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Implementation of Value Management in Public Projects

Aini Jaapar^a, Nur Amani Maznan^a, Mardhiah Zawawi^{a,b*}^aFaculty of Architecture, Planning and Surveying, Universiti Teknologi MARA, 40450 Shah Alam, Malaysia^bFaculty of Civil and Environmental Engineering, Universiti Tun Hussein Onn, 86400 Batu Pahat, Malaysia

Abstract

In Malaysia, Jaapar (2006) stated that Value Management (VM) is still at the early stage of its evolution. Despite its infancy stage, the authorisation of VM Circular 3/2009 by Economic Planning Unit (EPU) has made all public projects exceeding RM50 million to implement the VM studies. There are three objectives to be achieved in this research. The objectives are to identify the VM participants' receptiveness towards the VM implementation in workshop environment setting, to observe the VM manual application in the VM workshop and to discover the challenges faced by the VM participants and facilitators.

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Keywords: Value Management; VM workshop environment; VM participants' behaviour; VM future growth

1. Introduction

Malaysia as a fully developed country of the future has been defined by the EPU (2012) to be “a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous, and in full possession of an economy that is competitive, dynamic, robust and resilient.” However, the 4th Prime Minister insisted these will not be able to be achieved until its ninth central strategies challenges which among of the most includes establishing a prosperous society with an economy that is fully competitive, dynamic, robust and resilient (Mohamad, 1991). In sequence to that, the current Prime Minister of Malaysia announced that VM is a management tools for achieving value for

* Corresponding author. Tel.: +6-03-55444214; fax: +6-03-55444353.
E-mail address: ainijaapar@salam.uitm.edu.my

money in the public projects which should be applied at the early stage, then only the country economy can be more competitive (Abdul Razak, 2011).

Since VM Circular 3/2009 had been authorised on December 2009, all government's projects exceeding RM50 million has been made mandatory to implement VM studies. The government agency had implemented the VM studies for 71 projects which exceeding RM50 million in one month period (February 2011 to March 2011). In order to achieve cost optimisation of the public projects, the government agency especially EPU and Public Works Department (PWD) actively organised and handled the VM workshops for the projects. However, there is an issue on the receptiveness among the VM participants towards the VM workshops due to lack of knowledge, experience and exposure towards VM.

Sustainable VM applications in the future Malaysian construction industry are crucial. Hence, there is a need to study and monitor the VM participants' receptiveness and their behaviour towards the overall current VM application in the public projects. The primary data gathered from the process will provide an insight towards the social-cultural interrelationships between VM participants and the environment of VM workshops. Its outcome will be able to assist VM evolution further to be implemented in all projects in a bigger scale. There are three (3) objectives to be achieved in this research. The objectives are to identify the VM participants' receptiveness towards the VM implementation in workshop environment setting, to observe the VM manual applications in the VM workshop and to discover the challenges faced by the VM participants.

2. Literature Review

This section briefly discussed the definition of VM, VM in Malaysian public projects, VM workshops and the function of capacity building in ensuring sustainable application of VM in the future.

2.1. Definition of VM

VM is defined by Kelly and Male (2004) as a service that maximise the functional value of a project by managing its development from concept to use through the audit of all decisions against a value system determined by the client. Kelly and Male (2004) also recognised VM in UK construction industry as a term used to described the total process of enhancing value for client from a project the phases of concept through to operation and use. It is also a process which encompasses better understanding as well as providing solutions to the business projects.

Internationally, by Ellis *et al.* (2005) stated VM as an emerging paradigm that focuses on continuously increasing the value provides to the client. Taking cue from the development of VM which has been widely accepted at international level as an important tool in the management of construction projects, at the local front, Jaapar (2006) defined VM, as a multidisciplinary; team oriented, structured, analytical process and systematic analysis function, which seeks best value via the design and construction process to meet client's perceived needs.

Odeyinka (2006) has further defined VM as a service, which maximise the functional value of a project by managing its development from concept to completion and commissioning through the audit (examination) of all decisions against a value system determined by the client.

The Institute of Value Management UK (2008) defined the term VM as a style of management particularly dedicated to motivate people, develop skills and promote synergies and innovation, with the aim of maximising the overall performance of an organisation.

The concept of VM according to Society of American Value Engineers (2008) is defined as a systematic, multi-disciplinary effort directed towards analysing the functions of projects for the purpose of achieving the best value at the lowest overall life cycle cost (LCC).

Hayles et al. (2010) has emphasised that VM has become a proactive, problem solving or solution seeking process, which can be used to enhance the functional value of a project by managing its development from design concept to operational use, and eventual decommissioning through structured, team-oriented and open-dialogue exercise, which recommended alternatives or confirm existing solutions, and appraise subsequent decisions, by reference to the value requirements of the client.

VM is orientated towards providing the best possible product (building) for the client, by providing a process that guarantees that the various personnel involved throughout the entire building life cycle are aware of the needs and functions the particular building must satisfy (Perera et al., 2011 p.95).

VM had been summarised by Oke and Ogunsemi (2011) as a systematic and multi-disciplinary process directed towards analysing the functions of projects from its inception to completion and commissioning (through auditing or examination) for the purpose of achieving best value and return on investment at lowest possible overall LCC.

The provided definitions, concluded and confirmed that VM as an approach that improve the work relationship among the team and at the same time able to achieve better value for money for the projects. Hence, VM is an important concept to be implemented in the Malaysian construction industry especially in the public projects in order accelerates further momentum of the country in achieving the developed nation status by 2020.

2.2. VM in Malaysian public projects

In Malaysia, Jaapar (2006) stated that the VM is still at the early stage of its evolution as it had only started to be used only in 1986 and were without the support of the Government; hence its application was minimal. Despite its infancy stage of implementation to the construction industry, on December 2009, the authorisation of Value Management Circular 3/2009 by Economic Planning Unit (EPU) has made all public projects exceeding RM50 million to implement the VM studies resulted in massive impact to the government projects' procurements process. In a month period, Ahmad (2011) stated that 71 projects had applied VM studies which had resulted in 23.53% of monetary savings from the total cost.

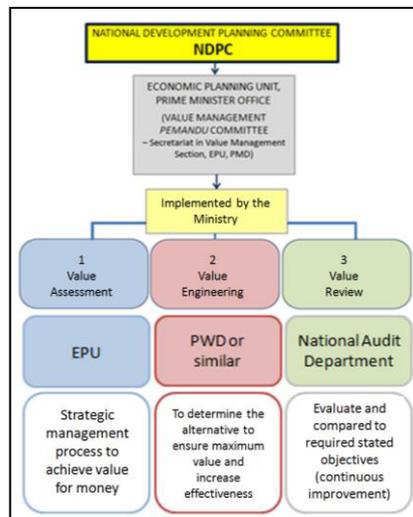


Fig. 1. Organisational structure for VM implementation; adopted and modified from: VM Manual, EPU (2011)

By May 2011, in order to ensure standardisation in its implementation process, the EPU published the Manual of Value Management Implementation for Government Projects in order to provide a proper guideline for the key players of the construction industry to implement the VM studies. The National Development Planning Committee (NDPC) were also formed to monitor and to ensure the implementation of VM in the government projects. Figure 1 above shows the organisational structure for VM implementation in public projects. There are three (3) stages in VM application for public projects and each stage are handled by different government agencies. The process of VM application is being divided into three (3) which are the Value Assessment (VA), Value Engineering (VE) and Value Review (VR).

2.2.1. Value Assessment (VA)

Currently, the manual dictates VA process is carried out as a strategic planning implemented before a project is approved. This process is similar to other definitions of VA such as value planning and value study which has been used extensively in the VM related literatures. The term VA in the manual used to describe the process of planning the government project. The purpose of VA is to identify the projects that can contribute to the achievement of cost optimisation and improve the performance of the projects. At this stage, the VA is used as one of the management strategies to achieve value for money because at this stage the real needs of the project can be verified.

2.2.2. Value Engineering (VE)

For the project that has been approved at the central agencies level, VE can be implemented at all levels design development to ensure that the projects achieve the functions and objectives as required. If necessary, VE can also be carried out repeatedly, especially for complex projects. At this stage, the VE should be conducted to determine the alternatives and the best method to implement the projects in maximising value for money and improve the effectiveness of the project. This is usually done by excluding the function, design and specifications that unnecessary or not important and suggest alternative which can improve the delivery of the projects.

2.2.3. Value Review (VR)

VR in the manual refers to the process of VM implementation after the project is completed, so that the project performance can be evaluated and compared to the required objectives. It is also an effort for continuous improvement to improve the weaknesses and improve effective implementation of the projects on. At this stage, the effectiveness of a project in fulfil its functions will be informed to the relevant ministries and agencies applicable to embedded or enhanced the projects in the future. Weaknesses found will also be informed in order to avoid this from happening.

2.3. VM workshop

According to Jaapar et. al (2012), the current VM implementation process used is the “hybrid VM” workshop process which involves a team of facilitators who are able to handle more than one project simultaneously. The VM job plan is flexible depending on the project size and work stage. Table 1 shows comparison between original job plan by Miles (1972) and its evolution leading to job plan by Kelly et. al (2004), Jaapar (2006) and VM Manual by EPU (2011).

Table 1. Job plan comparison

VM Job Plan (Miles, 1972)	VM Methodology (Kelly et al., 2004)	VM Prototype Guideline (Jaapar, 2006)	VM Manual (EPU, 2011)
Orientation	Pre-study stage	Pre-workshop stage	Pre workshop
Information	Workshop stage	Workshop stage	Workshop
Speculation	Information	Information	Information
Analysis	Creativity	Analysis	Function Analysis
Programme planning	Evaluation	Creativity	Creativity
Programme execution	Development	Judgement	Evaluation
Status summary & conclusion	Presentation	Development	Development
		Presentation	Presentation
	Post-study stage	Post-workshop stage	Post workshop

(Sources: Kelly et. al., 2004, Jaapar, 2006 and VM Manual, EPU, 2011)

2.3.1. Pre workshop

The main purpose of the pre workshop is to design and operate the workshop, including the support and commitment of top management of ministries and agencies need to be made in addition to plan review and decide on the division of responsibilities and duties of officers and staff involved in the study. This stage focuses on the collection of basic information including the project background, its relationship with the policy, objectives, scope, outcomes and cost of the project. Table 2 shows the pre-workshop activities for the VM studies in the public projects.

Table 2. Pre-workshop activities

No	Purpose	Action	Tools
1	Prepare Project Information	Prepare related documents: Project background: function, scope Justification (financial, economy, environment & risk management) Support documents Draft “project must” Information on existing facilities	Project applicants (ministry/ agency) Documents of Rancangan Malaysia (Teras 1-5) NKRA/NKEA Logical Framework Analysis (LFA) Cost-Benefit Analysis VM Template
		Prepare related documents: Project constraints Project parameters Cost estimation Site supervision Drawing/ sketch – design (if applicable)	Project applicants (ministry/ agency) and implement agency/ consultants Cost estimation Preliminary Detailed Abstract (PDA) EPU Circular No. 2/2009

2	Site Visit	Visit to: Proposed site to identify the condition of site Existing site that similar for benchmarking purposes	Project applicants, implement agency, consultants, facilitator and workshop participants	EPU Circular No. 2/2009 – site visit report Local plan
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(Source: VM Manual, EPU , 2011)

2.3.2. Workshop

- Information Phase (IP)
The process of IP enables all participants to better understand the process of the VM workshop and the nature of the project. The insights obtained during the phase is to ensure functions mismatch in the project to be discovered and hence it provide the basis to seek alternatives through the next process
- Function Analysis Phase (FAP)
The purpose of this phase is to understand the project through the perspective function of project. It emphasizes the question of what exactly is to be achieved by the project compared to what is described (perception) during project proposed. Function Analysis System Technique (FAST) is a method that commonly used in which the basic functions of the components of the project decomposed into a logic model.
- Creativity Phase (CP)
The purpose of this phase is to generate as many ideas and proposals that emphasize alternative means or methods for perform a specified function. In this phase the VM facilitator need to ensure positive atmosphere is created among the participants i.e. not criticising each other, brainstorm and obtain as much as possible ideas and to record all the ideas contributed.
- Evaluation Phase (EP)
In this phase, all the ideas generated during the creative phase evaluated and to be short-listed. The ideas generated are evaluated either it is the investment cost, practical to implement, save time or contribute to the life cycle cost.
- Development Phase (DP)
During the process, the short-listed ideas developed into alternatives that increase the value of projects. This alternative translated in the form of drawings, diagrams and supported by calculations, information the manufacturer / producer and other materials.
- Presentation Phase (PP)
This is the final phase in a workshop. Purpose this phase is to inform the recommendations and conclusions workshop to the top management, other stakeholders and also the policy makers. This presentation allows the management or policy-making decisions, which compatible with the achievement of an objective or policy of the Government.

2.3.3. Post workshop

After the presentation phase, management and project implementing agencies should consider and agree to implement the proposed alternative. At this stage the question of how and when the project will be made should be set. In certain circumstances, additional studies may be needed if the policy makers or senior management have a specific reason that requires further research. It is the responsibility of ministries and implementing agencies to ensure implementation of the workshop results. Table 3 shows the post workshop activities that currently practiced according to the EPU VM manual (2011).

Table 3. Post workshop activity

No	Purpose	Activity	Action	Tools
1	Proposal Implementation/ Summarised VM Workshop	Initiate discussions / meetings of the coordination of the implementation of recommendations / conclusions workshop Obtain commitment from all parties involved in the implementation Establish an implementation schedule, progress (including revised schedule) In design and implementation of the final document (Tender, tender, etc.)	Ministry / agent implementation	VA workshop report Detail design Cost analysis Technical data Action plan Critical Path Method (CPM)
2	Further review VA	Focuses on the aspects involved with the review / further study		Revised Job Plan

(Source: VM Manual, EPU, 2011)

2.4. Capacity building

Capacity building stated by Virji et. al (2012) referred to as capacity development or capacity strengthening which is popular and oft-expressed critical need in almost all documents and protocols related to global change and sustainable development. However, there are many different ways in which various international developments platforms define, approach and facilitate capacity building in their work. In this context, it is worth nothing that capacity is not the potential for but rather the actual realised ability of individuals, institutions and countries to identify and solve problems.

Capacity building is defined by Mugabe et al. (2000) as the knowledge-intensive process of creating, mobilizing, utilizing, improving, transferring, and sustaining individual, institutional and country expertise/ skills for addressing a specific problem or a multitude of challenges. In ensuring the implementation to VM to the Malaysian construction industry, hence the theory of capacity building is to be use to ensure all the related human, organisation and institutional resources are channel towards ensuring VM implementation is sustainable in the future.

3. Research Methodology

For this research, five (5) public projects that implemented VM study were observed by the researchers. The outcome of this preliminary research will provide an insight towards the area further and it will provide and create a better platform for a detailed study on VM studies. The observations period were from February 2011 and ended on June 2012. The observed projects total value were in excess of RM600 million. Issues related to confidentiality such as nature of the projects, stage of the project, were among the reasons permissions were not granted for the observation purposes to be carried out for some other projects.

For this research, all the case studies have been observed by the researchers throughout the VM process and all the data obtained was recorded. The participations among the VM participants during the VM process also be observed and recorded. The projects' document were analysed based on the printed documents or electronic documents such as projects' drawing, details and presentation materials. For this research, both documents are analysed in order to obtain the required data. The printed documents such as VM study reports were useful to provide an in-depth insight towards the projects. The first instrument of

the research method was by face to face interviews with the individuals that involved in the VM workshops that had been observed by the researchers. Eight (8) respondents interviewed who were the facilitators, clients and consultants. The interviewees were selected due to their continuously participation in all the projects implemented VM observed. Throughout the VM studies, the researchers carried out the observation process by participating throughout the studies and were assisted by recording tools such as sound and visual recording mechanisms.

4. Finding and Discussion

From the observation, the repeated VM participants' receptiveness towards workshops was positive and they indicated their sincere intention to deal fairly with each other. They were enthusiastic and cooperative during the VM workshops. This could be because of the awareness among the parties involved on important and needs of the VM to the projects. They were positive towards the awareness stage VM and get along well with each other during the VM workshop. All the VM participants attended the workshop were provided with the drawings and related documents.

However, it was different to the participants that experienced the VM workshop for the first time. It is supported by the previous research that most of the VM participants, especially the consultants had a negative perception towards VM but they changed their perception towards the end of the workshop and accepted the VM concept. Even though initially their receptiveness towards VM workshop was low and sceptical, but they did give cooperation throughout the workshop.

From the observation of five (5) VM case studies, it was discovered that the VM workshops were implemented according to the VM manual by the EPU as Table 4 below. Based on the data analysis, all VM workshops were conducted according to EPU's guideline. It was supported by other respondents that the VM workshop was conducted according to the VM job plan and parallel to the agenda that had been distributed earlier to the VM participants.

Table 4. VM Workshops observation

Case Study	VM Workshop (Days)	VM Stage			VM Job Plan (EPU, 2011)							
		VA	VE	VR	Pre workshop	Workshop						Post workshop
						IP	FAP	CP	EP	DP	PP	
1	7	√			√	√	√	√	√	√	√	√
2	5	√			√	√	√	√	√	√	√	√
3	4	√			√	√	√	√	√	√	√	√
4	3	√			√	√	√	√	√	√	√	√
5	3	√			√	√	√	√	√	√	√	√

According to the observation, the VM workshop for public projects would be start with briefing on the VM process by the VM facilitator before starting the actual workshop. It would be followed with the presentation session for projects scope by the client and consultants and brainstorming session. VM workshop usually was conducted through participation from all the members in the group session by triggers all the ideas to be evaluated. It was similar to the brainstorming session which required the member to come out with the ideas, alternatives and strategies to be implemented in the project. From the observation, the VM workshop was led by the VM facilitator throughout the VM process. The VM participants were also assisted by the VM facilitator at each phase during the VM workshop. However,

the time control is always a problem during the particular phase. The VM facilitator should give attention on the time in order to ensure the VM workshop was completed according to the agenda.

Based on data analysis, it was discovered several challenges that faced by the VM participants during the VM workshop. One of the challenges was the VM workshop could not be smoothly implemented due to insufficient information provided. This may result to inaccurate judgement especially related to costing. Besides, it was difficult to achieve the outcome that could satisfy every party involved in the workshop. It was also discovered the challenges that faced by the individual personally during the VM workshop. VM facilitator has a big role in VM workshop and it is important to the VM facilitator to have knowledge on VM methodology, experience and skills.

One of the challenges that faced by the VM facilitator was to handle different types of people with different character, values and background. The VM facilitator should know how to attract the VM participants to be active during the workshop. From the observation, the challenge that can be seen is the information providers were found difficult to cope with the discussion during the VM workshop. They tend to stay at the back while watching the VM team discussed on the project. Occasionally, the information providers will interrupt during the presentation session at the end of each phase.

5. Conclusion

As a conclusion, it is discovered that the VM participants' receptiveness towards VM application is positive and very cooperative throughout the VM workshops process. However, it was different to the VM participants that experienced the VM studies for the first time. They were sceptical towards the VM concept but changed towards the end of the VM workshops and accepted the needs of VM implementation to the projects' benefits. Throughout the observations, it is discovered that the VM implementation in the public projects was according to the VM manual by EPU. Even though the duration of the VM workshops was not according to the VM manual which required five days VM workshops for each project, but the VM studies held according to the VM manual. It was due to the nature of the project itself. This was supported by Jaapar et. al (2012) that the VM workshop job plans were flexible depending on the project size and work stage. Moreover, the VM workshop also could be conducted in a short time for remarkably small projects.

This research also discovered the challenges that faced by the VM participants during the VM studies. The challenges faced by them such as insufficient information provided, difficult to achieve the outcome that could satisfy every party involved in the workshop, and difficult to handle different types of people with different character, values and background. Even though, this research had discovered the VM participants' receptiveness towards VM application in public projects, however, it was only focused on five VM case studies and still at preliminary stage of implementation. For further research in the future, it is recommended to undertake to study the acceptance of VM among the VM participants at each stage of VM with wider sample of respondents and case studies.

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