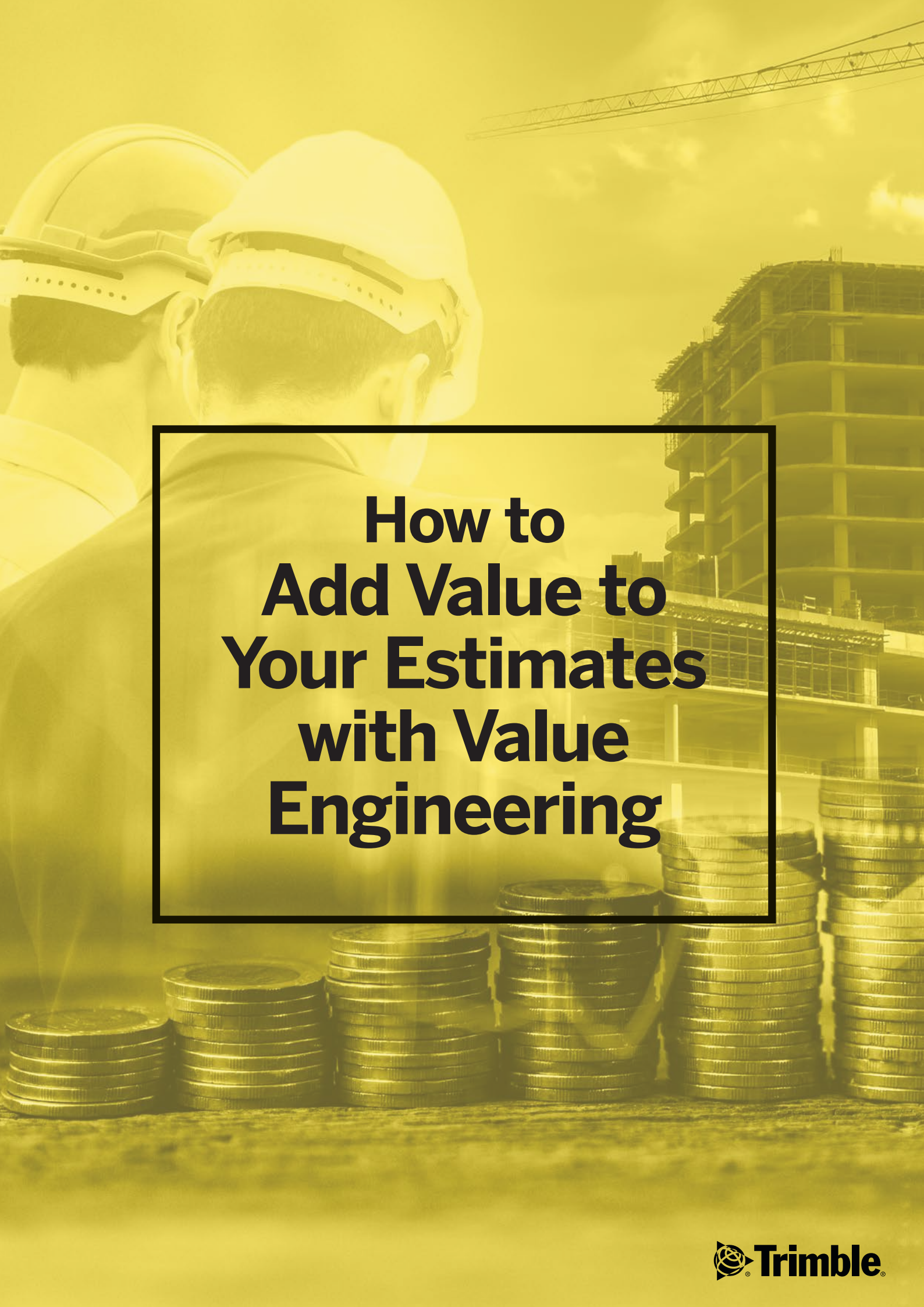




How to Add Value to Your Estimates with Value Engineering

For today's estimators, value engineering shouldn't just be a requirement- it should be a priority.

With the inevitable scope creep that often happens in construction and building projects, value engineering continues to make more and more sense. Maybe you're already practicing this approach and don't even know it; or maybe you think you're doing it, but you're actually not.

Either way, in this guide, you'll learn:

- The history of value engineering
- What value engineering is and is not
- Common misconceptions about value engineering
- Approach and the three stages of good value engineering
- Why you should care
- Take-home tips for adding value to your estimates

Before we get started, let's take a look at the history of value engineering and how it still applies today.



A Brief History

During World War II, value engineering was first introduced in the manufacturing industry by General Electric. In the beginning, they actually called it "value analysis" because of the shortage of supplies, skilled labor, parts, and materials during the war. Interestingly enough, this time of scarcity allowed the AEC industry to apply value engineering methods to a variety of projects. This eventually grew into a highly efficient and valuable process that is still practiced today.¹

What Value Engineering Is and Is Not

Value Engineering Is...

According to the National Institute of Building Sciences, value engineering is:

“a conscious and explicit set of disciplined procedures designed to seek out optimum value for both initial and long-term investment.”²

It's a process which makes every effort to analyze every and all aspects of a construction project from start to finish, in order to provide the highest value at the lowest cost. It's used to determine the value of a function, which is defined as the minimum cost in relationship to the maximum performance.

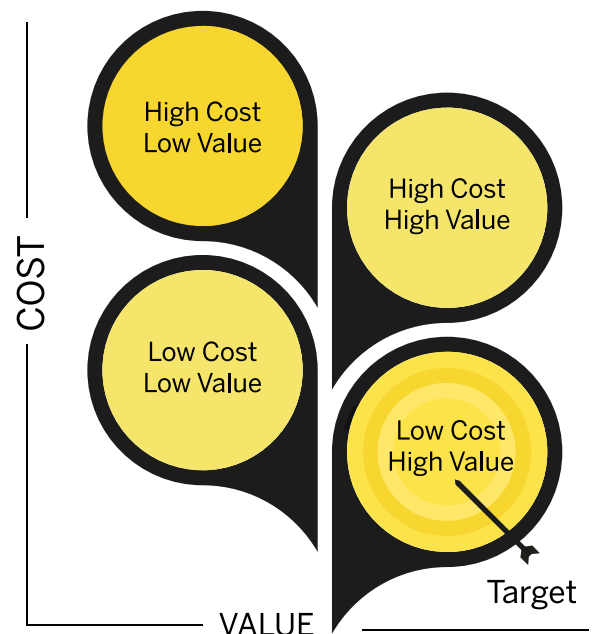


In VE, you always want to shoot for the lowest cost, but highest value when you make your estimate. Your target will always be the bottom right portion, as shown in the graph.

...But It Is Not

- | | |
|-----------------------------|-----------------------|
| 1. Cost cutting | 2. Reducing Scope |
| 2. Reducing Scope | 3. Peer Design Review |
| 4. Elimination | 5. Quality Loss |
| 6. Detailed Cost Estimating | 7. Redesign |

Cost cutting is something that happens when you need to cut initial costs, which can reduce project quality. This is usually a less formal process and is more likely than not, a reaction to going over-budget. There isn't a plan here, just a response to a stressed budget.



Common Misconceptions About VE

“

Value engineering is the exact same thing as cost cutting!

”

If you're an estimator who has practiced VE, you've probably heard people say that it's the same as cutting the budget. This isn't the case at all. Value engineering is a thoughtful process, not just a knee-jerk reaction to a minor design mistake turned (seemingly) catastrophic.

“

Value engineering is just a fancy word for cheap.

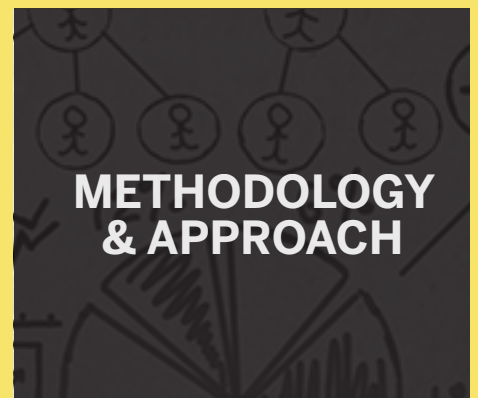
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Whether you've heard this from clients or co-workers, the fact of the matter is that value engineering is actually adding value. Completing a project on time and on budget is what we're all after. Sure, you'll save money along the way, but it's important to stay conscious of this for all parties involved.

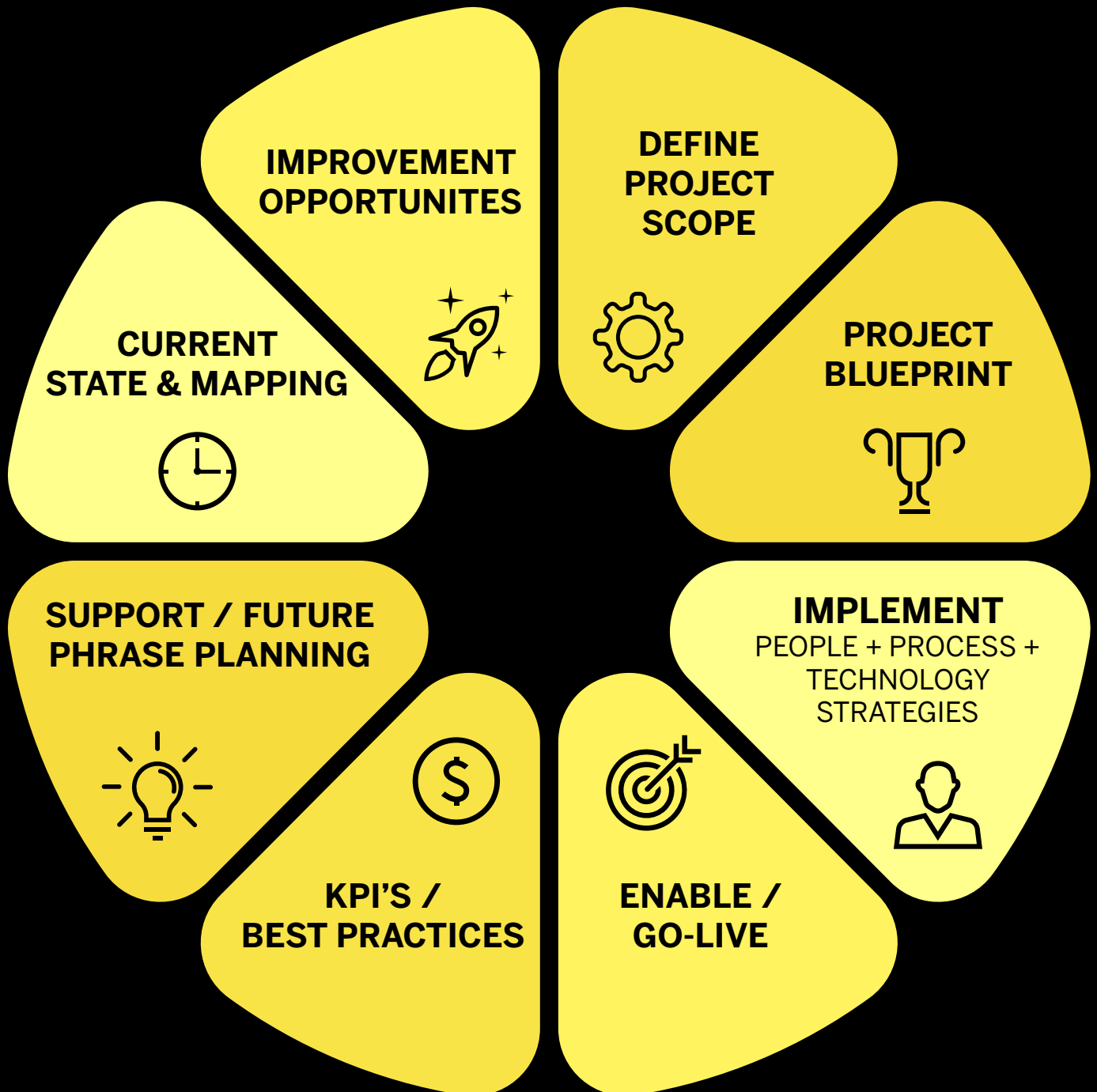
Approach and the Three Stages of VE

As mentioned previously, what separates “cost cutting” from VE is the methodical approach. It's the distinct system that determines whether you're adding value to your cost estimates or just marking through line items. Every team does it a little differently, but the main takeaway is that it should be part of your practice. In this portion of the guide, we'll review the three stages of VE so you can ensure you're taking the the right steps towards an accurate estimate.

The Three Steps Are:



Value Engineering

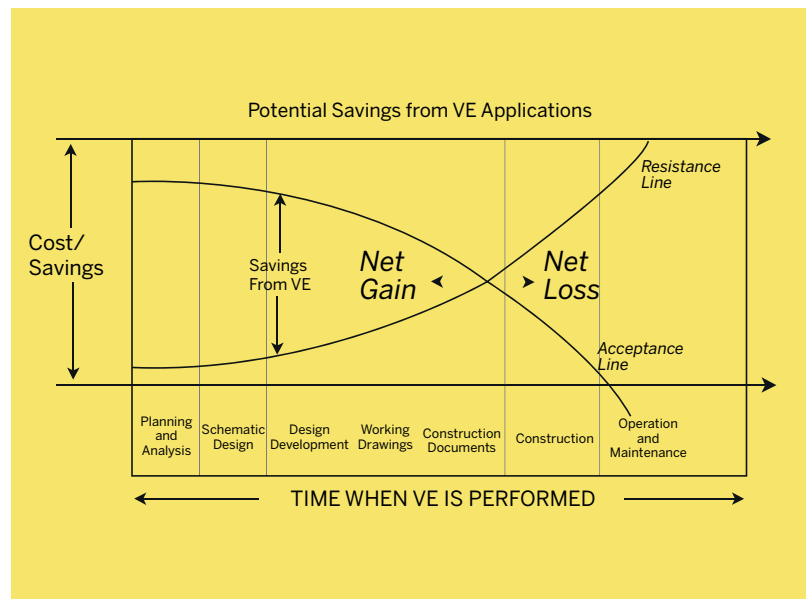


Value Discovery | Value Realization

STEP ONE: PLANNING

The beauty of VE is that it can be implemented during any phase of the construction project even during the build phase.

However, early decisions are key- upfront construction costs are the highest of all costs, so planning ahead will make a big difference. Although VE can come at anytime, net loss is more likely if it does come in at the construction phase.



If VE is implemented during the planning phase, a team gets together and reviews the entire life of project requirements from staff, maintenance, budget, and energy. This allows the group to assess and analyze all the moving pieces, and offer alternative solutions, designs, methods, and materials without sacrificing quality. All of this is performed by a team in order to offer the highest standards to the client at the lowest cost.

Benefits of the Planning Phase Include

Fewer Problems

Avoid issues before they have a chance to start

Time Saved

Save time planning so you have more time during the design phase

Welcomed Changes

Make changes to the program without affecting cost

Fresh Perspective

Clean slate for new ideas and perspectives

Schedule Sticks

Little to no impact on schedule

8 Things You Should Always Do During the Planning Process

1.

Gather all the information

2.

Review the program

3.

Analyze the facility through a functional analysis

4.

Define the key criteria and objectives

5.

Validate the proposed program

6.

Review utility options from the master plan

7.

Offer alternative solutions to the proposed program

8.

Review the budget and determine if it is adequate for the developed program

Expert Tips:

1. Look for ways to deliver the project faster. How much money could you save on staff costs or resources by getting the job done quicker?
2. Evaluate every material: could an alternative product actually offer more strength at a reduced cost?
3. Contact specialty contractors and alternative manufacturers. Try and understand how they work, and see if it aligns with the particular project scope.

STEP TWO: DESIGN

Once the plan is in place, design begins. Some companies plan and design simultaneously, and this is definitely a common approach. The design should at least have made it to the schematic stage. In fact, several government agencies even require at least one VE session during the design phase for projects over a certain price.



STEP THREE: METHODOLOGY AND APPROACH

This is where the workshop can come in. During the workshop, the team and client come together to review all of the proposed solutions.

What Happens in the Workshop?

During the workshop, the multidisciplinary team comes together to work on six steps for the job plan. These six steps are designed to follow SAVE International's standards. According to their program, the phases are described as follows:



INFORMATION

Gather all the information to better understand the project



CREATIVE

Generate ideas on all possible ways to accomplish the required functions



DEVELOPMENT

Select and prepare the 'best' alternative(s) for improving value



FUNCTION ANALYSIS

Analyze the project to understand and clarify the required functions



EVALUATION

Synthesize ideas and concepts and select those that are feasible for development into specific value improvements



PRESENTATION

Present the value recommendation to the project stakeholders³

Whether your team follows this plan exactly or you have your own process, a review of the fundamentals is always a game changer.

Expert Tip:

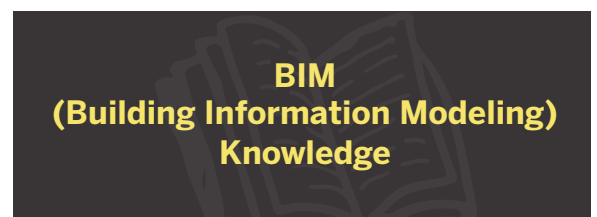
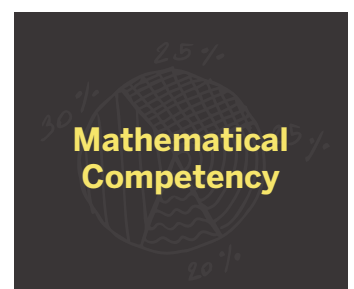
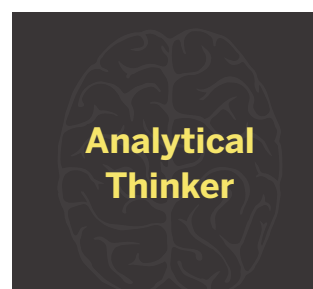
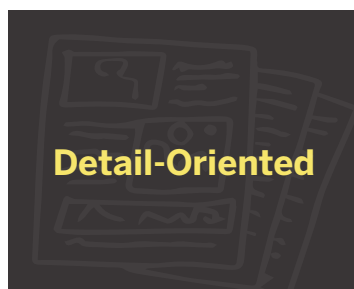
Clearly explain to every team member the value of the process. Let your boss know how much money he or she could be saving in wasted materials and resources by enforcing a VE plan.

So, Why Should You Care?

As an estimator, you already know that early decisions are key. You've probably also heard that upfront construction costs are the highest of all cost, so you know the importance of planning ahead. This can make your job highly stressful. You don't want to be the one to blame if a project comes out way over budget. Because of rising populations, new buildings, and overall growth of communities, your job is becoming more and more important. This is why the process of value engineering should be a part of your daily routine.

Here are a couple of stats you may not know about your role:

According to the Bureau of Labor Statistics, qualities of a good Estimator are:



The number of Cost Estimator jobs is projected to increase by 9% by 2024.

That's faster than the average job growth for all occupations.⁴

Take-Home Tips

Now that we've reviewed everything there is to know about value engineering in estimating, you can apply these to your job. Below are some things you can do, starting today:



GET CERTIFIED

Some licenses, certifications, and registrations are available if you want to show capabilities and experience in the field of estimating and value engineering. Here are a few popular certifications to get started:

ASPE National

American Society of Professional Estimators Certification

AACE Technical, Professional, and Expert Certifications

Technician, Professional, and Expert Level Certifications from AACE

ICEAA Certification for Various Capability Levels

The ICEAA Certification Program

SAVE International's Highest Level of Certification for Value Methodology

Certified Value Specialist (CVS) Certification

Having any of these certifications will not only help you advance in your career, but they'll position you above other candidates if you're looking for a new position.



ANNOUNCE THE NEW PROCESS

Begin to communicate the value of value engineering to your team early on. The sooner they know that a plan is being formulated, the sooner your estimates will become more accurate.



READ YOUR MARKET

Are you working on a bid now? Think about performing a risk assessment to determine how many bids are expected. In a volatile market, it's good to provide options or alternatives that help the owner stay within budget.



THINK PROACTIVELY, NOT REACTIVELY

Once construction begins, it's easy to go from proactive to reactive. Make sure your team understands what changes entail. Review any scope changes with the design team to determine if it's really a change, and then agree on the value before any work is performed.



EVALUATE THE FACILITY AND ITS PERFORMANCE

You'll need all the data you can get to inform future cost estimates. Evaluations are sometimes carried out for detailed costs analysis of a completed project. This cost data can also be fed back into the owner's database to help inform future estimates and budgets.

Next, review the energy performance of the building while it's occupied. This will help determine if the data you're using for selecting components was accurate compared to their actual performance.⁵

*When it comes to the value of value engineering,
an article from Oullet Construction says it best:*

“We’ve found the greatest value can be achieved when every phase—from preliminary design and specifications to final detailing—is carefully planned, managed and monitored to optimize time, cost and labor efficiencies.

When the design/build team works together from the beginning of a project, the right materials can be specified from the start, thereby avoiding unnecessary change orders and staying on schedule.”



For more information about accurately pricing a bid, or to learn more about managing risks in estimating, check out our ebook, [Reducing Risk in Estimating.](#)

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