THE VALUE MANAGER

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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 last issue of the publication for the year 2004. Inside this issue, we have printed three papers for you. The first paper, written by Phillips, outlines the application of a high performance business and technical improvement process together with a set of techniques used to guide improved initiation and development of programs, projects and services. The second paper is written by Pickles, which describes the VM approach to the consideration of the research issues in the context of intelligent buildings and sustainability and describes some of the outcomes that were generated using the VM methodology. The third paper, written by Shen and Chung, introduces a framework for identification and representation of client requirements of building projects in the briefing process. The framework integrates elements of the VM methodology such as the function analysis system technique (FAST) and functional performance specification (FPS) to enable the client organisations and project teams to systematically identify and clarify, and clearly represent client requirements in the briefing process. As we are approaching Christmas, may I take this opportunity to wish every one of you a Merry Christmas and a very Happy and Prosperous New Year!

Best Regards

Geoffrey Shen

Editor, The Value Manager
PRESIDENT’S ADDRESS AT THE ANNUAL GENERAL MEETING

Tony Wilson
President of HKIVM

The hot, humid Hong Kong summer lives up to normal expectations and mosquito’s are targeted for extinction to reduce the chance of dengue fever. Schools are on holiday so traffic seems a little lighter than normal unless you run into one of our many roadwork operations.

This is the time for planning and refreshing ideas for the year ahead. Vacations can be the great tonic this, to get out of the normal routine. I hope everyone will have or has had a good time.

International Conferences are now being planned. The Institute of Value Management in Australia have scheduled their conference for the 4th and 5th November 2004, in Geelong, Victoria, Australia. The title is “Optimizing Innovation and Value”. Calls for papers have been sent out. The sub-theme is, “VM paving the way for Australia’s Manufacturing, Services and Project Industries”, something very close to our hearts as we would so much like to introduce VM to similar clients in Hong Kong. Contact Lynne Lucas at Deakin University by email: luco@deakin.edu.au Phone 61 3 5227 8121 or view the IVMA web page: www.value-management.com.au for more details.

We have appointed a team to manage our own 7th International Conference which coincides with our 10th Anniversary. It is scheduled for early June 2005. Doug Castledine email: dougcas@pacific.net.hk is the lead co-ordinator at the moment, therefore if anyone wishes to contribute, please contact him directly with ideas for themes, sponsorship etc.

We have issued membership subscription requests for 2004 and expect to issue certificates in due course. In relation to this, Frederick Pretrious our Secretary email: fredpre@hkucc.hku.hk requests you all to send any change of address or new emails contacts to him right away.

We held a very interesting and informative evening event at the Yacht Club on June 29th where Jim Rains gave us a presentation on Facilitation together with a FAST diagram to show his approach. Thanks to Dr. Mei Yung Leung and Lindsay Pickles for helping to arrange this.

Being our 10th Anniversary in 2005, we are proposing to our International Conference as our main event. We would appreciate members’ views on what else you consider we could do to mark our continued and steady development as a Professional Institute. Please email myself: wilsoar@archsd.gov.hk or Lindsay Pickles on pontex@netvigator.com with any ideas and thoughts.

Looking forward to hearing your views about 10th Anniversary events.

Best Regards

Tony Wilson
President, HKIVM
SHARPENING THE PERFORMANCE EDGE: PROJECT DELIVERY ENHANCEMENT THROUGH VALUE ASSURANCE

Martyn R. Phillips, The Team Focus Group, Canada

ABSTRACT

In today’s world of rapid change, faster communications and emerging technologies, there are widely differing stakeholder needs and expectations for clients and their project managers to reconcile. Many well-intentioned undertakings have led to costly overruns, disruption in service, over-complexity, disputes, poor overall value for money and slower than expected pay back. Properly applied, Value Assurance (VA) is a pro-active and holistic approach to preventing or mitigating such problems, while delivering superior results in a timely manner. The paper outlines the application of a high performance business and technical improvement process together with a set of techniques used to guide improved initiation and development of programs, projects and services. This process is particularly effective for situations with a complexity of issues, diversity of stakeholder opinions and disparity of expected outcomes. It is applicable at various levels within and between organizations. This holistic process saves considerable project development time. The enhanced approach integrates a number of best practices for optimizing results across a broad spectrum of project activities. It also fits well with the Project Management Institute (PMI) knowledge areas and with the industry acknowledged Value Improving practices (VIPs).

INTRODUCTION AND CONTEXT

The aspects of stakeholder values, best value for money, project delivery methods and risk management are closely linked. Increasingly, comprehensive project business cases are being developed to consider all of these aspects, leading to assessment of competing total costs of ownership/operation (rather than just total installed costs) against various quality aspects offered. Following initial project approval, there is then the need to continuously assure clients and stakeholders of appropriate project performance. The Value Assurance (VA) approach addresses these needs by providing a holistic management framework for product/service success from inception, through concept development to in-service optimisation. The VA process is an extension of the value spiralling process described in The Application of Value Circles for Enhanced Project Performance [1].

The purpose of this paper is to illustrate the application of a high performance business process and set of techniques that guide improved initiation and development of programs, projects and services. VA is particularly effective for situations with a complexity of issues, diversity of stakeholder opinions and disparity of expected outcomes. It is applicable at various levels within and between departments / organizations.

The superior results derived are due largely to the rigour of applying the traditional, but broader-based, Value Engineering / Value Management (VE/VM) approach over a total elapsed period that is significantly longer than has become today’s norm. This form of application fits well with the varying pace of today’s “over-busy” managerial world. It also provides the basis of an “end-to-end” enhanced project management service. In so doing, VA forms an integral part of the key issue management process and, of necessity, should be driven at a high level within an organization.

WHERE DOES VA FIT?

Due to tight time pressures, VE/VM assignments can be compressed to the point of becoming dangerously ineffective. The key to proper time allocation is to demonstrate that enhancing value is not a “quick fix”, but an integral part of the project initiation and continuing development process. By far the most suitable situation is for a management process to be introduced at the highest level an organization. This normally requires it to be seen to be non-threatening and compatible with ongoing processes and for there to be little
upheaval to daily routines. This can truly be a conundrum for a change management process!

The value-based thinking approach has most power when used as a business process. A major need for project executives is to have a reliable method to ensure that their organization’s current efforts and proposed changes are truly cost-effective and meet corporate objectives. This need can be met through the Value Assurance process for a wide variety of applications. Depending on the application, stages are typically within the overarching process of business planning, control and monitoring, through alignment of management interfaces as follows:

- business case development
- system(s)/network concept planning
- design, development and prototype
- supply, production and roll-out
- applications development
- system(s) improvement/replacement.

**Project Management Institute**

Most organizations have well established policies and procedures for developing projects. The Project Management Institute (PMI) is a large and influential organization that is gaining in popularity. Many people who follow the PMI’s Body of Knowledge do not see a clear fit between the PMI approach and that of VE/VM. The PMI’s nine knowledge areas are:

- project integration management
- project scope management
- project time management
- project cost management
- project quality management
- project human resource management
- project communications management
- project risk management
- project procurement management

While there appears to be a bias toward to the execution of projects, the word “value” is noticeably absent from the above list. However, the PMI’s 2000 Edition of A Guide to the Project Management Body of Knowledge (PMBOK Guide) [2] does provide a definition of Value Engineering: “Value Engineering is a creative approach used to optimize life-cycle costs, save time, increase profits, improve quality, expand market share, solve problems, and/or use resources more effectively”. Incorporation of the VE technique in the PMI procedures is not readily apparent in the PMBOK Guide. This might explain much of the oft encountered resistance of project managers to VE.

**Value Improving Practices (VIPs)**

Some large industrial projects are recognizing and enforcing the application of a sequence of stage gates and VIPs. These VIPs include:

- decision analysis
- technology selection
- process simplification
- waste minimization
- personnel safety
- value engineering
- reliability modelling
- design to capacity
- energy utilization
- constructability

Logically, many of the items on the above list indicate outcomes, rather than processes. These outcomes are natural products of a comprehensive value process. Newcomers to project and value management may well be confused by the vast array of terminology and apparently similar techniques. It is not surprising, therefore, that many people prefer to remain with a minimal number of familiar techniques and resist taking on any new ones. The VA approach is a business and technical performance improvement process. Due to a broad focus, it does not seek to compete with any of the other techniques, but to harvest their advantages and provide an approach that is all encompassing and strategic in nature.

**MANAGEMENT OF INTERFACES**

Most value enhancement gains are made through strategic decisions and in conjunction with stakeholder input. This typically involves...
the pro-active management of several interfaces and complex relationships.

Many program and project delivery interfaces exist. Examples are:

- budget, schedule, quality and functionality
- planning, analysis, design and implementation
- procurement, purpose, scope and resources
- communication, consultation and politics
- best value, optimum performance and balanced risk

Each of these aspects involves its own set of considerations. Effective interfacing and issues management and requires recognition of these considerations, together with the need for good communication and consultation with a wide variety of project stakeholders. Stakeholders have different roles – as decision makers, or those whose endorsement is key, or others who can influence the outcome and the extent to which the project or service will be favourably received. Specifically targeted messaging is paramount.

Stakeholders may be categorised as follows:

**Partners**
- user organization(s)
- sponsoring organization
- financing organization
- development team

**Internal**
**Primary Decision Makers**
- politicians
- financiers

**Key Endorsers**
- advisory committees

**Project Team (multifunctional)**

**External**
**Primary Decision Makers**
- regulatory authorities (environment, building codes etc.)

**Influencers**
- other political parties
- other levels of government
- unions
- pressure groups
- media
- neighbours
- impacted property holders

**Auditence**
- customers
- taxpayers
- local Community
- parents
- students
- general public.

**EXAMPLE PROJECTS**

Several examples related to strategic choice and value enhancement are outlined in A Value and Risk Management Approach to Project Development [3]. Additional example applications include the following.

**Transportation**

Strategic planning for a new, fast-tracked metro rail transit system. The strategic choice portion of the VA process was used to determine options for mode selection, horizontal alignment and vertical alignment for a 69-km route urban route along with site selection and configuration of 55 stations for this $4Bn. project.

**Institutional Building**

Business planning, proposals evaluation and Treasury application for a Public-Private-Partnership (P3) development of a landmark public building (consolidated courts and court services complex). A comprehensive application of VA has been the guiding beacon for ensuring adherence to the extremely tight schedule and funding criteria for this project of just $350M, but for a total long-term commitment in the order of 2.5 Bn.
**Regional Flood Relief**  
Community consensus building on options for a major ($650M) flood relief upgrading scheme. Various options were explored among government and private industry representatives. The process and report were pivotal in gaining joint capital funding from the Federal and Provincial governments.

**Industry**  
Significant performance improvements to an operating industrial process. Elimination of waste to provide a staged 1 to 3.5% uplift in output to match business plan requirements. Capital outlay of $5.5M for the initial 1% uplift was recovered within a 6-month payback period. A common factor among all these projects was the URGENCY required to reach consensus on rationalization of needs and the best way to proceed with project development.

**VA PROCESS STEPS**  
Significant project enhancement successes have been achieved by adapting traditional VE/VM to fit the needs of corporate clients, PMI advocates and those traditionalist architects/engineers wedded to their own project practices. Repeat clients reinforce the business advantage of the application of the VA process. Depending on specific circumstances such as project size, stage, complexity, criticality, urgency, readiness and politics, the VA process can take from a minimum of nine weeks to one year or more. VA key steps are as follows.

1. **Strategic Framework** – focus: study initiation, foundation and targets
2. **Initial Analysis** – focus: understanding, metrics and benchmarking
3. **Exploration** – focus: innovation and testing
4. **Recommendations & Decision Points** - focus: sustaining results
5. **Piloting and/or Implementation** - focus: management of benefits
6. **Results Monitoring and Adjustment** - focus: continuing improvement.

In line with the Value Spiralling process1, the elapsed timeframe will take considerably longer if guiding a complete project from inception to fruition.

Throughout the process, workshops and mini-workshops are conducted, applying many of the methods familiar to VE/VM practitioners. Stages I to VI mesh well with procedures that are typically ongoing in many organizations. The workshop(s) utilize the standard Value methodology techniques and phases. Naturally, the workshops and mini-workshops are relatively intense sessions, each requiring focused preparation and follow-up. It is important to view stages I/II and V/VI as more than just traditional pre and post workshop activities, as may be tempting for those familiar with traditional VE/VM. A key to success of the VA process is in its holistic approach and specific stages interfacing with the various organisations’ established routines. A further critical aspect is defining primary project roles, e.g.:

- **Sponsor** – ensures delivery of financial results for the project and removes obstacles to team progress
- **Team Leader** – manages day-to-day work of the project team and facilitates the team through complete implementation of the 6-step process
- **Team Member** – provides detailed input to the process and executes implementation; may be technical, financial, consultative, etc.
- **Coach** – provide process expertise and works with management and teams to provide strategic direction and to remove obstacles.

It is essential to have an unambiguous and supportive framework for the team to operate within.

**PROJECT READINESS INDEX**

Many project problems are attributable to insufficient attention being paid to the management of interfaces, as previously described. Some resultant problems typically encountered with traditional project development are:

- lack of clarity in project definition and strategy
• unclear definition of roles and responsibilities
• undefined requirements and commitments for each stage of project misalignment of perspectives and expectations of various project parties
• scope changes and rework
• schedule and budget overruns
• uncertainty of program & project risks, completeness and readiness to proceed to the next stage.

During almost 40 years in the engineering profession, the author has observed that many project personnel consider themselves to be much further ahead in the project development process than they really are. Many projects have leapfrogged toward a favoured solution and are riddled with omissions and incomplete /undocumented assumptions. Ultimately this can lead to disastrous impacts for a corporation and its executives if a significant project is delayed, the scope increases or costs escalate. It is useful, therefore, to diagnose project progress in terms of a “readiness” rating, or index, to predict the likelihood of success or failure. This is accomplished by rating activities in terms of:
• degree of completion, and
• degree of criticality to project success.

This index can be compared against historical ratings and recorded degrees of achievement. Deficient areas should be addressed quickly, in line with expectations for further progress.

STRATEGIC FRAMEWORK
Project requirements are becoming more complex and subject to change. It is critical to establish an agreed program or project framework from the outset. This may simply be:
• shared vision
• project mission
• stakeholder values
• success criteria (finished project and project development process)
• business case
• key result areas and strategies

• targets, milestones and performance indicators
• resource plan
• communication plan.

The importance of visioning and alignment of stakeholder expectations cannot be overstated. Suffice to say, many projects problems can be traced to the absence of one or more of these important aspects. Of necessity, the VA process includes a strategic framework. In addition, significant attention should be paid to proper definition and adequate description of the success criteria, which translate into VA project performance / evaluation criteria. It is ultimately conformance to these criteria that determines approval and success of the project.

VALUE INDEX
For a long term commitment such as a design-build-operate contract or for a P3 arrangement, it is particularly important to understand the true value of the “deal”. This can be expressed as graphically as the relationship between quality and cost. An example of this is the evaluation of proposals for negotiation of an urgent P3 arrangement for complex project having a 33 year term. An evaluation grading scale is used to score 21 quality aspects and 10 aspects of related business terms. The scores are plotted a) separately to show individual variations from requirements, and b) for quality aspects collectively on one axis, and for business terms collectively on the other axis. This latter shows a comparative value index. The sets of graphs provide a clear basis for discussion and negotiation for improvement to specific aspects of quality, cost, schedule and risk apportionment. Following negotiations, the amended proposals are rescored to ensure that the value index has improved rather than slipped during review.

RISK AND EXPENDITURE PROFILING
Different methods of project delivery (e.g. P3 versus traditional design -separate construction -separate operations contractor) are impacted differently by risks. This can have a major bearing on choice of project delivery method. The cost impacts of the significant risks are derived by the product of:
• an estimate of the partially mitigated cost
• the probability of occurrence.

For a proper comparison of options, the risk and related expenditure profiles should be examined. Some risks (e.g. fixed financing rates) will disappear relatively early, although their impact could have long lasting effects. The deciding factor may be the differential amount of risk retained and that transferred to another party. Each party tends to view their risks quite differently; one party’s risk may be another party’s opportunity. A variety of risk areas should be assessed for their potential impact on the undertaking. Some useful categories to check for overall project value are:

- demand
- business & financing
- construction
- operations
- residual

When the project has received approval to commence, two subsequent, more detailed risk reviews are likely, focusing on:

- project framework
- project development and implementation.

Each of the reviews’ separate categories has several sub-categories for examination.

**SUMMARY AND CONCLUSION**

It would seem that in some quarters, over time, traditional Value Engineering has been both broadened and diluted, to be applied under the general guise of Value Management. In turn, Value Management became trendy and may have attracted a following of those who wanted to apply it only in rapid spurts, thus diminishing what should have been spectacular results. The comprehensive VA approach provides a balanced, consolidated system for achieving performance gains and delivers significant return on investment, while focusing on lasting results and stakeholder satisfaction. This is achieved through a more acceptable, Third Millennium, approach to fitting in with complex multi-stakeholder systems, demands and constraints. VA builds on traditional VE/VM skills to encourage an enhanced project and value management approach for achieving performance gains and delivering significant return on investment, while focusing on lasting results. It encourages participants to focus on the aspects of the ultimate service delivery rather than just the short-term objective of project implementation. Also VA synchronizes proceedings with the natural pace of specific organizations and projects. Additional attributes of the process are:

- accelerates program / project progress
- clarifies issues and available choices
- builds consensus amongst project stakeholders on issues and areas of concern
- identifies & develops creative options
- enables informed decision-making for sustaining results
- enables clear communication of benefits from/to “shop floor” and executive management
- provides a targeted, systematic and measured response, for either incremental or breakthrough performance improvement.

In essence, this holistic process integrates traditional project management and value engineering techniques / processes across the complete business cycle, as appropriate to a particular situation. It provides a program and project navigational aid for making faster, more confident decisions, while recognizing a diversity of stakeholders and optimizing capital and/or life-cycle costs. In addition, it provides a mechanism for identifying and exploiting risks/opportunities, together with more realism / improved level of confidence (e.g. in estimates of outturn costs and delivery dates) for capturing lasting results.

**REFERENCES**


Abstract

In Hong Kong, the pavilion was constructed to act as a demonstration project to support two, hitherto separate, strands of housing development, being sustainable housing and intelligent buildings. Towards the end of the Integer Project, a Research Forum was held to generate debate about construction and housing research in the context of intelligent buildings and sustainability. The Research Forum also aimed to identify the main research issues in those areas and develop an action plan for the future. The forum was run using a structured approach that allowed participants to build upon other’s ideas in a positive way. Initially, participants shared information about the Integer project and its role in research, consultation, education and demonstration so that all participants could actively listen to peer experience. Participants analysed the information by discussing the barriers to improving housing performance in the context of intelligent buildings and sustainability. Participants then discussed how research and other actions might help to overcome these barriers. Ideas on the more promising mechanisms were summarised and discussed to determine an action plan for the future. This paper describes the VM approach to the consideration of the research issues and describes some of the outcomes that were generated using this methodology.

INTRODUCTION

The Integer Pavilion was constructed in Admiralty on the borders of Central and Wanchai Districts on an open part of harbour reclamation. It was a striking building fabricated using sustainable and intelligent buildings methods, designed to demonstrate these to the public and allow them to be used for research purposes. It comprised a large exhibition area, a tall central tower facility, a model of the Integer Tower and two prefabricated show flats that would be fitter into the tower, and which were fitted out with state of the art lighting heating, security and space usage.

A partnership of founder companies was established to take the project forward. These founders included Trade Partners UK, Government of the Hong Kong SAR, CLP Power Hong Kong Limited, Gammon Skanska Limited, Hong Kong Housing Authority, Hong Kong Housing Society, INTEGER Intelligent & Green Limited, Swire Properties Limited and The Hong Kong Jockey Club. Between them, these founders raised some HK$40 million to allow construction of one of the most innovative buildings in the world to commence in January 2001.

The Jockey Club is the patron of the project and has sponsored the cost of the exhibition with the aim of attracting at least 20 000 school children.

The Integer Pavilion was closed at the end of 2002 and has been taken to Beijing where it is in the process of being erected as a showcase for energy saving.

The Pavilion was constructed to act as a demonstration project to support two, hitherto separate, strands of housing development, being sustainable housing and intelligent buildings. It facilitated research into the numerous buildings systems embodied in the design of the pavilion and so determine how intelligent and sustainable concepts can be applied to new and existing buildings. The Integer Tower within the Pavilion demonstrated how sustainable building concepts could be used in a dense urban environment.

The Integer Project complimented and fed into specific actions identified in the Construction Industry Review Committee (CIRC) report, published in 2001 by the Hong Kong Government. The feedback and ideas from the Research Forum were valuable in setting out research projects and the way forward for other bodies such as the Construction Industry Institute and Hong Kong Universities, which fund and carry out industry research.

THE STRUCTURE OF THE RESEARCH FORUM

The forum was run using a structured approach that allowed participants to build upon other’s ideas in a positive way. Initially, participants shared information about the Integer project and its role in research, consultation, education and demonstration so that all participants could
actively listen to peer experience. Participants analysed the information by discussing the barriers to improving housing performance in the context of intelligent buildings and sustainability. Participants then discussed how research and other actions might help to overcome these barriers. They summarized ideas on the more promising mechanisms and discussed an action plan for the future.

The objectives of the forum were to:

- Introduce the primary research, consultation, education and demonstration aims in the Integer project;
- Set out the barriers to improving housing performance in the context of the intelligent home, intelligent buildings and sustainability;
- Generate debate about construction and housing research in the context of intelligent buildings and sustainability;
- Identify the main research issues in these areas and develop an action plan for the future.

There were about 60 people at the research Forum. Participants came from a wide variety of backgrounds and included government officials, developers, contractors, architects and engineering consultants, academics and members of environmental groups.

**RELATIONSHIP BETWEEN VALUE & COST**

Historically demand for housing has outstripped supply. This is no longer the case. Returns are falling for the producer, so affecting his perception of value. The user can be more benefit demanding. This view was highlighted in the value relationship below.

For both buyer and seller to be satisfied in a contract, the value gained by the user must equal that gained by the producer.

\[ V(u) = V(p) \]

\[ V(u) = \text{value to the user} = \frac{\text{function (use)}}{\text{cost}} \]

\[ V(p) = \text{value to producer} = \frac{\text{return (profit)}}{\text{risk}} \]

The user will not think he has made a good choice if the cost is too higher than the perceived benefit. Where the function of the building to the user is speculative return on investment, the user might pay quite substantial amounts even for a poor quality product and will be acting more in the role of a producer than a user. Research is required on how to educate the users as to the benefits they can expect for the price of housing.

**BARRIERS TO THE IMPROVEMENT OF HOUSING IN HONG KONG**

Various aspects of sustainable buildings design were presented for participants to appreciate the complex problems faced in introducing change in Hong Kong’s building design and construction. Some of these are summarized below.

There is a “poor quality” culture in Hong Kong. People do not expect quality housing and there is little or no demand for change in the market. Environmental damage is not costed nor paid for and the balance between waste and want is not clearly understood. On the social side, there is a lack of awareness by the public as to what initiatives could be incorporated into housing. Developers lack understanding of the end user and both buyers & developers have a short-term thinking to investment. The social attitudes could generally be described as materialistic and responsibilities for aspects such as care of public space are not well developed.

The construction industry is fragmented. Interest in the industry by the young, as a career choice, is low and the workforce is not well motivated. As a result the skill levels are not to the required standard. There is resistance by workers to new ideas, a lack of construction education and a corresponding shortage of skills for traditional, new and advanced technologies.

Users tend to consider cost rather than value, in that they do not consider the benefit of the costed item. In addition, they focus on minimising up-front cost. There has been a very high speculative demand in the past. A better understanding of life-cycle costing is needed.
The tax system of high premiums creates high land costs and means that there is pressure to complete development projects quickly to generate revenue and reduce financing costs. There is a lack of knowledge as to the true relationship between land cost and construction cost and an over-reliance by government on land revenues.

New sources of land are needed, or existing land resources, such as new territories land or through urban regeneration schemes need to be utilised better.

A desire for quick returns on investment brings fast track developments. New financing regimes will allow more certainty of outcome.

Restrictive government regulations form a barrier to innovation. Government regulations are prescriptive rather than performance led. There is a lack of clear urban planning guidelines and severe planning restrictions and lack of government incentives.

**TAKING THE INTEGER APPROACH TO MAINSTREAM BUILDING**

Participants formed smaller groups, each led by a group facilitator to consider construction and housing research in the context of intelligent buildings and sustainability. They were tasked to identify research issues and present these to the whole workshop.

One of the main barriers was felt to be the lack of a champion. Prescriptive Government regulations, an over reliance on land revenues and the high cost of land compared to construction costs all contribute to a lack of incentive for anyone to champion the cause for sustainable construction and operation techniques.

Building the 40-storey INTEGER tower would provide an example of proven technology and cost-reduction and act as a catalyst. However, at 80 sqm per flat it is aimed at middle / upper private development and private sector is unwilling to take the risks associated with innovative design and construction. One research theme could consider how construction and operation concepts embodied in the INTEGER tower could be used in a public housing development, where flat sizes are more likely to be 30 sqm. and which aspects would be cost-effective.

The design of the 40-storey tower had been carried out by speculating on what the public would like or demand. A greater understanding of peoples’ needs and wants and how much they would be willing to pay is required to inform initiatives into sustainable development.

In Hong Kong, there is a lack of demand for innovation. Both buyers and developers are more interested in short term investment and they speculate with housing. People do not see property as being for their own use or benefit but more as an investment. Historically demand for housing has outstripped supply, but this is no longer the case and the user can be more benefit demanding. Research is required on how to educate the users as to the benefits they can expect for the price of housing.

There is a lack of knowledge of the long term performance and life cycle costs of innovative ideas. However, the Capital cost of development will remain a primary driving force. More research is needed to determine the most efficient and effective construction methods and building design. More collaboration between design professional and contractors will be required to pursue this type of research. Education to end users, professionals and regulators will improve the perception of the built environment. The construction industry has a high level of knowledge of innovative techniques. If they could bring this to people, starting education even at P1 stage, this would eventually lead to the public lobbying Government and so promoting the Industry. In this way, education forms a circle where all can benefit.

Unless we pay the true cost of environmental damage, there is no economic driver to support sustainable development. A perceived additional cost to environmental initiatives puts developers off incorporating innovation in their developments.

The report on the Research Forum was to be distributed to all participants and people known to be interested in the topic. The Hong Kong Construction Industry Board (HKCIB) have an research agenda following the CIRC report and the results of this workshop, together with the recommendations for further research were presented to the HKCIB to help with this aspect of their work. The results of the research could be taken up by a research institute or resource centre.
SYSTEMIC IDENTIFICATION AND EXPLICIT REPRESENTATION OF CLIENT REQUIREMENTS

Prof. Qiping Shen and Jacky K.H. Chung
The Hong Kong Polytechnic University, Hong Kong.

ABSTRACT
The briefing process is both critical to the successful delivery of construction projects and problematic in its effectiveness. Although a number of briefing guides have been developed, attempting to address briefing problems, they are often too general and the advice offered is inexplicit. This paper introduces a framework for identification and representation of client requirements of building projects in the briefing process. The framework integrates elements of the VM methodology such as the function analysis system technique (FAST) and functional performance specification (FPS) to enable the client organisations and project teams to systematically identify and clarify, and clearly represent client requirements in the briefing process. The procedures, potential benefits and limitations of the approach are also discussed in the paper. It is concluded that the use of this framework in the briefing process could lead to systematic identification and clarification of client requirements, and precise and explicit representation of these requirements.

INTRODUCTION
Briefing is the process of creating the brief, the document that outlines the objectives and requirements of the client organisation(s) for a project (Blyth and Worthington, 2001). It is the first and most important step in the design process, where client requirements for a building project are defined and the major commitment of resources is made. The briefing process is both critical to the successful delivery of construction projects and problematic in its effectiveness. Problems in buildings can often be traced back to the briefing process. The briefing process, however, is of a complex and iterative nature, which must integrate business strategy with building requirements. It requires a shared understanding and commitment among a group of stakeholders of the project, including the client, the end users, and the designers. It is also a dynamic process involving frequent interactions among the stakeholders (Barrett and Stanley, 1999).

Defining client requirements and communicating them to other stakeholders are crucial to the successful delivery of a project (e.g. O’Reilly, 1987; Duerk, 1993). A good brief should include a precise description of the functionalities required by the stakeholders for the building project (McGeorge and Palmer, 1997; Hershberger, 1999). Although many initiatives have been taken to improve the briefing process, current briefing practice still has many limitations. As concluded in the Latham Report (1994): “more effort is required to understand clients’ needs”. The report by the Construction Industry Review Committee (2001) in Hong Kong has also recommended clients to “set out the requirements of their projects clearly, systematically and comprehensively”. The use of VM in the briefing process is considered to be a promising application (Kelly and Male, 1993; Green and Simister, 1999; Shen et al, 2004).

This paper introduces a structured framework designed to assist the identification, clarification, representation, and possible assessment of client requirements in the briefing process. Following a brief review of previous work in the briefing process, the paper provides a detailed description of the proposed framework, which integrates, the function analysis system technique (FAST), functional performance specification (FPS) to facilitate systemic identification and representation of client requirements. The procedures, potential benefits and limitations of the approach are also discussed in the paper.
OVERVIEW OF THE FRAMEWORK

The framework integrates the VM methodology with FAST and FPS techniques to express the needs and requirements of the clients and end-users in functional terms without reference to the technical solutions, and to create an explicit functional representation of client requirements in the briefing process. It comprises two major elements: a structured job plan for the briefing process, and a hierarchical structure to identify, define and represent client requirements. The job plan provides a step-by-step procedure for gathering and analysing project information, and creating and presenting a briefing document. The purpose of commissioning a new project is to achieve the objectives of the client. These objectives direct the specific requirements of the project, which in turn direct the design tasks. The hierarchy of functions provides a framework to represent these relationships in a logical way. The following major items are linked together through the “why-how” logic:

1. A mission statement that concisely expresses the reasons a client undertakes a project in the first place. It defines the special purpose of that building project and it answers the question “why do we need this project?”;

2. A list of functional objectives that should be achieved in order to complete the mission. The objectives express the level of quality to be reached by the design and should be stated clearly so that they focus designers’ intention in a particular direction without limiting the creative expression;

3. Performance specifications - a list of measurable criteria for each functional objective that the design must be met in order to achieve the objective. The building must function in a way that promotes the level of excellence; and

4. A statement on the level of flexibility of the criteria, indicating flexibility for functions deviating from the assigned configuration. This can vary from an absolute must and not negotiable, to very flexible and open to suggestion.

The main features of the proposed approach are as follows:

- The framework is applied in the form of workshops in the briefing process, comprising four phases: preparation, information, analysis, and evaluation, which are separated into two stages by a break in-between.

- The process will be participated in by major stakeholders of the project, such as the client organisation, end users, relevant authorities, and design consultants.

- The large number of participants and complicated tasks involved in the briefing process (e.g. consensus building and priority setting) place heavy demands on facilitation skills, which can be professionally provided by a certified facilitator such as a VMF.

- The briefing process will follow the job plan to create the briefing document, with a hierarchy of client requirements being its main element. The outcomes of the process will be owned by all participants.

During the facilitated briefing process, the team of stakeholders will:

- Confirm project goals, objectives, criteria, and value-driving functions.

- Understand the problem situation and areas of key risks and opportunities to options.

- Develop a shared understanding of the opportunities to achieve primary objectives.

- Identify viable options for issues identified and agree criteria to be used in the evaluation.

- Carry out initial evaluation of the identified options, based on the available information.

- Develop a detailed action plan to further develop responses to the key issues.

THE JOB PLAN OF THE FRAMEWORK

We use commercial buildings as an example to develop and illustrate the proposed approach. This is because commercial buildings are more complex than other types of buildings, normally
involving more than one stakeholder, and client requirements for the buildings are normally multi-faceted and can vary significantly among buildings. By choosing this specific type of building, we can develop the approach in sufficient depth by providing relevant illustrations and real-life examples.

Preparation phase
The main objectives of the preparation phase are to determine the team structure and to define the briefing workshop. Clients can employ a qualified facilitator to organise and facilitate the preparation. Major stakeholders who may have different objectives and requirements should be invited to participate in the briefing workshop. Clients are suggested to select and invite the stakeholders carefully, as this will influence the project outcome. A typical study team should include the following key stakeholders: project managers, client representatives, design team members, contractors, end-users, and facilitators (can be a trained project manager). Facilitators also assist clients to define the scope and objectives of the workshop. Key tasks to be conducted in this phase include:

- determining the team structure - facilitators select and invite the key stakeholder to join the study on behalf of clients;
- defining the workshop - facilitators assist clients to define the scope and objectives of the workshop; and
- gathering information - facilitators draw up a list of necessary information and ensure that sufficient information is available for the workshop.

Information Phase
The primary aim of the information phase is to get all members of the team to fully understand the background, constraints, and limitations of the project so as to broaden their perspectives beyond their particular area of expertise. An introductory presentation will be given at the beginning of the workshop. This will be followed by a presentation of project objectives and requirements by a client representative, and then descriptions of the project concerns and constraints by other stakeholders. Conflicting views are expected, and consensus is only arrived at after the analysis phase. The objectives of study will be finalised at the end of this phase. Tasks to be conducted in this phase include:

- establishing a common understanding – a short presentation given by client representatives, facilitators and stakeholders
- finalising the objectives of the study – a group discussion.

Analysis Phase
The main objectives of this phase are to identify the client requirements in terms of functions and to enhance the understanding of the project by stimulating intense discussions. This phase comprises five tasks:

- identify and define functions
- classify identified functions
- develop function relationships
- assign weighting to functions
- assign flexibility to functions

The first three tasks are common in VM studies and relatively straightforward. The remaining two tasks need some further explanation. Assigning weighting is to determine the relative importance among functions. One approach is to spread 100 points among level-1 functions, further spread the points assigned to a level-1 function among its corresponding level-2 functions, and so on. This allows comparison of functions at the same level. Showing the importance of a function not only helps clients to understanding their requirements and needs more thoroughly, but also provides useful information to the professionals who will have to design according to these requirements. The relative importance of the functions of a ‘world-class’ commercial centre is illustrated in Fig. 1.
The task of assigning flexibility to functions attempts to further investigate the identified functions by using the FPS. The FPS is used to clarify each function of a building project to a detailed level at which the requirements of the client are clearly understood by the different professional disciplines (Masson, 2001). To achieve this, flexibility is assigned to each function by the following steps:

Define criteria
This is to define all the criteria that will be used to evaluate and measure whether a function is accomplished. There are normally several criteria per function.

Define levels of criteria
This is to define the levels of each function-criterion that are acceptable to satisfy the need. For example, avoiding the close proximity of outdoor intake to sources such as garages, loading docks, building exhausts, or outside construction projects, is considered as an acceptable level for the criteria of ‘well-located air inlets’.

Assign flexibility to criteria
This is to assign flexibility to each criterion in order to investigate its negotiability. A four-scale assessment system is adopted and its details are summarised in Table 1.
Table 1: The Scale of Flexibility in the FPS

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<th>Description</th>
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<td>F0</td>
<td>The criterion is an absolute must, not negotiable, all effort must be made to meet this level, whatever the cost</td>
</tr>
<tr>
<td>F1</td>
<td>The criterion is a must if at all possible, no discussion unless there is a very good reason</td>
</tr>
<tr>
<td>F2</td>
<td>The criterion is negotiable, hope this level is reached, ready to discuss</td>
</tr>
<tr>
<td>F3</td>
<td>The criterion is very flexible, this level is proposed but is open to any suggestion</td>
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**Evaluation Phase**

The evaluation phase, which is optional, is an additional phase in the approach. The main objective of this phase is to facilitate the assessment of project briefs at the end of the briefing process and the evaluation of project performance at the end of the project. Construction is a time-consuming process and it is observed that many clients are trying to shorten the time taken by the briefing process. As a result, the briefing process often overlaps with the scheme design process, and a set of stretch drawings are incorporated in the briefs in practice. Client requirements have been identified and defined in previous phases. By using the criteria scoring matrix technique, these requirements can be used as criteria to assess whether they are truly reflected in the briefs. Moreover, this method can be also applied to evaluate whether client requirements are successfully achieved at the end of the project. Major tasks in the evaluation phase are as follows: (1) to evaluate the consultancy brief - assess the project briefs based on the identified requirements at the end of the briefing process; and (2) to evaluate the project performance - evaluate the project performance based on the identified requirements at the end of the project.

**DISCUSSIONS ON THE FRAMEWORK**

This framework has integrated the VM methodology with FAST and FPS to facilitate the identification and representation of client requirements in the briefing process. Based on the personal interviews and focus group meetings we have conducted with various organisations in the industry, the potential benefits of the approach are summarised as follows:

1. It provides a structured framework to investigate client requirements systematically.
2. It crystallises the client requirements through the logic of Why-How relationships, and expresses the requirements clearly in terms of functions.
3. It reduces potential conflicts by bringing the expertise of all major stakeholders into the briefing process.
4. It improves communication and involvement among clients, designers and other major stakeholders to improve the briefing process.
5. It establishes a standard to facilitate the assessment of project briefs and project performance.

The functional representation of requirements provides a precise description of the required functionalities and non-functional requirements of the end users of the project. As put by Bassanino et al (2001) and Kelly and Male (2002), it enables a systematic identification and clear definition of client requirements, improves understanding of and sympathy for various stakeholders’ objectives, and facilitates the effective accomplishment of these functions.

This approach is simple and easy to use by the practitioners. It does not involve complicated mathematical formulations. It can potentially reduce the time required to arrive at a clear and precise understanding of client requirements, and thus to create the potential to minimise the variation in construction and to enable the early completion of projects. However, the successful implementation of the approach depends largely on support from clients, as additional time and resources are required. In addition, the composition of study teams and the skill of facilitators are also critical in this process.
CONCLUSIONS

The proposed framework integrates the VM methodology with FAST and FPS to facilitate the identification and representation of client requirements in terms of functions in the briefing process. It has the potential to have a major improvement in the process by making the identification, clarification, and representation of client requirements more effective and efficient. This is of significant value to both client organisations and design consultants, especially in places where land costs are very high and it is crucially important for projects to be “on the right track” from very beginning to avoid redesign and rework, which ensures earliest possible completion. This framework can also help reduce and resolve conflicts among major stakeholders by bringing them into the process, and by facilitating the assessment of project briefs and project performance.

Whilst there are potential benefits in using the proposed framework in the briefing process, further research work is needed to verify the benefits of this proposed approach in practice and to make further improvements. Encouraged by the enthusiasm of practitioners in the industry, we are planning to implement and further test the proposed framework in a number of real life projects in the coming months.

ACKNOWLEDGEMENTS

This paper is the result of a research project funded by The Research Grant Council of the Hong Kong SAR Government.

REFERENCES

O’Reilly, J.J. (1987), Better briefing means better buildings, Building Research Establishment, DoE, UK.
PHOTOS TAKEN AT THE 9TH HKIVM ANNUAL GENERAL MEETING

03 December, 2004
Hong Kong Club, Hong Kong

Welcome speech by the President of HKIVM

AGM report by the President of HKIVM

AGM Venue

Participated members (Table I)

Participated members (Table II)
INTRODUCTION
Over the past 10 years, the HKIVM has hosted six international conferences, conducted a number of value training workshops, its members have conducted hundreds of highly successful VM studies for both public and private construction industry clients and regularly published the ‘Value Manager’ journal. Since 1998, the Hong Kong Special Administrative Region Government (HKSARG) has further recognized the importance of expert VM facilitation to achieve ‘best value’ on major government construction projects and seeks advice from the HKIVM on compiling its own lists of accredited facilitators (all of whom are HKIVM members). It is a long and never-ending journey to run, maintain and upgrade value standards both locally and globally and so far the effort has proved very successful in the Hong Kong construction sector. Now is the time for us to share our experiences and impart our valuable knowledge to other industries and sectors that can benefit from VM. So come and join us in 2005 and celebrate our 10th anniversary and our VM success story so far, together with other value-minded clients, practitioners and academics from around the globe.

MAIN THEME
Our conference title “Why reinvent the wheel?” directly relates to the continuing need for improvement in all aspects of what we do. It covers all aspects of organizations, including hard and soft issues, ranging from premises, facilities, designs, systems, production, procurement, supply and delivery, and human resource management. Can we save the time and effort lost in problem solving, firefighting, continual backtracking, especially when there are changes of staff or loss of information and expertise? Human resource, environmental, and financial issues often blur the way forward.

Value management (VM) provides a direct and highly efficient way to solve problems and keep the process on track in a fully encompassing and systematic manner. It is the overall name given to a collection of specific principles, techniques and practices that have been proven effective in maximizing value to those concerned. Key stakeholders are the participants, sharing information, analyzing functions, creatively exploring ideas, judging proposals and developing action plans to meet the agreed objectives in a comprehensive manner under the guidance of an experienced VM facilitator. The process can be applied to almost any subject and almost invariably results in additional benefits to the client.

When a tyre becomes soft, the wheel will not work as intended. Sometimes the solution is simple, "add air" but sometimes it is more complex, "change wheel". There are different solutions for each problem and VM is ideal for identifying these, assessing the risks involved and the longer-term consequences of implementation.

The conference invites you to open your views and explore the potential of applying VM for your organization or business.

SUB-THEMES
Servicing your engine and getting more miles to the gallon

- Improving the process and product
- Adding value with value engineering
- Systematic reviewing for better performance
- Getting more for less
- Value management tools and techniques
Changing lanes and overtaking the competition

- Value management for success
- Change management and reengineering
- New Value Management directions in business
- Idea generation and innovative enterprises
- Global opportunities for value management

Planning out your route & ensuring a safe journey

- Forward planning with strategic value management
- Value management for transparency and accountability
- Managing risks and assessing consequences
- Identifying and solving problems at key stages of product development
- Partnering and collaboration

Dealing with emergencies and breakdowns

- Consensus Facilitation
- What to do when things go wrong
- Experiences with difficult clients and workshops
- How to deliver bad news positively
- Identifying roadblocks and bottlenecks

Preliminary Programme

**Wednesday June 1, 2005**
18:00 – 23:00 Welcome Reception
HK$550 per delegate (Optional)
Horse-Racing Buffet Dinner at Hong Kong Jockey Club, Shatin Racecourse

**Thursday June 2, 2005**
08:15 – 08:55 Registration
09:00 – 09:05 Welcome by President of HKIVM
09:05 – 09:30 Conference Keynote Presentation

09:30 – 10:45 Sub-theme Keynote and Presentations
10:45 – 11:15 Refreshment Break
11:15 – 12:30 Sub-theme Keynote and Presentations
12:30 – 14:00 Lunch
14:00 – 15:15 Interactive Session
15:15 – 15:45 Refreshment Break
15:45 – 16:35 Sub-theme Keynote and Presentations
16:35 – 17:00 Discussion and Conclusion of Day One by Day Chairperson

**Friday June 3, 2005**
08:15 – 08:55 Registration
09:00 – 09:05 Welcome by Day Chairperson
09:05 – 09:30 Conference Keynote Presentation
09:30 – 10:45 Interactive Session
10:45 – 11:15 Refreshment Break
11:15 – 12:30 Sub-theme Keynote and Presentations
12:30 – 14:00 Lunch
14:00 – 15:15 Interactive Session
15:15 – 15:45 Refreshment Break
15:45 – 16:35 Sub-theme Keynote and Presentations
16:35 – 17:00 Discussion and Conference Closing
17:00 – 19:00 10th Anniversary Cocktail Reception
19:30 – 23:00 Farewell Banquet
HK$650 per delegate (Optional)
Venue: to be announced

**Saturday June 4, 2005**
09:00 – 17:00 Shenzhen, China Programme
HK$680 per person (Optional)

* Programme is subject to change without prior notice.
IMPORTANT DATES

Deadline for Abstracts Submission
- January 7, 2005

Notification of Abstracts Acceptance
- January 31, 2005

Deadline for Full Papers Submission
- March 31, 2005

SUBMISSION DETAILS

The abstract and manuscript should be submitted as email attachment to Conference Secretary. Email: hkivm@icc.com.hk

ENQUIRY:

Tel: (852) 2559-9973
Fax: (852) 2547-9528
Website: http://www.hkivm.com.hk

HKIVM NEWS

- **03 December 2005**, The HKIVM 9th 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.

- **07 December 2005**, A free public lecture “Value for Money in Public Sector Projects” was held by Dr Roy Barton at the University of Hong Kong. Dr Roy Barton has extensive experience as a senior academic, group-facilitator/coach, and manager. He has worked widely with project teams mainly at the strategic and conceptual stages of projects in the public and private sectors, applying Value Management, Risk Management and Partnering concepts, and works with many government departments and agencies as well as with a broad range of private sector organisations within Australia and overseas.

FORTHCOMING EVENTS

- **12-16 February 2005**, the Second Conference of Insights on Successful Engineering Practices will be held by the Kuwait University and the SAVE International Arabian Gulf Chapter at Kuwait City. This conference is designed to provide an opportunity for prominent specialists, researchers, and engineers throughout the Middle East to share their latest research in the area of engineering and its applications. The conference also provides an opportunity to transfer state of the art technology and successful practice expertise to engineering personnel in the region. Please visit http://www.value-eng.org/pdf_docs/whats_new/OCCD2ndConf.pdf for details.

- **2-3 June 2005**, Call for Paper for the 7th International VM Conference "Why Re-Invent the wheel" will be held at the Hong Kong Convention and Exhibition Centre. Please contact the Conference Secretariat at telephone number (852) 2559 9973 or by email at hkivm@icc.com.hk for further information.

- **26-29 June 2005**, the SAVE 45th Annual Conference "Manage Value" will be held at the Westin Horton Plaza, San Diego, California USA. Please visit http://www.value-eng.org/cfp_index.php 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:

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