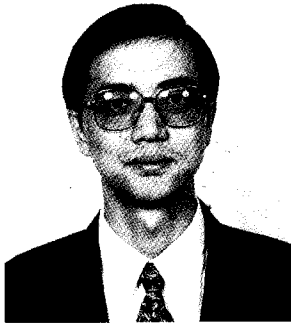


VALUE MANAGEMENT IN HONG KONG'S CONSTRUCTION INDUSTRY: LESSONS LEARNED

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ABSTRACT

Although VM is still in its infancy stage in Hong Kong, the potential benefits of its applications have increasingly been recognized in the territory, and there have been an increasing number of VM studies in various sectors, especially in the construction industry. Over the past 10 years, Hong Kong has also been a performing stage for different practices to demonstrate their merits and to compete with each other for this attractive market. In this paper, the findings of a recent industry-wide survey on the applications of VM in the construction industry in Hong Kong are introduced. A comparison is made between three main VM practices. Obstacles and difficulties in applying VM and lessons learned from successful stories and failed applications are also presented. A number of high priority actions have been proposed to meet the opportunities and challenges in using VM in Hong Kong.

RECENT RAPID DEVELOPMENT OF VALUE MANAGEMENT IN HONG KONG

VM was first introduced in Hong Kong in the early Eighties. Although it is still in its infancy stage, there has been an increasing awareness of its merits and tremendous potentials in value enhancement and cost savings. In recent years, the number of VM applications have increased by leaps and bounds as can be seen from the following examples:

- Value Engineering Training workshop 1988
- United Christian Hospital 1988
- Hong Kong Cable Television Network 1989

- South China Morning Post Building 1993
- North District Hospital Project 1994
- Various PAA Projects 1994
- KCRC Development Project 1994
- Lei Yue Mun Housing Project 1994
- Stanley Prison 1994
- Haven of Hope Hospital 1995
- KCRC Western Rail Project 1996

In 1996 alone, 6 large public projects have undergone VM studies (as shown in Table-1), the total value of these projects is around HK\$7800 million. They were initiated by the Architectural Services Department (ArchSD), one of Asia's the largest multi-disciplinary professional offices in the public sector, which has played a leading role in promoting and using VM in Hong Kong. ArchSD's objective is to introduce VM studies as a standard methodology in the initiation and implementation of major projects. It also plans to undertake VM studies for all major projects prior to sketch design - projects with anticipated expenditure exceed HK\$250 million (Wilson, 1996).

Table-1 VM Studies initiated by the ArchSD

No	Project Name	Value
1	Mongkok Stadium	250M
2	School Improvement Project	5000M
3	Shengshui Slaughter House	1208M
4	Ecological Park	300M
5	ICAC Headquarters	870M
6	Government Dockyard	150M

In May 1996, within less than one year since its incorporation, the Hong Kong Institute of Value

Management (HKIVM) has successfully organized a two-day international conference "Value Management in the Pacific Rim", which has attracted more than 100 speakers and attendants from the USA, UK, Australia, New Zealand, Canada, Brazil and Hong Kong. The Secretary for Works Mr. H. S. Kwong and the then Chairman and Chief Executive of KCRC (Kowloon Canton Railway Corporation) Mr. Kevin Hyde also addressed this conference.

The HKIVM has been enjoying a steady growth in membership and a wide membership base which consists not only VM facilitators, but also academics and managers from client organizations. The Institute has a quarterly publication "Value Manager" to its members and organizes regular monthly meetings with guest speakers from all over the world.

Over the last two years, there have been numerous activities in the territory aimed at promoting VM awareness and applications. They include awareness seminars and learning workshops conducted at various professional institutions such as the Hong Kong Institute of Accountants and some large commercial organizations such as the KCRC and the Mass Transit Railway Corporation (MTRC).

On the education front, since 1995, the Hong Kong Polytechnic University's Department of Building and Real Estate started to offer "Value Management in Construction and Property" as one of its core modules for the MSc award. The module consists of 42 contact hours including 12-hour participation of workshops. The Construction Industry Training Authority (CITA) also offered a graduate certificate VM training course in October and December last year, in collaboration with the University of Canberra and the Australian Centre for Value Management.

A number of research projects have also been set up in the territory in order to further develop VM theories and improve its applications. Fong and Shen (1996) of the Hong Kong Polytechnic University, for example, have recently completed a research project entitled "VM Applications in the Construction Industry in Hong Kong" which revealed the state of the art of VM applications in the construction sector in Hong Kong.

AWARENESS AND APPLICATIONS OF VM IN THE CONSTRUCTION SECTOR

Whereas the above section demonstrates the rapid development of VM in Hong Kong, especially in the public sector, the overall picture of current VM

applications in the private sector of the construction industry is not very appealing. This can be seen from the findings of the research project undertaken by Fong and Shen (1996) as described earlier.

The main objective of the project was to investigate VM awareness and applications in Hong Kong's construction industry. A questionnaire survey has been conducted in April 1996 and a total of 796 copies of questionnaire were sent out to senior personnel of selected contractors, consulting firms and property developers in the private sector of the industry. Of the 796 copies of questionnaire, 75 valid copies were received before the closing date, which represented a return rate of 9.4%. These consist of 42 contractors, 7 developers, 19 consultants firms and 7 respondents who did not identify themselves.

According to the survey, the awareness of VM in the private sector of the industry in Hong Kong is rather low. (Other sectors would be in a very similar situation, although no detailed studies have been conducted). Around 40% of the respondents have not heard of any of the key terms such as value management, value engineering, value analysis, value control, and function analysis. Among those who have heard of the terms, less than 12% of them have a good degree of knowledge and understanding about VM and its related terms, whereas others have little or some limited knowledge.

Within the questionnaire, we have also designed a number of questions to test whether the respondents have proper understanding of VM and to reveal their perceptions about VM. Statements such as "VM equals to cost reduction", "VM is the same as cost planning", and "VM is a value enhancing tool rather than a cost cutting method" were used. Although the majority have passed these tests, a large number of the respondents (around 35%) do not know the right answers to those questions. This reflects the possible misconceptions of the respondents about VM.

The survey also reveals that respondents' experience in VM applications in Hong Kong is also relatively low. Among those 75 respondents, only 15 said they have participated in VM studies, representing 20% of the responded population. As shown in Table-2, the reasons for not using VM are many, but the most frequently cited reason is the lack of knowledge to implement this new approach at work.

The low level of applications is probably associated with the low level of awareness of VM among senior

management in clients organizations too. As shown from the survey, around 15% of the contractors and consultancy firms said that they have been approached by the clients for conducting VM studies. The reasons are not difficult to understand: it is very unlikely for those clients who have no or little knowledge of VM to request their designers and contractors to conduct VM studies for their projects.

Table-2 Reasons for Not Using VM at Work

Reasons	%
Lack of knowledge to implement this new approach at work.	25.4%
No confidence to introduce VM to clients.	25.3%
Lack of time to implement this new approach at work.	21.4%
The client and/or other team members are reluctant to change.	17.3%
Traditional cost saving methods are considered more adequate or better.	9.3%

The findings of the above research project indicate that although the awareness is rather low and the experience is rather limited among the surveyed, the majority of them are very interested in the topic and are eager to learn more about it.

It is necessary to point out that because of the low response rate (around 10%), and we suspect those who do not have any knowledge about VM did not bother to reply, some firms may be afraid of being identified as lack of knowledge or application in VM would make them vulnerable or old-fashioned, therefore the above figures may represent an over estimate.

DIFFICULTIES AND OBSTACLES OF APPLYING VM IN THE CONSTRUCTION INDUSTRY

One of the major obstacles which prohibit the use and promotion of VM in Hong Kong is the confusion about VM itself and the different VM practices Hong Kong has exposed. This has been demonstrated well in the HKIVM's conference last year. Among those distinguished speakers at the conference, four came from Australia, two from the US, one each from the UK, Canada, New Zealand and Brazil, and four from Hong Kong. Audience of the conference have been presented with quite different (or distinct) approaches. Although there has been a healthy debate on a number of issues, the new comers would be rather confused.

This confusion is by no means unique to Hong Kong. For some times over the past two years, there has been a debate on the definition of VM in the UK, ranging from extensions of VE, to a much broader concept embracing all aspects of business management. Some even consider VM is the same as cost planning. As acknowledged by the Institute of Value Management, although the discussion is healthy, it should focus on how to end confusion among the end users. So far, no agreement has been reached on what unique attributes that set VM apart from other professional bodies.

Because of the increasing awareness of the potential benefits of applying VM, some companies see VM as a good name for selling their services, and therefore try to jump onto the band wagon early. Very often we hear from people who claim they have done VM, in fact what they really did was simply a cost cutting exercise or something else. They did not go through the formal VM methodology at all.

Tabel-3 summarizes the similarities and differences of two commonly-used VM approaches that have strong presence in Hong Kong. It is interesting to know that, in some occasions, even the two countries use the same wording, they may not mean the same thing. For example, within the information phase, the Australian approach normally consists of a group of organized activities such as problem situation, project givens, assumptions, key issues/concerns, project objectives, and "why questions". These terms are not normally used in the US approach.

Table-3 Comparison of Two Main VM Practices

	USA	Australia
Function Analysis	an essential part of VM	not as strongly as the USA
Job Plan for Workshop	information creativity evaluation development presentation	information analysis creativity evaluation development
Duration of VM Study	40 hours	8-24 hours
Use FAST?	yes	no
Stage of Application	sketch or detail design stage	feasibility or concept design
Participants	5-8	15-30
Facilitation	not essential	essential
Use Function Cost Analysis	yes	rarely
Target Cost?	yes	rarely
VM=VE?	yes	yes/no

The UK practice is somewhat similar to the Australian one. For example, VM in Britain refers to the overall strategic framework including the specific techniques of VE and VA. The British also tend to apply VM at the very early planning stage of a project or the early development stage of a new product. In recent years, there has been an increasing move in the UK to distinguish VM from VE. A number of aspects of the SAVE International's approach such as FAST have also been heavily criticized (e.g. Green, 1996).

The 40-hour VM job plan is widely-used in many VM studies world-wide and is regarded as a milestone by SAVE International and many VM organisations in other countries. This job plan has been proved to be successful over the past four decades by many practitioners. If well organised, it can produce excellent results for minimum effort. However, it is very unlikely to be accepted and applied in the construction industry in Hong Kong.

The main problem for implementing the 40-hour job plan is time. It is normally difficult to assemble key project participants for such a concentrated period of five days and retain their undivided attention from other things throughout this period (Kelly and Male, 1991). This is especially true in Hong Kong, because of the sky-high land prices, many clients have to pay a huge amount of interests for the money borrowed, they normally give the designers and other consulting firms very limited period of time to complete the design and other related works. Another reason is cost, because of the limited experiences of the clients, it is unlikely for them to endorse a study that will cost a relatively large amount of money, because of the high consultancy fees in Hong Kong.

On the other hand, a two-day workshop seems to be too short to complete necessary analyses, evaluation and development of alternative solutions. Since many sessions must be devoted to educating participants who are rarely familiar with the VM processes and principles, it is rather difficult for the VM team to bear on the problem at hand. In addition, the evaluation and development of alternative solutions are particularly difficult to complete effectively in such a short time, because many ideas proposed in the creativity phase require intensive design and engineering analyses, particularly when these involve long-term life cycle cost trade-offs (Kelly and Male, 1991). Occasionally, the phases of information assimilation, development and presentation take too high a proportion of the duration of the workshop, and the time allocated to functional analysis and creativity is too short.

These drawbacks mainly relate to the time required for VM studies and the time allocation at workshops. The best way to address these problems seems to be an improvement in efficiency of VM studies. As proved by Shen (1993, 1996), with the assistance of the latest development of modern information technology such as knowledge-based systems, the proportions of time allocated for tasks such as retrieval of historical information, generation and evaluation of alternative solutions, and presentations of study proposals can be reduced considerably, therefore more time can be assigned to more important tasks such as function analysis and development of alternative solutions.

There are a number of factors which will affect the fate of VM studies. Successful studies do not come naturally. Based on some interviews I have conducted, the critical success factors for its applications in Hong Kong's construction industry are as follows:

- *good understanding and use of the methodology,*
- *the timing when a project undergone studies,*
- *the genuine support from senior management,*
- *careful selection of team members, and*
- *good management of the process by facilitator(s)*

OPPORTUNITIES AND CHALLENGES FOR VM IN THE CONSTRUCTION SECTOR

Whereas Hong Kong has one of the most dynamic economies in the world, the construction and real estate industry is one of the largest sectors in Hong Kong's economy. The market value of securities in this sector represents over 30% of the total market capitalization in Hong Kong. In the public sector, the Works Branch alone coordinates the work of seven departments, controlling about 1150 projects with an anticipated expenditure of HK\$105 billion over the next five years to the year 2001. These figures exclude the multi-billion airport core programme projects and capital sub-vented projects. Such a large and booming industry provides opportunities as well as challenges for the successful applications of VM.

According to Walker (1989), as a result of technology developments, uncertain economic conditions, social pressures, and fierce competitions both nationally and internationally, the construction industry's clients have placed increasing demands upon the industry in terms of projects performance, capital and running costs, time given from conception to occupation of the projects, after all value for money of projects.

There is an increasing demand for providing building products that satisfy clients' requirements and with

relatively low life-cycle costs. Buildings, however, are particularly complex entities involving such things as social, physical, aesthetic and environmental factors, some of which contain no reasonable ways of measuring the benefit and cost (Ferry and Brandon, 1984). Building problems are extremely complex and ill-defined, starting in uncertainty and trying to end up with certainty. Without proper methodology to follow, it is very difficult for the designers to satisfy clients' changing needs at the lowest life-cycle cost.

VM as a developed methodology can make valuable contributions towards a better solution for these increasingly complex problems faced by construction professionals (Shen, 1993).

As puts by the Secretary for Works, Mr. H S. Kwong (1996), the coordination and management of large construction projects with due regards to reducing uncertainty and risk for accurate forecasting is very demanding. The development of VM as a part of the design process could assist in obtaining maximum value and yet more accurate programming for the procurement of capital works projects. "Through the structured, systematic, and analytical approach of VM, it should be possible to determine the best solutions in providing the necessary functions and appropriate facilities to accommodate the service requirements, at the right quality, and for the right price".

Challenges can coexist with opportunities. Whereas the potential for VM applications in the construction and real estate industry in Hong Kong is significant, the road ahead for VM applications will not be smooth. Experiences from other countries such as the USA and UK have shown the popularity of VM can increase sharply as well as declines steeply. The low awareness, experience and applications of VM can easily turn into future challenges if it is to be applied successfully and widely in the construction industry.

In order to position ourselves to face the forthcoming challenges, the following actions should be taken with first priorities:

1. To introduce a VM culture in clients organizations, consultancy firms and contractors in the industry by improving awareness and applications among professionals and senior management in these firms and by offering assistance and training in organizing and managing successful VM studies.
2. To undertake further investigations to compare the pros and cons of VM practices currently present in

Hong Kong and to set up a benchmark of the best practice for the local construction industry.

3. To set up a standard and a certification program to clarify VM theories and practices and to identify and duly recognize individual's differing level of competence and experience in the practice of VM. The certification program will provide a basis for the HKIVM to establish an accreditation system to evaluate all VM courses offered in Hong Kong to ensure they meet international standards.
4. To seek continuous support for VM applications from the Government to promote VM in all large capital projects in the public sector.

In order to facilitate the above actions, a number of good quality handbooks and guidelines with local context should be produced, more awareness seminars should be arranged. These activities will help to avoid misunderstanding, misconception and confusions.

The HKIVM has recently arranged a VM workshop with all office bearers and other interested members, with an aim to develop an action plan that leads to the formation and documentation of a three-year strategic plan for the institute and to reach consensus on key issues within the plan. The workshop focused on the actions that are required in the next three years for the institute to move forward on a firm basis. A total of 46 actions were identified for year 1997 and future years. They were in line with what has been proposed above and can be divided into six major categories: Institute Promotion, Facilitator's Credentials, Accreditation, Training, Membership Categories, and R&D.

CONCLUSIONS

Although VM applications in Hong Kong is still in its infancy stage, there has been a surge of interest especially in the construction industry over the past few years. Looking at the road ahead, there are plenty of opportunities as well as challenges.

Experiences in many other countries show that the prosperity and development of VM applications rely heavily on government's support. Hong Kong is in a fortunate position, as several government departments committed themselves to the increasing application of the methodology to the initiation and implementation of projects in the public works program. We must seize the opportunities and proper actions must be taken if VM is to be applied widely and successfully in Hong Kong's construction industry.

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