

Value Management: A Tool for Sustainable Infrastructure Cost Management

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Outline

- ❖ Introduction.
- ❖ Initiating VM.
- ❖ Suitability of VM.
- ❖ SVM model
- ❖ Considerations for SVM
- ❖ Requirements for SVM
- ❖ Principles of SVM
- ❖ Stages of SVM
- ❖ Conclusion.



Introduction

- ❖ Role of the construction industry.
- ❖ Changing measures of project success.
- ❖ Advancement in technology and globalisation.
- ❖ Popularity of sustainable goals.
- ❖ Sustainability in construction.
- ❖ Value management as a tool.
- ❖ Sustainability in value management.

What is VM?

- ❖ It is a logical and sequentially organized process
- ❖ Its major objective is the use of alternative materials or techniques
- ❖ It involves all stakeholders both professionals and non-professionals
- ❖ Its main purpose is to improve function
- ❖ It can be replicated in other projects
- ❖ It involves brainstorming to creative new ideas
- ❖ Reducing overall cost of a project

Best Function at the lowest possible overall cost

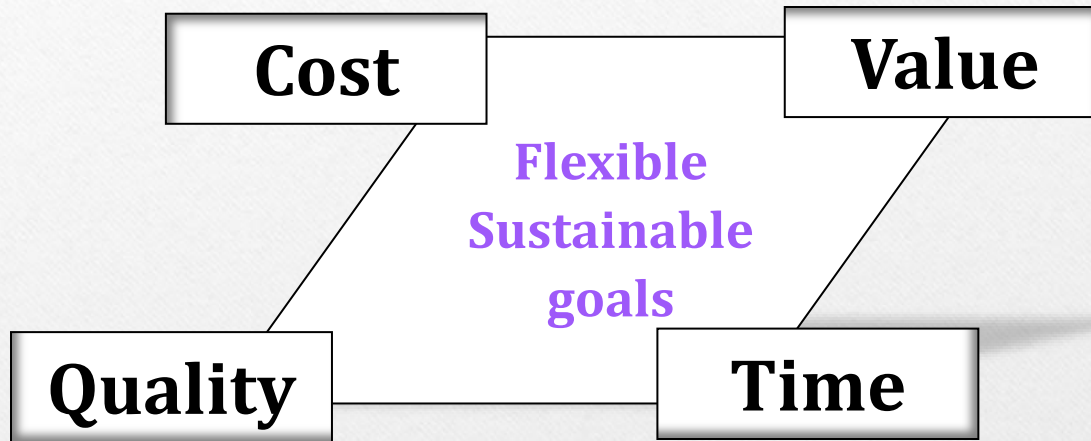
Suitability of VM

Value management has been mandated for specific types of projects based on cost, size, and type in various countries like USA, UK, Germany, France, Australia, Japan, Korea, India and Malaysia

VM is applicable but not restricted to the following projects:

- ❖ Costly;
- ❖ Complex;
- ❖ Repetitive;
- ❖ New;
- ❖ Budget-confined;
- ❖ Public projects; etc.

SVM Model



Considerations for SVM

- ❖ Maximize the use of local and available materials;
- ❖ Maximize the use of local and available manpower;
- ❖ Maximize the use of local and available machines and equipment;
- ❖ Maximize the use of affordable materials;
- ❖ Maximize the use of resources with lower overall cost; and
- ❖ Minimize idle time by maximizing use of resources when needed.

Considerations for SVM

- ❖ Ability to develop capacity and skills of the people;
- ❖ Ability to alleviate poverty among people;
- ❖ Ability to guarantee health and safety of people during construction and usage;
- ❖ Ability to meet local needs; and
- ❖ Ability to enhance corporate social responsibilities.

Considerations for SVM

- ❖ Minimize the use and consumption of resources, especially raw materials such as water and energy, during construction;
- ❖ Minimize the use and consumption of resources during the project usage;
- ❖ Minimize the use and consumption of resources during the conversion and re-use phase;
- ❖ Minimize the use and consumption of resources after the expiration of lifespan, that is, at demolition stage;
- ❖ Maximize the use of recyclable, renewable and re-usable resources;
- ❖ Minimize environmental pollution and degradation; and
- ❖ Comply with environmental regulations.

Requirements for SVM

- ❖ SVM should be carried out before 40 per cent completion of the project design stage;
- ❖ The objective of the study, which is sustainability and value, should form the motto and goal of the study;
- ❖ Application of Pareto principle of 80/20 where applicable;

Requirements for SVM

- ❖ There is a need for a positive contribution of effective and efficient ideas from project team members, especially the designers and project manager;
- ❖ The right mix of team members should be ensured for sustainable value management;
- ❖ Whole-life costing of the existing project proposal should be established before the commencement of sustainable value management study;

Requirements for SVM

- ❖ The principle of lean construction should be adopted; and
- ❖ Other construction management principles and techniques should be incorporated where necessary for effective and efficient sustainable value management.

Principles of SVM

- ❖ Teamwork
- ❖ Order of activities
- ❖ Function analysis technique
- ❖ Principle of unnecessary cost
- ❖ Decision-making techniques
- ❖ Team dynamic
- ❖ Timing of study
- ❖ Skill mix
- ❖ Facilitator
- ❖ Study report
- ❖ Implementation monitoring
- ❖ Follow up

Stages of SVM

Pre-study phase

- ❖ Obtain project data and information.
- ❖ Define project scope, goal and requirements.
- ❖ Obtain key documents.
- ❖ Identify strategic issues of concern.
- ❖ Determine scope and objectives of the study.
- ❖ Whole-life costing of project and elements
- ❖ Identify benchmarks
- ❖ Prepare models
- ❖ Gather appropriate customer/user information

Information phase

- ❖ Minimization of resources consumption
- ❖ Identification of renewable or recyclable resources
- ❖ Maximization of resource reuse
- ❖ Protection of the natural environment
- ❖ Design for minimum waste
- ❖ Conserving resources
- ❖ Consideration of people

Stages of SVM

Analysis of function phase

- ❖ Identification of high potential sustainable construction issue
- ❖ Identification of primary function of sustainable component
- ❖ Identification of other functions of sustainable component
- ❖ Estimating the cost of sustainable construction element
- ❖ Estimation of value of sustainable construction component

Stages of SVM

Creative phase

- ❖ Minimizing energy in use
- ❖ Conserving water resources
- ❖ Enhance the quality of life and offer customer satisfaction,
- ❖ Provide and support desirable natural and social environments.
- ❖ Maximize the efficient use of resources
- ❖ Decrease the use of raw materials.
- ❖ Optimize the consumption of renewable resources.
- ❖ Decrease the amount of harmful emissions and waste.
- ❖ Enhance indoor environmental quality.

Stages of SVM

Evaluation phase

- ❖ Offer flexibility and the potential to cater for user changes in the future
- ❖ Maximize the efficient use of resources
- ❖ Quality over entire project life
- ❖ Minimizing non-renewable energy consumption
- ❖ Using environmentally preferable products
- ❖ Conserving water
- ❖ Enhancing indoor environmental quality
- ❖ Optimizing operational and maintenance practices

Stages of SVM

Development phase

- ❖ Select ideas for further action
- ❖ Assess and refine sustainability issues
- ❖ Conduct benefits analysis
- ❖ Estimate cost difference of proposals
- ❖ Generate sketches and information needed to convey the concept
- ❖ Confirm that a proposal should be further developed

Stages of SVM

Presentation phase

- ❖ Prepare presentation and supporting documentation
- ❖ Outline an anticipated implementation schedule
- ❖ Exchange information with project team
- ❖ Ensure management has full information

Stages of SVM

Post-workshop phase

- ❖ Review of the study
- ❖ Implementation of the sustainable value management recommendations
- ❖ Follow-up of construction project activities
- ❖ Conduct implementation meetings
- ❖ Establish action plans for the accepted alternatives
- ❖ Obtain commitment for implementation from project team members
- ❖ Track value achieved due to the implementation of the best alternatives.

Conclusion

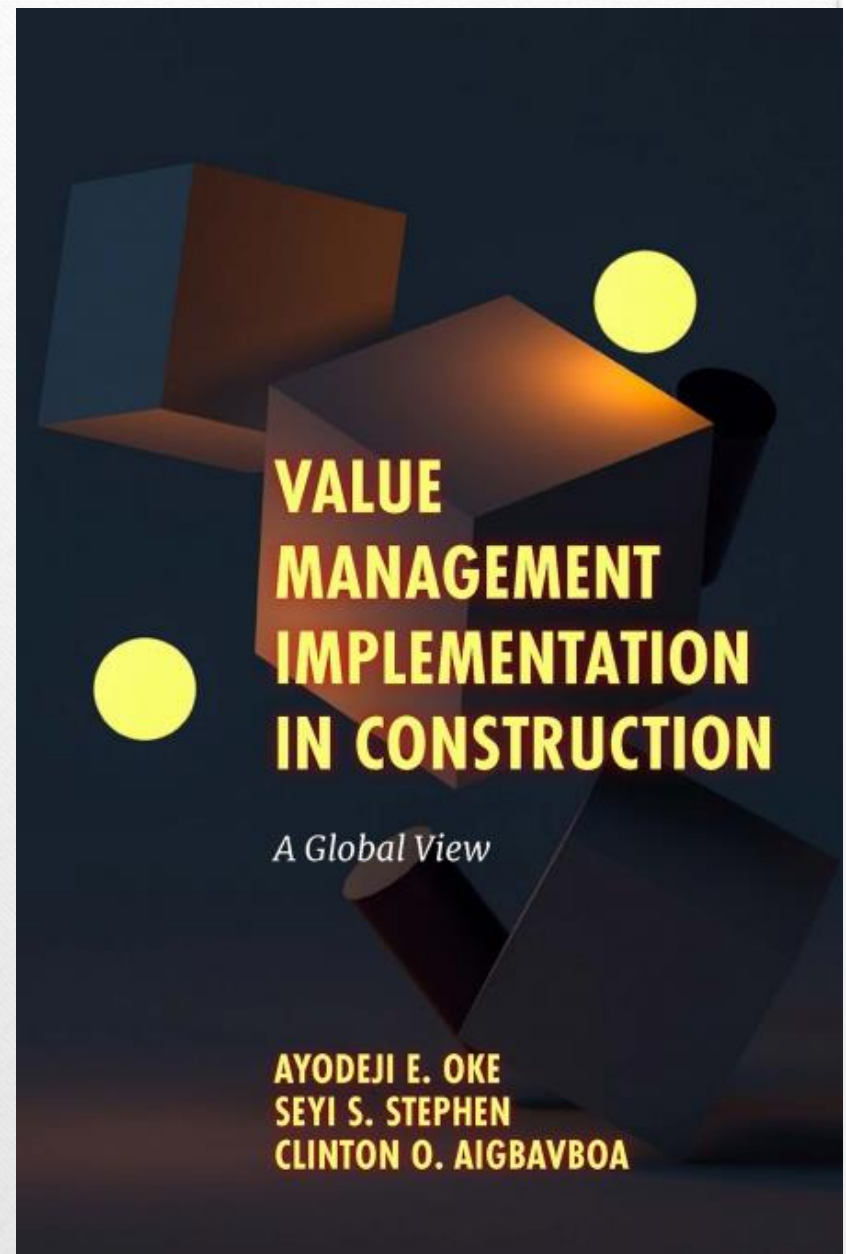
- ❖ Adopting sustainability concepts in VM practice is termed SVM.
- ❖ SVM is a proven tool for sustainable infrastructure cost management

The objectives of SVM

- ❖ Identifying unnecessary cost
- ❖ Saves time and cost
- ❖ Improves function or value of the project
- ❖ Embraces innovations
- ❖ Prevents wastage of materials
- ❖ Multi use of an element
- ❖ Increases investment turn over
- ❖ Prevent project negative effect on the environment

Further Reading

Oke AE, Stephen SS and Aigbavboa CO (2022). *Value management implementation in construction- A global view*; London: Emerald Publishing Limited. ISBN: 978-1-80262-408-3 (Print), ISBN: 978-1-80262-407-6 (Online); ISBN: 978-1-80262-409-0 (Epub), <https://doi.org/10.1108/9781802624076>



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Sustainable Value Management for Construction Projects

 Springer

Further Reading

Oke AE and Aigbavboa CO (2017). *Sustainable Value Management for Construction Projects*; Switzerland: Springer International Publishing. ISBN 978-3-319-54150-1; ISBN 978-3-319-54151-8 (eBook); <https://doi.org/10.1007/978-3-319-54151-8>

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**Thank you for
Listening!**

VALUE MANAGEMENT IMPLEMENTATION IN CONSTRUCTION

A Global View

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