

Managing Value than Managing Cost.



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Managing Cost to keep costs down has been a frequently applied measure to improve competitiveness. However, merely keeping the cost down is not enough; the trick is to manage it with efficiency and effectiveness. Here is where managing the value plays its role. Managing cost seeks to do a thing right (efficiency) while managing value seeks to do the right thing (effectiveness). Most people in the industry believe that managing value is done to reduce costs. Managing value does usually result in cost reduction, but it is very different from all other cost reduction techniques. This article attempts to give a clear picture of the above distinction.

How value management differs from the conventional QS process of cost analysis and cost planning.

‘Value Management’ in relation to a construction project, can be defined as an organised approach to the identification and elimination of unnecessary cost where unnecessary cost is that which does not provide use, life, quality, appearance or customer features.

The principal benefit of Value Management is the reduction of cost while obtaining the best value for money.

The maximum cost reduction potential through VM to a construction project occurs early in the briefing/design process.

VM is a team approach to the identification of design and construction solutions which offer the best value for money with regard to the functional requirements of a client.

It is a common criticism of value management that it

is no more than a cost reduction/cost of substitution exercise, i.e. acceptance of the technical solution given and attempting to reduce the cost of this solution. Quantity surveying practice is generally concerned with this approach. Value management on the other hand searches for alternative acceptable technical solutions, evaluates these and presents them as assessed options.

In other words VM is a problem-solving approach offering customers focused value learning, alignment and realisation. The intention of VM, to implement value-added solutions, is an iterative, non-linear (complex), multidisciplinary approach centred on:

- Creating a structure which permits understanding of the context and intentions of various players.
- Identifying and analysing core and other aspects which are of value to the customer using techniques including functional analysis.
- Brainstorming possibilities of alternative ways of achieving the customer-identified high value items.
- Interpreting (eg. Life cycle cost, schedule) the possibilities to distil high quality ideas.
- Developing a structure appropriate to the implementation of value added solutions.

Cost analysis and Cost planning process.

The conventional QS process of cost analysis, cost planning and cost controlling is designed to achieve a balanced expenditure and to control the design development so that the client’s financial commitments are met.

A cost analysis is a systematic breakdown of cost data to facilitate examination.

The method used for building work is generally as follows:

- Analyse the cost of the project in items of functional elements such as foundations, structure, external walls, services, finishes, roof, etc.
- Break down the total cost of each element and express it as a cost per square meter of Gross Internal floor Area (GIFA).

The cost analysis provides the cost relationship between different sections of a building and allows one building to be compared with another. Analysis is normally used to help in the preparation of cost plans for future buildings.

Cost planning is a method of providing cost data which will assist the designer in making design decisions. The system will provide the information in a form which is easily understood by all the design team and also the Client.

The Cost planning process will achieve a balanced design solution, cover the client's expectations with requirements and be carried out throughout the whole design period.

In the cost planning process the following are the main sections:

- To set realistic cost limits
- To decide how this money is to be spent
- To check that the money is being spent as intended.

The cost planning process includes the following functions, from the project inception to the tender analysis. (Post-contract cost control systems are excluded due to the comparison is this the right word between VM vs. Cost planning.)

- Elemental cost planning during the scheme design or sketch design stage.
- Comparative Cost planning before scheme or sketch design stage.
- Preliminary estimates during the design development process and method of estimating are as follows:
- Unit method – Used in brief stages of the project –
Car park – Cost per space
Hotels – Cost per guest room
Schools – Cost per student place
Hospital – Cost per bed & additional for operation theatres, X ray rooms, cardiology unit, and specialised equipments etc.
- Superficial method – used in early stages of the project. This method is mainly based on gross internal floor area ie. the area covered between the internal faces of external walls of the building and additional allowances for items such as external works piling, etc.
- Elemental method – this method is an extension of the superficial method and is mainly based on elemental cost planning. This method comprises major elements such as substructure, superstructure, internal finishes, fittings and furnishings, services, external works. These group of elements can be expanded further as requirement of the building
- Approximate Quantities method – this method is used in later stages of the design process and is always used for cost checking purposes during the detailed design stage.

A comparison between VM and Conventional QS process of cost analysis and cost planning

In view of the above details and the summary of the comparison between VM and the Conventional QS process of cost analysis and cost planning, it should be

Value Management	Cost Planning
Work shop	
The Job Plan	RIBA plan of work
Selection of high cost areas	Allocation historical cost data
Generation of alternatives	Consideration of alternatives
35% design stage	Iterative and on going process
External multi-disciplinary team	Multi-disciplinary approach
	Cost monitoring

noted that the VM process is to identify and eliminate the unnecessary cost.

In other words, VM is basically a cost reduction exercise without affecting the client's requirement or losing architectural features. Also it mainly involves eliminating unnecessary cost to the project.

The principle benefit of Value Management is the reduction of the cost while obtaining the best value for money.

The conventional QS process of cost analysis and cost planning is that procedures are set out to provide cost advice to designers as well as clients while keeping track of the cost without affecting the overall approved project cost plan.

The relationship between value management and value engineering

Value Management:

A structured process of dialogue and debate among a team of designers and decision-makers during an intense short-term conference. The primary objective of value management is to develop a common understanding of the design problems, identify explicitly the design objectives and synthesise a group consensus about the comparative merits of alternative courses of action. Value management makes no pretence of finding optimal answers; it is solely concerned with establishing a common decision framework around which participants can think and communicate.

In other words Value management is a proactive, creative, problem-solving or problem-seeking service which maximises the functional value of a project by managing its development from concept to use.

Value Engineering:

A systematic procedure directed towards the achievement of the required function at least cost. Value engineering is based on the assumption that all parties share an understanding of the functions being provided. Further it is assumed that all feasible design alternatives provide the same level of functional performance and can therefore be assessed on the basis of cost alone. Within this frame of reference, an increase in value can be directly related to a reduction in cost.

In other words, value engineering is a disciplined procedure directed towards the achievement of necessary function for minimum cost without detriment to quality, reliability, performance or delivery.

In view of the above facts, it should be noted that the relationship between VM and VE, that value engineering is a part of the value management process.

The advantages and disadvantages of the use of value management techniques for a development.

Advantages:

- Proof that the initial design was indeed the best
- Proof to the owner that he was receiving good value for money.
- Introduction of higher quality products.
- Best up-to-date technology at least cost.
- A clear focus on project objectives
- An alternative view of the design.
- Improved site management structures.
- An opportunity for a detailed analysis of the required project.

Disadvantages:

- More time required for the design than normal. However, this could be allowed for in the programme.
- Work interruption can be more costly than potential savings if the changes are made during the construction.
- Introduction of a second design team (Value Management Team) may cause conflicts between original design team and the VM team.

The methodology conventionally used to implement value management and the problems which may arise.

Value Management Workshop Process

VM studies are performed in three distinct parts: 1) pre-workshop preparation 2) workshop study and 3) post-workshop implementation.

The task-flow activities are as follows:

Pre-workshop

- Project Coordination:
Team members, schedule, agenda
- Data Preparation:
Facility criteria, drawings, budget
- Modeling:
Quality program (space), cost, energy, risk

Workshop

- Information Phase:
Secure facts, determine cost, fix costs on specific criteria and requirements
- Function Phase:
verb/noun definitions of function, evaluate relationships (FAST diagramming) and cost these functions.
- Creativity Phase: Establish positive thinking; develop creative ideas in a team setting.
- Evaluation Phase:
Refine and combine ideas, establish costs on all ideas, develop functional alternatives and evaluate by comparison.
- Recommendation Phase:
Present proposals that resolve the study issues and motivate to action.

Post-Workshop

- Study Report
- VM Proposal Acceptance Meeting
- Implementation of Proposals
- Project Follow-up

Pre-Workshop

The success of the VM study is largely dependent on proper preparation and coordination.

Information and documents are furnished by the designer and owner and are distributed to the team to prepare them for their area of study. All participants are briefed on their role and responsibility during the study. The pre-study effort includes the following activities:

- Identification of constraints to the VM study
- Review of project documentation and distribution of information to team members, finalization of team and team assignments.
- Preparation of other models, as appropriate (energy,

time, distance, risk, etc.)

- Finalization of arrangements for workshop and location

The VE team relies on the project manager, design team, construction manager and the owner for the completeness and organization of the material to be furnished. The following data is normally provided for study:

- Community Impact Statement
- Facility Program and Objectives (Basis of Design)
- Design Standards & Criteria
- Master Site Plan (including Site Analysis)
- Design Calculations (as appropriate)
- Soil Borings
- Design Drawings and Specifications
- Estimate of Construction Cost (including back-up)
- Architectural and Engineering Concepts Description

Quality Model

The narrative expression of the quality model are the "Owner expectations" of the project. The model identifies key issues to be addressed by the project design regarding operation effectiveness, engineering performance, site and building image /aesthetics, schedule, cost, Operation and Maintenance flexibility, employee comfort, safety, environment, etc.. The VM team uses this model to help identify qualities of the present design in need of value improvement.

Program (Space) Model

A program model is prepared for the project to identify the functions of major spaces within the building. The programmed area is compared against the actual space allocated at this point in the design. The VM team uses this model to focus their attention on selected spaces which differ (higher or lower) from the program.

Cost Model

Cost information used during the study is normally prepared by the quantity surveyor prior to the study. A cost model is then prepared from this information. The cost model distributes costs by function and is used by the VE team to help identify areas of potential savings, when compared to similar facility value standards.

Economic Factors

During the value study, construction cost and life cycle cost summaries are prepared for each element of the project. Economic data and assumptions, used for the life cycle cost comparisons, are provided by the owner. The following is an example of this data:

Discount Rate	10% (compounded annually)
Analysis Period	20 years

Present Time	Midpoint of construction
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Equivalent Approach	Present worth method
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Inflation Approach	Constant Sterling Pounds
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Differential Escalation Rates

Electrical Energy	0%
Natural Gas	0%
Other	0%

Present worth Annuity (PWA) Factors

Electricity	8.514
Natural Gas	8.514
Other	8.514

Single Amount Present Worth (PW) Factors

Year 10	0.614
Year 12	0.557
Year 15	0.481
Year 20	0.377

Workshop

During the actual workshop portion of the project study, a five step approach is followed. This methodology is an organized approach for searching out high cost areas in the design and developing alternate solutions for consideration. The workshop session uses a multi-disciplinary team following an agenda which details the five step methodology to arrive ultimately at recommendations for implementation.

The workshop follows five key steps

- Information Phase
- Function Phase
- Creative Phase
- Evaluation Phase
- Recommendation Phase

Information Phase

At the beginning of the workshop, it is important to understand the background and decisions that have influenced the development of the design. For this reason, the designer normally orally presents the design to the VM team. The site, building layout and architectural, structural, mechanical and electrical systems are discussed.

The information phase also includes further refinement of the quality. Program and cost models are prepared before the workshop session. These models are updated based on information received during the designer's initial presentation. These models also form the basis of the VM team function analysis, which follows.

Function Phase

The required functions of the project are the controlling elements in the overall value approach. This procedure is beneficial to the VM team because it forces the participants to think in terms of function and cost associated with that function.

In order that the team might better understand the overall function of the project, a 'Function Analysis Systems Technique' (FAST) diagram is prepared. Reading from left to right, it is used to help explain how the designer chose to solve the functions. The FAST diagram, when read from right to left, also helps answer why these functions are important to the owner.

Preparing the function analysis of high cost systems also helps to generate many of the ideas that eventually result in recommendations. This forces the team to speculate on alternative solutions to the proposed design.

Creativity Phase

This step in the workshop involves the listing of creative ideas. During this time, the team thinks of as many ways as possible to provide the necessary functions within the project at a lesser cost to the Owner.

During this creative section, judgment of the idea is not permitted. The VM team is looking for quantity and association of ideas which will be screened in the next phase of the study. Many of the ideas brought forth in the creative phase are a result of work done in the function analysis. This list may include ideas that can be further evaluated and used in the design.

Evaluation Phase

In this phase of the project, the VM team judges the ideas resulting from the creative session. The advantages and disadvantages of each idea are discussed. Ideas are ranked based on savings potential, redesign time and Client acceptability. Ideas found to be not worthy of additional study are ranked low and those ideas that represent the greatest potential are ranked high, and then developed further. A weighted evaluation is applied in some cases to account for impacts other than costs. Ideally, the team would like to develop all ideas, but time constraints usually limit the number that can be prepared. The ideas ranked highest by the team are selected for further review with members of the design team for their input.

During the evaluation phase many of the ideas are expanded into workable solutions. This development consists of the recommended design, estimated initial and life cycle cost comparisons and a descriptive evaluation of the advantages and disadvantages of the proposed recommendations. It is important that the VM team convey the concept of their recommendation to the original design team. Therefore, each recommendation is prepared with a brief narrative to compare the original design method to the proposed changes. Sketches and design calculations, where appropriate, are also prepared in this part of the study.

Recommendation Phase

The last phase of the workshop is the presentation of the recommendations. The recommendations are further screened by the VM team before final presentation. An oral presentation of results is made on the last day of the workshop to the owner and original design team. A draft report of recommendations is also submitted at this time. The recommendations, the rationale that went into the development of each proposal and a summary of the cost savings are presented so that the design team and owner

can initiate and evaluate the VM recommendations prior to the receipt of the formal VM report.

Post-Workshop

The post-workshop portion of the VM study includes preparation and submittal to the owner and the design team. The VM report incorporates the recommendations developed in the workshop. The design team responds by either incorporating the recommendations into the design or presenting reasons for rejecting them. A summary of the cost is normally also included in the designer's response report which, together with the VM report, is submitted to the Owner for review. These two combined reports form the final VM report.

This post-workshop effort also requires continued project follow-up to resolve any questions remaining with the VM proposals. Either the VM team or the appropriate VM team member responsible for the proposal in question works directly with the design team to finalize implementation.

The above is the methodology conventionally used to implement the value management process to the project and the problems which may arise are as follows:

- Due to the value management process, additional time is required for the project designing process.
- Additional fees for the value management team might not be allocated in the original cost plan. However, these fees could be absorbed from the eliminated cost saving to be found from the VM process.
- Arguments, disagreement during the VM workshop.
- Personal differences and value judgements problems