

## Chapter 2

# The Concept of Value Management

**Abstract** The concept of value management was introduced to compare alternative materials in order to arrive at the one that provides the best function at the lowest possible overall cost. This chapter discusses the initial introduction of the concept to the manufacturing industry but indicates that it has since gained popularity in other sectors, including the construction industry. Owing to the varying knowledge and different levels of perceptions of the essence and principles of operation of the practice, various terms were attributed to the discipline but the most common and all-encompassing one is that of ‘value management’. As beneficial as the practice has been in countries and projects where it has been adopted, there are some risks that required attention to achieve the purpose for which it was conceived. The risks, as well as direct and indirect costs of conducting the exercise, are also identified and discussed in this chapter.

**Keywords** Construction project value • Value analysis • Value engineering • Value management • Value management cost • Value management risk

## Introduction

Every concept, procedure and practice must have been conceived, actualised, and practised at one time or the other by an individual or a group of people in an informal or formal establishment, organisation or industry. However, in some cases, there could have been an improvement in way the concept is practised due to innovation and the changing nature of people and concern for the environment. It is possible that the original name of the concept may have been changed, transformed, or modified for obvious reasons. In this chapter, the history of value management—in general and in relation to the construction industry—is discussed with the emphasis on the original goal, various names that have been and currently are being used for the concept, as well as the current level of adoption of the practice in the construction industry. Various areas of application of the discipline, risks associated with the practice, and the cost of organising value management are also discussed.

## History of Value Management

Various authors have contributed their opinions as to the original source of value management and there seems to be consensus in their views (The College of Estate Management 1995; Green and Moss 1998; Palmer et al. 1996; Finnigan 2001; Male 2002; Shen and Liu 2004; Liu and Shen 2005; De Leeuw 2006; Kelly and Male 2006; Short et al. 2008; Oke and Ogunsemi 2011; Perera et al. 2011; Shen and Yu 2012; Leung and Yu 2014; Jay and Bowen 2015; Society of American Value Engineers 2015; The Institute of Value Management 2015; Karunasena et al. 2016). Value management (VM) was first introduced in the United States of America around the 1940s and various authors have attributed the credit to an employee (Lawrence Miles) of the General Electric Company who was at the time working as a purchase engineer. This implies that the practice was first introduced to the manufacturing industry during World War II owing to the scarcity of basic resources for the manufacturing of goods for human consumption. The shortage was so acute that it was becoming difficult for the industry to meet the requirements of society. As a result, Lawrence Miles came up with a concept of finding alternative materials, components, or resources that could perform the function of unavailable ones at the least possible cost.

The first known research material in the subject of value management is that of the work of Lawrance D Miles (1972). However, several adjustments and modifications have been made to the initial principles of value management. In the case of the construction industry, these include the following:

- Improvement in the definition of value to include such elements as customer satisfaction, user satisfaction and currently sustainability issues;
- Change in the adoption of value engineering and value management in place of value analysis;
- Application in several sectors, numerous ways and for various purposes while still retaining the principle of best function at the least cost;
- Advent of systematisation methods for better analysis of alternative ideas such as the function analysis system technique (FAST);
- Improvement in decision-making techniques, from brainstorming to such principles as simple multi-attribute rating technique (SMART);
- Adoption of whole-life costing in the evaluation of a project beyond the completion of the projects, but throughout its lifespan;
- Introduction of pre-study and post-study phases at the beginning and ending of value management study respectively;
- Application and adoption of other management principles such as lean construction, total quality management; and
- Modification of initial 40-h workshop to other new techniques.

Several countries have also adopted value management in various sectors of their economy. For instance, the practice was first introduced to manufacturing companies owned by the Chinese states in 1978; Australia adopted it through the

activities of some multinational companies in 1960s; it was pioneered in Hong Kong in 1988, while it was introduced in Nigeria in the 1990s through workshops, seminars, and conferences organised by stakeholders in manufacturing, production, and the construction industry (Liu and Shen 2005; Shen and Yu 2012; Oke and Ogunsemi 2013). The following are some of the value organisations tasked with the responsibilities of regulating value and value management practices in some countries and their year of establishment:

- United States of America—Society of American Value Engineers (SAVE, 1959)
- Japan—Society of Japanese Value Engineering (SJVE, 1965)
- United Kingdom—The Institute of Value Management (IVM, 1965)
- Germany—Vereine Deutscher Ingenieure/Gesellschaft Systementwicklung Wirtschaft (VDI-GSP, 1967)
- India—Indian Value Engineering Society (INVEST, 1977)
- Taiwan—Value Management Institute of Taiwan (VMIT, 1977)
- South Korea—Society of Korean Value Engineers (SKVE, 1983)
- Brazil—Associacao Brasileira de Engenharia e Analise do Valor (ABEAV, 1984)
- Canada—Canadian Society of Value Analysis (CSVA, 1984)
- The Netherlands—Dutch Association of Cost Engineers, Special Interest Group Value Management (DACE, 1984)
- Hungary—Society Hungarian Value Analysis (SHVA, 1990)
- Saudi Arabia—Arabian Gulf Chapter (AGC, 1990)
- Spain—Associacio Catalana d'Analisi del Valor (ACAV, 1990)
- Australia—Institute of Value Management (IVM, 1991)
- France—Association Francaise pour l'Analyse de la Valuer (FAFV, 1993)
- Hong Kong—Hong Kong Institute of Value Management (HKIVM, 1995)
- Portugal—Associacao Portuguesa para a Analise do Valor (APAV, 1998)
- Malaysia—Malaysian Institute for Value Management (MIVM, 1999)
- China—Value Engineering Society of Beijing (VESB, 2001)

## **Aim and Definition of Value Management**

According to Miles (1972), value management was introduced to examine and analyse alternative materials for the purpose of selecting the one that provided same, better, or best function at the least cost. Value management was conceived and practised at the early stage of project conceptualisation as a result of the need for innovation, novelty and advancement of existing practice. There are possibly different views of values from various construction participants, but the aim of value management practice is to unify these differences in order to achieve the project's stated goals using minimum resources (The Institute of Value Management 2015). VM entails using every possible resource and opportunity to improve the value of a component (system, material, element or resources).

The objective of VM therefore is to provide the best function at the lowest possible overall cost. As simple as this may be, some important variables are considered to be of importance to the practice of value management (Miles 1972; Palmer et al. 1996; Shen and Liu 2004; Short et al. 2008; Hewage et al. 2011; Perera et al. 2011; Shen and Yu 2012; Oke and Ogunsemi 2011; Oke and Ogunsemi 2013; Kelly et al. 2014; Oke et al. 2015; Yekini et al. 2015). These include the following:

- Management process;
- Systematic approach;
- Teamwork and multi-disciplinary principle;
- Analysis of function technique;
- Best value concept;
- Stages of project or product;
- Whole-life cost concept;
- Value for money principle; and
- Issues relating to investment return.

Value management is a management process that involves the control, monitoring and managing of project team members, redesigning of spaces and components, appropriate selection of materials, as well as the optimisation of the process of producing a product in order to meet the stated project goals. It is a holistic process of managing all forms of resources and this differentiates the practice from other cost-cutting or cost-saving exercises. The second point is that value management adopts a systematic approach that is logical, methodological and organised so that members of the team can easily participate and the approach can be adapted for subsequent exercises. There are various approaches to conducting a value management workshop, but regardless of the approach, an agreed laid-down principle must be followed in planning, organisation, conducting the actual workshop, and reporting the findings or recommendations to clients or stakeholders or commissioned agencies through an appropriate feedback mechanism.

Every technique or management activity has its way of operation and in most cases, a particular set of people are involved because of their profession experience, job specification, or employment status, among others. However, value management is a multi-disciplinary technique where people and individuals from various backgrounds and of diverse dispositions are selected and assembled in a team to brainstorm and agree on the optimisation of function and cost. Although there are various suggestions regarding the set of people that should form a value management team, it is worth noting that a successful value management exercise involves both professionals and non-professionals in construction and other concerned fields. In construction related activities, for instance, it is necessary to engage stakeholders with knowledge of construction who are mainly participants and stakeholders in the industry. These stakeholders include construction professionals, contractors, value management expert among others. The stakeholders should also include some members of the original design team for ease of application of the recommendations emanating from the value management exercise to the main work.

Further to the engagement of these set of stakeholders, modern value management principles also advocate for the involvement of non-professionals that are able to bring a 'non-professional perspective' to the project. Moreover, there are projects stakeholders who are directly or indirectly impacted by the execution of projects. For instance, an accountant who is a non-construction professional may be involved as a member of the construction value management team and it is unlikely that some of the suggestions and ideas coming from this source may be more beneficial to the project than those of the professional members. In a shopping mall project, for instance, it is not out of order to involve the users, that is, individuals who will eventually rent and use the facilities, in the value management team. It may also not be surprising that some of the elements that are part of the original design may be of no value to them, that is, may perform no function, which is the principle on which value management is based.

An important element of value management is the principle of functional analysis. This stems from the fact that the function of a product or element may differ, depending on the point of view of the individuals concerned and the purpose of the project under consideration. For instance, a structural column at the entrance of a building may be viewed from different angles by various construction professionals. To an architect, it may have been introduced for aesthetics, whilst an engineer will be concerned with the structural aspect of the column, and the quantity surveyor (cost estimator) will likely focus on the cost implication of such a column. To guide against misconceptions and individual views, it is fundamental for a value management team to highlight all the elements or components of a project or process and their functions. These functions can be identified in term of primary (main) and secondary ones which are related to quality, reliability, performance, satisfaction, and the like. This thus helps members of the value management team to focus on a particular and unified direction while discussing a specific element or components of a project.

The best value concept is linked to functional analysis, whole-life cost, return on investment, and stages of the project under consideration. Value has been explained in chapter one of this book under value in construction. It is also discussed in relation to cost, price, and worth in Chap. 3. The value of a product or element is related to the function and cost. This implies that for every product or element, there are some unnecessary costs as a result of unnecessary materials, activities or processes that add little or nothing to its function. Eliminating these costs will help in providing best value and subsequent value for money for clients and stakeholders. The best way to determine unnecessary cost in a product or element is by identifying alternative materials that provide the same, or nearly the same, function or serve almost a similar purpose as the item under consideration. Comparing the elements or products from the same view of the function they are meant to provide based on their life cycle cost will help in selecting the best alternative material that will give the best value.

In the evaluation of alternatives, one of the principles of value management is the consideration of different stages of a project and how the alternatives materials will fit. For instance, in construction, the stages of a construction project are from conception to inception, planning, actual construction, completion, usage, conversion, and demolition. The best alternative materials should not only be the cheapest but the duration or stages of the main project should be a major deciding factor. A temporary project that is built to last for just two years will require materials for the same lifespan. This leads to the principle of re-using materials which is more related to whole-life costing.

The principle of considering the stages of a project is that the best alternative material should be adopted, provided it will last the duration of the main project. Alternatively, cheaper material could be considered even if it has to be replaced before the end or demolition of the main project. Whole-life costing is related to all associated costs of a product or element, including initial, running, and demolition or re-use costs. The term has evolved over the years, from 'life costing' to 'life cycle costing', 'whole-life costing' and to the currently favoured, 'whole-life cycle costing'. The principle is that it will be unfair to judge products or elements only by their initial or running cost but the total costs that will be required for the entire life of the project should be considered. This is where the term 'overall cycle cost' associated with value management is derived from.

Every project is a form of investment with an expected direct or indirect return. The return can be in the form of cost-related gains, services for people, and meeting the need of individuals, which is related to the principle of satisfaction. Value management takes into consideration value for money and return on investment of clients, owners, financiers or sponsors of the project using various investment-related approaches. This aspect also considers the whole life of the project, component, or product in judging and selecting an appropriate investment appraisal technique. Ranging from the simple concepts such as pay-back period, internal rate of return, cost-benefit analysis, to the recent computer-based algorithm methods, the essence is to use mathematical principles to compare alternative materials with the notion of selecting the one with best value that provides the best return on investment.

Judging from the key principles of value management, this book therefore defines the concept of value management as a systematic and methodological project management process that adopts a diverse and multi-disciplinary approach of analysing the function of elements or products, using the whole-life cycle principle, through the stages of a project for the purpose of achieving the best function of the whole project at the lowest possible cost, and thereby enhancing best value and better return on investment. The earlier explanations of key areas of value management suggest that, for the process to be effective and successful, it requires a basic understanding of the principles by team members, especially the facilitator.

## **Value Management, Engineering and Analysis**

As discussed in chapter one under ‘perception of value management’, this section explores the concept of the practice with the emphasis on the origin and meaning of various terms that have been used to describe VM. Such terms include value engineering, value planning, value analysis, value control, value methodology, value improvement, and value assurance. Perera et al. (2011) note that value management originated as value analysis in the United States of America. However, over the years, authors from the region have adopted the use of value engineering to describe the term, with the concept adopting the same principles of value management explained earlier under the ‘aim and definition of value management’ section of this chapter. The Society of American Value Engineers (SAVE) has adopted the term ‘value engineering’ as observed from their name and public reports published by the body over time. This implies that the term has metamorphosed from ‘value analysis’ initially proposed by Lawrence Miles during the World War II to ‘value engineering’ in the United States of America.

Published materials from the United Kingdom (UK) have adopted ‘value management’ to describe the process. A similar body to SAVE, that is, The Institute of Value Management (IVM), is also tasked with the responsibility of controlling the practice and process of the discipline in the UK. Authors affiliated with the USA, especially those from countries that adopt American English, prefer the term ‘value engineering’ while those from regions and countries with links to the UK and adopt British English usually use the term ‘value management’. Only very few recent sources adopt any of the remaining described affiliated terms while most authors described them to be part of the main process of value management, or value engineering, as the case may be.

### ***Value Methodology***

Value methodology refers to the process, principles and techniques adopted in the conduct and practice of value management and it includes those practised at value planning, engineering, and analysis phases.

### ***Value Planning***

Value planning is an aspect of value management that is associated with achieving project value during the planning stages of a project. For instance, in construction this is associated with value at the early stage, namely, conception, inception,

feasibility, viability, and other planning-related activities of the project. Value planning is a sub-set of value control and they are both derived from the principle of cost planning and cost control, which are common terms for management of developmental projects.

### ***Value Control***

Value control in respect to value management is concerned with managing value throughout all stages of a project where cost control is practised. This indicates a direct link to cost control which is not the same as value management, justifying the reason why the term is not common among value management experts, analysts, or researchers.

### ***Value Analysis***

Value analysis is associated with the post-construction or completion phase, indicating that the practice is related to the value of completed project. This is inclusive of the use and re-use stages of a project. Management is a general term inclusive of improvement and assurance, implying that ‘value improvement’ and ‘value assurance’ are synonymous with value management.

### ***Value Engineering***

The closest term to ‘value management’ is ‘value engineering’ which is described as the study of value at the design, construction, and engineering stage of a project (Finnigan 2001). Moreover, De Leeuw (2006) concludes that judging from the principle surrounding the concept and conduct of the practice, it is more related to ‘value’ and ‘management’ than that of ‘value’ and ‘engineering’.

Recent scholarly works from some authors reveal the use of the above identified terms, e.g. ‘value planning’ by Karunasena et al. (2016) and ‘value methodology’ by Leung and Yu (2014). However, most authors agree that value management encompasses other terms in that each of the remaining terms are related to value management at specific stage(s) of a project (Perera et al. 2011; Oke and Ogunsemi 2013; Karunasena et al. 2016). In view of this, value management explains all the concepts, principles, processes, and participants required for each stage of the discipline in a project. This is necessary for the successful implementation of the discipline and also underscores the reason for its adoption in this research book.



## Value Management and Construction Industry

Value management was first introduced to the manufacturing industry but it has gained wide popularity in other sectors of the economy, including the construction industry. It was introduced to construction in the USA and UK in the 1960s and 1980s respectively (De Leeuw 2006; Kelly and Male 2006; Perera et al. 2011; Kelly et al. 2014). Before the introduction of value management in the UK, the existing practice of cost planning and control and its importance and popularity among stakeholders made the acceptance of value management difficult. For this reason the practice of value management did not enjoy the attention and popularity in the UK as it did in the USA.

As a result of the benefits associated with value management in the USA and UK, the practice has spread to other continents, regions, and countries of the world. While it has gained popularity in most construction industries of developed countries, it is worth noting that it has not been fully embraced in some developed and most developing economies (Shen and Liu 2004; Liu and Shen 2005; Oke and Ogunsemi 2011; Jay and Bowen 2015). The possible barriers, drivers, and benefits (or prospects) of the practice for its acceptance and rejection in some national states are discussed in part five of this book, encompassing Chaps. 10, 11, and 12 respectively.

Clients, professionals, contractors and other stakeholders in the construction industry have benefitted considerably from the application of value management where it has been accepted and adopted. In the construction industry, value management can be described as an orderly, organized, and systematic construction project management process that adopts a multi-disciplinary and diverse approach, geared towards the achievement of best functions of elements, materials, and other construction resources at the least possible overall cost, with the aim of maximizing return on investment and realizing best value for money for construction clients.

## Risks of Value Management in Construction

There are risks inherent in every activity, including the ones that are conceived for the purpose of managing or controlling people, activities or processes. Management principles are combination of various tools, techniques, procedures and methods for the purpose of planning, controlling and regulating people, events, procedure or practice. It is expected that some risks are inherent in the adopted tools which form part of the risks of the management principles. As beneficial as value management has proven to be, there are some risks that need to be monitored, evaluated, and responded to for the process to be smooth, worthwhile and successfully applied in the construction industry.

### ***Sufficient Time for the Study***

One of the major risks to the adoption and acceptance of value management in the initial period is the concern over the period of time it takes to complete an exercise. The earlier approach, and still the most common, is the 40-h workshop which is about a working week (using normal eight working hours in a day). It has been argued that most intending value management participants find it difficult to be away from their day-to-day activities for a whole week and as a result, several other approaches have been introduced such as a three-day workshop. However, for a value management exercise to be meaningful and productive, adequate time should be devoted to complete each of the recognised stages.

### ***Completeness of Cost Information***

Another risk associated with value management practice is the lack of full and necessary information of all the costs associated with an element or component. The use of some investment appraisal techniques with the emphasis on some economic factors has helped to mitigate this risk but the fundamental principle of all project planning and evaluation techniques, including various investment appraisal and life-cycle costing, is based on the probability of occurrence. Issues of cost become more problematic in economies where it is difficult to predict inflation and other economic indices that affect the cost and price of materials and resources. As a result of these challenges, it is possible to make incorrect assumptions regarding alternatives which can mar the success of the value management exercise.

### ***Related Functions of Components or Elements***

Items or elements with related function are usually difficult to quantify. This is for two reasons: there are components or elements of building that serve more than one unique function and it is sometimes difficult to determine their primary role for specific projects as it may vary from one project to another. A very good example is a window unit which serves the purpose of ventilation, aeration, and a source of natural lighting. The secondary functions might include sound insulation, or water insulation, depending on the position. The second aspect relates to two or more elements performing the same function: it is possible they all perform the function as a primary role or it may be a secondary function to one or some of the elements. Common in this category are wall, doors, and windows. Regardless of where they are located, externally or internally, the wall has its basic function but windows and doors are expected to perform a wall function in addition to their original function. The two scenarios sometimes make it difficult for a value management team to

apportion the right function to specific elements, which is a potential risks that can render the whole process meaningless and unsuccessful if not properly examined.

### ***Uniqueness of Construction Projects***

No two construction projects are the same, even if they possess the same characteristics in terms of similarity, same client, same contractor, located in the same area, and procured through the same means. The distinctiveness of a project affects the function of some elements and components of the project. For example, a column can be introduced as an aesthetic feature for a project, but may also serve as one of the main structural members of another. This implies that the value management team should be able to identify the functions of various elements bearing in mind the uniqueness of the project in consideration.

### ***Quality of End Product***

Predicting the end-product quality of an element or component is one of the tasks that must be given the necessary attention in determining a product that will perform the best function at the least possible cost. This is better achieved through examination of current or past situations where the product has been used. However, there are three major issues with this method. The first concern is the availability of historical data and the required information on the product; another is the analysis of the difference in exposure to weather and other conditions between the present or past and the current situation while the last issue relates to examining the conditions of the use of the products.

### ***Selection of Team Members***

A major attribute of value management is that it is multi-disciplinary in that members of the team are varied and unlikely to be drawn from the same area of practice or sector of the economy. However, the risk associated with this attribute is the selection of the wrong people who may contribute nothing or negatively to the success of the practice. It is better if the team members accept the practice and have previous experience of value management workshop but the latter criterion should not be mandatory, depending on the nature of project and the set of people to be involved. Some project stakeholders from the design team are expected to be members of the team: as much as it may be difficult to choose from these people, it is more difficult to select other members who were not part of the original design team. As explained under the ‘aim and definition of value management’ section of

this chapter, the other members may be professionals and non-professionals. The onus of the selection therefore lies with the facilitator and this must be done carefully to guide against a choice of members who will add no value to the exercise.

### ***Representation of Original Design Team***

For an effective value management exercise, it will be better if some of the existing design team members of the project under consideration are included as members of the team. This can contribute positively to the exercise through the generation of novel idea and ease with which the value management outcomes can be adopted for the project. However, it becomes a risk if the existing team members are unwilling to agree and accept changes to the project that arise from the exercise. Another issue is the establishment of criteria for the selection of members of the original team since not all can be invited to be part of a value management team. The number will be too large, which is one of the barriers to an effective team. The cost of paying for their service is another factor to be considered. It is therefore necessary to ensure that not only 'important' or 'influential' members of the design team are selected but that those who have the time and ability to contribute positively to the success of the exercise are considered as members.

### ***Choice of Facilitator***

Value management facilitators are value management team leaders who possess the necessary leadership, team control, and other management skills, competence, and attributes necessary to conduct a value management exercise. One of the key characteristics expected of a facilitator is the knowledge, understanding, and experience of a value management workshop. Depending on the value management methodology adopted, such a person should be able to direct, guide, and control other team members in line with the principles and practice of the discipline. The importance of a good and knowledgeable facilitator cannot be over-emphasized as the choice can determine the success or failure of the exercise.

### ***Support for the Practice***

A major risk in the adoption of value management is the level of support from clients, statutory or regulatory bodies as well as from top management staff of an organisation. The risk may not be pronounced in countries where the disciplined has been embraced and is currently adopted as a project management tool.

However, in countries where most of the construction stakeholders still perceive the practice as another cost-cutting exercise geared towards extorting more money from clients, the outcome and recommendations from the team may even be discarded, rendering the whole process a waste of time and resources with no impact on the project at hand.

### *Timing of the Exercise*

Another risk that can hinder value management is the choice of the right stage of a project at which to implement it. Some schools of thought believe that it should be carried out at the initial phase before the production of final drawings. The problem with this is that there may not be sufficient information for the team to work with and make reasonable suggestions and recommendations. Another school of thought is of the opinion that the exercise should be introduced after the production of detail drawings. There are two issues with this: one is that the project will have to be delayed for at least a week for the exercise to be conducted. The other issue is that recommendations from the exercise will usually lead to amendments and alterations of the existing design which may be at extra cost to the design team. This may eventually lead to a further delay in the actual commencement of the project.

An uncommon and unpopular opinion is for the practice to be introduced as soon as the commencement of site activities. A major base of argument of this view is that before the commencement of a project, there should have been sufficient information for a value management team to work with and that will enhance the success of the exercise. However, this has many disadvantages as the feedback from the exercise will surely slow down the pace of work, may lead to rework, and an eventual waste of resources regarding part of work that would have been completed before feedback from the value management team.

The right timing may depend on projects', clients' and other stakeholders' characteristics. However, regardless of the timing selected for conducting the exercise, the risk must be appropriately evaluated so as not to affect the overall performance of the project. This is further explained in Chap. 8 as one of the principles of sustainable value management.

### *New Concept for Stakeholders*

This risk is concerned with the initial acceptance of the practice of value management by stakeholders, especially members of the original design team for a project. The conclusions and recommendations of value management exercise can alter or change completely the existing proposals made by various members of the design team. This may not be welcomed by some of the members, especially if they perceive it as challenging their professional competence and capability.

## **Cost of Value Management in Construction**

This section explains the various costs associated with a value management exercise. These costs are incurred before, during, and after the exercise. This is one of the challenging areas when convincing clients and other stakeholders to adopt a value management exercise for their project. However, observations from previous projects where value management was carried out and the recommendations adopted, revealed that the cost of a value management exercise is relatively cheap. The cost is low when compared to the added function to the project as a result of the exercise and the eventual savings on the overall project cost. The major costs of conducting a value management exercise are explained as follows.

### ***Cost of Facilitator***

A facilitator is an experienced value manager tasked with the responsibilities of planning, controlling, and managing a value management exercise and reporting the outcome to the clients or whoever has commissioned the exercise. It therefore follows that a facilitator is a professional who devotes his or her time to the success of the exercise and as such, must be paid accordingly. The cost may include a professional fee, transport costs, and the like. The payment may depend on several factors including the experience of the facilitator, the type and nature of the project, the mode of engagement, as well as the size and cost of the project. The payment may be made according to an approved scale of fees basis, based on man-hour rate, or any other method which must be agreed upon and approved prior to the commencement of the exercise.

### ***Cost of Other Participants***

The participants are other members of the value management apart from the facilitator. These people may or may not be experienced in value management, professionals, experienced in construction, and members of original design team. The identified attributes affect the cost of the individuals and their payment may depend on the same factors as for the facilitator. The payment method should be decided and settled before the exercise and it can be through any of the remuneration means discussed for the facilitator.

### ***Cost of Venue***

A conducive environment with basic facilities and amenities is fundamental to conducting productive meetings. Judging by the expectations from the value management exercise, the venue is expected to be good enough for members of the team to be able to perform their function without any form of hindrance. Depending on factors such as the type of client, the nature of project, and the procedure of the workshop to be adopted, the cost of the venue does not only include the cost of securing or renting the venue but also that of siting the venue in the right environment. If a 40-h procedure is to be adopted, it is better for it to be organised as a retreat in a secluded place, preferably a hotel or guest house with conference and accommodation facilities. This will reduce the stress of team members travelling from one area to the other will also ensure that members can have informal discussions after the official session is over. An alternative is an E-workshop where discussions are held via the Internet, thus eliminating the cost of a venue. However, this comes with the many disadvantages associated with the use of modern day information and telecommunication technologies (ICT) if not properly managed.

### ***Administrative Cost***

Apart from the provision of basic social amenities, it is also necessary to allocate cost for administration purposes. These may include insurance, office supplies, wages and benefits of accounting staff, wages and benefits of secretary(s), wages and benefits of legal personnel, among others where applicable.

### ***Information Gathering Cost***

A key principle of value management is the comparative analysis of alternatives. This implies that the more alternatives there are and the more detailed information is available about them, the better the ability of the value management team to brainstorm and identify the best alternative, using the principle of function and cost. One of the costs associated with value management is that of collecting information regarding function, cost (initial, annual, running, maintenance), lifespan, and the physical characteristics of elements or components to facilitate deliberation by team members.

## ***Indirect and Other Costs***

These are costs that are not directly associated with the actual value management exercise but are necessary in achieving the overall goal of the practice. The indirect cost may include the cost of buying equipment to actualise recommendations emanating from the value management exercise, the costs required in altering or changing the original or existing design to accommodate proposals from the exercise, and the general cost of following up on the understanding and the implementation of the recommendations.

## **Summary**

The concept of value management was introduced to compare alternative materials in order to arrive at the one that provides the best function at the lowest possible overall cost. The chapter revealed that the concept was first introduced to the manufacturing industry but it has since gained popularity in other sectors, including the construction industry. Owing to the varying knowledge and different levels of perceptions of the essence and principles of the operation of the practice, various terms were attributed to the discipline but the most common and all-encompassing one is that of value management. As beneficial as the practice has been in countries and projects where it has been adopted, there are some risks that require attention in order to achieve the purpose for which it was conceived. The direct and indirect costs of conducting the exercise were also identified and discussed in this chapter.

The purpose of explaining value management as a concept in this chapter is to be able to build on the knowledge for subsequent chapters in order to achieve the objective of this book. For instance, Chap. 3 explains value management as a discipline, chapters seven and eight discuss the adoption of the discipline for other construction-related practices while chapters nine, ten, eleven, and twelve build on this to explain the stakeholders, barriers, drivers, and benefits of value management respectively.

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Sustainable Value Management for Construction  
Projects

Oke, A.E.; Aigbavboa, C.

2017, XVII, 195 p. 1 illus., Hardcover

ISBN: 978-3-319-54150-1