

FORWARD TO THE BASICS: CREATE-BY-FUNCTION
(First of a series)

Theodore C. Fowler, CVS, Fellow, SAVE
Fowler & Whitestone
Dayton, Ohio

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Theodore C. Fowler, CVS, Fellow, SAVE

Theodore C. Fowler is the Managing Principal of Fowler & Whitestone of Dayton, Ohio. He has practiced value analysis since being introduced to the process through an LD Miles-directed Seminar Workshop in 1955.

ABSTRACT

During its 40-year life, value analysis (VA) has undergone much significant change. Most of these changes have helped the process. Some have damaged the process.

Some of the more damaging changes involve the loss of key fundamentals which were developed in the 1950s by Lawrence D. Miles. This paper discusses the common failure to effectively utilize Miles' *Create-by-Function*. Future papers will discuss the remainder of the damaging changes.

VA HAS CHANGED

VA has undergone much change, some good, some bad.

Among the good changes are: (1) the development of most forms of FAST Diagramming, (2) the rising focus on the User/Customer, (3) various methods of Value Targeting to direct the application of value analysis effort, and the increasing use of (4) Combinex® and (5) Gantt Charting.

Among the bad changes are: (1) the increasing tendency to ignore Miles' Create-by-Function system, (2) The increasing public bewilderment caused by the diffusion of the VA name into value control (VC), value engineering (VE), value management (VM), et cetera, (3) An increasingly common failure to require that the "key people" be on the team, (4) The common loss of creative potential through the failure to follow-through on ideas or concepts which deviate from the norm, and (5) The increasing use of teams which are not effectively cross-functional.

FOCUS ON FUNCTION

Lawrence D. Miles, in the 1961 edition of *Techniques of Value Analysis and Engineering*¹ said ". . . the question of foremost concern is: What else would do the function or in what other ways could it be reliably accomplished?"

Miles further stated that ". . . the search for, and the selection of, alternatives must be constantly focused on function and not merely on a material, part, or device as such."

These words from the creator of VA are part of the catechism of all value practitioners. Unfortunately, they are also difficult to handle and are therefore often ignored.

Over the years, thousands of practitioners of VA, or its variants, VE or VM, have been regularly faced with the problem of explaining the "function thing" to management and team members. They usually persevere, but two influences sometimes compromise their efforts:

UNINVOLVED MANAGEMENT

The first influence is an operating management which does not understand that the power of the functional approach is the source of most of the remarkable results of VA.

In 1963, a major US corporation received a subcontract for a multi-million dollar computer system for the Skybolt missile. In the contract was a line-item of \$1.5 million for VA. The Program Manager told the VA Manager that he would cooperate completely, "just as long as you don't get into that function business." To his credit, the VA Manager stuck to his guns and insisted on getting into that "function business", but the Skybolt VA program was severely compromised.

All too often, unfortunate pressures such as these are difficult to resist. The problem is the general principal of business that "Authority stems from the source of funding." One's inclination is to favor the viewpoint of the person who pays one's wages.

POORLY TRAINED VALUE ANALYSTS?

The second influence is the failure by many value practitioners to understand that, while certain of the precepts of VA are optional, there are a few which are essential to success. One of these is Create-by-Function.

CREATE-BY-FUNCTION

In recent years, a significant number of VA programs have de-emphasized the functional approach to the point where its original power has been emasculated. After a perfunctory exercise at function definition, the Creative Phase degenerates into simply an old-fashioned brainstorming session, wherein the key question is: *How can I make or buy the product for less money?*

The focus of the VA Creative Phase must always be: *How can I obtain the Function for less money?*

WHAT'S THE DIFFERENCE?

Without a *Function Focus*, a value program simply mimics the original design process. It second-guesses the original design team, admittedly an approach which results in obvious design improvements, but involves no new problem-solving viewpoint. The *Function Focus* forces that new viewpoint. Creating-by-Function is reaching to the limits of the envelope and beyond. There is much evidence that VA training workshops make little or no effort to demonstrate to participants that there is, indeed, a significant difference between the two approaches.

It is critically important that participants realize that Create-by-Function is the heart of Function Analysis, the single unique element of the VA process. They can only become convinced of this distinction by being methodically exposed to many analytical comparative case studies which demonstrate the dramatic improvement in the quality of results when using the functional approach.

WHY ISN'T THE DIFFERENCE OBVIOUS?

Simply because any problem-solving system will identify 5% to 10% in potential cost savings. Those who have not been trained to expect more from VA are often satisfied with such pathetic, or at best, prosaic results. A properly operated VA study will typically identify and implement changes worth 25% to 35% in potential cost savings.

**BUT THEY ALL CLAIM THAT THEY DO
ANALYZE FUNCTION!**

When we raise the question about an apparent lack of function-focus in a VA study, the study leaders often tell us that they do use function! I suggest that in such a case you observe their actions — or read their training manual.

A recently published corporate VA/VE manual leads off with three detailed VA case studies which clearly make no use whatever of function definition in the problem-solution process. When challenged, the leaders of this training effort claimed that they were using function.

We have found that many of those who claim to use the functional approach really mean, "First we define function. Then we brainstorm the problem." When they are asked why they bother to go through that function definition step if they don't Create-by-Function, their typical response is, "The reason we lead the participants through a function definition exercise is to *loosen up their thinking*."

My response to such a statement is to suggest that the speaker get some help from a professional value practitioner. It is worth noting that my suggestion is always ignored. There are two reasons for this:

- (1) I find it personally difficult to handle myself in a diplomatic manner when faced with this all-too-common response.
- (2) The speaker is content with his or her 5% or 10%. Management is also satisfied with his performance. He or she hesitates to rock his boat by changing his approach — and who would ever believe the 25% to 35% figure anyway?

A CALL FOR ACTION

So, you see, it is not sufficient that SAVE examine and certify Value Specialists. An apparently increasing proportion of CVSs can pass the test but do not really understand critical elements of the process.

I suggest that the vast majority of Value Analysts who do understand the concept of Create-by-Function dedicate themselves to spreading the word to those who have gone astray.

1 *Techniques of Value Analysis and Engineering*, Lawrence D. Miles, McGraw-Hill, NYC, 1961