

APPLICATION OF VALUE ENGINEERING TO ENHANCE PERSONAL FINANCES



Kal Krishnan, PE, CVS, CCE
Kal Krishnan Consulting Services, Inc.

Mr. Kalliana R. Krishnan has 25 years of experience in the construction and engineering fields. Mr. Krishnan holds a MS in Electrical Engineering. He is a licensed General Contractor, California and is a Professional Engineer in California and Oregon. He is a Certified Cost Estimator, a member of the Institute of Electrical Engineers, SAVE, and the American Society of Professional Estimators. He is the author of numerous papers on Value Engineering (VE) and Estimating. In 1987 he formed Kal Krishnan Consulting Services, the firm was incorporated in 1989.

ABSTRACT

VE professionals are always looking for new applications to VE and Value Analysis (VA). This paper is to demonstrate how VE principles can be used to improve personal finances for individuals and how VE methodology can be used to do the same for each of us personally. SAVE's VE Methodology will be used to compare personal finances to a typical VE project.

INTRODUCTION

Value Engineers are trained in saving money while improving the value of products or services and hence improving the shareholders' value of large corporations. This process can be accomplished using functional analysis. Since the financial models for a corporation and that for an individual are nearly identical, it can be reasoned that VE is equally applicable to increasing the financial net worth of an individual.

First, we will examine the similarities between the financial models of a corporation and that of an individual. Then, we will briefly discuss VE principles and illustrate how they apply to personal finances. We will also demonstrate how SAVE's value methodology can be used to enhance personal finances.

COMPARISON OF A CORPORATION TO AN INDIVIDUAL

Financial Performance Yardsticks - Profits and Balance Sheets

The same Financial Performance Yardsticks used

for a corporation can be applied to an individual. Except for depreciation, all items of performance measurement are the same for both corporations and individuals.

A corporation's profit is based on its sales revenue less all expenses, including depreciation. An individual's profit, or savings, is exactly the same except for depreciation. For a corporation, profit is one measure of short term performance. Likewise, for an individual profit can be shown on a monthly basis, showing income and expenses.

The balance sheet for both a corporation and individual is all the intrinsic value plus value due to market forces, plus accumulated profits from inception, less any accumulated depreciation. For a corporation the balance sheet depicts all assets, liabilities and shareholders' equity, while for an individual it represents accumulation of net worth to date. For a corporation, depreciation is a non-cash expense for tax purposes, while depreciation generally has no tax benefit to individuals.

One other difference between an individual and a corporation is that "potential for future earnings increase" is reflected in the stock price of a corporation, where as that for an individual is not.

FINANCIAL MODELS

The "function" of a corporation is to increase shareholder's value, while the "function" for an individual is to increase his/her net worth. A corporation's sources of income includes revenue, sales of assets, and investors. An individual's sources of income include wages, interest, dividends,

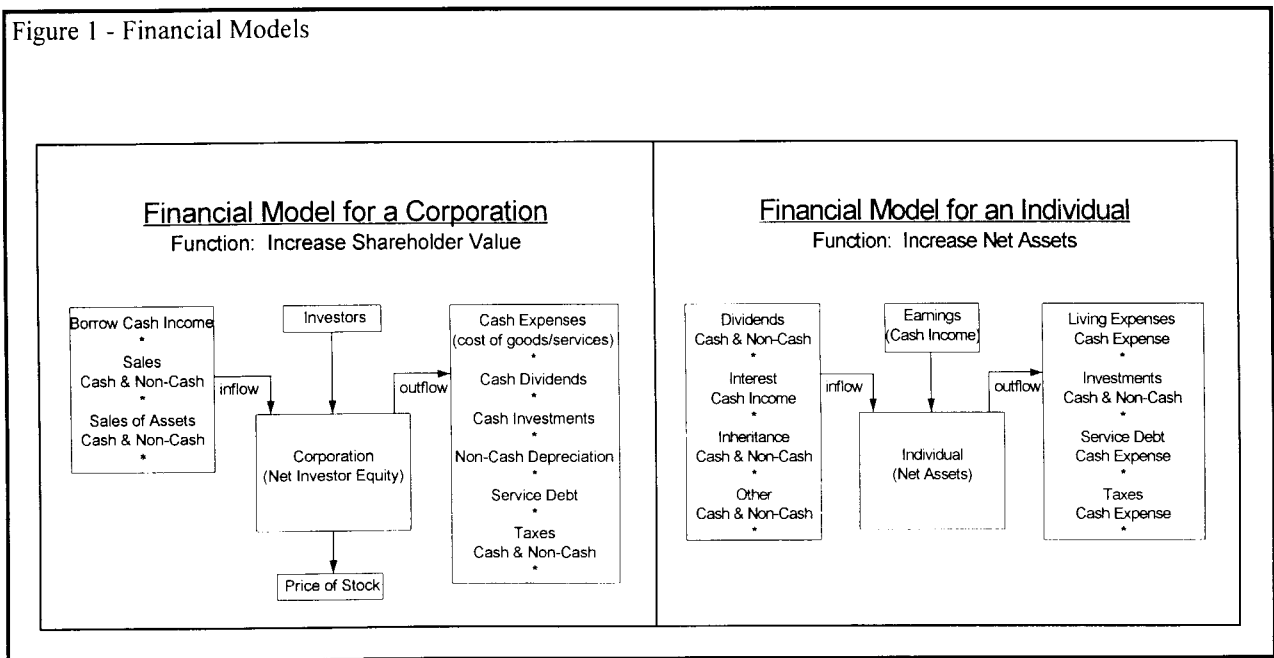
cash expenses (cost of goods/services), cash dividends, cash investments, non-cash depreciation, servicing debt and taxes (cash and non-cash). An individual's expenses include living expenses, investments (cash and non-cash), costs to service debts and taxes.

Figure 1 depicts typical financial models for a corporation and an individual. If we compare them, we can conclude that essentially, the two models are identical. The only difference is that the corporation can claim depreciation as a non-cash expense, however an individual cannot. Generally, depreciation is intended for the replacement of old equipment.

procedure for increasing net worth and other individual financial goals.

In VE terms function can be defined as the intended objective of a strategy of investment. Functions are classified into Primary Functions, Secondary Functions, and Lower Order Functions. Primary Functions describe the user's needs and goals. Basic Functions represent the essence of investment objectives and are necessary for usefulness of the primary goal or function. Secondary Functions result from the method chosen to accomplish the basic goal.

Figure 1 - Financial Models



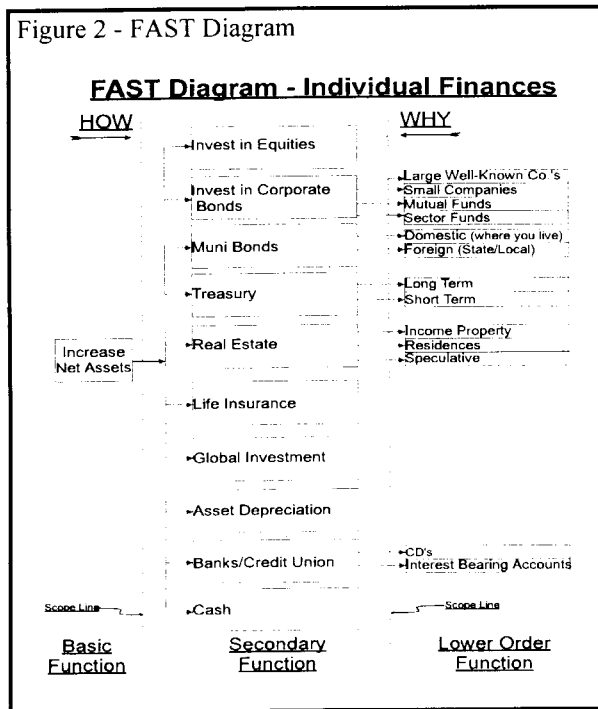
Having compared these two financial models, it is clear that what we do for a corporation as a matter of course to improve shareholder value, can be practiced by us as individuals.
 VE and Personal Finances

The FAST Diagram in Figure 2, illustrates the interrelationships between Basic and Secondary functions associated with personal finances.

Principles

VE is a systematic approach to obtaining optimum value for every dollar invested. It is a means to identify alternative ways to perform functions, to identify unnecessary costs (initial & life-cycle) and minimize risks. VE is ADDING VALUE. Applied to personal finances, VE can be a systematic

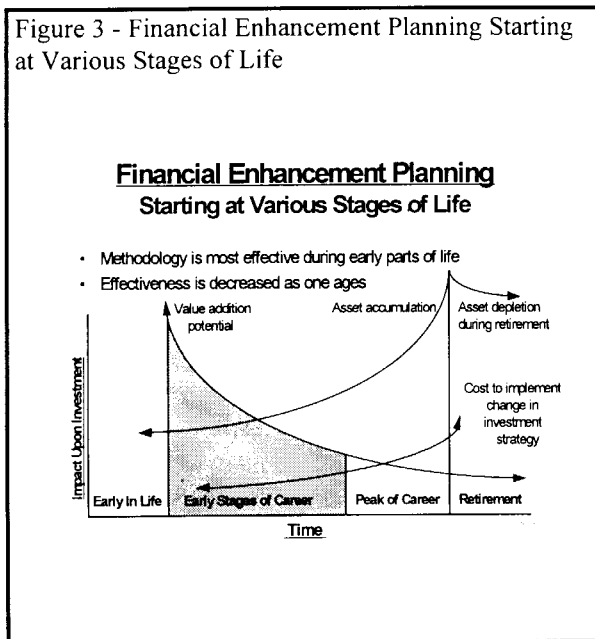
Figure 2 - FAST Diagram



HOW VALUE METHODOLOGY WORKS

The Value Methodology is most effective during the early stages of any activity. The effectiveness is decreased as the activity progresses. The cost and risk to implement changes in investment strategies increases with age and the value addition potential decreases with age, as can be seen in figure 3.

Figure 3 - Financial Enhancement Planning Starting at Various Stages of Life



The VE Methodology consists of the following phases:

- Information Phase
 - Establishing Financial Objectives
- Speculation Phase
- Analysis or Evaluation Phase
 - Risk Analysis Phase
- Development and Recommendation Phase
- Implementation Phase
 - Continuous Monitoring Phase (ascertain performance objectives)

Information Phase

The information phase involves identifying and summarizing assets, liabilities (including debt obligations) and cash flow. This information is normally contained in packages we provide to banks, mortgage and lending institutions in the form of a Detailed Personal Financial Statement. This information should include bank balances, loan balances and rates, investment vehicles, real estate, retirement plans, income, income protection and SSI.

Establishing Financial Objectives

There are only two kinds of investment, equities and debt. With equity investments you have an ownership interest while with debt investments you are the "loan shark." Each of us should be involved in both types of investments to varying degrees depending on age, risk tolerance level, and other issues.

Functions of individual investments include retirement, education, life protection, disability protection, residence acquisition, build a business, support parents/relatives, reduce tax liability, defer taxes, support charities, build inheritance or wealth. Function Analysis starts with identifying goals and objectives using verb/noun association techniques, such as:

<u>Verb</u>		<u>Noun</u>
increase	-	net worth
increase	-	dividends
increase	-	equity
reduce	-	risk
protect	-	family
reduce	-	taxes
control	-	asset depletion
control	-	expenses
access	-	cash
control	-	credit
reduce	-	leverage
start	-	new business

decrease - (asset) depreciation
 save - money

- Using buy/sell of options (high risk - can be used to derive income)
- Using dividend reinvestment plans (DRIP)

Speculation Phase

To increase net worth, the speculation phase can be broken down into three major areas: increasing income, decreasing expenses and managing risk.

Increasing Income

If capital is not already available we must first identify potential sources of capital. Some possibilities include:

- Re-allocating available funds (avoid unnecessary expenses, reduce excessive expenses)
- Obtaining a secondary source of income (second job, start business)
- Borrowing from relatives/home equity (not advisable)
- Buying lottery tickets or going to Las Vegas
- Asking Ross Perot or Bill Gates to adopt you!

If capital is available, we can begin to examine investment options. These include:

- Tax deferred retirement - IRA
- 401(k) or 403(b) Contribution
- Savings program
- Mutual funds (equity, debt, balanced funds, contrarian funds, index funds, etc.)
- Individual stocks and bonds (including non-voting stock)

Decreasing Expenses

Means of controlling personal expenses include:

- Budgeting everything and adhering to your budget
- Not acquiring rapid or high depreciation assets (example - a new car)
- Not having too many wants and needs
- Deferring purchases

Means of controlling investment costs for stocks and bonds include:

- Using discount brokers
- Buying directly from individual companies
- Buying stocks/bonds as they are issued
- Asking for a dividend reinvestment plan (quite a few brokers do not charge for this service)
- Using no load mutual funds
- Using no-fee IRA accounts (with a few brokerage firms)

Managing Risk

- Buy only equity/debt of only good companies
- Buy when everyone else is selling! (Meaning buy in a down market)
- Buy index options to protect against (downside risk) - this is an insurance, hence, costs money
- Buy mutual funds
- Understand human psychology of greed, fear
- Buy Put options for down side risk
- Write Call options for income
- Buy/sell at target prices you establish, never buy at current market prices
- Do not deal in investments without underlying value
- Do not buy on "Tips"
- Ignore most broker's advise unless you do some investigation yourself
- Do not buy high & sell low!
- Good companies equity/debt investment risk can be minimized by waiting - long term investment, have a lot of patience

Time is the key to managing risk associated with investing in capital markets. Although there will be ups and downs from day-to-day, month-to-month or year-to-year, over the long-run the market will reward you, if investments are wisely chosen.

Evaluation and Development / Recommendation Phase

A list should be prepared showing growth, risk and return as is and as desired. This list should be based on an individual's financial objectives of income and growth, or a combination of both, and the performance of that individual's current investment. One should establish targets for growth and income over a given time frame and discard investment options that do not meet the target criteria. Each of the acceptable investment options can be evaluated as our usual Value Engineering Change Proposals (VECP), or VE cost proposals, and summarized. A typical VECP Worksheet is shown in Figure 4.

Risk Analysis Phase

Risk Analysis is critical in applying VE to personal finances. This is the only major difference in using VE to enhance the financial growth of an individual versus that of a corporation. When applying VE to personal finances we must consider

Individual Risk Tolerances. Individual Risk Tolerances are based on personality, age, amount of investment capital available, financial growth objectives, financial strength of companies and other issues. There is also the important issue of "market" risk.

Figure 4 - Investment Strategy Analysis Worksheet.

Investment Strategy Analysis Sheet			
Investment Project		VECP#	
Item			
Basic Function			
Secondary Function(s)			
Speculation			
a		e	
b		f	
c		g	
d		h	
Present Strategy		Proposed Strategy	
Risk Factors		Risk Factors	
Advantages	Disadvantages	Advantages	Disadvantages
Investment=	Costs=	Investment=	Costs=
Implementation Costs=	Expected Return & Growth=	Implementation Costs=	Expected Return & Growth=
Impact on Schedule:		Impact on Schedule:	
Prepared By:			

The risk analysis phase also involves identifying the level of risk associated with various investment options.

U.S. Treasury Bonds

The first step is to identify the instrument with zero risk. U.S. Treasury Bonds are typically considered the benchmark for zero risk because they have the full faith and credit of the federal government. The 30-year treasury bond currently yields approximately 6% annually.

Other Bonds

Other bonds are priced using the Treasury as the benchmark. The risk associated with these bonds is based on the interest rate promised, and the level of risk increases as the interest rate increases. The risk is dependent on the financial strength of an institution and potential for default. Default will result in loss (full or partial) of investment capital. Corporations, as well as state and local agencies issue bonds to

raise capital. Some of the state and local agency bonds are fully or partially tax free, however the interest rate is also lower.

Stocks/Equity

The risk associated with investment in stocks (i.e. equities) is dependent on the financial strength of a company, anticipated growth, type of products/services, external factors affecting the company, business cycles, and market forces.

Implementation Phase

Once we have decided what to do and how, we need to summarize a course of action. For this purpose, it is useful to use the "Evaluation Matrix for Investment" sheet illustrated in Figure 5. It is also important to double check our findings with a Certified Financial Planner or Investment Broker. Activities associated with the implementation phase include:

- Discuss what you are going to do with your spouse, children, family
 - Select broker and open an account
 - Direct your findings from your evaluation matrix so broker will follow your orders
 - CD's, Money Market funds, etc. can be obtained through your current banker
 - Prepare Will, Trusts, etc.
 - Monitor performance
- Continuous Monitoring Phase (Performance Objective)

Investment management is like running a construction project. Construction projects are monitored by cost, schedule, quality and value. Likewise, for an investment, we have to monitor cost, schedule, quality and value.

Factors Affecting Capital Markets

It is important to monitor changes to manage investments in a systematic and organized manner. When there is fear of inflation the equity market will go down and interest rates will be adjusted to reduce the money supply. When interest rates go down, bond prices will go up and the stock market may go up.

Key factors affecting capital markets include public confidence, interest rates, employment/unemployment, strength of domestic & global economies, strength of currency, debt structure, program buying/selling, inflation, changes in regulations, national debt and balance of payment

issues, actions by the Open Market Committee, war, acts of nature, demand for product/services, cost of labor, international tariffs and recommendations made by financial gurus.

problems and obstacles associated with achieving our individual financial goals include ignorance, bad luck, bad timing, too many current wants/needs and lack of investment capital.

Figure 5 - Evaluation Matrix for Investments

Name: Age: Income Bracket: INVESTMENT ALTERNATIVE	INVESTMENT OBJECTIVE		Asset Allocation Percentage	Rate of Return	Risk Potential	Day to Day Changes to Principal	Timing Consequences	Opportunity for Reinvestments	Except Rate of Return Lower numbers are best Beta --> 1 indicates volatility
	I N C O M E	G R O W T H		Total	Beta	Range	Range	Range	
			100%	0-15%+	0-100	0-10	0-10		
Certif. of Deposit Banks Credit Union									
Mutual Funds Bonds Stocks Money Market									
Bonds - Govt. Federal State Government Municipal International									
Bonds - Corporate Quality Bonds Junk Bonds									
Stocks Blue Chip Income Growth REIT									
Limited Partnership									
Real Estate Personal Residence Income Investments									
Art/Collectibles									

If we accept the concept that investment by any individual is like running a corporation or starting a construction project with definite milestones and objectives, along with cost, schedule and quality as criteria for starting, managing and controlling the project, we can safely say that one can achieve his/her financial goals much more easily.

DIFFERENCES IN VE FOR PERSONAL FINANCES VS. CORPORATION

We have identified two clear differences between performing VE on a construction project for a corporation versus using it to enhance personal finances. One of the differences is that for individuals, depreciation is not allowed as an expense. The other difference is that risk analysis in an investment environment is much more pronounced for an individual than for a corporation. Potential

CONCLUSION

We have demonstrated that the financial model of a corporation and that of an individual are nearly identical. From that premise, we have extrapolated that the VE principles we typically use to increase the net worth of a corporation to show how we can increase the net worth of each of us as individuals. In that regard, we have presented a FAST Diagram to illustrate the interrelationships between the primary and secondary functions associated with personal finances. We have shown how early planning and execution is more effective in achieving our financial goals than starting late in life. We have examined the various stages of the VE methodology to demonstrate how it can be applied to enhancing personal finances. As a result, we can conclude that the use of VE principles and methodology to enhance our personal finances is valid, appropriate and can be

very effective.

I hope that this attempt to apply VE in a new way will inspire others in the field to develop and promote additional new applications for VE.