

Managing Value in the Construction Project Development Process

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Abstract

Value management (VM) has been practised for over 50 years but has only penetrated into the construction industry much more recently. As discussed in this paper through reflective experience of real-life case studies at different stages of the project life cycle, the benefits of the process incorporate principles of stakeholder selection, knowledge creation, team learning and effective facilitation. In addition, VM promotes the development of a sense of ownership, supports initiatives by all stakeholders, addresses the cumulative effects of whole-life impacts, and implements an integrated service delivery approach by considering all the interrelated elements that affect the project through the collaboration of all stakeholders. Value management involves reviewing past and assessing current and future issues, threats, and needs to identify priority management intervention activities that will sustain ecological, economic, and other values; it balances multiple and often incompatible objectives; it achieves sustainable development; and it fulfils institutional, policy, and stakeholder needs. In particular, its transparency greatly aids decision-making and consensus development.

Keywords

Value Management, Team Learning, Knowledge Creation, Stakeholder Selection, Facilitation

1. Introduction

With dwindling resources, vital decisions, especially public ones, incite controversy because they require difficult trade-offs among variables and viewpoints stressed by different stakeholders in large or small projects. These decisions are particularly complex because of disagreements among stakeholders about the key objectives and their relative importance. Decision-makers are not known for their willingness to address difficult trade-offs explicitly. In recent years in Hong Kong, the growth of public interest and advocacy organisations has resulted in demands for a higher level of accountability on the part of politicians and social decision-makers. As a result, decisions that were once discussed behind closed doors must now be debated in front of appointed committees or television cameras, and decisions that were once made on an ad hoc basis must now be defended with reference to explicit criteria and a logical approach. An important class of problems facing decision-makers involves choices between economic, social and environmental objectives. These decisions are often controversial because of what appear to be sharply conflicting stories about the economic impacts, environmental effects, and social implications of the leading options.

With the introduction of the Environment, Transport and Works Bureau Technical Circular (Works) No. 35/2002, entitled “Implementation of Value Management in Public Works Projects” and its predecessor Technical Circular 16/98, there is a growing demand for value management reviews of public work

projects at different stages. Value management clauses are written into consultants' appointments. In fact, quasi-government corporations like the Mass Transit Railway Corporation (MTRC), the Kowloon-Canton Railway Corporation (KCRC), the Airport Authority and the Hospital Authority also employ the value management technique to review their capital investments.

With the accumulated value management facilitation experience of the author, value management is seen as more than just a tool for value enhancement, i.e. to achieve optimum quality, functionality and cost parameters. The value management methodology itself can bring about a number of changes in construction project teams, which have always been thought of as adversarial and fragmented.

The following findings are drawn from the author's reflective experience through facilitating value management workshops for various public and private clients at different stages of the project life cycle. The objective of this paper is to report on the bigger picture of what value management can achieve, with the hope of inducing major cultural changes to the construction industry in Hong Kong. Such changes are desperately needed in order to achieve better value for money for the stakeholders in the current depressed economy.

2. Strategic Value Management Approach

The strategic approach to value management moves the application of the process forward from that previously applied. This implies that we use value management in the project initiation, but not in its implementation. It is a truism that the earlier in the project development life cycle that a study is conducted, the greater the opportunity for value improvement, therefore the greater the impact on the project overall. The strategic value management approach is of particular importance to a company's decision-maker in identifying the need, range, level and nature of the service required. In addition, it can be integrated with the overall corporate strategy of a company. As the title implies, the strategic value management study is conducted at the earliest possible time, as soon as a perceived need is recognised. Value management literature, such as the studies by Kelly and Male (1993) and Dell'Isola (1997), advocates the early use of value management as a strategic decision-making tool. The underlying principle is that during the inception stage, important decisions are made that will influence the characteristics and form of the project. It is not uncommon for a study at this stage to recommend that a proposed project not proceed. Once these significant decisions have been made, any subsequent decisions to invoke or alter them will involve resources, including time, human resources and money. Therefore, if the early stage is so crucial to the success of a project, they should attract sufficient resources and expertise to carry it out thoroughly. Indeed, for any construction or engineering project, our focus should not just be on the design decision-making; instead, more effort should be directed to studying clients' demands.

If the identification of clients' needs is carried out at the strategic level, it is envisaged that the potential for cost savings is greater. Of course, some clients may not like this approach, as a value management study carried out at the strategic stage may make it difficult for the client to justify the cost savings achieved, there being no other proposal to compare it with. However, the early application of value management will deliver the following benefits:

- Recognise the strengths, weaknesses, opportunities and threats created by the "build" or "no build" option;
- Encourage the client's early commitment to the project;
- Clarify the client's needs versus wants;
- Enable the client to understand the problem(s) it is attempting to solve;
- Formulate the real needs of the company;
- Improve the accountability, feasibility and thoroughness of the investigation as alternative options are considered and evaluated;

- Disseminate the briefing process of the problem to all concerned parties, to make sure that there is no misunderstanding or miscommunication;
- Discuss the problems thoroughly from all the participants' points of view;
- Safeguard the decision from any future auditing exercise, as evaluation of alternative options has been made.

3. Reflective Experience from Value Management Studies

Several important principles are observed to take place in facilitated value management studies. These include stakeholder selection, knowledge creation, team learning and effective facilitation, and they are explained in detail in the following sections.

3.1 The Stakeholder Selection Component

In the development of organisational strategies, firms must realise that they are accountable to numerous internal and external stakeholders. Each stakeholder group has a different set of expectations relating to a firm's performance. These different expectations may cause conflict to arise between the firm and its stakeholders. Such conflict can be extremely detrimental to the project or decision. Any strategic process that reduces potential conflict, such as the value management process, should therefore be extremely beneficial to stakeholders. Previous research has suggested that stakeholder theory allows the organisation to consider a wider range of influencers when developing strategy, and those earlier theories of the firm do not consider all of the "groups" that influence organisational activities. Thus, it would appear that stakeholder theory, as discussed in the management literature, would have significant implications for value management.

Central to the stakeholder concept and also to value management is, therefore, the need to reconcile the objectives of many different parties where at the end, a win-win situation will be created for all parties. In fact, selecting the right stakeholders implies recognition of the knowledge and expertise available from different arenas. However, as in many other industries, clients and consultants in the construction industry still fail to appreciate the need for stakeholder involvement in decision-making processes. The VM process allows a "corporate dialogue" or "stakeholder dialogue", which enables companies to have a proactive, open and co-operative discussion with representatives of stakeholders where issues of public concern are involved. The stakeholders involved in the debate will come from different sections of society, some of them with the necessary skills and knowledge to provide a "peer review" of the specialised proposed alternatives.

3.2 The Knowledge Creation Component

From the team approach in VM, value can be seen as an interactive pooling together of the knowledge of all the different stakeholders. In this connection, value management can be viewed as a methodology that creates and processes knowledge from the diverse participants. It is clear from value management case studies that much knowledge is created within value management study teams which are charged with value management assignments. Individuals in the VM team need to share information, knowledge and experience effectively - this includes both positive as well as negative experience from past projects - and build on each other's knowledge in order to create new knowledge or solutions and re-use existing proven knowledge to solve new problems/issues.

Knowledge creation is extremely important in creating new solutions or ways to solve existing problems. In value management, a multidisciplinary team is brought together because its members have collective knowledge that cannot be held efficiently by any of its members individually. "Decisions reached from the standpoint of one discipline frequently have a major impact on the approach the designer will take for

another discipline. Thus, the multidisciplinary interaction is necessary. The collective knowledge and experience of the multidisciplinary team create the synergy that helps this procedure to be successful. ... Positive attitudes, technical knowledge, education, and experience are important to the outcome of the study” (American Society for Testing and Materials, 2000: 2). A value management team can be characterised as a vehicle that brings to its task knowledge that is embedded in its members and their interaction as a team.

The VM team is organised based on certain criteria, for example, expertise or domain knowledge specific to a certain discipline or function. This is reiterated in the American Standard E1699, which states that team members “select persons of diverse backgrounds having a range of expertise and experience that incorporates all the knowledge necessary to address the issues that the [VM] team is charged to address” (American Society for Testing and Materials, 2000: 2). In addition, knowledge is created in an interplay between explicit and tacit knowledge. According to Nonaka (1994), organisational knowledge creation can be seen as an expanding spiral starting at the individual level and expanded through interaction which crosses disciplines and organisations, where the interplay between tacit and explicit knowledge plays an important role. Tacit knowledge of individual VM team members is the basis for knowledge creation, and the conversion is a vehicle to mobilise the individual knowledge to the group level. Individual team members bring to the VM team their experience, skills and competence, which is largely tacit. The knowledge creation process in this sense includes the combination of the individual team members’ tacit knowledge.

In the knowledge creation process, externalisation plays an important role. Externalisation is the expression of tacit knowledge and its translation into comprehensive forms that can be understood by others. Dialogue is the key to this conversion and it is through dialogue that individual mental models are converted into understandable terms. This is the externalisation stage of the knowledge creation process, in which individuals develop commitment to the team and become one with it (Nonaka and Konno, 1998).

In order to create shared understanding, people must be able to challenge their own theories in use, i.e. know-why. It is the challenging of the mental model that makes it possible to modify behaviour to reflect new knowledge and insights (Garvin, 1993). The know-why includes the ability to create a shared understanding (Inkpen and Crossan, 1995). The development of a shared understanding can be inhibited due to the fact that individuals become attached to their functional or disciplinary mind-set, which prevents them from challenging their mental models (Leonard-Barton, 1995). The diminishing of organisational or disciplinary barriers can in itself be an important factor in the knowledge creation process. The sharing and reflection of tacit knowledge is facilitated by the availability of a common language and a shared understanding (Hedlund, 1994).

Much of the knowledge creation process includes the sharing of tacit knowledge or experience, i.e. socialisation. Tacit knowledge is transferred through joint activities, such as working together in the VM workshop. Given the tacit nature of knowledge, team members need to interact simultaneously. Working together also has a positive impact on social ties and widens one’s informal network, which can be useful later on when the individuals work on different projects.

3.3 The Team Learning Component

Value management studies can be used to enhance value, as poor value projects can often be traced back to ill-defined, unclear or even conflicting client or stakeholder needs. There may be a lack of clear direction from the client organisation, a lack of definition of stakeholders’ needs rather than wants, objectives obscured by other not-so-important factors, misalignment of stakeholders’ expectations from the outset, and varying and frequently conflicting assumptions. The final decision usually involves choices between economic, social and environmental objectives. These decisions are often controversial

because of what appear to be sharply conflicting stories about the economic impacts, environmental effects, and social implications of the leading options.

It is not uncommon nowadays for construction clients to commission a value management study during the initial stages of a project. The objective is to establish an understanding among the project stakeholders of the common or conflicting values. The value management study enables the stakeholders to develop useful knowledge needed to resolve the issues. In order to develop such understanding or realise the conflicting interests, learning within the value management team must occur. Barton and Wilson (1997) suggest that “the timely and appropriate intervention of the VM study not only impacts upon project outcomes, but it can significantly enhance the knowledge and awareness of the participating stakeholders”. The facilitated team learning is achieved through planned intervention by a skilled facilitator who systematically creates a learning environment. Unfortunately, this may not be realised by many VM facilitators, who just facilitate workshops without realising their learning potential. Through the application of a proper VM job plan, a team learning environment is established which enhances the development of creative ideas and alternatives leading to value-added outcomes, which are owned and learnt by the participating stakeholders as a team. In turn, this gained knowledge can be poured back into the larger organisation, resulting in the whole organisation learning together. Team learning is viewed as the combined process of action and reflection that results in collective and observable outcomes of new knowledge, beliefs, and behaviours (Watkins and Marsick, 1990). It is observed that in order to meet the needs of a wide range of stakeholders in the specific situation of a value management study, an organised and deliberate effort to enable the team to learn is required. Team learning theory actually draws on concepts from both individual and organisational learning (Nonaka and Takeuchi, 1995).

3.4 The Effective Facilitation Component

Workshop facilitation plays a pivotal role in the value management process. Kelly et al (1998) find that the skill of the facilitators is one of the critical success factors in VM workshops. Woodhead (1998) argues that facilitation is a combination of workshop process management and team-based learning (i.e. content). The goal of facilitation is not to further the facilitator’s personal learning, but to enable the group to consolidate its collective, accumulated knowledge and experience.

Facilitation is taken as embracing the skills and knowledge necessary to enable a group to work as an effective single unit (Woodhead et al, 2000). Some facilitation skills are common to all value management studies, while others are only called for in certain situations, such as when large groups/teams are involved.

4. Conclusions

The use of multidisciplinary VM teams, where knowledge resources are brought together from different organisational functions and disciplines, has proved to be advantageous in more ways than simply creating and sustaining competitive advantage. Multidisciplinary is viewed as having great potential to innovate due to its implicit heterogeneous knowledge base, expertise and experiences. Value management can be viewed as an interactive tool where knowledge from different stakeholders is interactively created and processed. All these processes are facilitated by the professional facilitation skills of the facilitator(s) as well as through open dialogue and discussion among diverse stakeholders. The dialogue process can enhance the knowledge-creating ability of the VM team through the disclosure of deep-seated, privately-held explicit and tacit knowledge captured in individual human brains. Highlighting the knowledge-creating and team-learning capabilities of value management not only enhances the reputation of the value management technique by pointing out its applicability to the present management needs: it can also overcome the ingrained perception of value management as an outdated problem-solving tool since its introduction in the 1940s. Furthermore, it emphasises the key ingredient of value management, namely

that successful knowledge creation and learning within the VM team relies on unreserved knowledge input from all the workshop participants, with their diverse backgrounds and experience.

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