himself with soft operations research group decision support methodologies and coined the term SMART value management, whilst Norton and McElligot (1995) adopted a hybrid USA and UK practitioner focused approach.

In South East Asia debate has recently focused on contextualisation of an appropriate methodology, for example,

Cheah & Ting (2005), Fong (2004), Liu & Leung (2002), and, Shen & Chung (2002).

Developments in VM thinking and practice have resulted in a diversity of definitions, procedures and official standards internationally. Three principal ones are discussed here. The SAVE International standard uses the term value methodology (VM), highlighting that it includes the processes known as value analysis, value engineering, value management, value control, value improvement and value assurance (SAVE1998). Whilst SAVE International does not define the methodology per se, the standard adopts an approved job plan, a body of knowledge, and presents typical profiles of value managers, value specialists and the duties of a value organisation. In this respect the Standard is all embracing but lacks the wider definition of value management emerging from Europe, Australia and New Zealand, which are more closely aligned in their thinking. The European Standard for Value Management (BS EN 12973:2000) defines VM as a style of management, noting its evolution from value analysis on products in the 1940s into services, projects and administrative procedures. It also recognizes that contemporaneously other methods and management techniques also based upon the concepts of value and function have developed, such as, design to cost and functional performance specification. The standard indicates that the goal of value management is to reconcile differences in view between stakeholders, and, internal and external customers as to what constitutes value.

In its Forward, the Australian New Zealand standard (AS / NZS 4183:1994) for value management defines it as a structured, systematic and analytical process which seeks to achieve value for money by providing all necessary functions at the lowest total cost; consistent with required levels of quality and performance. The VM process is seen as being centred on a participatory workshop involving a multidisciplinary, representative group of people working together to seek the best value solution for a particular situation. The new draft Standard DR 04443 (Standards Australia 2004) modifies the definition, indicating that VM is a structured and analytical group process which seeks to establish and improve value and where appropriate, value for money, in products, processes, services, organizations and systems. It also acknowledges that value-for-money is closely associated with the more traditional applications of value analysis and value engineering in activities such as the design, procurement, operation and disposal of entities. Again, the latest draft standard sees the VM study process as centred on a participatory multi-disciplinary workshop and now uses the term work plan instead of the job plan originally used by Miles (1989) and adopted in the ANZ 1994 version. DR 04443 now recognises five essential elements in the VM process; the prescribed study process, commitment of those involved, management of the process, executive commitment and effective facilitation.

To summarise, value management, with its origins in North American manufacturing, has gone through a developmental process internationally with local contextualisation in many countries. From a European context VM is seen as a style of management. Bringing together the information from the three standards, it is a methodology whose goal is to reconcile differences in view between stakeholders, and, internal and external customers as to what constitutes value. It does this through a structured, systematic, analytical function-oriented and managed process involving a representative, multidisciplinary team brought together in a participatory workshop situation. As a management style it has a wide application and can be applied to products, services, projects, programmes of projects and administrative procedures. The authors have applied VM in a diversity of such situations and have now identified a series of generic study styles.

VALUE MANAGEMENT AS A MANAGEMENT STYLE

Historically, function analysis has been argued to be the only distinguishing characteristic of value management from other management philosophies and approaches. However, as indicated above the European VM standard indicates this is increasingly open to interpretation. In addition, many of the tools and techniques used by value managers are not unique to the methodology, holding workshops is in no way unique, neither is facilitation of teams, and there are many management methodologies that have a structured process to them.

Running in parallel with the work on value management, the authors also developed the concept of the project as value chain, relating value management interventions with the appropriate choice of procurement strategies, critical linkages between demand and supply sides of the industry and the consequent conceptualisation and operationalisation of demand and supply chain systems for delivering programmes of projects or single projects (Male 2005). This also relates to particular types of value intervention strategies using VM. The ideas behind the project value chain are set out in Figure 1 below.

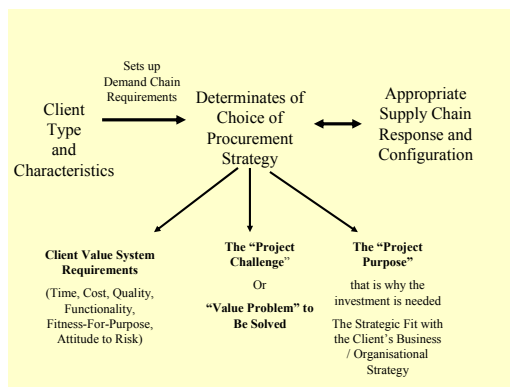


Figure 1: Strategic Elements of the Project Value Chain

Source: Adapted from Male & Mitrovic (2005)

VM as a mode or style of management is seen by the authors as having three primary core elements. First, a value system or systems that interact need to be made explicit and aligned or re-aligned in order for value-for-money decisions to be made appropriately. Second, an associated team-based process. Third, the use of function analysis to promote a greater and deeper understanding across value system(s) of why something is or is not required. Three generic phases have been identified for VM studies (Kelly, Male and Graham 2004):

- **The orientation and diagnostic phase** involves the value manager(s) and value team preparing for the study, with the former meeting with the commissioning client, project sponsor, and key stakeholders involved in the study, reviewing documents and possibly conducting interviews and briefings. The approach chosen by the value manager may also include understanding and structuring the value problem in detail, exploring possible competing value problems, discussing promising solutions and exploring the way forward on completion of the workshop phase. Agendas for the workshop phase will be developed and the method and manner in which the workshop conducted ascertained. The implications for implementation of options and solutions developed from the workshop phase would also be considered.

- **The workshop phase** involves a forum or fora where alternative and / or complementary stakeholder and multi-disciplinary perspectives on the value problem are brought together to explore and reach a way forward, hopefully through consensus and agreement. Normally, a study report is produced after each workshop, including an action plan to ensure that value solutions and options will be implemented in the post workshop phase.
- **The implementation phase** was recognised in the international benchmarking study as one of the key areas where value management falls down. The authors have now adopted a range of approaches to ensure this problem is minimised; implementation meetings and workshops have been used, and, as a minimum during the orientation and diagnostic phase, an implementation strategy will be discussed with commissioning clients. Wherever possible those responsible for implementation will be interviewed and identified in the action plan at the close of the workshop phase.

The methodology has been operationalised through a series of generic study styles informed by theoretical perspectives from business strategy, project management, the project value chain, and project programme management. Kelly, Male and Graham (2004) define a study style as the outcome and configuration of the VM process that is required to intervene in a particular stage in a project life cycle; or, in an organization, process, and product or service delivery. It represents a combination of method, process, and, approaches to facilitation during the VM workshop phase. An important starting point for identifying generic study styles is the fact that the 1996-1998 benchmarking research acknowledged a series of intervention points for projects, with clearly categorised approaches in terms of focus, value team composition, method and duration. Six different study styles were identified for projects at value opportunity points in projects were identified (Male et al 1998a). As work progressed, however, it became evident that more fundamental study styles underpinned these and other types of value interventions. These more fundamental generic study styles are presented in Figure 2 and discussed further below.

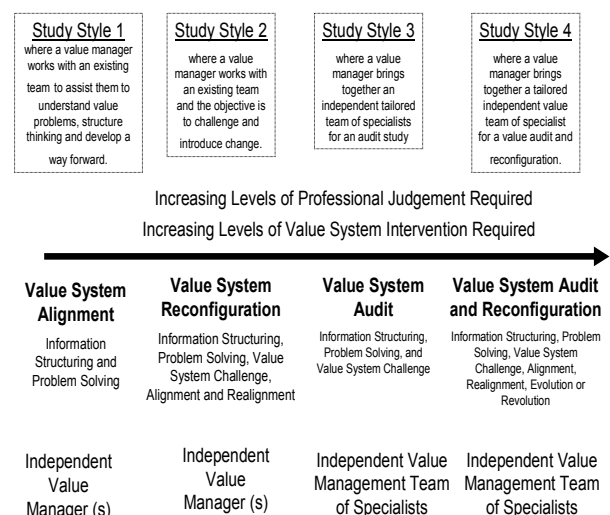


Figure 2: A Study Style Continuum Source:

Adapted from Male & et al (2005)

Male et al (2005) used the analogy of crafting wood to assist in clarifying the study styles. For example, 'going with the grain' means that the VM process aligns consensually a range of value systems present in the problem situation that are already not that far apart. In this situation, the value manager is acting much more in the role of process manager. 'Going against the grain' means that the VM process is likely to disturb, fracture, or even break value system alignment, either deliberately as an intervention strategy, or, as a consequence of the process itself because that needs to happen as the only way forward. In this context, the value manager is much more in the role of value system challenger, confronter, and, intervener.

Study Style 1 (SS1) occurs where an independent appointed value manager works with any existing multi-disciplinary team using the structured VM process to assist the team in integrating and prioritizing information, understand value problems, structure thinking and develop a way forward such that value systems are and remain in alignment. Challenging of assumptions is less in evidence and the process, tools and techniques of value management are used to assist a team think through a problem and find a way forward. Assisting a supply chain bid team develop a tender submission is a typical example. For increased effectiveness it can require internal organizational knowledge of the process of value management, although this is not a pre-requisite. It is fast, efficient, increases cross-team learning, information sharing, and focuses on solving the real problem at hand. The authors have increasingly worked for contractors and their bids teams using this style across a range of procurement routes and supply chain situations. It has also been used in designing and implementing partnering structures on projects. The emphasis for the value manager in SS1 will be more on the orientation and diagnosis and workshop phases and less on the implementation phase since an existing team should usually be highly motivated towards implementation. SS1 clearly has the potential to go with the grain, with limited if any potential to go against the grain in a bid situation, and the authors have rarely encountered the latter in this type of situation. The potential to go either with the grain or against the grain for developing partnering structures depends on the initial starting point of stakeholders. The authors have experienced both, sometimes within the same partnering workshop.

Study Style 2 (SS2) is the normal UK approach where an independent appointed value manager works with an existing multi-disciplinary team with the objective of challenging and introducing change into the project / organization's value system. It can be adopted for projects, programmes of projects, business process or organizational change studies. It typifies the majority of the project-related studies conducted by the authors and those identified in the international benchmarking study in Australia and in the private sector in North America. The learning curve is reduced for everyone and implementation of ideas and options is enhanced since those that have generated solutions are more likely to take them forward. It is relatively inexpensive but places considerable reliance on the value manager being able to challenge the current perceptions, attitudes, assumptions and ideas of those in an existing team. This becomes more acute on complex projects, especially where there is a high degree of technological innovation, or, politics. As these increase or are found in combinations a greater onus is placed on the value manager to achieve the appropriate balance of time between the orientation and diagnosis, workshop and implementation phases. SS2 has the potential to go with the grain or against the grain depending on circumstances, the intervention strategy adopted, or, the evolution of the study, especially during the workshop phase.

Study Style 3 (SS3) is where an independent appointed value manager brings together an independent tailored team of specialists for a value system audit study and is the classic US study style for public sector activity. Essentially an audit team intervenes on a project, a programme of projects, or in an organizational process.

The value manager selects the appropriate multi-disciplinary team and they work independently of the existing team. Its major strength comes from bringing together a fresh team to look at a problem and provided the value manager selects the team appropriately, it can handle any level of complexity within a problem situation. It has the additional advantage that it can cut through politics. However, it is expensive, time consuming, and has the further disadvantage of increased learning curves for the independent team. The authors have only conducted two such exercises in the UK, both were audits conducted for clients concerned about the progress and value-for-money of their projects. There is greater emphasis for the value manager on the orientation and diagnosis phase, less on the workshop phase since they are much more in the role of process manager for their own selected team than challenger and more on the implementation phase. SS3 has the greatest potential to go against the grain when recommendations by the independent team are presented subsequently to existing value system representatives.

Study Style 4 (SS4) is a hybrid between study styles 1, 2 and 3 where an appointed value manager brings together a tailored independent value team of specialist for a value system audit and subsequent reconfiguration. Unlike SS1 to SS3, the value management team acts in an advisory role. The process is underpinned by the VM methodology, is not bound by it in a rigid way but uses its flexibility as a change oriented process. The VM team works alongside client personnel to develop and implement solutions and be held accountable professionally for that involvement, the advice given and any recommendations made. The orientation and diagnosis phase with SS4 could be extensive and workshops used in a variety of ways. Implementation is an ongoing process throughout. This approach was utilized recently by the authors in developing a national asset strategy for the UK's Environment Agency, where 80 senior personnel were working with a value consultancy team of eight specialists in different configurations over a six-month period on organizational strategy and process, capital investment and maintenance programmes, and, associated information technology infrastructure. The authors have also used it at the concept stage of a project to develop the strategic and design briefs simultaneously, including an outline output specification, the budget, and a procurement strategy. The adopted method uses the VM process for gathering, sharing and exploring information, challenging assumptions usually but not always in a workshop, developing options and advising. The emphasis for the value manager with SS4 will be on designing a reinforcing relationship between the distinct phases of the VM process, with orientation and diagnosis, workshop and implementation phases at times running concurrently as the change process unfolds. SS4 will be designed specifically at times to go with the grain and at times against the grain.

Set against these different study styles, the role of the value manager as argued here becomes one of designing and implementing study styles to suite a whole range of different situations. Study styles 1 to 4 involve greater value system intervention, where the value manager can be held accountable for outcomes and hence professionally liable, especially as the level of independent advice increases. The continuum also demonstrates a shift from recommendations made by the existing team under the assistance of the value manager to one where the value manager as primary point of contractual contact is liable for the advice provided by a tailored team of specialists.

DISCUSSION

In the UK continued developments in value management appear to have reached a plateau. It is still being deployed but there are clear signs that development is slowing or perhaps stagnating. Fong (2004) confirmed this through a recent survey of US and UK practitioners. He sampled randomly practitioners from SAVE International in the US (N=85) and the Institute for Value

Management in the UK (N=24). The dominate sectors for its application from the survey are construction (22%), manufacturing (12%), transport (11%), management (11%), Government (10%) and systems and services (9%). His results indicated that whilst VM is seen to have a theoretical base and is not driven by practice alone (77%), it is seen as lacking a professional image (79%) and in decay (85%). The primary reason given for its decline is the ambiguous image (30%). The reasons given for the use of the methodology include cost reduction (24%), performance improvement (14%) and auditing (11%). Cheah and Ting (2005) from a South East Asian perspective also provide additional information on the current status of value management using a sample of experienced managers attending an international VM/VE training course (N=54). Whilst 68% of respondents were supportive of using VM/VE in construction, Cheah and Ting identified possible causes of its limited application in South East Asia to include lack of support from those in authority (61%), inflexibility in contractual provisions (61%) and poor understanding about the methodology (59%). There is also an initial perception that it is just a cost cutting tool, and, that close alignments exist between the use of the term value in VM/VE and its use in allied management techniques such as TQM. The most serious impediment to its further deployment is seen a lack of time to implement it on projects (65%); although conflicts of interest (48%) coupled with a lack of communication amongst stakeholders (43%) and a divided / segmented project decision making process (39%) also came high on the list. The authors of the current paper are clearly of the view that the last three are fundamental reasons for adopting VM/VE as a more integrative process.

Fong (2004) portrays a particularly disconcerting view for the future of value management in the USA and UK, whilst Cheah and Ting (2005) use terms such as the dire status of value management, presenting a bleak picture for its future. Two strands appear to be self reinforcing in terms of VM's stagnation from Fong's data; a lack of professional standing, also addressed by Male et al. (1999b), and its indistinctiveness from other management techniques. This has to an extent been reinforced by comments made in the British / European Standard and also by Cheah and Ting's sample. Many of the comments identified by Cheah and Ting were raised by collaborators in the authors' international benchmarking study (Male et al 1998a, 1998b), where the biggest danger to VM's continued developed was seen as the drive towards routinised tick box approaches by clients and the economic drive towards shorter studies. Little has changed since the benchmarking study on both counts in the UK. The former certainly down plays any professional role and the exercise of independent judgement informed by theory. Male et al (1999) addressed the professional standing of value management from different theoretical perspectives, including developing a typology of value management practitioners derived from fieldwork in America, Australia and the UK. Their conclusion is that the academic base of value management is in its infancy, has been dominated by practitioner developments, does not have a unique theoretical underpinning but is founded on a distinctive technique. The VM process is a good exemplar for structured problem solving. Furthermore, a foundation on a unique technique is insufficient to claim professional status, where the important issue is a unique body of theory to guide practice. In contrast to Fong's (2004) data, the authors of this paper argue that VM cannot currently claim this. To date it has been technique, process and practitioner driven. Also, in terms of process, the drive to shorter studies goes against the recommendations of Thiry on allowing sufficient time for these to occur, driving it increasingly towards a routinised process. In the UK, further development is also now being hampered by VM/VE being seen as closely aligned to workshop facilitation, which is only one of the key success factors identified by many researchers, writers and national standards dealing with VM.

If VM is to survive into the future in the UK it has to first, avoid the tick box syndrome, second, move beyond being seen as purely a workshop and facilitation activity and third, move beyond being perceived as a service where a value manager is only assisting an existing team to develop its own recommendations. The analysis of study styles presented here has indicated clearly that to move beyond these the role of the value manager must be enhanced considerably. Value management should be seen as embracing a more comprehensive package of skills, a more holistic service to deliver best value and viewed as a mode of management or management style that is interventionist, challenging and change-oriented. Further developments in the practice of value management set out here is seen as designing, tailoring and structuring a study strategically and tactically such that it takes account of the core elements identified earlier, the phases within a study, and subsequently fine-tuning the approach to address an overt or covert value challenge by bringing value systems together and consequently introduce improvements. The authors see the future of value management increasingly as aligned to study style 4 in Figure 2 in order to become a fully professional service; it needs to become advice-laden with the value manager accepting liability for his/her professional advice. Offering a professional service and taking on board a wider liability for that service raises numerous issues for certification and practice and the role of professional associations allied to value management. The existence of national Standards, such as the British Standard BS EN 12973:2000, the SAVE International standard and the ANZ standard, by implication set minimum levels of expectation for those that commission studies, practitioners and academics alike who deal with value management on a day-to-day basis in the practice, teaching, training or research setting.

CONCLUSIONS

Value management as a management style focuses on value system evolution and resolution within projects, or organizational systems for that matter, by bringing the right team of stakeholders together at the right time. Through a structured, challenging, analytical and mediated process it permits value systems to coalesce to the benefit of the commissioning organization, regardless of whether the VM service is offered internally within an organization or is commissioned externally. When used proactively it has the capacity to align value systems from the outset and ensure that a project, for example, progresses effectively and efficiently and appropriate decisions are taken in light of the fact that it costs money to retrace footsteps. When value management is used reactively it usually involves re-aligning value systems that have become distorted for whatever reason; or, attempts to re-assemble a value thread, that is, the tenuous linkages that often exist between successive stages in a project or process if it has become strained or broken (Bell 1994). In many instances, once the value thread is broken, for example, where a project team becomes dysfunctional, it can become an uphill struggle to re-assemble it. The VM study may prove this is not achievable.

The power of the methodology derives from how it is operationalised within a broader theoretical framework. As a minimum the theoretical perspectives that need to be drawn on by the value manager include strategic management, cost and economic structuring, organizational theory, project management theory and organizational psychology, including team dynamics. Within this context, the primary role of the value manager is one of deciding on, structuring and delivering a study style tailored to a particular value problem within a project, project programme, service or organizational grouping. The term problem is used in a neutral sense to mean a challenge, enigma or conundrum. It has a closer association with the idea of a mathematical puzzle and does not imply a value-laden term such as difficulty. Structuring a study requires consideration of the value problem strategically and

tactically, taking account of the different phases within the study, and the extent to which value systems (different stakeholder perspectives) conflict or coalesce. In this context, the skills of the value manager comprise the ability to understand a value problem, structure a process (occurring usually during the orientation and diagnosis phase), bringing representatives from competing value systems together and introduce improvements subsequently (through the workshop phase), and, ensure that these outcomes are implemented (during the implementation phase). As argued here, value management as it moves to become an advice-laden change-oriented process and methodology, and hence a professional service, needs to be treated, designed and delivered as such.

The analysis set out here from the work of Cheah and Ting (2005), Fong (2004) and Male et al (1999b) identify a clear need

for value management to have an enhanced profile professionally and to be differentiated from other management methodologies. It is the manner in which this is implemented within the practice setting that becomes important. Equally, the theoretical perspectives that underpin the value management methodology and explored in this paper have implications for the design and implementation of training courses for value managers requires careful consideration, it argues for a post graduate qualification. This paper also argues that the further development of value management as a professional service in a UK context lies increasing towards study style 4 in Figure 2, a hybrid between the UK and US approaches.

References

- Adams, E (1993) Value Management: Cost Reduction Strategies for the 1990s. Melbourne: Longman
- AS/NZS 4183 (1994) "Value Management". Joint Technical Committee OB6. Standards Australia and Standards New Zealand
- Bell, K (1994) The Strategic Management of Projects to Enhance Value for Money for BAA plc. Unpublished PhD Thesis. Department of Building Engineering and Surveying, Heriot Watt University.
- Bryman, A (1995) Research Methods and Organization Studies. Reprinted 2002. London: Unwin Hyman Ltd
- BS EN 12973 (2000). "Value Management". British Standards Institution.
- Cheah, C Y J & Ting, S K (2005) Appraisal of Value Engineering in Construction in South East Asia, *International Journal of Project Management*, 23, 151-158.
- Checkland, P (1981) Systems Thinking, Systems Practice. Chichester: John Wiley & Sons
- Dell'Isola, A (1988) Value Engineering in the Construction Industry. 3rd ed. Washington, DC: Smith, Hinchman & Grylls.
- Fallon, C (1980) Value Analysis. 2nd Ed. Miles Value Foundation.
- Fong, P S-W (2004) A Critical Appraisal of Recent Advances and Future Directions in Value Management. *European Journal of Engineering Education*. 29 (3), September, 377-388
- Glaser, B and Strauss, A (1967) The Discovery of Grounded Theory: Strategies for Qualitative Research. Chicago: Aldine.
- Goulding, C (2002) Grounded Theory: A Practical Guide for Management, Business and Market Researchers. London: Sage Publications.
- Green, S D (1992) "A SMART Methodology for Value Management", Occasional Paper No. 53, Ascot: Chartered Institute of Building.
- 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 (1996) SMART Value Management: A Group Decision Support Methodology for Building Design, PhD Thesis, Department of Construction Management and Engineering, University of Reading.
- Green, S D (1999) A Participative Research Strategy for Propagating Soft Methodologies in Value Management Practice. *Construction Management & Economics*, 17 (3), 329 - 40
- Kaufman, J J (1990) Value Engineering for the Practitioner. 3rd Ed. Raleigh: North Carolina State Press.
- Kelly, J and Male, S (1993) Value Management in Design and Construction. London: E&FN Spon.
- Kelly J, Male S and Graham D (2004) Value Management of Construction Projects. Oxford: Blackwell Science.
- Liu, A M M and Leung, M-y (2002) Developing a Soft Value Management Model. *International Journal of Project Management*, 20, 341-349
- Male S P. & Mitrovic D (2005), "The Project Value Chain: Models for Procuring Supply Chains in Construction", Paper presented at Joint RICS Cobra 2005, CIB and AUBEA Conference, Queensland University of Technology, Brisbane, Queensland, Australia, July 4-8th 2005
- Male S P, Kelly J R, Gronqvist M, & Graham D (2005), "Re-Appraising Value Methodologies in Construction for Achieving Best Value", Paper presented at Joint RICS Cobra 2005, CIB and AUBEA Conference, Queensland University of Technology, Brisbane, Queensland, Australia, July 4-8th, 2005
- Male S, Kelly J, Fernie S, Gronqvist M, and Bowles G (1998a), "The Value Management Benchmark: A Good Practice Framework for Clients and Practitioners". Published Report for EPSRC IMI Contract. London: Thomas Telford.
- Male S, Kelly J, Fernie S, Gronqvist M, and Bowles G (1998b), "The Value Management Benchmark: Research Results of an International Benchmarking Study". Published Report for EPSRC IMI Contract. Thomas Telford
- Male S, Kelly J Gronqvist M, Bowles G and Fernie S (1999) The Professional Standing of Value Management: A Global Study of Legislation, Standards, Certification, and Institutions. *Proc. SAVE International Annual Conference*, June, San Antonio Texas, Vol XXXIV, 158-166
- Miles, L D (1972) Techniques of Value Analysis and Engineering. 2nd Ed. New York: McGraw Hill
- Miles, L D (1989) Techniques of Value Analysis and Engineering. . 3rd Ed. Lawrence D Miles Value Foundation.
- Mudge, A E (1990) Value Engineering: A Systematic Approach. Pittsburgh, PA: J. Pohl Associates
- Norton, B R and McElligot, W C (1995) Value Management in Construction: A Practical Guide. Basingstoke: Macmillan
- O'Brien, J (1976) Value Management in Design and Construction. New York: McGraw Hill.
- Parker, D E (1985) Value Engineering Theory. New York: McGraw Hill
- Robson, C (2002) Real World Research. 2nd Ed. Oxford: Blackwell Publishing.
- Standards Australia (2004) "Value Management". DR 04443. Committee OB-006.
- SAVE (1998) Value Methodology Standard. Revised October 1998. SAVE International.
- Shen, Q and Chung, J K H (2002) A Group Decision Support System for Value Management Studies in the Construction Industry. *International Journal of Project Management*, 20, 247-252
- Schon, D A (1991) The Reflective Practitioner: How Professionals Think In Action. Reprinted 1999. Aldershot: Ashgate Publishing Ltd
- Thiry, M (1997) Value Management Practice. Sylva, NC: Project Management Institute.
- Thiry, M (2001) Sense Making in Value Management Practice *International Journal of Project Management*, 19, 71-77
- Thiry, M (2002) Combining Value and Project Management into an Effective Programme Management Model. *International Journal of Project Management*, 20 221-227
- Zimmerman, L W & Hart, G D (1982) Value Engineering: A Practical Approach for Owners, Designers and Contractors. New York: Van Nostrand Reinhold