

## WHAT THE CEO NEEDS TO KNOW ABOUT VALUE ENGINEERING

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Larry Zimmerman is a Past President of SAVE International, a Fellow of SAVE, and a long-time practitioner in the value engineering (VE) field. He attended the Harvard Business School (HBS) Executive Management Program OPM 21 and has performed VE studies on more than 350 projects worldwide. He and Mary Ann Lewis started Lewis & Zimmerman Associates, Inc. in 1982, which subsequently spawned its affiliates, the Construction Dynamics Group, Inc. and CDG International Ltd. Larry Zimmerman is the author of many books and articles on VE and construction management and is a college instructor of the Value Methodology and its applications.

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Mary Ann Lewis is also a SAVE Fellow and a director of the Miles Value Foundation. She was the catalyst for the inclusion of VE regulations in the Clean Water Act of 1981, which formalized the application of VE to U.S. EPA grant-funded projects over \$10 million. She was an author of ASTM E 1699-95, Standard Practice for Performing Value Analysis (VA) of Buildings and Building Systems. Mary Ann has worked with private sector companies in the petroleum, petrochemical, pharmaceutical, heavy manufacturing, utility fields, as well as government.

### ABSTRACT

CEOs face a changing business environment as they approach the 21<sup>st</sup> century. They view business through a lens that differs from our perspective. This paper explores the ways CEOs view business and how they view management approaches and techniques. CEOs are interested in results and benefits to their companies and to their products (customer benefits). Thus, the approach to improvements is viewed differently than at the project or plant level. This paper discusses the approach a value practitioner might take with a CEO in implementing value management for the 21<sup>st</sup> century.

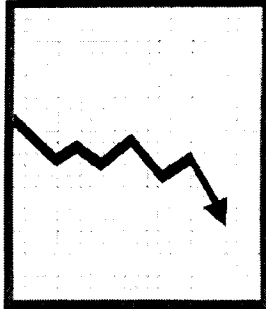
### INTRODUCTION

CEOs face a changing global environment where politics, information technology, changing currencies, technology advancements, and other

factors change overnight. In modern times, the body of knowledge doubles every five years. Consumer expectations have risen and the CEO is constantly searching for new advancements to meet the customers needs as they also change. At the same time this is occurring, Wall Street and the financial markets are demanding double-digit increases in sales and higher earnings.

Corporate CEOs are responsible for profit earned by the company. As Peter Drucker, America's management guru says, "profit is necessary to fund growth, assure shareholder investments, fund employee human resource programs and provide research for the next generation of new products." Without profit, there is no growth. Without profit, there is no stockholder investment (resources) to stay ahead of the competition. Today, corporations are expected to show continued growth in sales, assets, and revenue.

Today, a corporate CEO harnesses the best talents available to develop strategies, plans, financing and the technology for long- and short-range success. Imagine starting the day with political instability in the Middle East where the source of crude oil powering your industry is in jeopardy; financial uncertainty as the yen plummets and the FTSE sags; and new labor regulation laws are being passed in Congress, and its only 10:00 AM. You've hardly had time for a morning coffee and a peak at the Wall Street Journal, and your company stock has dropped two full points. It's a wonder that CEOs occupy penthouse offices rather than ground floor suites as the temptation to jump is real.



A CEO's FINANCIAL VOCABULARY

As VM practitioners, we need to be aware of the vocabulary of the corporate CEO to better understand the environment and community he or she occupies. Finance is a major part of that environment. CEOs use terms from the financial notebook to evaluate the performance of their companies.

Financial balance sheets and profit/loss sheets are the means used to account for ongoing accounting of assets and liabilities, and tracking of costs and expenses, respectively. Your knowledge of these two financial accounting formats is a vital factor in discussions with CEOs.

Such terms, as described below, are familiar to the CEO:

Performance Evaluations of Companies

- Return on Equity
  - ◆ Profit Margin
  - ◆ Asset Turnover
  - ◆ Financial Leverage
- Return on Assets
- Gross Margin
- Asset Turnover
- Inventory Turnover
- Payables Period
- Fixed Asset Turnover

Ratio Analyses

- Current Ratio
- Asset Ratio

- Acid Ratio
- P/E Ratio

These financial ratios and indicators is the barometer used by the CEO and investors to project the strength of a corporation, the need for cash, measure performance, and control cost within the organization. Your knowledge of these factors will be a common ground for discussion and a detriment if you are ignorant of these factors and their meaning.

Now that we have discussed the CEO's environment and his vocabulary, let's explore the thinking mode of the CEO and empathize with the line management and plant managers who must explain their requests to use new and older management techniques. Keep in mind that these folks have read the HBS Journal, Wall Street Journal, and other business forums, and probably know more about the latest management buzzwords than you do. They also have benchmarked their organization's performance results with others including their competitors.

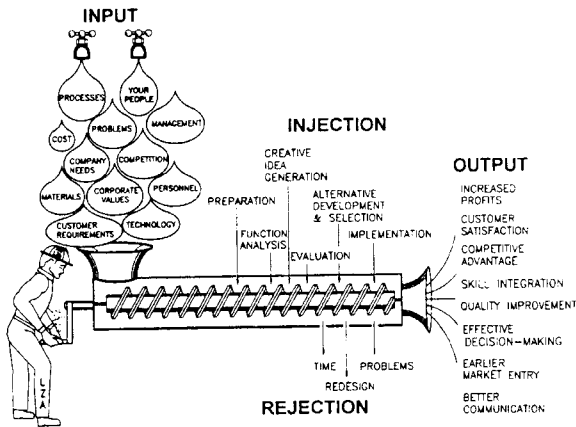
A DISCUSSION WITH THE CORPORATE CEO

At the regular management meeting of corporate staff, Helen Armstrong presents her newest idea for management innovation to the CEO and immediate staff. Helen is truly an innovator and is known throughout the organization as an up-and-coming manager. Helen has brought other management proposals to the committee in the past. The organization has tried benchmarking, reengineering, partnering, process simplification, design to cost, virtual factor concepts, and others. Each has showed success. The company has also trained staff in each of these practices.



Helen is the line manager in charge of advanced project analysis. Helen has conveyed her concepts to the VP of Operations, George Brush, who is really pushing the use of VM. George knows of the success of VM through the VM program in his former company and the work of a group called Independent Project Analysis, Inc. (IPA). IPA has benchmarked successful companies and found that VM was a consistent factor in the most successful and profitable organizations. VM proved to be one of the best Value Improving Practices according to IPA. *The key to the success was that VM was a methodology for achieving results. When reengineering ended, VM took over to determine the path for*

implementation. When benchmarking ended, VM took over as the methodology to implement change.



organization. They also have one product group within the organization that is marginal. Performance is not good. Customer returns due to failures are causing concern. This group needs a shot of adrenaline. Having thought about the challenges, George and Helen have seen past efforts where VM helped solve these specific challenges. Studies performed by their competitors improved product distribution methods and deliveries. Manufacturing improvements also helped the cost to market through process simplification where functions on the production line were simplified. The study team used a combination of VE and benchmarking to reduce production costs. The team found similar industries with the same function requirements that apply directly to the current production methods. The results of the competitor efforts were the following:

- Increased shareholder value
- Increased ROI
- Better profit margins
- Increased sales and market share
- Better identification and deliver of customer needs
- Gain internal consensus among staff for needed changes and improvements

In some organizations faced with waning market shares, VM played an important part in self-examination of the product, market maturity, method of product delivery, and the viability of the product line. The results spoke for themselves.

Helen and George are preparing for their meeting with their peers and the CEO. They know that they will receive the five WHYS. These are typical of management's response to a new technique or program.

WHY, WHY, WHY, WHY, WHY.

- Why do we want to implement this program?
- Why will it do something for me?
- Why introduce a new practice on top of all this other stuff?
- Why is this better than the other practices, or techniques, or tools?
- Why is this different from what we have done in the past?

Product returns are a serious challenge. Either the customer is not satisfied with the product or is finding deficiencies. At his last company, George used VE task teams from within the organization to review customer returns, find the problem, and implement solutions. In his last company, a supplier product deficiency was the root of the deficiencies.

George and Helen need to find the next generation of their product. They need a way to resolve their one non-performing product line. Mixed feelings persist from within this product group. Some feel the product has reached its useful life. Others feel it just needs to receive more advertising to stimulate sales. This is a great application for a holistic view of the product and the organization centered on this product line. George and Helen know that a VM team focused around the total cost of producing and marketing the product, coupled with a look at the product viability, is needed. The framework of the VM solution methodology will be just the ticket for this evaluation. George and Helen are in agreement that VM applications are needed. They need a problem solving methodology that can transcend their corporate cultures and a language that goes past emotions to the heart of the issues. They need VM!

Let us sit with George and Helen as they go through the five WHY questions.

Why do we want to implement this program?

George and Helen have heard this question before. Their company is profitable; however, they are not the leaders in their field. Competition is fierce. Although they have multiple products, many of them are aging and the competition is forcing increased efficiencies and lower prices. George and Helen need a way to further optimize a very efficient

Having thought some more, George and Helen both agree that they are making great strides with improvements within their organization. Now their

goals need to be higher order functions of being the *best in class* performers in their industry. They are presently third. They have seen where VM can put them into the best in class status. Their number one competitor is currently best in class. People buy their products while paying a higher price because of assured or perceived quality and value. This means increased sales and higher prices for their products.

George and Helen have thought long and hard about the challenges of achieving best in class status. They believe the entire company is on the right track, but needs to be lifted to the next level of performance.

Why will VM do something for me?

George and Helen think long and hard about this question. They know that the CEO has heard the pitch of new practices before. The CEO is very progressive and sees the challenges ahead. As with all wise CEOs, he needs to know the game plan and see the pathway to success.

George and Helen prepare for their presentation to corporate management. They have assessed each challenge and the higher order goal of being best in class. Their conclusions are that VM is the best approach as it offers a methodology to achieve results. It also helps them work between the various corporate groups with a methodology that focuses on needed functions as opposed to the personalities and turf of each group. Helen and George have the reengineering and benchmarking studies previously performed for their company and hope to take many of the philosophical cultural movements recommended by those efforts and implement them through the VM process.



VM will provide results to the organization and company! VM is recognized as the problem-solving methodology to achieve results and is universal in its application. It will work as long as the company adopts a philosophy of change for the better. If the organization is constantly seeking to improve, VM will work well.

VM will provide results for the organization because:

- VM is a solutions-oriented methodology
- VM transcends corporate turf battles
- VM focuses on functions and not emotions

- VM is the center of successful Value Improvement Programs
- VM facilitates reorganization
- VM is a key to best-in-class performance
- VM increases profits
- VM makes cultural changes easier
- VM describes what we really want to do and how much we really need to pay
- VM represents the “how” to philosophical management approaches
- VM increases profitability and shareholder values
- VM increases ROI and ROE
- VM gains consensus for decisions
- VM enables communication

Why introduce a new practice on top of all this other stuff?

George and Helen contemplate how to tell management that VM is not really new. It has been in use in the U.S. for almost 50 years. What management consultants find is that competing industries offshore use VM to their advantage and are beating us with in-class competition. They anticipate the question, “why have we not used this methodology as our foreign competition uses it?” They know that there is a real need to reach beyond the envelope to the next line of new products, to increase their corporate creativity to new heights. Their company is staid and old fashioned. They need a way to break through the roadblocks to cultural change.

- Other techniques are not as results oriented
- VM is the HOW to Reengineering
- VM is the HOW to benchmarking
- VM is encourages participation and buy in. The results get implemented.
- Short duration for major fixes
- VM is the center of Value Improvement Programs

In short, *VM takes the chance out of change!*

By this time, both George and Helen are very enthusiastic about their meeting with management. There are a few more questions they must anticipate.

Why is this better than the other practices, or techniques, or tools?

We use a lot of good practices in management. This practice, VM, involves a methodology that is centered on a job plan—an organized method of problem solving. Function analysis and other

function applications allow a quick focus on the problem and point to solutions of "How" to improve. The application of VM is a universal application. It can be applied to manufactured items, new product development, systems, factories, capital projects, organizational structures, or other areas where functions need to be applied.

Helen and George are amazed at the reported results of other companies where costs were dramatically reduced in production while improvements were also made to increase customer satisfaction. Owners of major plant and capital facilities used VM to analyze and improve their plant facilities with a notion toward the LCC of the operating facility. This is in spite of having the largest and best engineering companies in the industry designing their facilities.

VM was the integrator of the Owner's input into the project designs. These companies found VM to have the following characteristics:

- Structured
- Participative
- Universal
- Results oriented

VM is truly a problem-solving methodology and its tools of function analysis, creativity, value and quality improvement indices, product cost templates, and FAST diagrams allow for a great means of approaching and solving the challenges.

George and Helen are convinced they are on the right path. They have made some projections to the corporate profit/loss statements and the balance sheets to show the net improvement and productivity goals that could be achieved through the application of VM.

Why is this different from what we have done in the past?

We have done all types of management approaches in the past. With each new buzzword, we have introduced the concept and trained the staff. VM is different in that it has a specific methodology. It is more than a change in philosophy for the corporation. It gives us a methodology to achieve results.

*Change* must be an acceptable word in an organization. Without change, there is no movement to the future. There is no progress, and the competition will succeed and we will fail. This methodology allows us to be the drivers of change and to implement change through the people in the

company rather than from outside. We can use a combination of outside and inside resources—the outside resources to bring fresh ideas and the inside resources for an awareness of the industry and the means of implementing the concepts and ideas in a win-win relationship. Our staff is the steward of change and improvement.

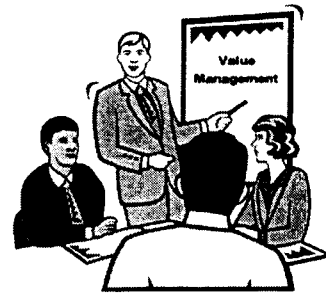
WHERE CAN WE APPLY VM?

- Strategic planning
- Operational/organizational structure
- Administrative procedures
- Marketing strategy
- Product viability
- Facilities design and operation
- Process improvements
- Product distribution systems
- Product design and innovation
- Produce concept development
- Corporate restructuring
- New product development

In short, VM can take them to the top of the industry.

George and Helen met with their corporate CEO. They followed the outline from their discussions in presenting the CEO with their plan for corporate advancement and increases in shareholders values. In the discussions, the CEO mentioned that VM is showing up throughout Europe and Asia as a key to corporate improvement. Improvements in advancing global corporations are being achieved through the use of VM. The benchmarking study of the petroleum industry indicated that VM is a key to corporate success.

The CEO liked the ability to manage change! The CEO also asked George and Helen to outline the benefits of VM during the meeting. This is the result of their discussion.



BENEFITS OF VALUE MANAGEMENT

- Increased time to market
- Reduce product and operation costs
- Use resources more effectively (productivity)
- Compete successfully in global market
- Increased employee involvement
- Exceed customer needs

Side benefits included the following:

- A powerful team and creativity tool
- A proven solutions methodology
- A means to manage and promote change
- A results-oriented approach

George and Helen were given the green light to integrate VM into the corporate fabric of the company. The CEO asked for a game plan for implementation and set some sizable goals for performance. George and Helen are now implementing Value Management Improvement programs within their company.

