

Using VM in Design and Construction



“Since 1988, the U.S. Department of State, Overseas Buildings Operations has performed 120 value engineering studies at a cost of \$6 million. These studies have save the U.S. taxpayer \$208 million, for a return of \$35 to every \$1 spent on the value engineering program.”

— Katherine F. Bethany, CVS, Value Engineering Manager, U.S. Department of State

Applying VM Capital Projects

A systematic and structured approach, the value methodology (VM) improves projects, processes, and products. VM may be applied at any time during the project delivery of a finished construction product.



Typically, the earlier the value study occurs in the project, the greater its potential benefit. The cost of change and the resistance to change vary inversely with the project's progress.

Many large or complex projects may warrant multiple value studies to focus the issues at the time. Key time frames used by many agencies to apply VM include:

- **Planning:** Value input during planning will help program the project with the correct budget and program parameters from the beginning.
- **0% Design:** Value studies help define the project's functional requirements, identify possible issues that to be addressed, develop the required scope and concept(s) to be considered, and establish the project budget.
- **10-15% Design:** Value studies validate and/or refine the concept. Design assumptions will be questions and validated. Potential flaws inn the concept or cost estimate are identified.
- **30% Design:** Value studies focus on validating and refining the overall concept and major systems.
- **60% Design:** Value studies focus

on refining systems that were not fully defined earlier in the design phase. These studies will often provide value-based solutions to constructability concerns, too.

- **90% Design:** Value studies now typically focus on constructability, maintenance, and operability issues and concerns.
- **During Construction:** Often value studies during construction result in Value Engineering Change Proposals. Many U.S. federal and state agencies offer construction contractors a percentage of the savings as an incentive to submit cost saving change proposals.

VM Benefits

- Resolution of open project issues.
- Reduction of risk.
- Improved sustainable design.
- Improved constructability.
- Acceleration of project delivery.
- Development of consensus among project stakeholders.
- Improvement of project performance characteristics.
- Reduction of operations and maintenance cost.
- Validation of project and design decisions.
- Validation of project costs.

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