ISSN 1029-0982 Vol. 10, No. 1, 2004

THE VALUE MANAGER

The official publication of The Hong Kong Institute of Value Management

THE HONG KONG INSTITUTE OF VALUE MANAGEMENT

THE VALUE MANAGER

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COUNCIL MEMBERS OF THE HONG KONG INSTITUTE OF VALUE MANAGEMENT

AIMS AND OBJECTIVES OF THE HKIVM

- To create an awareness in the community of the benefits to be derived from the application of Value Management in Hong Kong.
- To encourage the use of the Value Management process by sponsors.
- To establish and maintain standards of Value Management practice in Hong Kong.
- To contribute to the dissemination of the knowledge and skills of Value Management.
- To establish an identity for the Institute within Hong Kong and overseas.
- To encourage research and development of Value Management with particular emphasis on developing new applications of the process.
- To encourage and assist in the education of individuals and organisations in Value Management.
- To establish and maintain a Code of Conduct for Value Management practitioners in Hong Kong.
- To attract membership of the Institute to support these objectives.

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EDITORIAL

Welcome to the first issue of the publication this year. This is the 10th year since the first issue of The Value Manager was published in 1995. We are very pleased to see that this publication has provided an effective communication channel among our members. Inside this issue, you will be able to see the Institute's achievements in the past year and several papers presented at our 2003 international conference. These include the recipient of the Tony Toy Memorial Award, Dr. Guiwen Liu on key issues to be considered for implementing value management in china's construction industry, and a paper by Michael Dallas and Stephen Humphrey on value or cost and a paper by Dr. Carolyn Hayles on the role of value management in the construction of sustainable communities. Enjoy!

Geoffrey Shen

Editor, The Value Manager

MESSAGE FROM THE PRESIDENT

Tony Wilson
President of HKIVM

The festive seasons of Christmas and Chinese New Year have passed and we are moving into spring 2004. There seems an air of optimism around which suggests that opportunities are being sought and things are improving. However, more guarantees are being sought and less risks being taken. How can we be more certain that the outcomes we seek will meet our expectations?

The first step is the use of proper planning and risk assessment. What is it that we want to achieve and how best to go about it? What are the problems and risks involved? Sometimes these answers are not readily available because the information is distributed across a number of different people or departments. The collection of Information is the first step in any planning process and a timetable should be set up. To assist, it is suggested that Value Management be considered as a fast method of information gathering that gives added value depending on the objectives of the workshop. It is very helpful in determining the levels of information required and can speed up the information gathering process. When the information is collected and presented at the workshop, the greatest benefit is the shared understanding that is gained by all the key stakeholders present. At the same time the major risks can be identified, considered and positioned.

Further discussion through the Analysis, Creativity, Judgment and Development phases of the workshop will allow the preparation of a considered action and risk assessment plan for the way forward.

Back to normal HKIVM matters and we are pleased to inform members that we held our AGM in December and elected our new Council members. Attached is a copy of my brief report for your information. We achieved much in some areas and less in others resulting in a very busy year under very difficult circumstances. Through this public forum, I would like to thank all our Council members for their assistance last year. Here is a little story that you might find interesting.

> *A programmer and a VM specialist are sitting next to each other on a long flight from Hong Kong to the United States. The Programmer leans over to the VM specialist and asks if he would like to play a fun game. The VM specialist just wants to take a nap, so he politely declines and rolls over to the window to catch a few winks. The Programmer persists and explains that the game is really easy and a lot of fun. He explains "I ask you a question, and if you don't know the answer, you pay me $50. Then you ask me a question, and if I don't know the answer, I'll pay you $50." Again, the VM specialist politely declines and tries to get to sleep. The Programmer, now somewhat agitated, says, "OK, if you don't know the answer you pay me $50 and if I don't know the answer, I'll pay you $500! This catches the VM specialist's attention, and he sees no end to this torment unless he plays, so he agrees to the game.*
>
> *The Programmer asks the first question. "What's the distance from the earth to the moon?" The VM specialist doesn't say a word, but reaches into his wallet, pulls out a fifty dollar bill and hands it to the Programmer. "The VM specialist asks his question, "What goes up a hill with three legs, and comes down on four?" The Programmer looks up at him with a puzzled look. He takes out his laptop computer and searches all of his references. He taps into the Airphone with his modem and searches the net and the Library of Congress. Frustrated, he sends e-mail to his co-workers, all to no avail.*
>
> *After about an hour, he wakes the VM specialist and hands him $500. The VM specialist politely takes the $500 and turns away to try to get back to sleep. The Programmer, more than a little miffed, shakes the VM specialist and asks "Well, so what's the answer?" Without a word, the VM specialist reaches into his wallet, hands the Programmer $50 and goes back to sleep."*

The observation on this little story is that the VM specialist has achieved the double benefit of managing to get some uninterrupted sleep and also earning a few dollars! In future, let's all see if we can look for new opportunities for double benefits and when it seems difficult, consider using Value Management. Thanks for the support of everyone and let's hope 2004 is a great year for us all.

Best Wishes,

Tony Wilson

President, HKIVM

HKIVM'S ACHIEVEMENTS IN 2003

Achievements in 2002	Targets for 2003	Status
1. To create awareness in the community of the benefits of VM		
Target 12 articles. 18 articles recorded to November 2002.	Target 14 articles and outline plan on how to do this.	Conference held in November about 25 paper and Journals published.
Presentations to key targets. Target 4 5 achieved.	Target 6 presentations. Professional Institutions in mind.	3 presentations to HKIE ASHRAE and CILT carried out.
1 Seminar given in ArchSD + 2 at EMSD.	Target and plan to continue seminars elsewhere	Conference held instead.
PowerPoint core text and success stories. Met target as data collected and collated.		
2. To encourage the use of VM by sponsors		
Target Tourism sector for Study. Achieved. TST beautification VM held by ArchSD.	Follow up with Tourism client and consider Judiciary, others.	VM's for Transport Department and Correctional Services Department achieved.
Target guests from other sectors to be invited to Lunches. Not fully achieved.	List of names of key targets required for follow up.	
Feedback to Works Bureau. ETWB Technical Circular 35/2002 issued. Feedback to WB on several issues and WB now recommends VM's for projects over $200m.	On going input to Works Bureau. Consider setting up a client Group for our newsletter and activities.	Regular up dates and feedback on going.
Held 5th International Conference. Most successful to date.	To hold our 6th International Conference in November 2003.	Conference held as planned.

3. To establish and maintain standards of VM practice in Hong Kong		
Manage the WB Facilitator lists.	Continue to manage with more regular updates.	Clarifications and qualification required being updated.
VM feedback form used and accepted. Sent to WB for consideration.	To send VM feedback forms for List A/B facilitators for use in Hong Kong and monitoring outcomes.	On web page for use.
4. To contribute to the disseminations of the knowledge and skills of VM		
Organized 5 lunches at the HK Club and one at the Australian School. 2 lunches and 2 evening events at Conference. 1 evening event on the Construction Report.	8 lunches and 2 other events.	2 lunches held and 2 evening events held.
Newsletter to be issued regularly as scheduled.	Newsletter to be issued quarterly. Review of circulation required regular.	Ongoing on schedule, target met of 4 issues.
5. To establish an identity for the Institute within HK and overseas		
Linking with other Institutes at Conference times achieved.	Set up lists of contacts of other Institutes.	Messages of congratulations sent out and received.
Internet page regularly updated.	Continue and enhance home page.	Ongoing
HKIVM brochure cover prepared.	Update contact information and prepare internal sheets.	N.A.
6. To encourage R&D of VM with emphasis on developing new applications of the process		
Support given to questionnaires from students, 8 numbers.	Continue to assist with student research.	5 number students assisted.
Collected data on workshops under Government use for feedback.	Continue and develop data collection and feedback.	1 feedback form received.
7. To encourage and assist in VM education of individuals and organization in Hong Kong		
Training course information. Collected but differing acceptances have caused save some difficulties.	Training Course to be arranged.	Training course held in November 2003.
Tony Toy Awards issued at Conference.	Continue at next conference.	3 Awards given at Conference.
8. To establish and maintain a Code of Conduct for practitioners in Hong Kong		
Information collected and outline draft prepared.	Finalise and issue Code of Conduct for facilitators.	To consider if necessary for members and facilitators.
9. To attract membership of the Institute to support these objectives		
The number of members is 73 including 13 overseas members.	To continue to promote the Institute. To introduce corporate membership.	No of members is 81 including 14 overseas members.

TONY TOY MEMORIAL AWARD

The Tony Toy Memorial Award is established to acknowledge and remember the outstanding services and commitment of our founding president Mr. Tony Toy to this Institute. This shall be a regular award, to be presented at each HKIVM International Conference, to students of any discipline based on the quality of research projects/dissertations relating to value management.

To qualify, the dissertations should have been accepted as part of any recognised degree of study (Bachelor, Postgraduate Diploma, Master or Doctorate) in Hong Kong and China within two years of the proceeding HKIVM International Conference. The awards will be based on the quality of the dissertations submitted to the Award Assessment Committee.

Category	Prize
Memorial Award	1 person @ HK$5,000
Distinction Award	1 person @ HK$2,000
Merit Award	1 person @ HK$1,000

On 27 November 2003, the Tony Toy Awards were presented during the HKIVM's 6th International Conference and the recipients of the awards are listed as follows:

Tony Toy Memorial Award : LIU Guiwen
PhD, 2003, Hong Kong Polytechnic University
Title of Thesis: A Framework for Implementing Value Management in China's Construction Industry

Tony Toy Merit Award: NG Ngo Pang, David
BSc (Hons), 2003, Hong Kong Polytechnic University
Title of Thesis: A Study of Value Management and Building Design Practices

Tony Toy Merit Award: CHAN Kwong Leong, Hub
BSc (Hons), 2003, City University of Hong Kong
Title of Thesis: Verification of a Commitment - Outcome Model in the Value Management Process by Multi-Analysis Method.

The Memorial Award Winner, Dr. Guiwen Liu has been invited to present his research findings during the conference and his paper is reprinted in the next section of this issue.

KEY ISSUES IN IMPLEMENTING VALUE MANAGEMENT IN CHINA'S CONSTRUCTION INDUSTRY

Dr. Guiwen Liu
Chongqing University, China

Prof. Qiping Shen
The Hong Kong Polytechnic University, Hong Kong

ABSTRACT
VM development in China's construction industry is still in its early stage. In order to promote the wide use of VM, not only the overseas successful experiences of VM applications should be consulted, but also the characteristics of Chinese culture and construction system should be carefully studied. Based on the findings of a research project, this paper highlights five key issues to be considered for implementing VM in China's construction industry. These issues include which is the most suitable role among current construction professionals to take the duty of VM facilitators, what time is the recommendable point for starting a VM study in the development process of a project in China, how to compose a VM team and how to cope with the influence of the prevailed procurement approach on VM implementation.

INTRODUCTION

Value management (VM) is a proactive, creative, systematic and team-oriented methodology, which maximises the functional value of a project by managing its development from concept to occupancy according to the value requirement of the client. It has been recognized that VM is a powerful management methodology can make significant contribution to value enhancement for clients in the construction industry. Although VM was introduced into China in 1978, the development of VM in China's construction industry is still in its early stage. In order to promote the wide use of VM, a research project was launched to investigate the current situation of VM applications and clarify the need and applicability of VM in China's construction industry; to benchmark the critical success factors for VM studies in China's construction industry, and to establish a framework for successfully implementing VM in the context of China's construction industry. According to the characteristics of the research project, a number of research methods were used, including questionnaire survey, structured interview, case study, theoretical analysis, empirical study and benchmarking. Based on this research project, this paper highlighted four key issues to be considered for implementing VM in China's construction industry.

KEY ISSUES TO BE CONSIDERED

The facilitator

As indicated by many previous reports (Shen, 1997; Shen & Liu, 2002), the lack of qualified VM facilitator is one of the most significant factors constraining the application and development of VM in China's construction industry. It is not anticipated that this situation will change significantly in the near future because currently the training and certificating system of VM facilitators has not been established. A feasible measure for alleviating the problem is that the existing professionals take the duty of the facilitator after complementing the necessary knowledge of VM facilitating. In fact, the attempt that an architect, structural engineer, cost engineer or construction supervisor facilitating VM studies after they receive VM training courses has achieved success in many VM cases. However, no professional body has declared the territorial right of VM service in the construction market. In order to ensure the healthy development of VM in the long term, the question "which professional are the most suitable candidate for facilitating VM studies?" should be answered.

This section will consider the degree of potential integration of VM into the service of current construction professionals, including designers (De.), cost engineers (CE), construction supervision engineers (CS) and contractors (Co.). In order to avoid the possible

confusion, the discussion will only be extended from the perspective of clients. The profile of construction professionals and the main characteristics of VM facilitators are compared in Table 1. The results reveal that CS have the better potential to take up the role of the VM facilitator over the other construction professionals in the context of China's construction industry. CS emerged in the construction market from 1988 as the construction supervision policy was introduced by the Ministry of Construction to replace the traditional Project Preparation Office, which was a temporary project management team organized by clients under the discipline of the planned economy system (Liu and Shen, 2002). According to the definition of Qian et al. (1997), construction supervision is on behalf of the client for managing and supervising the overall activities or any specific activities of a construction project. It should be pointed out that the construction supervision company is an independent role in the market and CS is independent of clients.

From the list of duties taken by CS (in Table 2), it can be observed that many tasks (see the items with the mark *) are adaptable for VM. Many local researchers a think that VM is a powerful weapon for CS to improve their performance. In fact, in order to improve the quality of the service, VM has been contained in the training course for achieving the certification of the chartered CS. Therefore, many CS have owned basic knowledge of VM. This is a positive foundation for CS taking up the duty of the VM facilitator. However, it should be pointed out that most CS currently do not have all the skills and knowledge necessary to carry out VM exercises. It is recommended that CS should receive VM training modules to be qualified for VM facilitating. Although the construction supervision engineer is the most potential candidate for the facilitator, it does not deny the possibility and feasibility that other construction professionals facilitate VM studies after obtaining adequate knowledge and skill.

Timing of VM

It has been widely agreed that VM should be used as early as possible in order to exert its potential and avoid too much redesign cost. However, in order to improve the acceptability of the VM, six most appropriate VM opportunities indicated have been identified (Figure 1). Following three reasons have been taken into account:

- to be close to key decision stages in the development process of construction projects in order to exert the potential of VM;
- to take advantage of the existing intervals in the project cycle in order to avoid too much change of the traditional construction process in China;
- to improve the applicability of the VM framework.

As key decisions affecting project value are taken early in the project, VM is most useful in the early stages of project development. In order to indicate the descending effect of VM with the proceeding of a project development, the length of VM arrows in Figure 1 was decreased gradually. However, the descending effect does not mean that the use of VM at later stage of a project is unnecessary. The findings from the fieldwork of benchmarking indicate that the use of VM at the late stage of design and construction also can produce significant benefits (Liu, 2003).

Original team vs. external team

The use of external team conducting VM study at design and construction stages has been recommended by many overseas VM researchers and practitioners (Dell'Isola, 1982; Zimmerman and Hart, 1982), but it is not a suitable approach at the current stage of VM development in China's construction industry. Firstly, the benefit of VM has not been widely recognised by clients. Therefore, the opposite attitude from the original team cannot be overcome easily without strong support from clients. Secondly, 'relationship' is a crucial and complex issue in China's society. Although competitive tender has been adapted on many construction projects, it is not uncommon in China that the design and construction tasks executors have a special link with clients (most often public clients). In this event, it cannot be expected that the client will employ an external team conducting VM studies with the risk of damaging the long-term friendly relationship with the original team.

Table 1 - Comparison between the profile of construction professionals and the VM facilitator

Main characteristics of the VM facilitator	De.	CE	CS	Co.
1. Can be involved in the whole life cycle of a project	+	√	√	–
2. Skilful in leading, communicating, coordinating and team building	+	–	√	+
3. Addressing both 'hard/tactical' and 'soft/strategic' issues concerning the project	–	–	+	–
4. Working closely with clients	+	+	√	–
5. Enough authority from clients	+	–	√	–
6. Multidisciplinary knowledge related to construction and design process	+	–	√	+
7. Enough knowledge and experience of VM	–	+	+	+

Note: In the above table, "√", "+" and "-"refer to the item of characteristics of VM facilitators is well, partially and rarely possessed by professionals, respectively. De. CE, CS and Co. refer to designers (设计师), cost engineers（成本工程师）, construction supervision engineers （监理工程师）and contractors（承包商）, respectively.

Table 2 - Duties of construction supervision engineers in China

Stage	Main duties
Inception and feasibility	Advise investment decision-making*, Develop or assist in preparing the project proposal, Feasibility study*, Develop project design specification* Select procurement approach*, Arrange design tender, Participate in designer selection, Participate in project design evaluation*
Design	Co-ordinate design process, Audit the project cost estimation*
Pre-Construction	Arrange tender documentation, Audit the qualification of contractors, Evaluate tenders, Assist in contractor selection*, Participate in contractor appointment, Assist in acquiring construction approval*, Evaluate construction plan
Construction	Monitor quality and time, Provide co-ordination and resolve conflict*, Issue safety protection, Monitor design variation*, Monitor contract change, Arrange payments, Monitor budget variation, Deal with claims
Completion	Prepare completion report and document, Co-ordinate statutory authorities, Assist in getting occupation approval, Arrange handover/occupation
Maintenance	Organise maintenance* Supervise maintenance

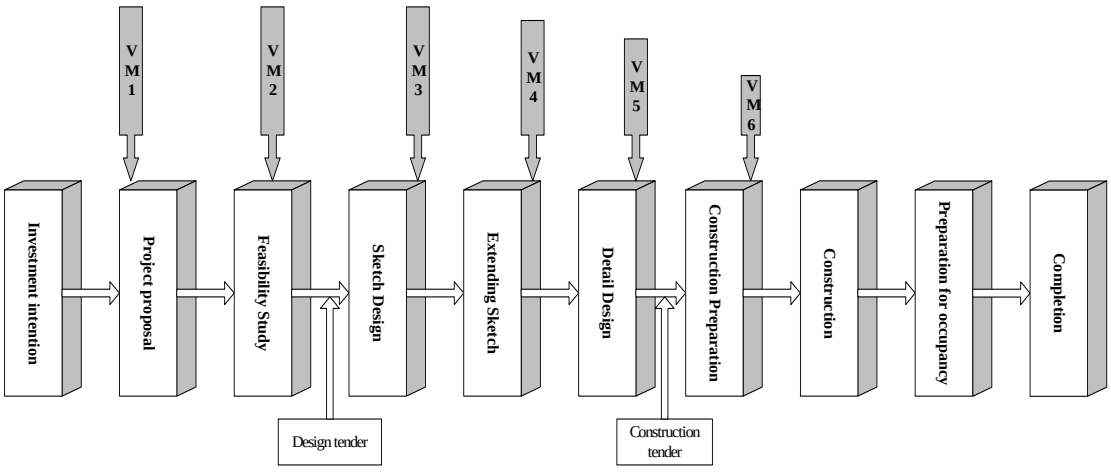

Figure 1 - VM opportunities in the project life cycle

Thirdly, the traditional Chinese culture does not encourage a person to directly criticise others with the same profession. Therefore, it is not easy to find a team to take this 'dirty work'. Finally, the findings of the fieldwork have found that the use of original team also can carry out successful VM studies under a careful management. In consideration of these factors, it is recommendable to use the original team to carry out VM studies. Some necessary external experts should be invited when the project needs.

The influence of the procurement approach

Although VM can be implemented regardless of how construction projects are to be procured, the influence of the procurement approach should be taken into consideration for improving the acceptance of the framework. There are a variety of procurement methods used in China's construction industry, including traditional lump sum, design combined with construction, construction management. However, because distributing design and construction tasks through open competitive tender and employing construction supervision companies to manage construction projects are mandatory for the large proportion of construction projects, the most widely used procurement approach in China is construction management. Under this procurement method, the relationship of parties involved in the construction project can be typically illustrated as Figure 2.

As illustrated in Figure 2, the open competitive tender is a compulsory approach to distributing design and construction tasks for most construction projects in China. This approach prevents the designer/ contractor from joining the project development stages preceding the design tender/construction tender. Therefore, the design team cannot participate in workshops VM1 and VM2 and the contractor cannot join workshops VM1 to VM5. However, as for VM2, the subject of the study at this stage may be closely related to design, for instance, preparing a brief to guide the following design process. In this event, the involvement of a participant from the design team is helpful to ensure that the value system of the client will be clearly understood by the design team. However, this cannot be realized due to the procurement approach. Facing such problem, many interviews from the design discipline suggested that a person having adequate design experience and knowledge should be invited to join the VM team. Same approach was recommended to resolve the problem of the absence of the contractor for the VM studies related to constructability and construction methods.

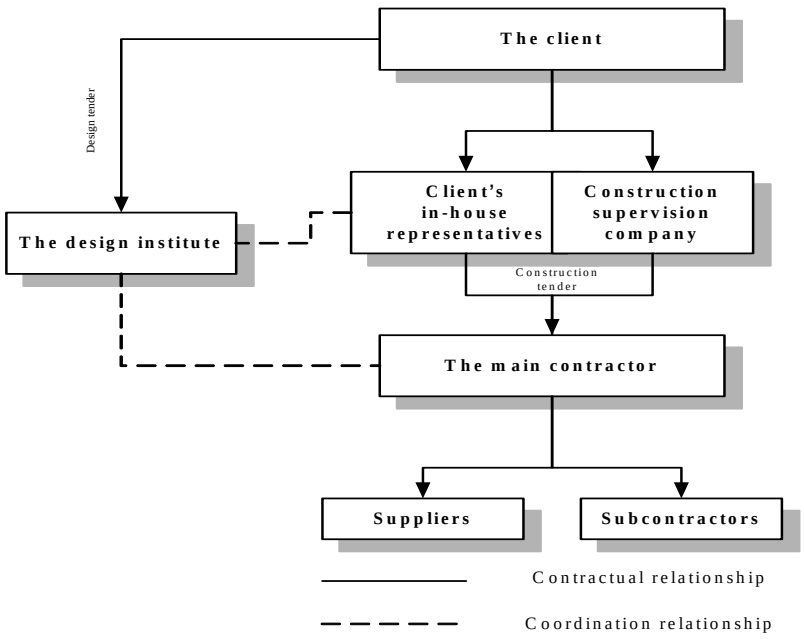

Figure 2 - The typical construction procurement approach in China

CONCLUSIONS

This paper reveals that the construction supervision engineer is the most suitable construction professional to take on the role of the VM facilitator after supplementation of VM knowledge and skills, based on a comparison between the profile of construction professionals and the characteristics of the VM facilitator. Six VM opportunities are regarded as the recommendable points in the life cycle of a project to optimise the use of VM and to improve the acceptability of the framework. It is also argued that the objectives and deliverables of VM studies should vary with the different timing of the studies. Although the use of an external team to undertake VM exercises in the design and construction stages has been advocated by many overseas VM researchers, it is more appropriate to use the original team in China's construction industry. As the mandatory procurement approach for most construction projects in China prevents the designers and contractor of the project from joining VM studies in the early stages, the use of external designers and contractors for consulting is recommended.

REFERENCES

Dell'Isola, A. J. (1982), Value Engineering in the Construction Industry, New York: Van Nostrand Reinhold Company, New York.

Liu, G.W. (2003), A Framework for Implementing Value Management in China's Construction Industry, PhD thesis, The Hong Kong Polytechnic University, Hong Kong.

Liu, G.W. and Shen, Q.P. (2002), "A Study of Factors Constraining the Development of Construction Supervision in China", The International Journal of Construction Management, 1(2).

Qian, K.R., Jin, Z.M, Zhuo, Y. and Jian, Y.Q. (1997). The Manual for Construction Supervision Engineer, China Construction Industry Press (in Chinese).

Shen, Q.P. (1997), Applications of value management in Mainland China: Recent development and future Prospects, Value World, SAVE International.

Shen, Q.P. and Liu, G.W. (2002), "Applications of Value Management in China's Construction Industry", Journal of Construction Procurement, CIB, 8 (1).

Zimmerman, L.W. and Hart, G. D. (1982), Value Engineering: A Practical Approach for Owners, Designers and Contractors, Van Nostrand Reinhold Company Inc.

VALUE OR COST

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Steven Humphrey
Davis Langdon & Seah Management, HK

ABSTRACT
The well known 1:5:200 rule alludes to the relationship between the costs of Designing, Constructing and Operating a facility. Wise owner/occupiers will therefore spend a little more to build in operational economies, knowing that their investment will be repaid many times over during the life of the facility. Selecting design teams, suppliers and contractors on lowest cost is similarly short sighted. Lack of innovation in the design, poor performance and bad workmanship can cost the user dear in the longer term. Selecting suppliers by value makes more business sense. This includes bringing new blood, with their refreshing new ideas, into the system. Focusing on initial cost, at the expense of long-term consequences, represents false economy. The value of a built facility is far more complex than its initial cost. Value comes from a combination of things that, together, deliver the benefits required of the project. Clearly cost is important but it is not the only factor. It is the relationship between the benefits and the investment that matters. This provides the definition of Value that has stood the test of time. To maximize value therefore, it is necessary to measure both the cost and the benefit. Cost is easy to measure (even whole life cost). Measuring benefits is more difficult. They are not all monetary. We use a set of generic Value Drivers to capture all the facets of value in a construction project and enable its measurement. In UK the National Audit Office has adopted these principles to take account of non-monetary factors is their Value for Money audits of Public Projects. Perhaps Hong Kong should consider similar measures, especially with the current moves towards and interest in Private Sector Involvement.

INTRODUCTION

As many of you will know, I work with an international partnership providing Cost and Project management services to the Property and Construction markets. My role in the Partnership is the development and delivery of our Value and Risk Management services, including helping people to work together (i.e. Partnering). Within our industry I have noticed that there is a general confusion between Value and Cost. I would like to use this opportunity to clarify the distinction between the two and show how the principles of Value Management can be used to deliver and demonstrate Value for Money in construction projects. (In the UK we are using the same principles to achieve Best Value in the delivery of public services).

THE FOG OF CONFUSION

One of the reasons for the confusion is the sloppy use of language. In two unrelated articles I came across the following statements:

Kvaerner used an alternative form of construction for the A12/M11 link
'the option shaved £2.5m off the value'
- Do they mean cost?

Due to unforeseen problems, the project value rose from £3m to £4m'
- Do they mean cost?

Surely, Value is a measure of the benefits delivered by a project, not just the investment made to deliver it. With such loose use of the word Value, it is hardly surprising there is confusion.

CLEARING THE FOG

In the UK Value Management Standard, BS-EN 12973, Value is described as the relationship between the Benefits delivered and the Use of Resources in enabling that delivery. It is, in other words, a balance between two conflicting requirements – The benefits sought by those who commission a building and the price they have to pay (since ultimately, the impact of the use of resources will generally comes down to cost). Net Present Value (NPV) is the financial statement of this balance.

In their paper 'The long term costs of owning and using buildings' presented to the Royal Academy of Engineers in November 1998, the authors proposed the following guide for the whole life cost of owning and operating a commercial office building:

Construction Cost	1
Maintenance and Building Operating Costs	5
Business Operating Costs	200

Clearly this an over-simplification and the ratio will vary depending on the type and use of the building. The overriding message, however, is that the initial Capital Costs of a building are small in comparison with the running and operations costs. In any exercise to maximize value (to the owner occupier of a building) account must be taken of the whole life costs. If capital costs are cut and, as a result, running costs increase, even by a small amount, the effect is likely to be a reduction in the Net Present Value of the project.

SELECTING THE TEAM

When selecting professionals or contractors for a project, Clients frequently state that they will make their selection on the basis of Best Value rather than lowest price. However, in many cases Clients have no means by which to assess the value which the provider may add in a way that truly reflects their expectations of the long term benefit. As a result, the non-monetary selection criteria are heavily weighted towards performance measures rather than real Value. Since most professionals and contractors can easily satisfy the performance measures, selection ultimately comes down to the person offering the lowest price.

RETHINKING CONSTRUCTION

In the UK the Rethinking Construction initiative has had a dramatic effect on improving performance in our construction industry. Demonstration projects using the principles of Rethinking Construction have proved that the principles result in capital cost reductions of 10% or more and other benefits such as reduced defects. The emphasis is, however, mainly directed towards improving efficiency of the construction process. This is only part of the story, since improving efficiency does little to ensure that it is the right building to deliver the full benefits expected by the client. To paraphrase Raymond Turner, ex BAA Director for Terminal 5, London Heathrow, are we getting better at building the wrong buildings?

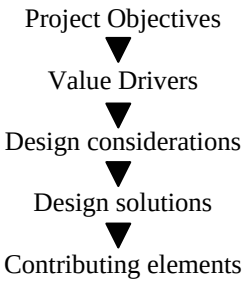
ARTICULATING VALUE

What is needed is a reliable way for the commissioning authorities to articulate the long term value required from a building, for the supply side to be able to respond with propositions that demonstrate how they will add value and for the buyers to be able to take full account of such value in their decision making process. Value Management is a tried and tested process to maximise Value for Money in the activity under consideration. The activity may be the delivery of a service, the manufacture of an item or construction of a capital building project. In the relationship Value = Benefit/Investment, it is reasonably straightforward to measure the investment side of the equation. This is the job of the accountants and cost consultants and they are generally very good at it.

Assessing the Value, itself a complex mix of subjective judgments and tangible and intangible attributes, requires specialist techniques. Let us explore how Value Management addresses this problem on a building project. Every building project should have clearly stated Objectives, expressed in terms of the benefits that those who commission the project, the Client, are seeking to gain. Value Management decomposes these Objectives into a number of functional 'Value Drivers'. Here the term function describes what things must do in order to contribute to the Objectives. This is a fundamental shift in thinking from most specifications in which things are described by what they are. As their name implies, Value Drivers are those functions that drive value for the Client (I use the term Value Driver in lieu of Function because I find my clients understand this term more easily than Function). The project must deliver on all Value Drivers, in full, if the project is to be a complete success, success being defined by delivering all the benefits expected by the Client. The relative importance of each Value Driver will vary depending upon the nature of the project (for example in some buildings user productivity may be the all important Value Driver, whilst for another, projecting the appropriate corporate image may predominate). The Value Management team build a model, linking the Objectives with the Value Drivers, the Value Drivers to the things that the Design Team should consider when developing their

designs (the Design Considerations) and, when designs have been developed, linking the Design Considerations to the Design Solutions, or Elements of construction. The model will also weight the relative importance of each of the Value Drivers to reflect the Client's priorities. The diagram below illustrates this model.

Figure 1 - Value Driver Model



VALUE DRIVERS

Building on work undertaken by Be (the recent amalgamation of the Reading Construction Forum and the Design and Build Forum), we have evolved 12 generic Value Drivers which may be applied to any building type.

1. Enhance/achieve desired financial performance
2. Delight Clients
3. Maximise operational efficiency
4. Attract and retain employees/occupants
5. Project the appropriate image
6. Maximise project delivery efficiency, minimise waste
7. Minimise maintenance costs
8. Minimise operational costs
9. Enhance the environment
10. Comply with third party constraints
11. Enable prediction of project outcomes
12. Ensure health and safety during project implementation and in operation

The Commission for Architecture in the Built Environment (CABE) and the National Audit Office (NAO), in developing their guidelines to Auditors, Getting Value for Money from Construction, have further simplified this to 6 Key Value Drivers. For the sake of simplicity in this paper we will focus on these six key Value Drivers to illustrate how the model we have described above can be used to define and assess Value. The 6 key Value Drivers are:

1. Achieve required financial performance (ensuring the building is affordable in whole life terms)
2. Manage project effectively (minimising waste and maximising efficiency during construction)
3. Maximise productivity (of activities conducted within the building when it is complete)
4. Project the appropriate image (to the outside world as well as those who use or visit the building)
5. Minimise building operation and maintenance costs (once the building is in use)
6. Comply with third party requirements (including legislation and health and safety).

ASSESSING VALUE

The Value Management team agrees appropriate metrics for each of the Value Drivers and establishes a range of performance from unacceptable to delight using a scale of 1-10. The team then assesses current performance against each of the Value Drivers. Multiplying the Performance (on a scale of 1-10) by the Importance Weighting (expressed as percent) gives a Value Score for each Value Driver. Summing all the Value Scores yields an overall Value Index for the project. This reflects the performance against each Value Driver and their relative importance. The higher the Value Index, the greater is the Value, 1000 being the theoretical maximum. In practice, an Index of 850 is excellent, whilst an Index of 350 or less requires improvement. We attach an illustrative example of the above for Court Building in the UK at the end of this paper. The above method provides an effective way to measure value in an easy to understand quantified outcome, taking into account both monetary and non monetary.

COMMUNICATING VALUE

Building the Value Driver Model is an excellent way to communicate the project imperatives to the delivery team. Therefore, we frequently use this method in the early stages of a project to help build the Project and Design Briefs.

SELECTING BY VALUE

The method is not confined to measuring value in a completed project. In their publication "Selecting Contractors by Value", CIRIA 1998, Davis Langdon Consultancy proposed a very similar approach for selecting contractors, or, indeed any members of the project delivery team. All that is needed is to express the objectives of the service required, decompose it into suitable Value Drivers, weight them, assess the supplier's proposals against each Value Driver and calculate the Value Index in the manner described above. In a further refinement, dividing the Value Index by the fee will yield an objective and comparable indication of Value for Money (the higher the figure, the higher the Value for Money).

The above principles are central to the UK IVM's Training and Certification system. I am delighted that the HKIVM has chosen to adopt this system to qualify VM practitioners here in Hong Kong. I hope this will help to embed the adoption of the value culture here and in Mainland China.

CONCLUSION

The techniques of Value Management provide an objective means of assessing the value of a project, service or product in terms that reflect the non-monetary attributes which may differentiate between the outstanding and the mediocre. This approach has been adopted by the UK National Audit Office to assess Value for Money in Public Construction Projects. Perhaps Hong Kong should consider adopting a similar approach, particularly as fees and tender prices are getting lower and price alone is no longer a safe differentiator.

Table 1 - Example for a Court Building – Completed Value Assessment Tool

			Unacceptable									Delight	
Value Driver	Importance Weight %	Metric	1	2	3	4	5	6	7	8	9	10	Weighted Value Score
1 Achieve required financial performance	20	Capital Cost	£20 m		£18.5m *							£15 m	60
2 Manage project effectively, maximise project delivery efficiency, minimise waste	15	Judgement	1				5 *					10	75
3 Maximise productivity and operational efficiency, minimise operational costs	30	Judgement	1		3 *							10	90
4 Project the appropriate image	10	Judgement	1							8 *		10	80
5 Minimise building operation and maintenance costs and environmental impact	15	Operations Cost per year	£2m							£1.6 m *		£1.5 m	120
6 Comply with third p- 0 0.02 - w6requirements, includingw6he 0 0.3(l-0.68(t)7.7h)-0.69(0 0.4(nd)8.02safe0 0.3(r)716.52(dur0 0.02i)7.7hng0w)TJT*[6co)7.7hns7.9(itr0 0.02uct)7.7hi													

THE ROLE OF VALUE MANAGEMENT IN THE CONSTRUCTION OF SUSTAINABLE COMMUNITIES

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ABSTRACT
This paper looks at the issues surrounding sustainable values; how sustainability is currently viewed and in particular how it impacts on the built environment. Conclusions are drawn from case studies demonstrating the use of value management tools and techniques in the delivery of sustainable construction strategies. In the UK the term sustainability has been adopted as a panacea for change, whether social, economical or environmental. Legislation and the increasing sensitivity of society to environmental issues have greatly impacted on the need to adopt sustainable values in construction. However social and economic issues also drive this agenda for change. In its widest sense, sustainability is about delivering better long-term value for the built environment and its inhabitants. At project level, sustainability means balancing value, risk and waste within project parameters. Issues surrounding the use of land, types of materials and construction techniques, regeneration issues and community needs, are all considered. Drawing on case studies from both UK and Hong Kong, examples are given where the positioning of values in the decision making process has benefited building projects and their impact on the local community. Examples include a community self build project in rural Scotland, a city centre tower block regeneration programme in England and a scoping study undertaken to consider the possible future of a small community and its land in Hong Kong. It is perceived that the challenge for the construction industry when considering sustainable development is in providing a better quality of life through its activities, whilst minimising impacts on the environment and local communities. Both hard and soft value management tools and techniques can be used to assist in this undertaking. The examples used in this paper demonstrate the importance of structuring the decision making process to include value decisions when working towards the final outcome.

INTRODUCTION

This paper looks at the issues surrounding sustainable values; how sustainability is currently viewed and in particular how it impacts on the built environment. Conclusions are drawn from case studies demonstrating the use of value management tools and techniques in the delivery of 'best value' and sustainable construction strategies. Value management as a methodology is proposed as a means to achieve sustainable decision making.

SUSTAINABILITY

In the UK the term sustainability has been adopted as a panacea for change and development, whether social, economical or environmental. Sustainability is usually considered in terms of sustainable development; development that meets the needs of the present without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987).

Sustainable construction is generally used to describe the application of sustainable development in the construction industry.

Construction has a massive impact on society, the economy and the environment, and all phases of the life cycle contribute. From the mining of raw materials, through manufacture and construction, to repair, maintenance, refurbishment, and ultimately demolition and reuse (Construction Best Practice Programme, 2003). As construction is, after all, essential, the challenge of a sustainable construction approach is to reconcile the impacts of construction with the benefits.

Legislation and the increasing sensitivity of society to environmental issues have greatly impacted on the need to think about environmental efficiency and impact throughout the construction process and ultimately to adopt sustainable values in construction. However social and economic issues also drive this agenda for change.

In its widest sense, sustainability is about delivering better long-term value for the built environment and its inhabitants. At project level, sustainability means balancing value, risk

(and increasingly waste) within project parameters.

SUSTAINABLE DECISION MAKING

A sustainable decision must be one which is judged to have been a good decision not just at the end of the first financial year but five years, ten years, generations later.

If sustainable development is approached appropriately, as a process it should balance and integrate social, economic and environmental values. In order to find an appropriate sustainable solution, any decision that is made must therefore add value (and reduce risk) across all three dimensions.

When considering the impact of a project in terms of sustainable development there must be a change of thinking by those operating in the construction industry from:

- short term to long term;
- shareholders to stakeholders;
- product to service;
- local to global; and
- cost to value.

This shift mirrors the key priorities of value management.

VALUE MANAGEMENT AND STRATEGIC DECISION MAKING

A value management approach offers the means for the client to contribute to a better built environment and ultimately the opportunity to stimulate improvements in the construction process.

By utilising both soft and hard value management tools and techniques as part of a structured job plan, the impact of new and existing construction on sustainable development (social, economic and environmental parameters) can be considered.

As a process, value management enables the client and key stakeholders to:

- consider all the issues surrounding a project;
- develop a mission statement for the project participants to agree on and use as a benchmark for future decision making (using Function Analysis); and
- examine all the options available to them whilst considering their impact socially, economically and environmentally.

The decisions that are made at the beginning of any project, will directly impact on the inputs, development, and outputs. Taking the time to install a structured decision making process up front will ensure a 'best value' solution to the project is found.

Drawing on case studies from both UK and Hong Kong, examples are given where:

- the positioning of values in the decision making process has benefited building projects and their impact on the local community; and
- a value methodology has resulted in the successful delivery of sustainable considerations.

Issues surrounding the use of land, types of materials and construction techniques, regeneration issues and community needs, are all considered. Examples include a community self build project in rural Scotland, a city centre tower block regeneration programme in England and a scoping study undertaken to consider the possible future of a small community and its land in Hong Kong.

CASE STUDY 1: NEW BUILD

Value management was used at the strategic stage of a partnering project which intended to develop sustainable homes and facilities for a local community in rural Stirlingshire, Scotland. All the key stakeholders were present at the facilitated workshop. These included local residents, Community Self Build Scotland, the design team, a sustainability consultant, a materials provider, the local authority and representatives from the Scottish Executive.

The structured workshop comprised of a traditional value management job plan. The 'Issues Analysis' stage ensured social, economical and environmental issues were

considered in equal measure. Potential risks were identified during an analysis of the key issues surrounding the project:

During the 'Function Analysis' stage it was agreed that the key function of the project was '…to create a sustainable heart to the village through the provision of high quality, low dependency, affordable housing together with facilities which benefit and strengthen the whole community and offer a best practice model for sustainable development in Scotland….' This process enabled the options development and appraisal part of the workshop to focus on the community, the end user and technological issues including materials, design and whole life costing considerations.

At the end of the workshop a list of actions was drawn up. These concentrated on social, economic and environmental considerations.

Social:

- community involvement in site layout;
- determine community view of housing types;
- re-visit community facility requirements; and
- public parking and public space.

Economic:

- to properly determined the 'value' of 'sweat equity' (in kind contributions from self builders); and
- partnering links with local timber producers

Environmental:

- an investigation of local materials suppliers; and
- an examination of the potential for a waste/water treatment site.

By using a structured decision making process, the key stakeholders were able to consider the project in terms of 'sustainability' and to focus in on the key issues needing to be addressed in order to take the project forward.

CASE STUDY 2: REPAIR

As part of an on-going series of investigations into the state of structural repair of inner city high-rise housing stock, value management was used to develop a decision support framework to enable sustainable decisions to be taken regarding the future management of the stock; decisions that demonstrated 'best value'.

The objective of the structured, facilitated workshop was to determine all of the factors that might affect the decision-making process, categorise them and weight them in terms of importance and impact. The decision support framework was then used to identify all of the factors that needed to be considered when making a 'sustainable' decision and weigh them in terms of their overall importance once completed. All the key stakeholders were present at the workshop.

During the value management workshop, which followed a traditional job plan, all issues surrounding the project were identified and ranked. It was agreed that the key function of the project was '....to provide, manage and maintain affordable accommodation to meet demand and customer expectations....'

Following on from this 'Decision Conferencing' was used during 'Options Analysis' to:

- achieve consensus on the criteria to be applied by the stakeholders in selecting the 'preferred strategy' – to agree how to decide;
- structure these criteria in a decision support framework which will then be expanded to describe the attributes of these criteria; and
- assign the relative importance (weights) of the criteria and of the attributes within criteria.

In generating options the key stakeholders generated alternatives for the repair, maintenance and ultimate disposal of the tower block stock. Once potential options had been generated, it was necessary to identify and gather together the information to permit the options to be evaluated in terms of value, risk and waste. Information for this stage came from many sources including:

- condition and attribute surveys;
- customer satisfaction surveys;
- structural surveys;
- whole life costing analysis; and
- the housing needs of the local community.

Following the value management workshop, information for each potential option identified was collated and the decision support framework developed was applied so that the relative merits of each option could be analysed with respect to 'best value' and 'sustainability'.

The option that most closely satisfied the sustainability criteria defined by the key stakeholders was determined and a strategy for developing it taken forward.

CASE STUDY 3: CONSERVATION

The final example is taken from Hong Kong and is a workshop that was run with the University of Hong Kong to look at various options for the future of Nga Tsin Wai Village and its site in Kowloon. The facilitated workshop formed part of a training weekend for Architectural Conservation students who had been researching the historical significance of the village, its current existence and its physical characteristics including structural stability, as a case study.

The workshop was used to demonstrate how value management as a methodology could be used as a decision making tool for conservation projects.

The students developed the following mission statement, '.....to generate a sustainable option for the Nga Tsin Wai village taking into consideration its cultural heritage and socio-economic benefits to key stakeholders...'

Using a 'value' methodology and a structured decision making approach, sustainability was considered juxtapose conservation issues to develop options for the future of the Nga Tsin Wai village and its site.

Social, economic and environmental issues were all considered and weightings applied. This provided an opportunity to agree on possible 'sustainable' options for a site of cultural heritage and historical significance.

CONCLUSIONS AND RECOMMENDATIONS

These case studies demonstrate how value management tools and techniques have been used in different situations to bring about a common goal; the consideration of best value and sustainable development in new build, maintenance and conservation projects.

By using a 'value' orientated decision making approach it is possible to deliver sustainable solutions.

Using value management with a sustainability focus has resulted in:

- stakeholder consultation and input (including local residents and end users);
- a more informed client;
- the incorporation of sustainability into the brief ;
- best value' procurement;
- partnering and integrated design;
- the integration of sustainability into project management; and
- the provision of a framework for feedback and continuous improvement.

Positioning 'values' in the decision making process has benefited building projects and their potential impact on the local community.

It is perceived that the challenge for the construction industry when considering sustainable development is in providing a better quality of life through its activities, whilst minimising impacts on the environment and local communities. Both hard and soft value management tools and techniques can be used to assist in this undertaking. The examples used in this paper demonstrate the importance of structuring the decision making process to include 'value' decisions when working towards the final outcome.

These case studies also draw attention to the role of key stakeholders in ensuring the delivery

of sustainable construction projects. Decision making using a value management approach involving all key stakeholders will mean that: the client can determine whether a new building is necessary or whether refurbishment or extension of an existing facility could fulfil their requirements;

- the design team can contribute information on innovative design, building technologies and sustainable materials;
- suppliers can contribute to the decision making process with information, for example, on raw material extraction techniques or energy consumption figures; and
- The major and sub-contractors will be in a position to provide information on sustainable construction techniques including on-site waste management.

Therefore it is proposed that, by encouraging major clients (both public and private) to adopt value management tools and techniques, a sustainable approach to construction decision making can be accomplished.

REFERENCES

Construction Best Practice Programme (2003) Introduction to sustainable construction: how to meet environmental and social responsibilities and at the same time improve profitability. Online fact sheet, UK.

World Commission on Environment and Development (1987) Our Common Future. Oxford University Press, New York.

ACKNOWLEDGEMENTS

The author would like to thank Community Self Build Scotland, FRMC Decision Support and Hong Kong University, Department of Architecture.

HKIVM NEWS

- **17 December 2003,** The HKIVM 8th Annual General Meeting was organised in the Hong Kong Club, attended by around 20 members and guests. The President's report and Treasurer's report had been approved unanimously by all members present. The election of office bearers was approved in the AGM.
- A new book entitled "Value Management of Construction Projects" by John Kelly, Steven Male and Drummond Graham is published recently. This book presents an integrated value philosophy, methodology and tool kit for improving project delivery for construction clients. It draws together insights from over 200 value studies conducted by the authors across a range of projects varying in size and procurement routes including partnering, PFI, prime contracting and Procure 21. This practical experience is integrated with extensive research and analysis of standards and best practice worldwide. For more details, please visit http://digitalnation.fileburst.com/ivm/value_management_of_construction_projects.pdf

FORTHCOMING EVENTS

- **20-21 April 2004**, a two-day training workshop on value management will be organised by Professor Geoffrey Q.P. Shen of the Hong Kong Polytechnic University. It focuses on the theories and applications of value management in the construction and real estate industry, with a view to meet the needs of construction professionals who wish to broaden and deepen their knowledge and experience in value management and to participate and manage value management workshops more effectively and efficiently. To obtain further information on the course and/or application forms, please contact Ms. Ada Chan, School of Professional Education and Executive Development, Hong Kong Polytechnic University. Tel: 3400 2828, Fax: 2363 0540, Email: speed@polyu.edu.hk.
- **28 June – 2 July 2004**, Value Engineering (VE) Module I Formal Training Workshop – VE Methodology & Application. Organized by the Hong Kong Institute of Surveyors and the City University of Hong Kong, and funded by the Professional Services Development Assistance Scheme (PSDAS). Led by highly qualified facilitator, Mr. James Rains CVS, FSAVE, president of the Advanced Value Group, LLC, Life Member and ex-president of SAVE International. Participants will be awarded a certificate upon completion, and will also be eligible to apply for an examination of Associate Value Specialist of SAVE in USA. The certificate will form a part of the qualifications for the list of facilitators approved by the HK government, subject to examination success and workshop experience. Please contact Ms Donna YU at the Hong Kong Institute of Surveyors at telephone number 2526-3679 or by email at edudept@hkis.org.hk for details and enrolment.
- **12-15 July 2004**, SAVE International's 44th annual conference, Strategies and Techniques to Enhance Value will be organised in Montreal, Quebec. Conference programme has been released and please visit http://www.value-eng.org/2004conference/details.php for details. Moreover, the Lawrence D. Miles Value Foundation is providing complementary registration for this conference to first time attendees who are full time qualified educators (University Faculty). Please visit http://www.valuefoundation.org/saveconf2004.htm for details.

APPLICATION FOR MEMBERSHIP OF HKIVM

If you are interested in knowing or joining the Hong Kong Institute of Value Management (HKIVM), please download the membership application form from HKIVM website http://www.hkivm.com.hk. Alternatively, please fill in the reply slip below and return it to the membership secretary of HKIVM.

Membership requirements are as follows:

Member (MHKIVM) This classification is available to individuals who can demonstrate an acceptable level of knowledge and experience in the field of Value Management. For admission, details on the Application Form are to be completed and copy of CV outlining professional employment, experiences and value management background enclosed. **Value Management Background** incorporating details of VM training and courses in VM process, application and techniques, number of studies, types of studies, role in process, days and dates should be stated clearly in the CV.

Associate Member The Associate Member classification is available to any individual who can demonstrate interest in the objectives of HKIVM, but may not have had sufficient Value Management experience to qualify as a Member.

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Request of the HKIVM Membership Application Form

To: **Dr. Frederik Pretorius**
Department of Real Estate and Construction,
The University of Hong Kong
Pokfulam Road., Hong Kong.
Tel: 2859 2128, Fax: 2559 9457
Email: fredpre@hkucc.hku.hk

Please send an application form for membership to the undersigned:

Name: ______________________ **Company:** ______________________

Address: ______________________ ______________________

______________________ ______________________

______________________ **Title:** ______________________

Tel: ______________________ **Fax:** ______________________

Signature: ______________________ **Date:** ______________________

CALL FOR ARTICLES

THE VALUE MANAGER is the official publication of the Hong Kong Institute of Value Management. It intends to provide a lively forum and means of communications for HKIVM members and those who are interested in VM. To achieve this objective, we need your support by sharing with us your articles or comments. The following are the notes to contributors:

1. Articles submitted to the journal should fall in one of the following categories: New VA/VE/VM techniques or methodologies, Review of conference VM papers, VM case studies, VM research trends and directions, Reports of innovative practice.
2. Papers or letters should be submitted on a 3.5" disc for IBM PC and A4 hard copy. Discs will be returned to authors after editing. Figures, if any, should be sent separately, in their original and preferred sizes. The length of each paper should be around 1000-1500 words.
3. The preferred software for processing your article is Word, other packages are also acceptable. If the above word processing package is not available, please find a computer with scanning capabilities; the typewritten copy can be transferred to a file as specified.
4. All articles and correspondences should be sent to The Editor, Prof. Geoffrey Q.P. Shen, c/o Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong. Tel: (852) 2766 5817, Fax: (852) 2764 5131.