
VALUE ENGINEERING ETHICS

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by Frank Vicidomina, PE, CVS-Life®

First Edition, May 2020



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SAVE International has approved 2 PDUs under Core Competency 1.3 “Explain the Code of Conduct” for this course. It should be noted, however, that the information presented herein is the opinion of the author and does not necessarily represent the expressed opinion of SAVE International or any other entity.

ACKNOWLEDGEMENTS

To the good Lord above for which we all owe everything.....

To my wife, family and friends for which I also owe everything

To the many VE professionals that have worked with or for me, thank you for your tolerance as I know that I was a real pain (at times).....

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INTRODUCTION

“The guys who last in this business are the ones who fly straight and the guys who want it all (now) they don’t last ...” conversation between Tony and Frank from the movie, *“Scarface”* (1)

Lesson learned from this classic movie scene is that one should take care in doing things the right way --- within the acceptable norms of whatever business you’re in whether it be drug trafficking or Value Engineering (difference? ... :)) Forgoing such for quick rewards will almost always catch up to you. The Value Engineering (VE) profession is no exception.

The intent of this course/book is to define ‘black and white’ and ‘gray area’ VE ethical issues and how they may be addressed in accordance with basic professional standards. With respect to the latter there is more than one acceptable response to these not-so-clear problems. While this document presents some recommended actions, the course will encourage class input and opinion on alternative resolutions.

This course/book is subsequent to my (Frankie’s) previous effort the *“ABDs of Advanced Value Engineering”* (2). There are several overlapping VE issues presented in both documents. The ABDs primary focus is on issue resolution with respect to VE study execution where this course/book further addresses associated professional ethical considerations.

Doing anything under false pretense or for quick recognition or monetary gain will always catch up to you. Gotta ‘fly straight’. What’s uniquely cool about the nature of VE is that over time success will come back to. Solid VE pays off --- if not when you do a study but often later when your client may use your recommendations on another project.

Don’t discredit your competitors without major reason. Mutual respect is the better long-term path. Assist your colleagues when needed --- you never know when you may need someone to return such favor.

Last, and not least, keep in good standing with SAVE and/or other VE professional organizations. Obtain and keep your certification up to date. Present papers, serve on committees, etc. and most importantly help MENTOR those new to the profession.

I hope you find this course/book useful and encourage you to share your opinions on VE ethics in one of our course sessions.

BASIC PROFESSIONAL ETHICS

I searched around for material addressing professional ethics and came across a course for Professional Engineers that I believe provides a good basic foundation for our industry. The following is a summary of “*Complying with Rules of Professional Conduct, by Tessor and Cohen, as presented in an online course by Half-Moon Education, Inc., January, 2020*” (3):

(Obligations to the public)

- . Protect the health, welfare and safety of the public in the performance of professional duties.
- . Act with reasonable care and competence and apply the technical knowledge and skill which are ordinarily applied by professionals in good standing.
- . Report to the proper authorities decisions by clients, employers or other or others under circumstances which endanger life or safety and withdraw from further service on the project.

(Obligations to the client)

- . Perform services only in areas of your technical competence.
- . Do not perform services which have not been ‘duly authorized’ by the client.

(Obligations to the environment)

- . Strive to adhere to the principles of sustainable development in order to protect the environment for future generations.
- . Inform clients, employers and others of the consequences when such principles are ignored.

(Obligations to self/profession)

- . Strive to improve professional knowledge and skill; continue professional development and keep current in fields of technical specialty.

(Obligation to colleagues)

- . Build professional reputation on the merits of your own service and performance.
- . Recognize and give credit to others for the professional work they have performed.

ETHICS RELATED TO VALUE ENGINEERING

So, what are ethical standards specific to the VE Profession? I've attempted to identify clear 'Black and White' issues as well as many that fall into relative 'Gray Areas'. The further intent of this book/course is to present some level appropriate resolution of these issues and promote/encourage open discussion of alternative views directly from class participants and in your, the reader's mind.

SAVE International's Standards of Conduct (4) - SAVE International® is the principal international society devoted to advancing and promoting Value Methodology. They have recently published the following ethics guidance for Value Professionals:

(Standards of Conduct)

- . Uphold the high ideals and level of personal knowledge attested by Society membership or certification, and to participate in none but honest enterprises.
- . Serve the interests of employers and clients loyally, diligently and honestly through worthy performance and fidelity.
- . Maintain a broad and balanced outlook and recognize merit in the ideas and opinions of others.
- . Refrain from any conduct or act which is discreditable to the reputation or the integrity of the Value Methodology profession, and be guided in all activities by truth, accuracy, fair dealing and good taste.
- . Promote at every opportunity the public understanding of Value Methodology and apply their specialized skill and knowledge for the public good.
- . Keep informed on the latest developments in value techniques and applications and recommend or initiate improvements to increase the effectiveness of the Value Methodology.
- . Pledge to all fellow value specialists, integrity and fair dealing, tolerance and respect, devotion to standards and dignity of the profession.
- . Support efforts to strengthen the profession through training and education, and help others reach personal and professional fulfillment.
- . Earn and carefully guard their reputation for good moral character and good citizenship, recognizing that leadership is a call to service.

. Recognize that Society membership or certification as a value specialist is not the sole claim to professional competence.

‘Black and White’ Issues

With respect to the above listed Basic Engineering Professional and SAVE Standards of Conduct I offer my take on the following ethical issues and answers for items I believe can be clearly defined on either side of ‘the line’:

Performing a Value Study without CVS® Certification - From a *legal* standpoint practicing VE without a license is certainly not a ‘black and white’ violation as compared to say professional civil engineering. In any given state it is illegal to conduct business of the latter without an active PE even if you inform the client that you don’t have one. Except for one or two states (?) one can legally perform VE without active certification. However, from an *ethical* viewpoint this to be a clear go, no-go professional standard. Consider a time-expired certification as no certification.

One can certainly consider the appropriateness of an un-certified individual applying the VE Job Plan for a client as a function as part of a larger activity. But flat-out conducting a distinct VE study without active CVS® credentials, regardless of informing the client of the deficiency, is not acceptable.

Performing VE under the direct supervision of a CVS® is certainly valid if such oversight is legitimate and comprehensive. It is preferable that CVS® oversight include attendance of the workshop itself, the minimum acceptable supervision should include review and approval of workshop job plan and agenda, review and approval of VE Team composition, monitoring workshop progress and review/editing of the VE study draft and final report documents.

Professional Engineering Disclaimer - Although not a totally clear issue given differences in state laws, I strongly advise clarifying your identity and work products adherence (non-adherence) to regular professional engineering standards. For example, in my state one cannot use the word(s) ‘Engineer/Engineering, etc., in your(s) company name if you do not have state licensed professional engineers on your staff. In most states a CVS® is not recognized as such.

More important I believe is properly defining our work product content. ‘Engineering’ recommendations produced via a VE workshop are generally conceptual and compiled in a very short time. They are not ready for direct implementation. This point may not be fully obvious to a client (or their lawyers). As such, strongly recommend that you include a front-and-center disclaimer statement denoting the level of detail of your report’s content and that further evaluation and development is necessary prior to application.

Reporting Life Safety Issues – As listed above in Basic Professional Ethics it's always incumbent on you to communicate to your client and others any concerns regarding life-safety (or potential life-safety) issues that you may identify in any part of your work. Consider whether or not to continue your service on the project if such an issue goes unresolved.

Performing VE in Adherence to Industry Standards - VE is VE, period. If you're not adhering to the COMPLETE VE Job Plan in your workshop, then you are not serving the client that request VE services. Proper execution of each phase of the VE Job Plan is also a critically important aspect of this profession and one must strive to accomplish such. In addition to their stated VE Job Plan Standards, SAVE International will soon publish a 'Body of Knowledge' that should reference.

Proper Development of VE Proposals – While this can be better classified as a 'gray issue', I've encountered so much of this that I believe it should be considered a frequent primary deficiency to consider. For more than a few VE professionals it apparently doesn't take much tempting to 'overly enhance' and given VE recommendation. This often includes the willful omission of negative aspects of a proposal (especially future operation, maintenance and replacement needs and costs). 'Apples and Oranges' cost comparisons also seem to be frequently applied to artificially make a VE proposal appear less expensive. It is your ethical duty to fairly present all pros and cons of all VE recommendations.

Accepting Bribes, Improper Influence, Etc., - Probably a rare occurrence but nonetheless a very clear issue is the acceptance of some form of compensation to include a recommendation for a specific commercial product or service as part of a VE proposal. While it is perfectly fine to cite a proprietary item as part of a proposal, it should always be identified as a possible source to achieve the recommendation. The terms 'or equal to, similar to, this type of product', etc. should be used in presenting such items. For government projects this type of clarification is mandated.

Not Serving your Client's Best Interest and Conflicts of Interest - This certainly covers a broad range of related issues, but I've listed several pretty clear no-gos:

- Do not VE your own company's design.
- Do not (or at least try to avoid) performing VE on a VE competitor's company project design.
- Do not VE a project plan or preliminary design that your company may design in the future.
- Strive to identify VE proposals that best serve your client despite conflicting influence even if from the client.

- Working for firms after you have managed them (public projects)
- Only accept payment from only one client for any given individually defined task.
- (Addressing conflicts among client, owner(s) and end users discussed below).

A Billed Hour Is an Hour, Is an Hour..... or Is It? - Putting on my client hat, I've experienced VE contractors shorting me hours of work or doing extra hours of work in a given task order. Obvious preference for the latter but the former can be no big deal or a significant issue depending on the number of 'stolen' hours and how it may or may not have affected the outcome of my VE study. Some contracts specifically break out pre and post workshop hours of the facilitator and their hired VE team. Some do not, but obviously include such when total hours exceed 40+ hours for each person.

For most of my contract task orders adequate funding was awarded for both pre and post workshop work of VE team members. Still, I experienced on many occasions where team members obviously spent zero time reviewing project materials, and more often the study being conducted such that team members had to finish all work by the end of the workshop – implying that the contractor had no intention of paying for any post workshop VE team hours.

First, and foremost, if you are paid for VE team hours over and beyond that of the workshop itself do your best to spend funds in that manner. If on occasion you finish the entire workshop without using all labor hours, if marginal your client will usually be fine with things; if we're talking a day or more you should consider offering an adjustment to your task order. On the other side of the coin, a more common occurrence is that a VE team member or a few may have to complete work after the workshop week. This is usually a partial day of work. If your team members demand extra pay, I'd say pay 'em and don't work with them again. If this work effort is indeed marginal, I strongly suggest eating a bit of profit and perhaps reminding your client of your 'investment' when the next job comes around. It's really a negative thing to ask for more money, again if marginal. I suggest that you NEVER just leave critical work unfinished if there is a need to have a team member work beyond the workshop week.

'Gray Area' Issues

I've attempted to identify as many issues that are not so clear with respect to VE ethics. I offer the following, including my not so humble 😊 resolution – very open to discussion and differing opinions:

Client Not Doing the Right Thing - It is very common to encounter planning or design flaws when you do a workshop – particularly if early in the planning/design process (which is a good

thing). Most issues are relatively minor and are likely to be ferreted out later in the planning/design. Good to identify and note to the client – not necessarily documented in your report. There are occasions where you find the following significant planning/design deficiencies that warrant your direct attention:

(Discover design, or operational practice, that doesn't meet safety code)

True, as stated several times above this is certainly a 'black and white' issue. How you address it, however, is not so clear. Address it you must; but consider tactics as suggested in the next item.

(Discover unsatisfactory planning or design work)

Every now and then you will run across a project/process plan that is a disaster and will simply not be successful. Reasons include, but not limited to, way too expensive, not constructible, won't perform as intended, cost estimate totally bogus, warehouse positioned backwards on site (actual case one-week before bid), facility will blow up if built per plan (true story; true 'fatal' flaw), etc. No problem, VE to the rescue, right? Well, yes but a suggestion here....

Important that your client's design team save face. Present your recommendations accordingly. Give them an 'out'. Doesn't do you any good to bad mouth someone, even if deservedly so. A matter of professionalism that your client will appreciate. Simple example: better to say, "The previous cost estimate turned out to be too low.", instead of, "The cost estimator blew the previous estimate." (actual edit I made to one of my VE contractor's draft reports).

(Discover controversial item/issue in the subject project)

At the next level you might get involved in a broader controversial planning/design issue. This could be just about anything that may pit one group of people versus the other. Can be internal or external differences at issue. You must weigh relationship with your paying client versus your view of doing the right thing. Again, tactics are important. Class is encouraged to share examples and resolution (and/or problems).

(Whistleblower on discovered ethical problems)

Ok, a completely unethical practice is discovered in your VE study. Now what? Confront your client? Stop your work and withdraw from the project? Notify the proper agencies, etc.? Very difficult situation indeed.... But do heed this advice – if you do nothing and your company gets associated with the project/situation at hand, even if just an indirect VE study, etc., you still run the risk of going down with the bigger ship if the project 'goes south' in the future. Advice here is to 'do something'; at a minimum, to cover yourself, or better to try to correct the wrong. Document things as best you can. Class examples for discussion?

(Improper use of (public) funds)

In the public arena, and for private industry (care of stockholders, etc.) you may experience a situation where the project itself clearly is not in the best interest of the public or stockholders. Do you try to convince your client to radically change the project via your VE study? Do you make the project as efficient as possible via your efforts, even though the project as a whole is still a dog? Do you walk away from the work and not have your firm associated with the project? Do you turn 'whistleblower'? It obviously depends on the individual project situation but do try to remember long-term impacts of your decision here. Class examples?

Potential Client Related Issues - The following are several 'client related' issues that can significantly affect the quality of your work along with some suggestions to address such:

(Client requests VE workshop too late in design/planning process)

So, your client wants you to do a VE study very late in the project design. Well, you certainly should have that beloved cost estimate... ;) Ok, you know no matter how good a VE you do it's too late to change the project so is there ANY value in going through with the workshop? In my strong opinion, maybe.....

Consider if your client (his customer(s)) will develop similar projects/processes in the future. If so, your team may certainly produce recommendations for potential use in later endeavors. As such, you may want to carry out the workshop and prepare the report document with that in mind. Conversely, if this is a one-time unique project, they've totally missed the boat and you might want to consider turning down the work.

(Client rep non-responsive)

Your client sets you up with the bare minimum to perform a workshop and is then basically out to lunch and unresponsive. This is certainly not a good situation but perhaps not the end of the world. Again, if you have a senior team you still should be in good shape as they may be able to be productive with such minimal assistance.

Do, however, *diplomatically* try to directly contact designers, end users and other key project/process development staff to participate in the workshop or at least provide additional informative input.

(Project team doesn't show up)

It happens; not a good situation. Try to assure that you have a strong primary VE Team that can address the project/process without client assistance if need be. Also, emphatically encourage the client to get project staff in the workshop, even for a short time.

(Unmotivated and/or disruptive project team)

A common attitude of project/process staff is that of dismissing the fact that you can tell them something they already haven't considered; they know what they're doing and don't need your help. In addition to the suggested items to handle a non-cooperative PM, may I suggest offering to the project staff that 'VE is also an exchange of information and that we (the primary VE Team) would like to see how they are designing this project/process so we can share with our peeps. Maybe we can offer things that you might want to consider in future projects given different situations.' Sometimes this works.... Sometimes not ;)

If and when you have a particularly disruptive individual, try to get that person on the side during a break and let them know that "When you do this..... It makes it hard for me to do what I need to do. So can you help me out here?" Got this technique from an instructor's course and have successfully used it a couple of times. May not get the individual fully on-board but still may be effective in reducing the disruptions.

(Disagreement with project team members)

Often project/process staff may disagree with one or more of the VE recommendations presented. A couple of factors to consider here, first, if they bring up a valid point as to why the recommendation cannot be accepted, so be it. Be humble, agree, and push the general concept for potential future consideration. The other scenario would be if the objection is not valid. Go ahead and defend the VE item with minimal conflict. Use statements like, "We know that xyz has utilized this method for their project.", or, "We're pretty confident that this change would meet performance needs and be more cost-effective." Ultimately end up with something like, "Ok, we are providing suggestions, not directives, so it's up to you to consider this; we hope that you do give it a chance."

(Project team members stating, "We're already doing that", when you know otherwise)

One of my frequent favorites here.... So, let me give you a quiz as to the best response to the subject item statement:

- a.) You're full of crap and we can show you your project documents to prove it.
- b.) The VE Team fully supports your approach and will endorse it in our report as a recommendation.
- c.) Sure, we'll take this out of the report.

The correct answer is, of course a.); the project/process staff that challenges you is looking for answer c.) so they can save face. You may want to settle for b.) and do indeed include it as a VE recommendation.

(Combative client reps (in combination with combative team members))

So, one or more of your client's project/process team wishes to fight your guys at the presentation meeting. Perhaps one or more of your guys elect to fight back in-kind. Do your best at controlling the situation. Try to use statements such as: "These are recommendations for you to further consider, not directives.", "There are things that we can look in to and work out later.", and of course, the 'ol chop breaker, "Well, we can agree to disagree." ☺ Try a little humor as appropriate.

(Involvement (or non-involvement) of project/process team; they may want to dismiss everything or may not provide any feedback)

Your client and his team vanish by the time you're evaluating ideas. Or, worse yet, representatives are present, and they don't like anything on the board, even apparent good ideas. Addressing the latter, try to diplomatically keep good ideas in for development. Give rationale such as 'we believe it's still may be a good way to go... perhaps for a future project'. Keep in mind that there are often other 'higher-ups' that will see things differently and like the VE proposals. For the former, try to get your client and his key staff back in the room for a short review (sanity check) of the VE Team's screened idea list. This can go a long way by eliminating ideas that shouldn't be there and by considering comments they give regarding the good ones.

Performing a Study without Adequate Resources- Very often your client will hold costs and you can't have all the time, money and staff you would like to perform and document a VE workshop. For the most part this is business as usual and we get by with what we have but there are times when we question whether or not we have enough resources to adequately perform VE in accordance with standards. So, when do you bail out of a job versus doing a less than adequate job given resource restraints? I've listed and discussed common situations that we often encounter below:

(Client wishes to have one or two-day workshop when four plus is appropriate)

Perhaps your client wants a short duration workshop of let's say two days and you know 3 or 4 days are needed to conduct a thorough VE study. Suggest trying to get additional time and present why this is so important. If not successful you have to decide what has to be time-reduced in order to have a successful, albeit abridged workshop. Things you may consider; do you:

- Nix the field trip (if applicable). If it is a construction type project a site visit is a good thing but can be cut from the agenda saving perhaps an entire day's time. Satellite photos, etc. are pretty good these days and can be a partial substitute.

- Truncate Function Analysis (FA). While recent changes in SAVE FA philosophy (diagram perfection not required) has the amount of effort needed for this VE phase, it still may require a fair amount of time to execute. As such, think about drafting a F.A.S.T. diagram prior to your workshop phase and have the VE Team edit it. Not the better option versus full development from scratch but it may suffice and save hours.
- Do not develop VE alternative costs. One can save time on the back end of a workshop by not including cost comparisons of proposals. This can be done by the client's staff or contractors as they see fit after the study. Do clearly document in your report that it was a joint decision to reduce the study scope as such.
- Defer the out-brief presentation to a later date. If an out brief is usually held at the end of the workshop you may consider deferring to a later date, virtual, etc. to present your study findings. This may (or may not) save a bit of time and cost.

(Client wants you to facilitate project team members as VE Team and/or limits your desired staffing)

Suppose your client insists on using the actual project/process team as your VE team. Would first suggest trying to discourage using people associated with the project/process or in the same local organization to serve as the primary VE team since it's certainly hard to get outside the box when they work inside same (not suggesting omission of project team members from the VE study; just noting the importance of outside expertise). You may offer a compromise of sneaking in a couple of outside experts.

You may also be squeezed on the number VE team members and their level of expertise. Again, first encourage your client to make this investment given the probable benefits of such. A possible alternative is to have the client seek other expert staff in their company (if large) that are not involved in the subject project. This can be a less expensive viable option. If your client still insists on having an incestuous VE study, you have to decide whether or not to decline the work. Remember, the end project will ultimately be a reflection on you.

(Lack of project information)

Is a significant lack of project/process information a show-stopper? My answer is that 'It depends'.....

- If there is absolutely no project information, then, of course strongly suggest to your client that the workshop be postponed until such that that there is something to look at. If information does exist and it just hasn't been provided within a week of the workshop, then pushing the client to provide it may be the plan.

- Let's suppose that you have a well experienced VE team on tap for your workshop. I offer that if just a conceptual design can be established you may still be good to go and have a productive workshop. Based on a proposed project/process concept, experienced staff can develop a presumptive design based on the client's agencies past as well as universal practices. Parametric cost estimates can be applied to further define the project/process. The VE Job Plan can then be applied to the presumptive design and potential performance improvements and/or cost saving measures can be identified. This process is quite similar to VE application in design-build projects where the VE workshop is performed on the Request for Proposals prior to solicitation. VE results can often recommend adjustments to the RFP that help ensure desired performance as well as provide better opportunity for cost efficiency.

(No project cost estimate (OMG! OMG! OMG!))

Is no available project/process cost estimate a VE show-stopper? More than a few VE practitioners say yes, VE is a no-go without one. I strongly disagree with this philosophy/practice and offer the following reasoning.

- Consider that VE is most effective when performed *early* in project/process development and/or design. If you are truly applying VE early in the process doesn't it make sense that a detailed project cost estimate has *not* been produced yet? Can't have it both ways.
- I certainly realize that having a proposed project/process cost estimate greatly helps with executing a VE workshop but it is certainly not necessary. Per discussion above an experienced VE team will have little problem in defining project definition and parametric costs with or without an available cost estimate. Cost models can be developed from such VE team estimates and VE focus can be applied.
- Also consider that the cost comparison of VE proposals to existing design features should illustrate the *relative* difference between each. As such, just as long as an apples-to-apples cost basis is used (actual client provided unit cost or VE team developed parametric cost) the analysis should be valid.

(Design or plan isn't comprehensive/complete, etc.)

Again worth noting that VE is most effective the earlier it's done in project/process development. As such, you may not have comprehensive plans for the proposed project/process when you do the workshop. Answer again is that you should have a VE Team with enough experience to develop a conceptual design based on the client's past projects or other standards and work from there. Remember, VE is primarily about addressing project/process functions and not just the proposed project/project features themselves.

Again, you must ultimately decide if you can have a successful workshop given limited time and resources and whether or not you decline the work.

Some Internal Workshop Issues – Below are issues directly inclusive to execution of the VE Job Plan where there is an ‘overlap’ of ethical considerations to the practical resolutions presented:

(Project/Process Team does not participate in the workshop)

It happens – more than you would expect and not a good situation. Try to assure that you have a strong primary VE Team that can address the project/process without client assistance if need be. Also, emphatically encourage the client to get project staff in the workshop, even for a short time.

(Key VE Team staff doesn’t show up)

This is certainly an ugly one – and it happens. People get sick, family emergencies, etc. First off, try to have a little bit of technical overlap on your team (easier said than done). Try asking the client if they can spare staff to take that person’s place. Additionally, consider calling/emailing the missing person or others if and when something comes up during the workshop that the remaining team may need advice.

(Function Analysis (FA) may be ‘shortchanged’ by some facilitators)

Even though SAVE has reduced the ‘technical requirements’ of FA it is still a critical element of the VE Job Plan. I have been amazed at the number of facilitators that perform incomplete FA in their workshops. Given that most of my studies that I have been in the client’s seat have been construction projects, the most FA deficiency I’ve experienced is with resourcing functions (this most certainly can’t happen in a process study without significant negative impact). Other frequent omissions include partial completion of the F.A.S.T. diagram (completed after the workshop) and lack of a complete list of functions ignoring major activity items, and, listing few (if any) secondary ‘When?’ or ‘As a consequence of’ functions. Don’t substitute the current new ‘liberties’ of FA with completeness.

(Use of ‘voting dots’)

There are more than a few facilitators that utilize the ‘dot’ method of idea evaluation. Basically, VE Team members are given a fixed number of stick-on dots and they place them on ideas (vote) they believe are viable (obviously logistics via electronic idealist version goes a little differently). It is pre-determined that ideas with a set number of votes will get vetted and the others eliminated from further consideration or are minimally discussed. Facilitators that utilize this method claim success but my experience (as a client) has been quite the contrary.

My main issue with ‘dots’ is the reduction of full vetting of ideas with subsequent reduction of producing new ideas from such discussion. I firmly believe the VE Job Plan is not being fully

adhered to. Also, giving the team a limited number of dots (votes), low and behold there is a fixed maximum of alternatives that ultimately get developed. As a client I always felt cheated by this as I preferred to have all possible viable alternatives identified and fully documented. So, if you're a dot kind of guy, God bless you, but don't come to my place with em.

(Bogus attempt to 'quantify' qualitative rating factors)

If, and only if, you have solid data to determine measurable relative differences for any given qualitative variable in your project, assigning a numerical value to such, strictly via VE Team opinion is not legitimate. Who died and made your VE team opinion measurement experts? Such a practice comes off as almost completely arbitrary and is easily challengeable. If, however, one does have solid opinion measurement data, then applying weighted points in a scientific manner is certainly legitimate. For example, I attended a good conference presentation by a Japanese company that did complete household kitchen installations. They performed a comprehensive customer survey gathering opinions regarding relative preferences such as, but not limited to, counter space vs appliance size; appliance size vs cabinet space; cabinet space vs floor space, etc. So when the company performed a VE study to improve kitchen designs alternative ideas were evaluated via scientifically established weighted variables.

(Re-quantifying quantitative rating factors)

My favorite observed rating abomination..... Many weighted points rating systems recognize cost as the most important factor. As such they weight cost at the highest premium of all factors. So, when one rates relative cost and then multiplies such by a large weight number stuff like the following often occurs:

- Alternative A cost \$1,000,000
- Alternative B cost \$900,000

Alt. B scores 10 out of 10 and Alt. A scores 5 out of 10 (Why? Because the team believes that being \$100,000 more expensive is a big deal or perhaps it ranked 5th out of 10 competing options....). Then applying the 50% (50 point) importance value to each, Alt. B scores 500 and Alt. A scores 250.

So, an alternative that's only 10% less expensive than another scores 250 points or 25% better on a total evaluation scale of 1,000 possible points. Completely bogus..... Cost is cost and along with other quantifiable factors, should not be weighted relative to each other.

(Disadvantages may not be fully identified)

As stated above as part of a 'black and white issue often a writer oversells a concept by not fully considering its disadvantages. Give your idea a fair shot all the way around. Not including disadvantages gives the appearance of a snow job and takes away from the recommendation. It's

not just an un-ethical thing for your short term benefit but if your proposal is ultimately implemented and problems you failed to present come to pass, your reputation can suffer.

(Cost comparisons may not be ‘apples-to-apples’)

Also included above as part of a broader clear issue is whether you present a valid cost comparison of your proposal versus the existing item. Whether you can develop a detailed or need to use a broader parametric estimate, always use the same base data for the existing and proposed change if at all possible. Remember again, the primary purpose of your estimate is to COMPARE one vs the other. So even if you have to use relatively bad numbers, if they come from the same data source, they will be bad for each option and still may indicate pertinent relative economics. Willfully using cost values from different sources may give an unbalanced advantage to your proposal. I’ve seen this unethical practice a fair amount of times and suggest that you calculate and present the true and fair relative cost-effectiveness in all your studies.

(Life-cycle costs may not be accurately assessed and/or calculated)

I’ll start with the punch-line first: IN THIS PROFESSION IT IS IMPERATIVE THAT YOU KNOW HOW TO ACCURATELY CALCULATE AND PRESENT TOTAL LIFE CYCLE COSTS (LCC). (Ok, tell me what you really think, Frankie....)

As a client I’ve encountered three different types of VE facilitators (and about an equal number of each):

- 1) They know and understand LCC.
- 2) They do not understand LCC and admit such.
- 3) They believe they know and understand LCC but really don’t.

Of course had preference with No. 1s; I really DID NOT have a problem with No. 2s as we can do what we needed to do post study. No. 3s totally suck since we had to change what they did.

I’ll go ahead and talk about some of the more common LCC screw-ups I see:

(Improper selection of an interest and/or inflation rate) – First, check with your client and see if his agency uses a current interest and inflation rate, and, if they have a preference or standard regarding economic comparisons (time period, use of nominal or real rates, preference for present worth or equivalent uniform annual cost, etc.) Make it easy on yourself and use their guidelines if they exist. For example, if you’re working on a project/process for the federal government they have such standards. Check OMB Circular A-94 (Note: The US Army Corps of Engineers has a different interest rate for Civil Works projects).

(Use of nominal or real interest rates with inflated or non-inflated future costs) - Ok, know what your interest rate is (nominal or real). Nominal is generally the agency cost of borrowing where real is that cost adjusted for inflation (usually a LOWER number). When using the nominal rate,

use INFLATED future costs; when using the real rate, use NON-INFLATED future costs (sounds counter-intuitive but that's how economists rock...) My preference is to use the latter because one really doesn't know what future inflation rates are going to be (if you do then VE ain't your calling).

(Use of totally guessed at future inflation rates) – Per above, who really knows what inflation rates will be in any given year. Give you an example of an extreme but true case back in the late 1970's. Although not a VE thing, energy projects applied inflation rates for energy (like 20% per year at the time) for an entire 50-year period. This in turn justified just about any capital expense (thus the brief proliferation of nuclear plants then). That type of inflation was not only short-lived but actually reversed itself severely in the mid 1980's resulting in numerous financial debacles.

(Not using any discounting interest rate at all... and inflated future costs) – I've seen this more than a few times.....

(Blindly plugging in numbers into a computer spreadsheet, calculator, etc. and not really knowing if the output is correct – often it isn't....) – See this a lot! Know whether or not your calc sheets are accurate.

(Using the wrong formula(s) to calculate present worth, etc.) – Got folk that think they're using the right calcs but not so.

(Designating future costs as LCC and not including initial costs) – I know, just a nomenclature item but widely misused. LCC is everything – not just the future cost component.

Ok, I can go on here but not necessary; the bottom line is: **IF YOU ARE NOT FULLY COMFORTABLE WITH LCC CALCS AND USE, IT'S WORTH YOUR TIME TO GET TRAINED.**

(Presenting cost estimates without caveat of margin of error., and, over-emphasizing cost savings)

Many VE facilitators love to emphasis potential recommendation cost savings. Nothing wrong with that except for the fact that VE generated cost estimates are done in a very short period of time, are full of assumptions and unknowns, may have inconsistencies with other VE alternatives in the study and will likely change when further reviewed. So, my recommendation here is to present very rounded numbers **AND EMPHASIZE POTENTIAL FOR CHANGE UPON REVIEW.** The reverse side of this is that when costs are over-emphasized and then they subsequently change, the entire VE recommendation loses credibility. Try summarizing via terms like 'The proposal may save significant (or moderate) cost', and not say the proposal will save \$453,456.89.

(Sole-Sourcing product recommendation (public projects))

You identify a commercial product or process that you include in a proposal. That's a good thing. Do realize that for public projects you must present such in a way that allows competitors to be considered if your client implements your recommendation (do not imply or encourage sole sourcing). This can be a bit difficult if a supplier has a truly unique, sole-proprietary product. And, as stated above in our Basic Ethics, do not accept any compensation (bribes) from potential private industry suppliers in return for including their product in your proposal.

Sponsor or End User at Odds with Primary Client - Not a common occurrence but if you run across it, be careful.... don't want to alienate one of the other (or perhaps both). Look at this as a great VE opportunity – because it truly is. Looking at new, 'out-of-the-box' issue solutions may be just what the doctor ordered for in this situation. A perfect fit for VE application. Give you an example, flood control project along a stream – client wanted the sponsor to acquire privately owned real estate to build an earthen levee; sponsor wanted client to stay within existing right-of-way and build a much more expensive structural floodwall. They were at odds, project stalled no resolution in sight. VE study proposed excavating a diversion channel on publicly owned land that was further evaluated and determined to reduce flood stages low enough such that a levee or wall was no longer needed. Less costly than levee or wall....Good stuff!

Sponsor or End User Has Differing Opinion of an Idea vs your Client and the Project/Process Team - Been here several times and can be a very difficult situation. First, use your own judgment as to whether or not an idea should or should not be developed on its own merit. If you're in agreement with your client, best to let him work it out with the sponsor(s) or end user(s) on whether or not it goes in your report. If you're on the other side of the street vs your client then may I suggest that you remind him/her that there is limited harm in including it in the workshop report as it is only a recommendation and not a directive or decision action. Then, you probably want to do what your client tells you to do (within reason per discussed above).

(Review comments not reasonable, and, client wishes that you delete a good proposal)

This is addressed above but I offer a little more detail here.... (Check this.... maybe just cross-ref to above instead of repeating, etc.)

These issues can potentially be tough to resolve. Suppose your client wants you to make a change that you do not believe is technically correct, or perhaps even ethical? Well, first try to negotiate some solution or middle ground as things may not be totally go or no-go. For example, my team proposed a radical project change that we fairly confidently estimated close to a billion in cost reduction on a two-billion dollar project. For un-disclosed, but I believe were non-honorable reasons, the client did not want to consider such a change (at the time; future circumstances have changed) and directed me to withdraw the proposal. After a fairly long, non-

congenial negotiation, the client allowed us to publish the recommendation but without quantified cost savings. We were permitted to say something like ‘potential for significant savings’ or something but without numbers.

There are far more frequent occasions where the client’s review yields comments that you do not believe are correct. Again, negotiate and perhaps compromise on documenting conflicting aspects of the recommendation if nothing else.

(‘Ambushed’ by client’s staff disagreeing with proposal(s), and, they may be well prepared with facts and figures)

Many a time you will go into an implementation meeting and the project/process team is hiding in the tall grass and slam dunk one or more of your proposals. Try not to fight even if they’re dead wrong. Try to make a quick decision on whether or not they are indeed correct, in which case you graciously back out of the recommendation citing your teams thought process at the time, etc., or if they’re blowing smoke. For the latter, respect their comments but defend your team’s alternative in as best a humble fashion as possible. Try to cite previous examples of application of the recommended change (hard to argue with successful experience, etc.) And of course, you can really break their chops and ‘agree to disagree’.

(Documenting proposal rejections when reasoning is not valid)

Suppose your client wants you to make a change that you do not believe is technically correct, or perhaps even ethical? Well, first try to negotiate some solution or middle ground as things may not be totally a go or no go. For example, my team proposed a radical project change that we fairly confidently estimated close to a billion dollars in cost reduction on a two billion-dollar project. For undisclosed, but I believe were non-honorable reasons, the client did not want to consider such a change (at the time; future circumstances have changed) and directed us to withdraw the proposal. After a long, non-congenial negotiation, the client allowed us to publish the recommendation but without quantified cost savings. We were permitted to say something like ‘potential for significant savings’ or something but without numbers.

There are far more frequent occasions where the client’s review yields comments that you do not believe are correct. Again, negotiate and perhaps compromise on documenting conflicting aspects of the recommendation if nothing else. You should consider professional ethics in whatever you do in such situations.

Using Material from another VE Firm’s Published Document - Quite frankly, I haven’t experienced this firsthand or heard of such but do recognize that this can be an ethical issue. Suppose you’re performing a workshop and your team researches a particular item and run across a competitor’s VE study document – let’s say for someone other than your client, that contains a proposal that can be applied to your project. You’d like to include the concept in your study. What do you do? Best answer is to contact your competitor and ask permission to use it

and give credit to them in your report. Would say that 99% of the time you'll get that clearance. Should this not happen (competitor chooses not to return your call/e-mail, etc.) and you really want to use their proposal there are some things to consider.

I'm no lawyer but I would think that if the source is part of a public project, the information may be in the public domain and available for use (you paid for it via taxes, right?). And, if the VE document in question is not copyrighted I would think that it may be fair game as well. Again, I ain't no lawyer so take this with a pound of salt.....

Using Material Developed in another One of Your Studies for another Client without

Explicit Permission (trade secrets)- Now suppose you're working for a private client and you see an opportunity to use a VE recommendation you developed in a previous study for another competing client. While it may not obviously be sharing a 'trade secret' your previous client may still see it as such. Try to get permission to share the proposal with the competitor. If you can't get it consider not using it. Class experiences with this?

Post Workshop Issues – The following items relate to potential ethical issues associated with post-VE study activities:

(Key team members not available on client's review meeting date)

Given that you've released your VE Team at the end of the workshop, it may be difficult to obtain all of them for a subsequent implementation meeting. This can be troublesome if their knowledge is key to any given recommendation. Try to best coordinate with the client on meeting date/time or contact the team member before the meeting and get educated as best possible on the particular item(s).

(Forcing disposition of VE proposals at the Presentation Meeting)

Your client may have a procedure where VE recommendations are accepted or rejected as part of the presentation meeting. Try to avoid this if you can – try to convince the client to change this practice. My philosophy on this is based on a couple of things: first, in my opinion, the purpose of a VE study is to identify POTENTIAL project/process performance improvement and/or cost-saving concepts and specific measures. It's up to the client's project/process team to ultimately make a go/no-go decision once the recommendations ARE FURTHER EVALUATED. While it certainly is a VE function to soft-sell proposals, etc. it ain't our place to debate and argue disposition. Second, is the fact that when required to make a go/no-go decision on something, adequate data and information must exist and be analyzed to make such judgment. The VE workshop is too short to produce adequately validated information. So, when faced with a go/no-go option, the project/process team member must often select no-go at this time solely on the fact that there hasn't been such validation even though they make believe the idea has merit. Suppose your VE Team is in disagreement with a proposal rejection. Do you then document the rejection without rebuttal? The client certainly would not likely like to see that in a report. But would

your team accept a one-sided bogus refusal of their good idea? Again, I recommend trying to stay out of the disposition business.

Satisfying Your Client Ahead of Best VE Recommendations – You complete the lion’s share of your workshop and have a proposal or two or three that really improve subject project/process performance and/or cost effectiveness. Your client prefers something else and asks you to play-down what your team has come up with and highlight their selected alternative. For the most part this usually isn’t a big deal particularly if you’re allowed to present/document your team’s results albeit with less prominence. There are times, however, when the difference between your client’s desire and what you and your team believe is right, is significant. Again, when the public or stockholders are adversely affected, you may want to fight for your proposals in lieu of just pleasing who’s paying you. Remember, YOUR long-term credibility and reputation could be diminished if you end up documenting encouragement of the ‘happy’ alternative versus the best VE recommendation(s).

Don’t Be Disparaging – During Workshop, Post Workshop or in Documents - Something I’ve seen more than a few times is when a facilitator or team member insults the project/process team and/or their product. It really isn’t necessary to say (or document) terms like, ‘bad design’, ‘bad planning’, ‘the cost estimator blew the estimate’, etc. The effect of which hurts the VE study as the people that must accept your recommendations need not be pissed off by your comments. Just stick to the facts, like, ‘bids came in way above the cost estimate’, communicates the same thing versus bad-mouthing the cost estimator.

And last but not certainly least, a couple of similar items....

‘Bad Mouthing’ Planning /Design Team When They Are Not the Client Itself - Even when the project planning/design team is not your client it still doesn’t pay to insult them verbally and/or in writing. Stick to the facts – don’t be overly critical of truly bad/planning/design. You never know who is listening and/or will read your report.

‘Bad Mouthing’ other VE Firms - This is addressed in the above SAVE Standards of Conduct for good reason. A long time ago, say 15-years plus or so, it was unfortunately extremely commonplace for VE firms to openly knock others. So much so that it almost became an official phase of the VE Job Plan 😊. It hurt the industry. SAVE has done a good job over the years to quell such and we should continue to strive to refrain from criticism of others in our profession.

SUMMARY

Above I (we) presented Basic (Engineering) Professional Ethics, SAVE's Code of Conduct, 'black and white' and not so clear 'gray area' issues and answers. I (we) attempted to communicate the importance of ethical conduct for VE professionals not only for self-protection/improvement but also for promotion of the VE itself. I (we) hope we have convinced you that your success over the long haul versus immediate benefit at the expense of proper conduct is the way to go.

REFERENCES

- (1) Quote from the movie “Scarface, 1983, Universal Pictures”
- (2) ABDs of Advanced Value Engineering, Frank Vicidomina, December 2018
- (3) Complying with Rules of Professional Conduct, by Tessor and Cohen, as presented in an online course by Half-Moon Education, Inc., January, 2020”
- (4) SAVE International Standards of Conduct

ACKNOWLEDGEMENTS AND ABOUT THE AUTHOR

THANK YOU!... AND ABOUT THE AUTHOR



I hope you enjoyed this book/course and found your time and money investment worthwhile. Putting this together was indeed a joy for me. So, a little about myself – graduated Tulane University (Civil / Environmental Engineering) a hundred years or so ago and currently hold professional licenses as a Civil Engineer and Certified Value Specialist; worked as a design engineer in private industry for a bit then for a regional flood control agency.

Last destination was with the U.S. Army Corps of Engineers, New Orleans where I started as a facility relocations specialist, then planner and a 22-year stint as Value Engineering Officer. In that capacity I managed a substantial VE program, facilitated studies, managed VE consultants and served on study teams for various other Corps VE workshops. I believe my situation allowed me to gain a unique and broad perspective on how VE studies are performed. I hope I was able to share this knowledge with you and that you may benefit from it.

As for the present, I am enjoying semi-retirement, spending time with my wonderful wife, daughter and especially getting a big kick out of the paw-paw thing.....

Frank Vicidomina