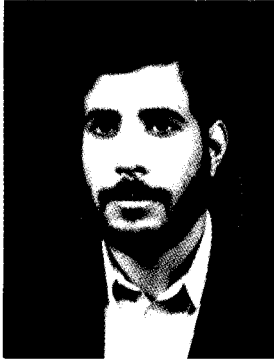


TOTAL VALUE MANAGEMENT (TVM): A VE-TQM INTEGRATION.

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ABSTRACT

This paper is the result of my experience and research on Value and Quality. This is the first of series of papers to follow. The purpose of this particular paper is to introduce, for the first time, the Total Value Management (TVM). TVM has been recently developed by me. It is a new management approach that uses the techniques of Value Engineering (VE) and integrate it with the concept of Total Quality Management (TQM) . This paper is for those who have basic knowledge of both VM and TQM.

INTRODUCTION

Ever since the development of VA/VE and TQM, The notion of re-inventing has been surfacing. The mind-set for both moves back from solving the apparent problem, and take a " What if" approach to major portion of process. This rejection of immediately moving to problem-solving is considered by many as " the soft side " of TQM.

Before we go further let us define some of the terms that are often used in management.

What is management ? and Is it a science or art ?

Whenever we talk about management we, often, hear some that say it a science while others say it is

an art. Which way is it? Scientists attempt to leave a clear record of their progress and methods so that others can climb on their shoulders to reach still farther into the unknown. Art, on the other hand, is more objective than science; it relies more on impulse and emotion. Personal feelings legitimately play a greater role in artistic endeavor, give six scientists an identical research protocol and each will replicate its findings in a uniformly predictable manner. But give six artists the same figure to paint, and each will turn out a different but equally valid interpretation. There appears to be more room for the personal touch in art than in science. The question we need to ask here is: does the practice of management demand objective scientific rationality or the subjective flair of the artist? Like the question of professionalism, this question is a source of considerable controversy in management circles.

Therefore, offering a quick but static textbook definition for management is not enough. However, instead, we will build our definition foundation in two phases. First, the definition itself will be presented. Second, and important, the key terms of the definition will be examined. Both phases are necessary for an adequate understanding of the term management.

Management can be defined as "a problem-solving process of effectively achieving organizational objectives through the efficient use of scarce resources in a changing environment".

Like an alarm clock taken apart by an inquisitive youngster who wants to know what makes it tick, this definition of management needs to be broken down into its key terms to reveal what makes it tick. The terms examined here include

- Problem-solving process.
- Organizational objectives.
- Effectiveness versus efficiency
- Scarce resources
- Changing environment.
- Analysis versus synthesis

PROBLEM SOLVING PROCESS

Problem solving is a learned skill. Within the ranks of management, problem solving often is awkwardly handled, principally because managers have not taken the time to study problem solving as a logical process with identifiable steps. To leave out a step is to risk not solving the problem at all. Managers who are good problem solvers are careful not to get caught in the "same old rut". They are not afraid to try new and different things, and they are capable to learning from their experience. Managers who do not understand and aggressively pursue their role as problem solvers are likely to be trapped in quicksand of irrelevant detail.

Organizational Objectives.

Every successful organization must have objectives. An objective is a target, a goal to be worked and achieved. There are personal objectives as well as organizational ones. Systematic planning for one's life becomes possible only when one has carefully formulated objectives. While personal objectives are typically within the reach of individual effort, organizational objectives require collective team effort. The complexity of team effort necessitates systematic management. Organizational objectives give the management process purpose and direction. Without these objectives the management process is like a trip without a specific destination aimless and wasteful

Effective Versus Efficiency

Drawings distinction between effectiveness and efficiency amounts to much more than a semantic exercise. The relationship between these two terms is important, and it presents managers with a never-ending challenge. Effectiveness is accomplished by achieving a stated objective.

Swinging a sledgehammer against the wall may be an effective way of killing a bothersome fly. In addition, one demonstrates efficiency if that objective is achieved without wasting resources such as time, talent, or money. Efficiency thus has to do with the relationship between inputs and outputs. Although a sledgehammer is an effective way of killing flies, it is not very efficient when one takes into consideration the wasted effort and smashed walls. A fly swatter is both effective and efficient.

Managers are responsible for crating a balance between effective and efficiency. On one hand, they must be effective by getting the job done. On the other, they must be efficient by reducing cost as much as possible and conserving scarce resources. Too much emphasis in either direction leads to mismanagement. A manager who is a stingy with resources will not get the job done. A manager who wastes resources may get the job done but go bankrupt in the process.

Scarce resources.

We live in a world of scarcity. There is only so much of any giving resources to go around. Managers are looked upon as the trustee of scarce resources. their job is to see the basic resources are used efficiently and effectively.

Changing Environment

Increasingly, the world is characterized by rapid change. Social standards change, styles change, resource availability changes, technology changes, and law change. Motivating peoples to work harder by threatening them with the loss of their jobs is not practical and more. Motivating people is therefore more difficult than ever before.

Analysis and Synthesis

Those who think analytically approach the task of learning by taking things apart. Then, if they are skilled in analysis, they study the parts and see how they work together as a whole. Analysis consists, first, of taking what is to be explained apart-disassembling it, if possible, down to the independent and indivisible parts of which it is composed; secondly, of explaining the behavior of these parts; and, finally, aggregating these partial explanations into an explanation of the whole.

Synthesis is essentially the opposite of analysis. Whereas something is taken apart through analysis,

things are combined to form a complex whole through synthesis. For example, the synthetic fabric nylon is synthesis or combination of chemical compounds. Synthesis, then, can be defined as putting parts together to form a meaningful whole. Synthetic thinking amounts systems thinking.

Analytic thinking is, then, outside-in thinking, synthetic thinking is inside-out. Neither negates the value of the others, but by synthetic thinking we can gain understanding that we cannot obtain through analysis, particularly of collective phenomena.

VALUE MANAGEMENT (VM)

Before we define TVM, let's take a quick look at the concept of both VM and TQM.

Value is defined as "the lowest cost to satisfy required functions, needs, desires and expectations of the user". Therefore, Value is a function of Function, Quality and cost and can be expressed by the following value index formula:

$$\text{Value Index} = \frac{\text{Function} + \text{Quality}}{\text{Total Cost}} \quad \text{(Formula 1)}$$

Function: The essential work that the item must do. The reason for its existence.

Quality: owner/end user requirements, desire and expectation

Total Cost: the Life Cycle Cost (the capital cost plus the periodical and annual operating cost over the assumed life span)

Therefore, Value Management can be defined as " A systematic team effort approach used to improve quality and performance of products, engineering projects, systems, processes or services at the lowest and most efficient Life Cycle Cost (LCC) possible".

The VM team does that by following the standard VE Job Plan as shown in figure 1. The heart of VM process is the function analysis. A VE workshop without function analysis is nothing more than " cost reduction" measures. Function analysis is the key factor for a successful VE study. Therefore, a considerable time of the VE workshop must be spent on defining, discussing, analysis and brainstorming functions. The function of every component is defined and then classified into three categories as follows:-

Basic Function: The specific work of the item, It is a must for the system to work.

Secondary Function: A desire, preference or want that supports the basic function.

Required Secondary Function: It is necessary function for the basic function to work.

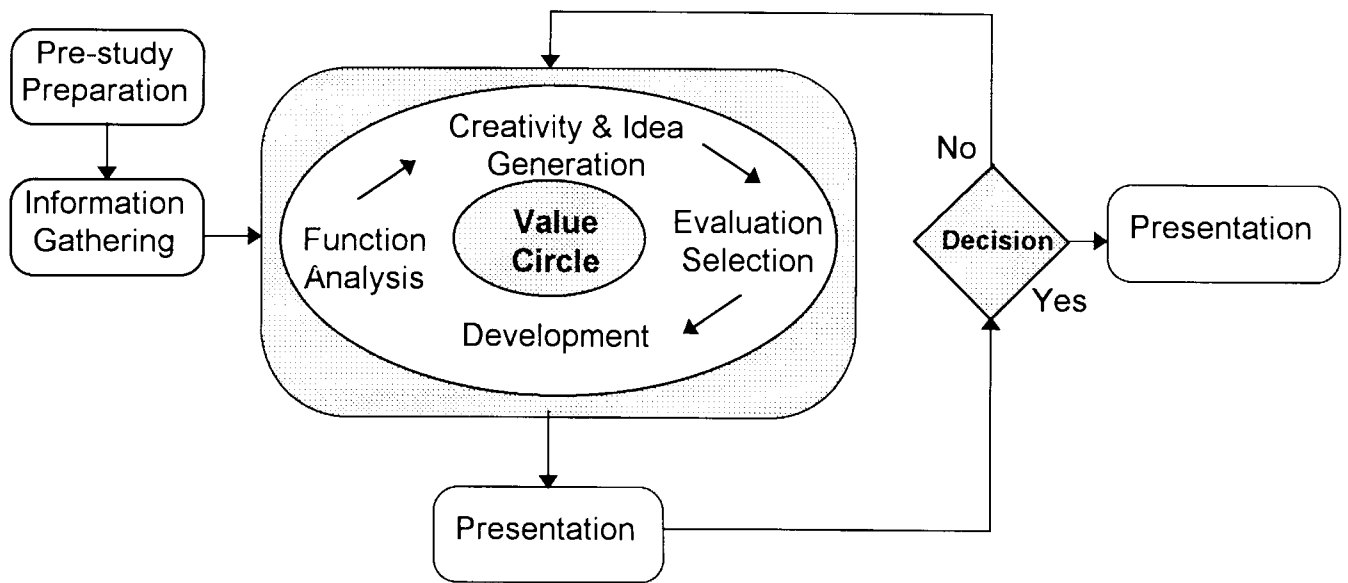


Figure 1. Value Management Cycle (Job Plan)

TQM

There is no agreed upon definition of TQM at the moment but different authors have defined it differently. Better understanding of TQM can be accomplished through the definition of the three words that comprise it.

Management is the process of performing activities through the efficient use of resources.

Quality is simply meeting the customer needs, desire and expectations.

Total means total involvement from the CEO to the labor.

Therefore TQM can be defined as "A cooperative form of doing business that relies on the capabilities of both labor and management, using teamwork, to continually improve quality, economy and productivity to complete satisfaction of the customer".

Value Management and Quality

VM seeks optimizing and improving decision making to realize the optimal expenditure of owner funds while meeting required function at the lowest life cycle cost. VE is a methodology that is comprised of many useful techniques that create change on purpose rather than letting change occur accidentally.

VM methodology is used to identify and initiate improvements that establish an attitude and awareness of TQM. VE and TQM are synergistic in that they achieve better management of groups of disciplines than if the discipline were managed as discreet, independent entities.

TVM as a Management Problem Solving process.

Partial understanding of any given problem can be achieved by taking the unknown apart through analysis or by viewing it in its complex wholeness through synthesis. But in management, as in all sophisticated endeavors, partial understanding is not enough. Both the student and the practitioner of management need to bring their creative abilities into play to arrive at the best course of action. In a sense, problem solving acts as the creative bridge between analysis and synthesis. It allows us to rearrange knowledge gained through analysis and synthesis to come up with new ways of doing the job at hand.

What makes TVM different ?

Once a problem and its most probable cause have been properly identified, attention must turn to generating alternative solutions. The greater the number of potential solutions, the more likely that a workable solution will be found. Just as a public utilities need to generate more electricity than is ultimately consumed, because of energy loss during transmission, managers need to generate a surplus of solutions. This is where creativity plays a major role. Unfortunately, creativity is often shortchanged. To get more alternative, several ways of thinking can be used. Some of which are:

Vertical thinking Vertical, or "straight up-and-down" thinking tends to be narrow. Vertical thinkers are likely to start at one point and work systematically in one direction at a time. For this reason, they may be unaware of significantly different alternatives.

Lateral thinking Lateral thinkers start at one point-or several and move sideways in a number of different directions. They are broad thinkers. While a vertically-thinking oil well driller would tend to keep drilling would drill to moderate depth in a number of different locations. the lateral thinker does not put all of his or her problem- solving eggs in one basket. Since more than one potential solution should be thought up for each problem, every manager should be capable of shifting from vertical thinking to creative lateral thinking. And he or she should take the time to do so, even though lateral thinking may be somewhat difficult for managers who have been conditioned to steadfastly pursue objectives.

Systematic thinkers Managers who rely primarily on systematic thinking prefer to attach a problem in a logical manner. Managers with systematic style like to grab hold of a problem and not let go until it is solved. They may ignore their health, finance, family and other interests in the process.

Intuitive thinkers These thinkers tend to see the systematic thinkers as an unemotional and coldly rational individual who isn't particularly interested in people's feelings. Fixed problem-solving sequence typically do not appeal to intuitive thinker, because they like to jump around form technique to technique and from idea to an idea. Manager with an intuitive style may seem to jump to conclusions, posses little patience for details, and prefer new and different problems.

Managerial Creativity

It is important to remember that any one of the previous types of thinking is not superior to the others. Productive organization needs all types. Flexible thinking is necessary. Therefore, TVM way of thinking comprises and uses all these types of creative dimension and makes the practice of management endlessly exciting. Nearly all problem solving requires a healthy measure of creativity as managers mentally take things apart, rearrange the pieces, and look outside the normal frame work to discover new solutions. Although the average manager's attempts at creativity may not be dramatically fruitful as Edison's or Einistine's, managerial creativity should be encouraged and nurtured.

What is creativity? Since creativity is a rather mysterious process, known chiefly by its results, it is difficult to define. About as close as we can come is to say that creativity is the reorganization of experience. Creative ability can be learned, in the sense that our creative energies can be released from the imaginary bounds of convention and narrow thinking. We can all learn to be more creative by looking at thing differently.

What is TVM?

By combining the definitions of both VM and TQM, TVM can be defined as:

"An organizational improvement methodology that focuses on defining organizational processes to integrate work, increase consistency and shorten process cycle time".

TVM means taking a second look at the problems that faces the structuring of an organization., as in VM, to achieve Continuous improvements, as in TQM. So, it is a complete re-thinking of the entire design of processes, that achieves dramatic improvements. TVM organized around outcomes, not tasks. It challenges why we do what we do over and over and it gets down to the basics and asks Why are things the way they are?

Even though, TVM approach may takes more time than expected and involves more resources than available it definately presents problems and defects no one anticipates because it puts the decision point were work is performed and links parallel activities instead of integrating results.

Planning should be approached systematically, not on a hit-or-miss basis. However, when managers begin thinking about building a planning system for their organization, they should be thinking "Strategic Planning". Strategies are general programs of action with an implied commitment of emphasis and resources to achieve a basic mission.

Due to the lack of problem definition, more than 60% of all TQM implementation have failed. Good problem definition is the first step of improving quality. Therefore, developing quality culture is prerequisite for successful implementation of TQM. TQM implementation has proved difficult in non-Japanese organization where people are highly discipline and have a great respect for their culture.

Many characteristic of unacceptable qualities can be traced to the decisions and changes taken during design and management process. Decision made at early stages are critical and make the greatest difference. Taking the right decisions at early stages will save a great deal of time, effort and money. Furthermore, the level of acceptance of decisions and changes is high at the early stages and decreases as the project cycle progresses.

If we take a look at organizations, we can see that most of them lack consistently effective business processes. Why? Because work is still centered around some specialists who are boxed inside of their usual way of doing business, e.g. finance departments, marketing, production , procurements, designers.

Every department has its internal performance measures both formal and informal. There are sub-optimized across the "walls" that separate them from other departments. All this is at the expense of the company and adds no value to the customer. In competitive global marketplace, this tradition has to be replaced with one that answers each question about our work with because it adds value to our customer.

Many mangers still manage their work according to the operational model set in the 18th century by Adam Smith and Frederick Taylor. Their principles is based on the hierarchical organizations with employees quite different from today. They worked wonderfully during the industrial revolution two centuries ago, but are they suitable as we enter the 21st century?

Many people have tried to improve the management process by cosmetically restructuring

organization staff; by using MIS; by increasing office automation; etc. But, still, we see little innovation, and frequently poor value products. why is that? Why couldn't computers solve this problem? Before we automate our office, do we, first, take a second look at our system and work flow?.

Improving an inefficient process is useful. But suppose the process isn't really necessary? What if the process is nothing more than "The way we always do it around here". Then the process improvement is no more than a waste reduction measure, not waste elimination. How will you know the difference?

Most organization have their formula for today's success firmly rooted in their past. It's hard to find a CEO who doesn't believe " we're doing every thing that can be done". But history refuted the notion that success is a plateau on which one may rest. Should we ask "How can we improve what we do?" or challenge the system by asking "Why do we do what we do, the way we do it? what value does it add? In whose opinion? How do you know?" Perhaps the ultimate test is asking "If we could start over, would we be doing it this way?"

TVM Role out

By nature, we are all problem solvers. However, this does not mean that all of us are good problem solvers or, for that matter, that we even know how to go about solving problems. Most day-to-day problem solving occurs on a rather haphazard, intuitive basis. Some difficulty arises, we quickly look around for an answer, jump at the first workable solution to come along, and move on to other things. In a primitive sense, this sequence qualifies as a problem-solving process. It works quite well for impromptu social activities. But managers, those who are charged with effective and efficient organizational goal accomplishment, cannot afford to take such a haphazard approach to problem solving. The TVM problem-solving steps consists of four basic steps as indicated in figure 2.

CONCLUSION

It is time to explore the methodology and techniques of VE/VM into the concepts of quality improvement. Nowadays, we are witnessing the challenge of the way we think about and see their staff, their work delivery system, and measurement. Treating these variable as if they were constant

shapes the pathway to the back of the line. There is a great difference between getting there, being there and staying there. The most valuable asset management has to keep their firm leading the pack is discontent. With out discontent, there is no need to change.

The ever changing work culture and the globalization of world economy demands that we do not accept the status quo and farther challenge it and have a long-range perspective rather than a short range view. Accordingly, we have to innovate rather than administer, originate rather than imitate, develop rather than maintain, ask what and why rather than how and when and, above all, we should inspire trust by focusing on people rather than relying on control by centering around systems and structures.

VM-TQM integration create quality culture an awareness of the surrounding and the upcoming global cultural and economical changes. Consequently, it shapes the path for TVM. Only managed fundamental changes will lead to substantial improvements founded and supported TVM approach.

Acknowledgment:

Special thanks to of Mr. Robert Kreitner, the author *Management: A problem-Solving Process*, where most of the material of this paper came from.

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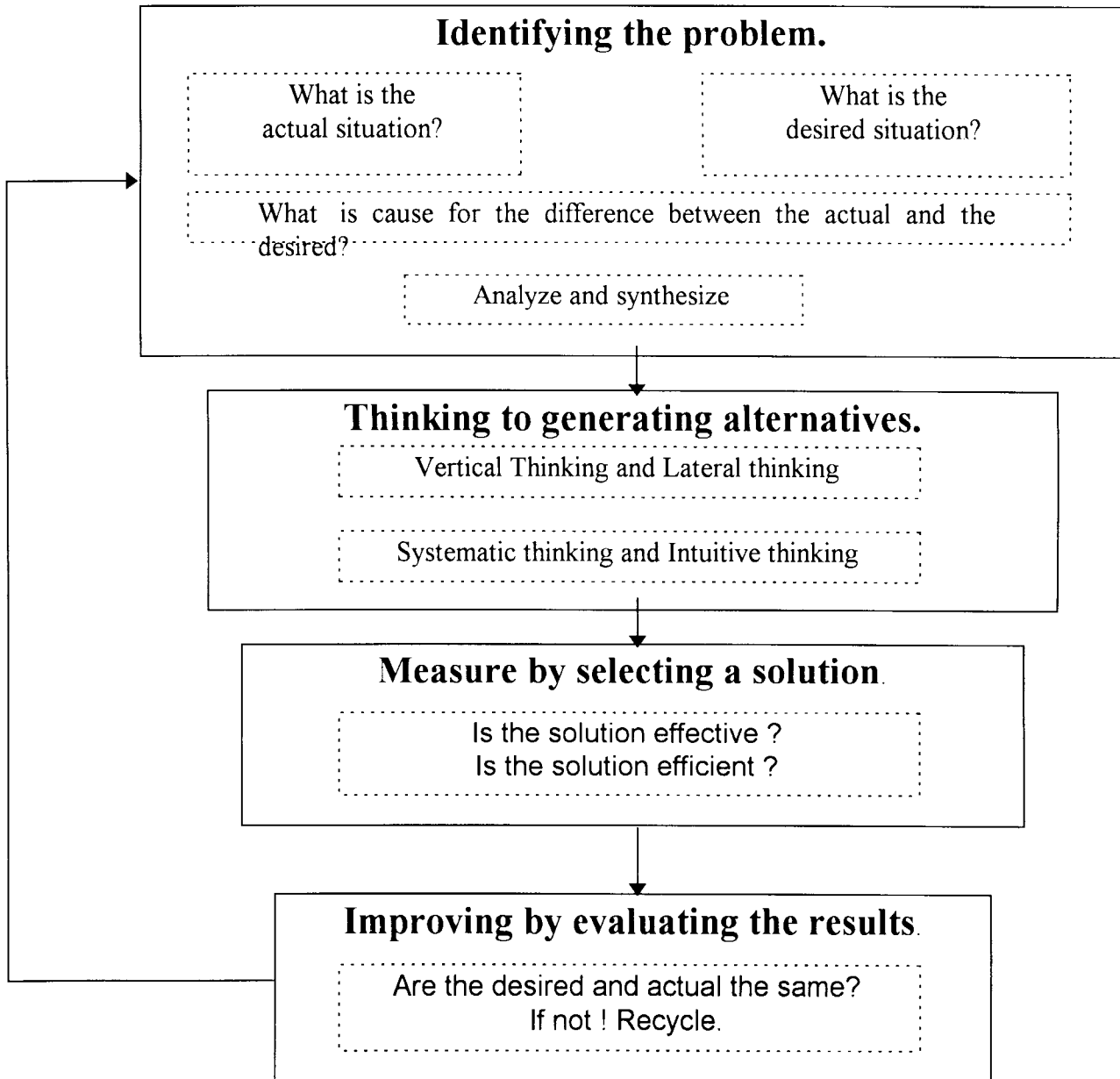


Figure 2. TVM™ Role out, by A.S. Al-Yousefi