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THE VALUE MANAGER

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THE HONG KONG INSTITUTE OF VALUE MANAGEMENT

THE VALUE MANAGER

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COUNCIL MEMBERS OF THE HONG KONG INSTITUTE OF VALUE MANAGEMENT (HKIVM)

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 2nd issue of The Value Manager in 2006 and we have printed total three papers in this issue. The first paper entitled “Value Management in the Briefing Process” suggested that VM can be applied in the interface between the brief phase and the design phase. This interface could improve the otherwise well-known problems of capturing and communicating the client organization’s requirements, needs, and wishes. The second paper entitled “Value Managing the Whole Performance Improvement Cycle”. It describes a proven process for saving considerable time and cost for owner organizations and agencies. It is conducted through a systematic program of analytical and innovative explorations that culminate in firm, tested proposals for business improvement. A proven process is described for saving considerable time and cost particularly for owner organizations and agencies. The third paper entitled “Measuring the Processes and Outcomes of Value Management Studies in Construction”. It describes a research project which seeks to develop a rigorous performance measurement framework that is capable of measuring the performance of VM studies in construction continuously and easily. Critiques of existing performance measurement frameworks are given. The establishment of a theoretical foundation is discussed, followed by the selection of potential indicators. Enjoy these papers and I wish every one of you a wonderful summer holiday!

Geoffrey Shen

Editor, The Value Manager

MESSAGE FROM THE PRESIDENT

Tony Wilson
President of HKIVM

Welcome members to another summer newsletter. The Institute has been very busy arranging the forthcoming Inaugural Asia Pacific Value Convention for early November this year. Details are as follows:

The World of Innovation - Managing Value, Risk & Relationships

Hong Kong Convention and Exhibition Centre, HK
Date: 2-3 November 2006

Keynote Speakers:

Dr. Jack Bacon from the North American Space Agency (NASA) as a keynote speaker who will present both information on his concept of "The Parallel Bang" and share experiences on the handling of "Risk Management" in NASA

Professor Michael Hough from Australia will provide some thought-provoking information in his paper, "Using Project Management to add value and capability to your organisation".

Don Ward is currently Chief Operating Officer, UK Constructing Excellence in the Built Environment and is one of the leading figures in procurement in the UK and has over twenty years' experience of best practice in the construction industry, specialising in industry change, supply chain integration and collaborative working

We would like to have the support of all members especially with either trying to obtain some sponsorship. Most of all we need input in trying to help us have a full house of delegates. Please see our conference web site (http://www.hkivm.com.hk/conference/8th_conference/index.htm) or contact Vaughan Coffey, our Convention Director or myself if you need more information.

We have also had a change of Treasurer as Steven Humphrey has relocated to the Middle East due to his excellent input to a major project. Thanks Steven for all your hard work on our behalf. We welcome Ms Shirley Ho who has kindly accepted the post and is now a Council Member. Other Council changes will be coming and we will update members soon. As a small Institute we are continuing to meet our aims and objectives. We are looking at seeking Government funding to see how better to promote VM education and qualification in Hong Kong. This is no easy task and our appreciation goes to Professor Leung Mei-yung for her efforts and input on this major exercise.

My appreciation also goes to our small team in pushing ahead with this major Convention which stretches us to the limit. The use of innovation, partnering, risk and value management together, will make this a leader in the Industry. We have over 40 abstracts under review and there will be some world class speakers attending. We are also acting as host to our partner for the event, The Australian Institute of Value Management. The Architectural Services Department has kindly agreed to co-host with us, which shows their commitment to best practice and continual improvement in the Building Industry.

Best Regards,

Tony Wilson

President, HKIVM

VALUE MANAGEMENT IN THE BRIEFING PROCESS

Søren Wandahl and Erik Bejder
Aalborg University, Denmark

ABSTRACT

Value in building can be understood through two different value paradigms. The first paradigm describes the cooperation between the project participants as an important mean to increase effectiveness and efficiency. This paradigm is focused at the process, and is hence called process value. However, this paradigm is not the prevalent paradigm in today's building. The second paradigm describes value as products and related functions, architecture, services, etc. This kind of value is called product value, and is always evaluated in a value for money relation by the customer. Product value inherits some characteristics from value in general, like subjectivity (value lies in the eye of the beholder), context dependency, etc. Product value is unequivocally aimed at the client organization, which are the buyer and the user of product holding value. Derived from this product value paradigm, Value Management (and Value Engineering) has in many years been the most widespread value delivery concept. However, VM is often explained as widely different tools and often confused with VE. Value Management should instead be perceived as a general concept applied in the interface between the brief and the design phase as a mechanism to ensure the capturing, understanding and communication of the client organization's needs and requirements and a transformation of these into a design solution. The need for supporting the interface between brief and design should been seen in the light of theories derived from Concurrent Engineering, which especially develops and focuses on tools supporting phase overlap. In the value for money relation VM is focusing on increasing the value for the client organization, whereas other tools or management concepts focuses on decreasing the cost. Through the description of VM, a clear distinction between VM and VE is provided as well as a definition of VE. However the focus remains on VM. A successful use of VM is important in the briefing process because if the client organization's values (needs/requirements) are not captured and transformed into the initial design solution, but instead discovered at a later stage it will have vital impact on both the cost and the received value for the client organization, i.e. bad value for money ratio.

INTRODUCTION

Building is basically a process which aims at deliver value, in terms of product, services, functions, etc., which fulfils the reasonable needs, requirements, and wishes of the client organization. This might seem like an easy process, but it is not so. Often it is more a steeplechase race, and one of the hurdles is the capturing and communication of the client organization's needs, requirements, and wishes. This takes place in the initial phases of building and value delivery concepts form and important role in this essential process.

There are two important challenges of the value delivery job in the briefing process. Firstly, the basic capturing of the requirements, which often involves soft group processes (Liu & Leung 2002: 341) in the effort of helping the client organization recognize their own requirements, needs, and wishes. Secondly, it is important to ensure that this information is communicated efficiently to the design team in such a manner that they can incorporate these requirements, needs, and wishes in the design solution. Of course this process entails judgments of perceived value for money by the client organization (Thomson et al. 2003: 337-8). Therefore, the interface between the brief and the design phase becomes a vital part in the value delivery concepts. The prevalent understanding of value delivery in building is Value Management (BEC 2003; Green 1994; Wandahl 2005). Value Management is to be perceived as slightly different from Value Engineering, in the sense that Value Management seeks to increase the value delivered to the client organization, where as Value Engineering seeks to decrease the cost/price in a value for money relation.

This research presents a perception of Value Management as a tool supporting both the capturing and communication of the client organization's requirements, needs, and wishes. Furthermore, it is argued that

differences between Value Management and Value Engineering exist, even though both concepts are founded on the product value paradigm. To do this a literature review regarding Value Management is carried out, as well as the actual use of Value Management in building is investigated. Moreover, problems in the brief-design interface are discussed.

CURRENT UNDERSTANDING OF VM

Value delivery has always been an inherent part of any building process, and has hence been well debated. Value Management (VM) and Value Engineering (VE) are often cited as the two main concepts for value delivery in building projects. When reading literature concerned with value delivery, one will discover that several different concepts regarding theory and application of value in building management occur. VM and VE are often mixed together, but clear and important differences between the concepts exist. Their common foundation is that they rely on an understanding of value, even though their understanding differs as shown later. This research provides a clear distinction between VM and VE. The differences between Value Engineering and Value Management have been discussed for a while in a building context by e.g. Green (1994; 1997), Kelly et al. (2002), Fong & Shen (2000), BEC (2003), etc. Others argue, nonetheless, that VE and VM are synonyms, (e.g. SAVE 2005).

VE has its roots in the US manufacturing industry in the 1940s and is later adapted to the building industry, first in the US then in the UK. However, at some level the UK building industry further developed the concept and called it for VM. Confusion about the differences between VE and VM is therefore caused. Some argue that the difference only lies in the UK or US application (Kelly et al. 1998: 6; Thomson & Austin 2001: 4), while others argue that principal theoretical differences between the two concepts exist. These differences are, firstly, in which phase of the building process VM and VE are applied. “The restriction of VM to early project stages arises because it addresses construction projects as single complex problems. (…) The term ‘value engineering’ (…) represents the focused examination of design solutions during later stages” (Thomson & Austin 2001: 5). Secondly, the basic assumptions about the underlying scientific paradigm, differs as Green (1994: 49) states that “while it is recognized that the terms ‘value management’ and ‘value engineering’ are often used interchangeably in practice, it is contended that the existence of two alternative paradigms justifies the development of distinctive definitions.” The two paradigms are later elaborated by Green (1997: 2). He argues that VE takes an objective standpoint which “assumes that [value] problems are essentially technical in nature and (…) exist independently of human perception.” VM, on the other hand, is more subjective in its standpoint and “draws from the philosophy of social science and emphasises that differing perceptions [of value] are an essential ingredient of any real world problem.” Thirdly, Kelly et al. (2002: 34) argues that the difference lies in the view on value. “Value management (…) is concerned with making explicit the package of whole-life benefits a client is seeking from a project (…) at the appropriate cost. Value engineering (…) is a subset of value management (…) and is concerned with (…) the technical delivery of the project.”

Based on these standpoints an initial view of how VE and VM could be viewed in relation to the building process is illustrated in figure 1. Both VM and VE can have a wide range of applications in the building process. Therefore, the time of use is illustrated as normal curves. VM mainly is applied in the final of the brief or in the early design phase whereas VE mainly is applied in the late design phase or in the construction phase as a cost cutting tool. To further illustrate the confusion about the differences between VM and VE, the two normal curves overlap and interfere with each other.

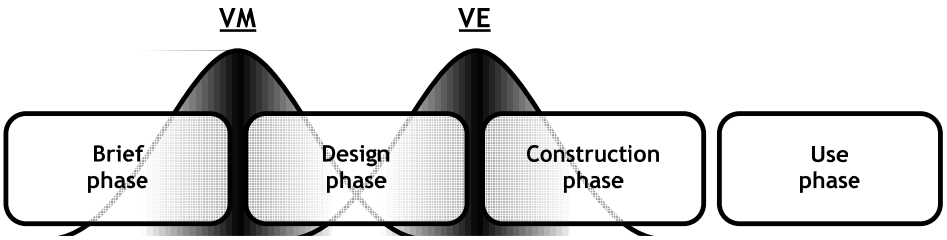

Figure 1: Initial distinction between VE and VM, and their time of use in relation to the building process.

As illustrated in figure 1 VM occurs in the initial phases of a building project, more specifically in the overlap between requirement and concept. The purpose of VM in this phase is of a strategic character, and ensures that the product values (the physical product, its functions and services) are captured by the project team and understood by the client organization. In other words the purpose is 'to make the right product', i.e. effectiveness. VE, on the other hand, should be applied in the overlap between design and construction. The purpose of VE is to optimize the production process and make sure that the product values captured through VM are included in the production planning and execution. VE is then a technical specialisation or in other words 'to make the product right', i.e. efficiency. Both the difference between the strategic character of VM and the technical specialisation of VE and the difference between 'making the right product' and 'making the product right' can also be perceived by reading between the lines in Green (1996).

In the extreme one could say that VE is concerned with cost reduction (often at a late stage), and that VM covers value maximization, both in regard to the value for money relation.

Definition of Value Management

In general the idea of Value Management is to increase the value for money relationship from the client's perspective. This is also the goal for VE, but VM admirers advocate that VE is insufficient for defining the client organization's product values in the complex and dynamic environment of the early phases of a building project (Green 1996: 1; Green & Moss 1998: 34-5).

The history of VM is equal to VE until the 60's, where for the first time VM manifested itself as a value delivery concept different from VE. The differences root in the focus on the briefing process. Often the briefing process has been characterized as particularly problematic (Barrett & Stanley 1999; Latham 1994), and many problems in the later building process can often be traced back to the briefing process (Shen et al. 2004: 213). The main challenge in the briefing process is the identification and representation of the client organization's requirements, i.e. product values. In that sense VM is considered a promising and important tool in the briefing process (Kelly & Male 2001: 2). When looking into definitions of VM, one of the most accepted definitions is stated by Green (1996: 3) "VM is concerned with defining what 'value' means to a client within a particular context. (…) Value for money can then be achieved by ensuring that design solutions evolve in accordance with the agreed objectives." However, not everybody perceives VM as only applicable in the briefing process, often VM is viewed as a tool for different phases in the building process. Thereby, VM becomes a mixture of VM in the early phases of building projects and VE in the later project phases. In recent years this mixture of VM and VE is decreasing, and the understanding of VE and VM has changed over time, but still confusion exists. A clear view of how VM differs from VE is presented, and purpose is not to argue over names, but rather to separate the two concepts, and, hereby, contribute to the understanding of management of value in building.

Regarding the basic assumptions VM is, in contrast to VE, based on the learning paradigm of soft system thinking (Green 1994: 49). A thorough theoretical framework

for VM in a soft system thinking mode is carried out by Stuart Green, and he names this framework SMART Value Management.

SMART Value Management

In the 90's, Stuart Green and a group of researchers and practitioners developed their own theory of VM, called SMART . At some level the SMART VM theory is a countermove to traditional VE, which might seem misleading, cf. figure 1 where VE and VM are applied at different phases in the building process. However, Green has discovered that the concept of VE is applied at different phases of the building process, but with the same underlying assumptions concerning methods, etc. Green (e.g. 1996) then advocates that VE applied in the early phases is inappropriate to clarify the client organization's values. Hereby, at some level he equals VM with VE as tools for the early design phase, i.e. they are both used to identify the client organization's values. This is substantiated by the following: "Whilst (…) the current best practice of value management [is different] from the cost-driven tradition of value engineering, it would be a mistake to perceive them as two different concepts. Value engineering is best understood as a special case of the generic discipline of value management." (Green 1996: 3) Furthermore, Green & Moss (1998: 35) state that VE and VM are similar concepts regarding their time of application in the building process: "(…) while traditional value engineering has often been successful when applied during detailed design, it has been less so during the very early stages of the design process." With reference to figure 1 Green & Moss state that VE (with less success) can be applied as VM. It is, thus, recognized that Green supports a clear distinction between the VM and VE concepts, and furthermore that he is in favour of VM (soft system thinking) in the early phases of the building process as the most appropriate tool for value delivery. SMART VM is, therefore, viewed as a further development of traditional VM and is used in the early design phase to "develop a common understanding of the design problem and to identify explicitly an agreed statement of design objectives by the project stakeholders" (Green 1994: 49).

The conclusion is that SMART Value Management is a formalized method of how to use VM, indeed the basic function of SMART VM is equal to 'traditional' VM, just with other and specific methods for application.

CURRENT USE OF VALUE MANAGEMENT

Both VE and VM are used in practice in the building industry, but often implicitly and in a non-formalized manner. A report on the use of VM in the UK building industry indicates that the use of VM is not that significant (Hogg 1999). VM is often only used in major projects with high complexity. Furthermore, the quantity surveyors often only apply VM on the client's request, otherwise they tend to think that existing quantity surveying services are adequate (Hogg 1999: 136-7). Another survey (Fong 2004) indicates that most practitioners have used VM in 6-10 years, and that the main reason for using VM is cost reduction! More surprisingly the survey indicates that in the eyes of practitioners VM has not a clear professional image and that the use of VM is decreasing.

Lean Construction is one of the new emerging production philosophies of building, which is supposed to manage value. The Lean Construction concept is, however, until now a theory for the construction phase of the building process, and its value delivery method should then be VE. Indeed value is considered the fulfilment of the client's requirements through tight control of the construction phase (Wandahl & Bejder 2003: 3). This is supported by Bertelsen & Koskela (2002) "The Value Management ensures that the construction process generates the value wanted by the client." However, Value Management in their sense is what here is defined as Value Engineering. The main emphasis in Lean Construction in the value for money relation is the cost reduction side, similar to the extreme point of VE. This is illustrated by Lean Construction's eagerness to reduce non-value adding cost, i.e. waste.

When looking at VM used in practice, it is soon discovered that the brief phase is not an easy phase to work in (e.g. Barrett & Stanley 1999; Kamara et al. 2001). Without intense focus on the capturing of the client

organization's product values in the brief and without suitable approaches to this capture, the final building will most likely not include all the functions and services, i.e. product values, wanted and needed by the client. In Wandahl (2004a; 2004b) a visual approach to VM is suggested, called the Visual Value Clarification technique. Equal to SMART VM (Green 1994; Green 1996), the purpose is to identify the client organization's product values and to ensure that these values are included in the design. Instead of applying Function Analysis diagrams, the client and the project team use digital photos of reference buildings in their consensus making process, carried out in workshops.

PROBLEMS IN THE BRIEF-DESIGN INTERFACE

The purpose of the brief is in a wide sense "to comply with the interested parties' reasonable entitled needs" (Anlægsteknikforeningen 2003). More precisely, the brief is the elaboration and presentation of client requirements (and other project requirements) (Kamara et al. 2001). Furthermore, the brief is a communication tool to facilitate dialogue between client and designer and to facilitate the exploration of the possibilities of a project (Hudson 1999).

In the brief the aim of the project should be stated, and the needs should be uncovered and if possible weighed, and the desired quality level should be stated. Moreover, it should be considered if the needs are internally dependent or even conflicting. This involves a range of activities and decisions, which have high impact on the subsequent building process. It is important to come to a decision about the location of the building, aesthetics, fitness for user's purpose, costs, time, technical performance, environmental impact and health & safety (Olsen & Bejder 1994). Many of the decisions taken in the briefing process have long term consequences.

The problems in the brief-design interface depend on how well the responsibility transfer is handled, which often is reflected in the participants' perception of the building phase model. Traditionally the building process is viewed as a serial process with clear boundaries between the phases (brief – design – construction – use). However, this serial model has lack of phase overlap. Two different kinds of phase overlap can be defined (Wandahl 2005: 51). A "physical" overlap where the real activities of a phase begin before the end of the prior phase. For example when construction begins before a complete design is available. The other kind of phase overlap regards coordination and consideration of forthcoming phases. For example when operational concerns are considered in the brief phase, which is the basic idea of Facilities Management (Jensen 2001). The idea of overlapping phases is inspired by the Concurrent Engineering (CE) thinking. The purpose of CE is to optimize consumer needs, quality, cost, etc., from the initial development of the product throughout the product lifecycle – from idea to demolition (TI 1995). A phase model including the thoughts of CE is illustrated in figure 2.

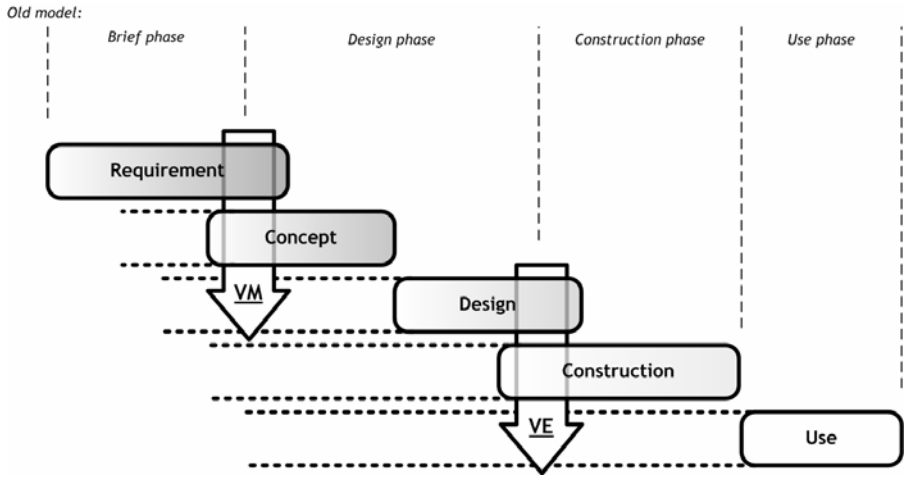

Figure 2: The phases of building project illustrating where VM and VE should be applied.

It is worth notifying that the time dimension of the figure is out of scale. The figure is made to illustrate the overlap of the phases. At the top the names of the phases in the old model are displayed to illustrate the connection between the old and the new model (Wandahl 2005: 52). As illustrated in figure 2, the purpose of Value Management is to support the brief-design interface through the following processes:

- In the pre-brief VM is used in a strategic manner to set out the broad scope and purpose of the project. It forms the foundation for the 'decision to build'.
- In the brief, after the decision to build is taken by the client, VM can be used to explicitly presenting the client's value system in such a manner that it can be understood by the design professionals and the contractor.
- In the concept design VM is applied to review the initial plans before detailed design and planning are undertaken, and a point of no return is reached
- In the detailed design a final review to ensure that the client's requirements and needs are included in the design can be carried out.

WAYS OF INFLUENCING THE CLIENT'S PERCEPTION OF VALUE FOR MONEY

From a client viewpoint different approaches to increase the value for money relationship is discussed. Different situation of change in the delivered value are illustrated in figure 3. The starting point, i.e. situation 0, in figure 3 is drawn as a simplification of the building process, comprising both a value adding part and a part that are waste from the client's viewpoint. The concept of "waste" is widely used in lean thinking (e.g. Ballard & Howell 1998; Womack & Jones 1996) where efforts are made to remove any kind of waste. But waste is not the opposite of value, because removing waste does not necessary increase the value from the client's perspective. However, removing waste does decrease the cost. This is illustrated in situation one and two in figure 3.

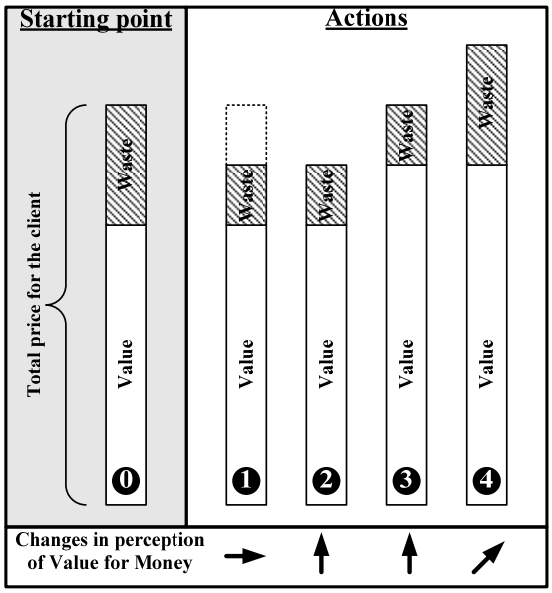

Figure 3: Value for money from a client perspective.

In situation one, the project team makes efforts in removing waste, but since this does not increase the value and since the total price still remains the same, the client organization would not recognize any change in the value for money relation. In situation two the removal of waste, and the thereby lower cost, is fully or partly beneficial for the client because the total price decreases. This – of course – increases the value for money relation. Most building projects operate with a fixed price, a maximum price or a budget frame, and the removal of waste can hence benefit the project partners' contribution margin. Removal of waste/decrease cost is in the "value world" primarily obtained through Value Engineering.

In situation three the delivered value is increased at the "expense" of waste, but the total price still remains at the same level as at the starting point. This increases the value for money relation. In situation four value is increased but no changes in the level of waste is achieved, and the value for money relation thereby only slightly increases. Both situation three and four is primarily obtained through intensive use of Value Management. Of course situation two and three is preferable, but it seems that situation one and four is truer for real life situations – sure situation zero where nothing particular is done to increase value or decrease waste is the most common situation in real life building projects.

This perception support the assumption that Value Management is to be used in the early phases of construction (the brief), and that Value Engineering should be applied at a later stage in the building process.

CONCLUSION

Value Management applied in the interface between the brief phase and the design phase is the focal point of this research. In this interface it should improve the otherwise well-known problems of capturing and communicating the client organization's requirements, needs, and wishes. The problem is that the client often needs help in recognizing his requirement, partly because the real needs can be quite complex and long lasting and partly because most clients do not build frequently. Therefore, it is important to facilitate and empower the client. The solution is an increased focus through application of Value Management as mechanisms to capture the requirements, wishes, and needs of the client organization and to communicate these to the design team. This can be illustrated through concurrent engineering thinking of phase overlap, cf. figure 2.

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VALUE MANAGING THE WHOLE PERFORMANCE IMPROVEMENT CYCLE

Martyn R. Phillips,
The Team Focus Group, Canada

ABSTRACT

The following text describes a proven process for saving considerable time and cost for owner organizations and agencies. It is conducted through a systematic program of analytical and innovative explorations that culminate in firm, tested proposals for business improvement. A proven process is described for saving considerable time and cost particularly for owner organizations and agencies. Applied as a program, or integrated sequence of activities over a relatively long period of time, it guides formulation of strategies as well as the development, implementation and optimization of a range of various types of projects, products and services. This holistic approach maximizes team performance and profitability while managing risk at the appropriate comfort level for different organizations. As distinct from being a technical process, it is a business improvement process that embodies techniques such as strategic performance alignment, focus diagramming, risk management, value assurance, partnering and consensus development.

INTRODUCTION

Business improvement processes come and go. Their acceptance and effectiveness depend largely on timing – in terms of recognition of needs, personalities involved, particular circumstances of application and of course demonstrable successes. A common factor for success lies in acknowledgement of team dynamics, language of the "customer" and links to corporate leadership. Sometimes, the probing activities of traditional Value Engineering (VE) or Value Management (VM) are not welcomed due to defensiveness, narrow application and short-term thinking. Quite often, VE/VM workshops are applied as interventions rather than as part of a seamless development process, thus leading to situations whereby winning or losing situations occur rather than the desired "win-win" situation. Further, even when clear agreement to proposed actions is reached for project improvement, very often the projected benefits to the organization are not achieved in practice due lack of proper follow-up. Also, continuity of support from a corporate champion or sponsor is imperative for lasting success, yet many organizations do not have this in place.

As well as ensuring best overall value, the longer-term, continuous and seamless program approach expedites results, with smoother decision-making and faster delivery of outcomes. It is an integrated and strategic program of best practice techniques with continuing application. The program is directed particularly at aligning the lifecycle activities, inputs and outputs for programs, projects, services, major strategies and complex situations. The structured process leaves behind a clear trail of documented proceedings, options considered and the basis of pivotal decisions.

Example applications are for capital and operational program/project management and through related aspects of business case development; decision analysis methods; budgeting & target costing; design-to-cost; alternative project delivery methods; managing uncertainty; integrated project teams; integrated supply chains; change management and lean delivery. Application areas include infrastructure, systems and services for energy, healthcare, heavy industry, learning, manufacturing, major construction, transportation and utilities, etc.

It is useful to separate the following aspects:

- Understanding the conditions for success, and
- Assuring best value and managing uncertainty.

UNDERSTANDING THE CONDITIONS FOR SUCCESS

Context

Today's competitive environment requires us to embrace approaches that maximize productivity and performance in the pursuit of achieving best value for shareholders and other stakeholders. The currently established "business as usual" mode often exhibits programs and projects that suffer from implementation delays, stakeholder frustration and requests for additional (unbudgeted) expenditure. Sound, long-lasting decisions are pre-requisites for business success and the reputations of all involved. Effort spent in developing unambiguous, acceptable strategic direction is undeniably a good investment. To guide sustaining decisions, participants should view the whole picture before focusing on specifics.

Personnel often consider themselves to be much further ahead in the program, project or product development process than they really are. Historically, so many projects have leapfrogged too quickly toward a favoured solution and are riddled with omissions and incomplete or undocumented assumptions. A great temptation for project staff under budgetary and scheduling pressures is to circumvent divergent thinking by converging too quickly on a set of solutions that appears to have worked elsewhere. 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. Re-visiting of decisions and the likely resultant rework, may well add a degree of value, but this additional work and schedule slippage could be otherwise avoided by conducting the right activities at the appropriate time.

The outcomes of programs, projects, products and services vary significantly, both in nature and in degree of success. Success is a relative term and its measurement varies greatly. Many factors dictate the likelihood of success, not least of which is the overall management approach and culture of an organization. Within this approach lie aspects of individual and corporate attitude, training, processes and procedures.

One person's view of what constitutes success in an undertaking or endeavour can be quite different from that of another. Focus varies with the role of the particular stakeholder. A project may satisfy criteria for schedule cost and quality parameters, but still not succeed through loss of political or customer support. Program/project definition and performance requirements must be developed early and in consultation with representation of all stakeholders. Project opportunity, risk and best value are critical, interrelated considerations. Adequate allowance should be made for dealing with areas of uncertainty (e.g. condition, data, trends and forecasts) and adjustments made as the uncertainty reduces. Risk and value need to be managed more deliberately and systematically than generally in the past.

Focus, performance and value

Value is determined not solely by the producer or promoter, but in concert with the customer / user. Nor is value related solely to money, as value criteria may include, for example: aesthetics, ease of operation & maintenance, fastest time to market, environmental friendliness and provision for longer-term needs. Clients are really seeking to buy overall performance improvement, not just a sequence of traditionally practiced, project development activities. Good project performance includes satisfying a range of stakeholders who may have differing views, values and thresholds of tolerance for perceived risk. All too often, capital projects have been planned and implemented with too little consideration for how they would be operated and maintained efficiently, or interface with other programs. Similarly, operational improvements may not fit with strategic aims and program / project elements are often over or under designed for the prevailing circumstances at any particular time due to insufficient sensitivity analysis of projections and unbending attitudes regarding the need to modify an entrenched personal, departmental or corporate attitude.

Key requirements for success are:

- Provision of strategic direction
- A framework and mechanism to ensure key objectives are achieved

- Ensuring risks are managed appropriately
- Verifying that the organization's resources are used responsibly
- Delivery of the promised results – predicted performance gains achieved on time and within the forecast return on investment.

Recognition is necessary that, typically, program and project process are only subsets of a larger corporate cycle. The degree of value or performance improvement to a program or project must be linked back to the original business case, which should clearly state the extent of the premise by which the new undertaking is supported. It is important to define the expected performance / value yield during program and project planning. A broad and long term view of programs and projects is therefore required.

Good program and project planning starts with clear definition from the outset and a holistic framework supported by senior management. This involves issues such as commercial strategy, financing, inter and intra organizational arrangements, emerging technology, contract philosophy, socio-economics, environment, resourcing, etc. All this can be outside the range of training, expertise and experience of many program or project managers and technical professionals.

A broader and longer term view of programs and projects is required. Management of interfaces, wider communications and succinct reporting, as well as dealing with "fuzziness" and uncertainty are areas for particular attention. The fundamental issues of project need, scope, exclusions, values, priorities, constraints, organization, roles, responsibilities and control procedures should be addressed early, with a robust framework in place to ensure strategic performance alignment and delivery to plan.

The value gap

The performance of programs, projects, products and services is inextricably linked with quality, value and risk. Despite the availability of an abundance of project management techniques and training, together with a plethora of professionals in most medium to large size06 Tc0.0008 nexss cJ0 -1.153 T.9(o)-22.0382 62.005 TD0.0008 Tcw[(project foilato ls008sf)-7.6 mnd experfal aartinrv. Mised

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issues, as well as deal well with a range of immediate and longer term priorities. They have to manage the dilemma of dealing with the conflicting demands of interpreting "fuzzy" and intangible direction versus controlling performance tightly and reporting factually.

Deep within many organizations there are key persons who have the capacity to a) accelerate progress and contribute significantly to the corporate good, or b) obstruct progress and delay anticipated performance gains, thereby reducing the real return on investment. Senior management makes recommendations for investment decisions only to be surprised many months or perhaps years later that things did not work out as expected. We have probably all seen or heard of excellent ideas that have been thwarted by lack of testing, follow through and loss of individual sponsors, champions or key designated project staff.

Management of interfaces, wider communications and succinct reporting, as well as dealing with "fuzziness" and uncertainty are areas for particular attention. The fundamental issues of project need, scope, exclusions, values, priorities, constraints, organization, roles, responsibilities and control procedures should be addressed early, with a robust framework in place to ensure strategic performance alignment and delivery of results in accordance with the business plan.

Due to tight time pressures, the application of many of today's management practices can be compressed to the point of becoming dangerously ineffective. The key to proper time allocation is to demonstrate that defining and enhancing value is not a "quick fix", but an integral part of the project initiation and a continuing development process.

According to management guru Peter Drucker, "management is a practice not a science; it is not knowledge but performance". There are several formal descriptions of project management, generally using words such as: specific, unique, defined start and finish, temporary. Herein lies the contradiction that managers have to deal with: project management seeks to formalize, define and constrain that which can be quite fuzzy. There are the conflicting aims of a) users trying to retain flexibility of options and b) implementers requiring certainty of scope, data, schedule, cost, etc.

Many separate project management techniques are available to deal with the plethora of project considerations, but generally lack a complete and comprehensive methodology to cover the whole program cycle (from strategic framework, through concept identification, design development, implementation and in-service optimization).

ASSURING BEST VALUE AND MANAGING UNCERTAINTY

General considerations

Value is implicitly built into program and project development. The issue is: whose definition of value and to what extent? There is sometimes a reluctance to engage in a formal process to ensure best value and reduce risk. Many definitions of a value delivery process exist. Progress has been made around the world in formalizing and defining such processes. However among this large array, there is not universal agreement on the definitions or practice, other than the earlier the application, the more effective it is.

Some applications are very narrow and restrictive, others are broad and lacking in specifics. Most are applied as interventions and thus can be viewed as being formalities thrust upon the project manager and hurdles to be cleared as quickly as possible. Suffice to say some unenlightened project managers attempt to subvert the formal process or try to defer it until such time that it will be too late to apply. All this misses the advantages of a longer-term, continuous, integrative process that navigates the program and project through the managerial minefield and secures timely approvals, while maximizing value and performance in the end-product or service.

Improvements to quality, performance, longevity and life cycle costs are paramount to the value equation. A key difference between the value methodology and other problem solving methods is the use of function analysis. The value methodology identifies choices for risk management, reliability issues and degree of protection/improvement versus return on investment.

Risk management provides a rigorous and comprehensive formal structure for planning, developing and implementing strategies and initiatives. The process of risk management starts early in the life of a program or project and continues through various iterations and focuses for the life of the program/project. Risk Management is applied across the complete life cycle of an investment, asset or service. It systematically identifies, assesses and removes or reduces the uncertainties and related impacts that threaten the accomplishment of project objectives. There are different risk management protocols issued by various authoritative bodies. The process provides a mechanism for increasing general awareness of potential hazards, reducing adverse effects and enhancing effectiveness and profitability.

Aspects of costing

Often a rushed business case leads to over-optimism of a ready supply of capital to spend on acceleration of a project to reach a market early; subsequent analysis may reveal a lower return on investment and that cheaper alternatives now must be sought to maintain project viability. Cost estimating methods and terminology differ within and between various industries and professions. Particular influences on cost are scope, market forces, schedule/cycle time and specifications of performance and quality. Cost estimates may follow various formats and be of different degrees of accuracy (or uncertainty). However some common principles apply in order to derive estimates of accuracy appropriate for particular situations.

A well structured cost estimate aids in understanding the value-for money aspect of a project and forms the basis of a project control model. Value improving exercises require clarity of understanding of the costs of functions /functional areas, along with continuous support of a costing specialist /team. Costs are often limited to either capital or in-service costs, but more informed decisions are usually made with an understanding of whole life cost implications.

The key to reliable cost estimating is to have a robust framework and a system of checks and balances. There should be a process that supports and integrates the cost-related aspects of strategic planning, feasibility assessment, concept development, detailed design, budgeting and construction accounting, along with operations and maintenance forecasting and monitoring. Appropriately accurate cost estimating is fundamental to applying the value concept for minimizing prime costs, reducing the cost of work in progress and optimizing the supply chain, thereby leading to more economic use of working capital.

Comparison of alternatives requires consideration of the time value of money, whereby initial and periodic expenditures and receipts are converted into equivalent values measured at a single point of time. Economic evaluation considers the true cost to an organization. Life cycle cost analysis (LCCA) can be utilized for a) assessment of the economic consequences of a decision already made, or b) choice between alternatives, by comparing economic consequences as input to informed decision-making. Benefit-cost ratios may be established to compare competing alternatives, whereby the benefit-cost ratio is the ratio of the present value of benefits to the present value of costs.

Framework for success

The holistic program that is being advocated here integrates a number of best management practices and addresses the “softer, fuzzier” aspects of stakeholder issues management, while progressing within a “harder, scientific” framework. Although quite effective as an immediate remedy, it is applied most effectively as a continuing performance improvement process over the long term. The program systematically guides the achievement of best value through aligning strategic value and performance. It is used for situations with a complexity of issues, diversity of stakeholder opinions and disparity of expected outcomes. The program provides a balanced, consolidated approach to achieving performance gains and delivers significant return on investment, while focusing on lasting results. It is applicable at various levels within and between organizations.

Many program and project problems can be traced back to the absence of clearly defined AND agreed strategic intent. The common

root cause of many problems relates to stakeholder disagreement can often be traced back to insufficient attention being paid to the various stakeholder values. Of necessity, the recommended process utilizes a strategic framework. The various steps involve an iterative process of issues identification, development of a vision, principles, strategic action areas, strategies, initiatives, target levels of service and indicators for success. This includes testing the rationale, functionality, life-cycle impacts, relative cost-benefit, affordability and acceptability to all stakeholders.

The key to aligning performance is through recognition and appropriate attention of stakeholder perspectives and values. Strategic performance alignment (SPA) is a "front-end" process that embodies the principles of the value methodology and risk management and is undertaken as part of the overall process. SPA develops a framework for deriving balanced solutions to complex and divisive issues, taking into account also financial, legal, political, regulatory, schedule, resource and technical implications. This is accomplished through refocusing business programs and resources - by proper identification and understanding of the issues, stakeholder values and strategic intent at an early stage, together with involvement and clear focusing of the appropriate team members at the right times.

Significant attention must be paid to proper definition and adequate description of the success criteria, which translate into project performance / evaluation criteria. It is ultimately conformance to these criteria that determines approval and success of the project.

Achievement of success is gained through a structured approach to developing consensus on:

- Clear problem/opportunity definition
- Strategic direction to achieve this, and then at the working level,
- Tactical capital and operational expenditure requirements.

Good program and project planning starts with clear definition from the outset and a holistic framework supported by senior management. This involves issues such as commercial strategy, financing, inter and intra organizational arrangements, emerging technology, contract philosophy, socio-economics, environment, resourcing, etc. All this can be outside the range of training, expertise and experience of many project managers. Clear project definition and adjustment of a plan to changing conditions seems to be a particularly difficult challenge for many organizations. An additional consideration is that program processes and procedures must be able ultimately to pass the scrutiny of an audit. By far the most suitable situation is for a management improvement process to be introduced at the highest level in an organization. This normally requires it to be seen as 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 following considerations are important in obtaining substantial and long-lasting performance improvement.

Create the Conditions for Success: Align Expectations

- Theme 1: plan ahead (and maintain a tight rein)
- Theme 2: define functions, costs interrelationships and long-term implications
- Theme 3: understand the real issues and uncertainties; develop synergy.

Assure best value & manage uncertainty

- Theme 4: facilitate innovation (don't accept "more of the same")
- Theme 5: build consensus and balance opportunities.

Make the results "stick" for the long term

- Theme 6: keep a close eye on implementation (don't let it all slip away)
- Theme 7: encourage continuing performance / value improvement (keep squeezing).

This holistic approach employs the following key steps. Stages A to B may be as short as several weeks or as long as many months, depending on the size and complexity of application.

Stage A: Foundation

Step I: Strategic review

Focus: study/program initiation, scope, framework and targets; needs definition; clear understanding of senior management's expectations.

Step II: Initial analysis

Focus: required functionality, metrics of the base case and benchmarking; definition of stakeholder values, performance measures and value profile.

Stage B: options definition

Step III: Exploration

Focus: innovation and testing workshop(s); revised management plan.

Step IV: Development

Focus: completion and verification of preferred workshop proposals; certainty of sustaining results; broader consultation.

Step V: recommendations & decision points

Focus: approval to implement and agreement of monitoring framework.

Stage C: Execution

Step VI: Piloting and/or implementation

Focus: execution & management of benefits; monitoring, initial adjustment.

Step VII: Systems optimization and sustaining the benefits

Focus: long term adjustments, continuing performance / value improvement.

Most value and performance 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. Each of these aspects involves its own set of considerations. Effective interfacing and issues management requires recognition of these considerations, together with the need for good communication and consultation with a wide variety of project stakeholders. While neglect to identify a risk can be expensive, so can unnecessary allowance to avoid each and every possible risk that may be foreseen. Further, once identified, risk may be examined creatively and turned into a scheduling or economic opportunity. A balanced approach is advocated to identifying and specifying methods to address risks.

The value program approach provides an efficient management framework for strategizing, conceptualizing, developing, executing and for continuous performance/value improvement over the long term. Maximum effectiveness requires completion of the whole program. This overcomes the most commonly observed corporate problem of lack of follow-through. Immediately noticeable benefits are clarity of purpose, a positive impact on product or service performance/quality and improved projections of capital and/or operating costs.

MEASURING THE PROCESSES AND OUTCOMES OF VALUE MANAGEMENT STUDIES IN CONSTRUCTION

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ABSTRACT

Value management (VM) is a useful tool in coping with many challenges faced by the construction industry today. In addition to cost savings, a VM study can often result in a number of intangible benefits such as improved understanding of customer requirements and communication among project stakeholders. However, the lack of a robust and rigorous performance measurement framework makes it difficult to measure the success of VM studies. Not knowing the return from investment, many potential users in the construction industry are reluctant to apply VM studies in their projects, which hinders the wide application of the VM methodology. This paper describes a research project which seeks to develop a rigorous performance measurement framework that is capable of measuring the performance of VM studies in construction continuously and easily. Critiques of existing performance measurement frameworks are given. The establishment of a theoretical foundation is discussed, followed by the selection of potential indicators. Finally, a preliminary framework for measuring the processes and outcomes of VM studies is introduced.

INTRODUCTION

Value management (VM) has been introduced into the construction industry as a useful tool to cope with the many challenges: budget constraints, safety issues, environmental impact, and after all, value for money. If implemented successfully, this group problem-solving methodology can reduce costs while maintaining or improving performance and quality requirements in a project. The highway and transportation departments in the U.S., for example, saved US taxpayers $1 billion in 2000 by applying the VM methodology to construction projects (SAVE International, 2005). A VM study can also clarify client requirements and improve communication among project stakeholders (Shen and Liu, 2003).

The lack of proper measurement of performance is, however, a major factor which hinders the development of VM. The reasons are: 1) Clients in the construction industry are reluctant to apply VM studies without knowing the performance and returns from the investment; and 2) Little improvement on VM methodology can be made without rigorous measurement on the processes of VM studies which indicate the efficiency of the tool. There are numerous research findings and publications on VM studies, but most of them are concerned with its practice. Very little has been written about the performance measurement of VM studies, especially the measurement of process performance.

This paper describes a research project which seeks to develop, validate, and refine a framework to measure the performance of VM studies properly, promptly and continuously. Following a critique of the strengths and weaknesses of existing performance measurement frameworks, the establishment of a theoretical foundation is discussed, and the selection of potential indicators is explained. Finally, a preliminary framework for measuring the processes and outcomes of VM studies is introduced.

CRITIQUES ON EXISTING MODELS

Many models and frameworks were developed to measure the performance of organizations and projects. The widely referred models are shown in Table 1. Since the Balanced Scorecard, EFQM model, and KPI framework were widely used in the construction industry (Bassioni et al, 2004), a detailed discussion on their strengths and weaknesses is given below.

Model Names	Abbreviations	Developers
Strategic measurement analysis and reporting technique	SMART	Cross and Lynch
Performance measurement questionnaire	PMQ	Dixon et al
Balanced scorecard	BSC	Kaplan and Norton
European Foundation for Quality Management Excellence Model	EFQM Model	European Foundation for Quality Management
Malcolm Baldrige National Quality Award	MBNQA	National Institute of Standards and Technology
Construction industry key performance indicator	KPI framework	Construction Best Practice Programme

Table 1: Well-known performance measurement frameworks

Balanced Scorecard (BSC) has been an excellent contribution to performance measurement, but it is neither complete nor comprehensive. The four perspectives in the BSC have been considered insufficient by many researchers (Neely et al, 2002; Kagioglou et al, 2001). They appear to be especially limited when measuring VM studies. BSC provides a valuable perspective to measure the performance in multi-criteria situation which should be adapted to measure performance of VM studies. However, it requires months, if not years, to see the outcomes of implementing BSC, so that it is not suitable for VM studies which last for only a few days. BSC is developed for use in a strategic level rather than operational level, and will be tailor made to meet the need of a specific organization. It is inefficient to develop a specific BSC system for a specific VM study.

The EFQM and Baldrige models have gained much popularity in the field of performance measurement. EFQM model provides a perspective to integrate result areas (lagging indicators) and organization areas (leading indicators) in one model which can be adopted when measuring the performance of a VM study. However, research works have to be undertaken to identify the proper criteria which meet the unique requirement of VM studies. The criteria of EFQM model are fixed because of the similarity of organization performance. This feature limits its flexibility when measuring VM studies which are different from one another. Bassioni et al (2004) listed the limitations of performance measurement frameworks and excellence models after a general critique of deficiencies:

- Limited/non-comprehensive performance criteria/ perspectives;
- No relations among criteria, or if relations exist, they are simple and do not simulate actual complexities;
- No measure development or design process;
- Lack of implementation guidelines and long-term maintenance of the framework to adapt to the changing environment; and
- Little consideration for existing performance systems and their interaction with the model/ framework.

The Project Excellence Model (Westerveld, 2003) which was developed from EFQM model uses five different project types to describe the project, giving guidance to the application of the model. This method could be adapted to classify VM studies by types when measuring performance.

The KPI framework was also considered to be problematic by some researchers. Kagioglou et al (2001) pointed out that a) the measures offer little indication from a business point of view, b) it lacks a holistic viewpoint on the relationship between different measures, c) none of the measures is designed to measure the performance of suppliers, and d) none of the measures deals with ‘innovation and learning perspective’. As a benchmarking

method, Neely et al (2002) argued that this kind of activities is for short-term improvement initiatives. The KPI framework gives no explanation on the cause and effect between best practices and project processes. Because of these problems and the uniqueness of VM studies, benchmarking method is not suitable to measure the performance of VM studies. It could be implemented to collect and compare the values of indicators used in the measurement. Potential for improvement and actual cost savings can be quantified supporting further self-analysis and improvement programs (CII, 2005).

A THEORETICAL FOUNDATION

There are many factors that may affect the performance of VM studies. Thirteen major factors were identified in the theoretical foundation of the performance measurement framework. They are:

- Projects
- Clients
- Facilitator
- Participants
- Team and team dynamics
- Techniques used in VM studies
- Time and venue of VM studies
- Process of VM studies
- Types of VM studies
- Critical Success Factors (CSFs)
- Key Performance Indicators (KPIs)
- Post Occupancy Evaluation (POE)
- Post Project Evaluation (PPE)

Fig. 1 shows the theoretical structure for the proposed performance measurement of VM studies. This framework is expected to measure both processes and outcomes performance which are derived from the integration of process indicators and outcome indicators. These factors will serve as the foundation of indicators, making them reasonable and invulnerable.

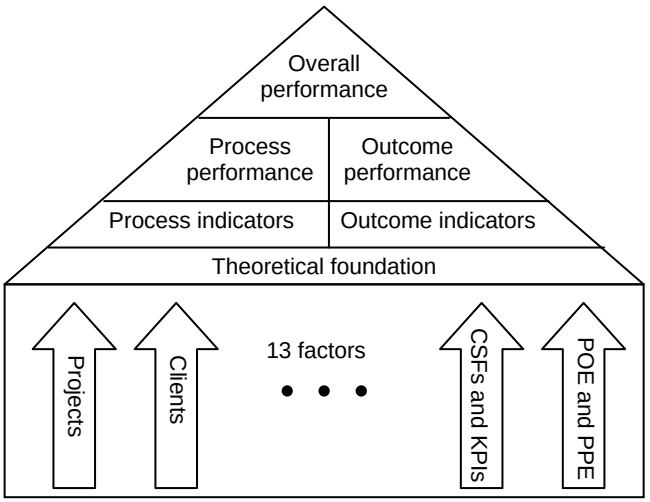

Figure 1: Theoretical structure for performance measurement

Fig. 2 portrays a theoretical framework for performance measurement of VM studies and shows how the factors relate to one another. Facilitator, client and participants constitute the human resources of VM studies. Participants from relevant disciplines and client representatives form the team which is facilitated by the facilitator in the process of VM studies. A positive team dynamic is expected to add value to the project. These human resources, as well as the duration, venue, and the techniques used in VM studies are seen as the input which may affect the performance of VM studies.

Figure 2: Theoretical framework for performance measurement of VM studies

A VM study is a systematic approach which

objectives of different VM studies, the choice of indicators may be changed. Further investigation will be done to choose adequate indicators for a specific VM study.

DEVELOPMENT OF A CONCEPTUAL FRAMEWORK

How to integrate the indicators to form a proper model for measurement is of key importance. Based on the critiques of existing frameworks, a proper model has to include following features: 1) to be multi-criteria to provide a comprehensive evaluation, 2) to be dynamic to provide real time measurement results and 3) to be flexible to fit different types of VM studies. A preliminary conceptual framework is developed to meet these features. As shown in Fig. 3, leading indicators are used to measure the process performance of VM studies while lagging indicators are used to measure the outcome performance. It is possible to measure and improve promptly when acquiring and comparing leading indicators to historical results. Choosing proper indicators when measuring a specific VM study makes this framework flexible. A comprehensive measurement of a VM study can be achieved by integrating the measurement results of previous VM and both process performance and outcome performance. Meanwhile, the measurement results of overall performance will be add to the database as historical results which can benefit later VM studies so that this framework can grow continuously.

CONCLUSIONS

The performance measurement of VM studies is required to ensure the confidence of clients and to identify areas to improve. However, the existing performance measurement frameworks cannot be applied directly in VM studies due to their limitations, though they provide some valuable concepts on how to conduct performance measurement.

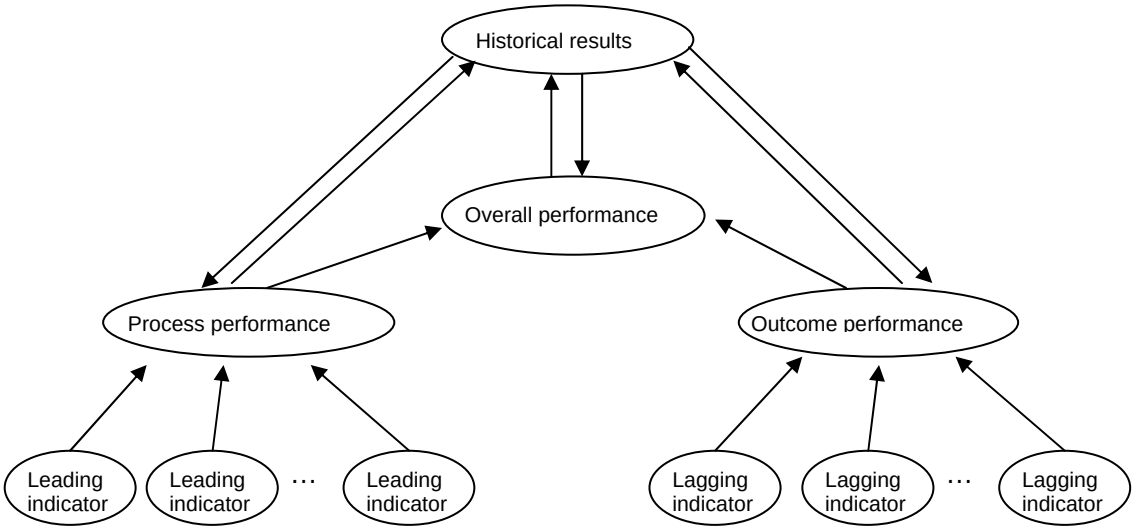

Figure 3: A conceptual framework for performance measurement in VM studies

The thirteen factors are at the bottom of the performance pyramid, forming a solid theoretical formation of the performance measurement of VM studies in construction. They cover major aspects of VM studies which should be considered in the measurement. The theoretical framework shows that CSFs are extracted from the inputs and processes of VM studies. KPIs, which are in line with the CSFs, are seen as 'leading' indicators, which can predict the performance of VM studies, while other KPIs which represent the outcomes of VM studies are seen as 'lagging' indicators. Both 'leading' and 'lagging' indicators, and their relevant

weightings, are critical elements of the performance measurement framework.

From this theoretical foundation, a list of potential performance indicators and a preliminary performance measurement framework are developed. Although the list is limited and the framework is very brief, they illustrate how to measure the performance of VM studies promptly, properly and continuously.

Further investigation will be conducted to choose valid indicators from potential list and to determine their weightings. Focus group meetings and real-life case studies will be conducted to refine the proposed framework. A computer-aided toolkit will be developed that will be integrated with the existing VM process so that performance measurement can be carried out easily and continuously during these studies, capitalising on data already captured by these tools, and enabling continuous and timely improvement.

ACKNOWLEDGEMENT

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HKIVM NEWS

- 2-3 November 2006, Inaugural Asia Pacific Value Convention “Managing Value, Risk and Relationships" will be held at the Hong Kong Convention and Exhibition Centre. Please visit http://www.hkivm.com.hk/conference/8th_conference/index.htm or contact the Conference Secretary at conference@hkivm.com.hk for further information.
- 10 July 2006, Mr. Howard Ellegant who is a very experienced speaker in Value Management from the USA arranged a lunch on the 10th July. This presentation is very informative and interesting.

FORTHCOMING EVENTS

- 14 & 15 Sept 2006, An international conference entitled “Delivering Value Today And Tomorrow Conference” will be organised by the Institute of Value Management on behalf SAVE International and the European Governing Board of the Value Management Training and Certification System. Please visit http://www.ivm.org.uk/vm_events_1415_09_06.htm for further information.

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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 directly to The Editor, Prof. Geoffrey Q.P. Shen, c/o Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon. Tel: (852) 2766 5817, Fax: (852) 2764 5131.

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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:** ______________________