

THE MARRIAGE OF THE VALUE METHODOLOGY WITH 21ST CENTURY TECHNOLOGY

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ABSTRACT

The Value community may want to focus on a new higher level function than those of the past. Save costs, improve efficiencies or avoid costs may no longer be enough functional reason for Businesses today to utilize the Value Methodology process.

When integrated with 21st Century technology tools, the Value Methodology can be as robust as any available for providing the Decision Maker with the means to achieve a higher level function such as, "Gain Competitive Advantage." Making business decisions more reliably and faster to provide the "Time to Market" advantage is where the key opportunities exist to aid Business in the next millennium. The focus on competitive advantage can be greatly enhanced by using the synergy of the Value

Methodology process and Group Decision Support Systems tools.

This presentation will overview the GDSS systems, how they work, operate and complement the Value Methodology process. The marriage of these two diverse techniques will be discussed using the attributes of several GDSS products. A discussion of how they interact and are positioned to allow business to utilize the Value Methodology with 21st Century technology will be addressed.

INTRODUCTION

This paper is designed to describe the areas of similarity and overlap between the Value Method process and the tools of the Group Decision Support System. It will show where and how they have been

and might be utilized. Also, this discussion provides a description of the integration of these two applications and an understanding of the synergy that can develop to support business in the 21st Century. It assumes the reader has an understanding and basic level of knowledge of the process and procedures of conducting a Value Methodology Study.

Today more than anytime in the past, business is facing seemingly overwhelming challenges. Many of these challenges appear to be in the arena of the management of time. The focus is on increasing effectiveness (doing the correct Things) and improving efficiency (doing Things right). Decisions must be made in a timely manner. The decisions that are made must be quality ones or they adversely affect the execution. Decisions made without all the facts and relevant information often result in after the fact re-work to account for missing information or to correct a decision made in haste.

How do we in the Value Community help businesses make decisions quicker? How do we aid them in solving problems more rapidly? Can we problem solve more reliably for them so that re-work from poor quality decisions or processes are eliminated? The final question is, Does it matter?

The second arena of challenge is competition. Businesses depend on their competitive edge to provide the leg up on their competition. This edge may be product differentiation, level of service differentiation, uniqueness of the product, price, time to market as a source of competitive advantage. If a business cannot maintain its competitive edge, or develop new ones, it will succumb to the competition.

If the questions that are posed are not answered positively the short term impacts for business are wasted time, resources, lost revenues and reduced market share. Long term impacts may be as drastic as the loss of the organization or company.

From the Value Methodology perspective, the solution is at hand. Whether using Value Engineering in the Construction, Process or Manufacturing fields, or Value Management in the Human Resources, Management and Organization Development areas, Value Methodology can provide solutions to the previous arenas.

However, there is a significant bump in the road. If the perception is that the Value Methodology process is not appropriate, not responsive, or too slow to be of assistance, the Decision Maker will not seek to use the Value Method. Also, if the decision process is susceptible to both of these management decision arenas, the Value Methodology may be the last thought considered in terms of a solution. The

ultimate impact on the Value Community may be that business will find other processes to assist them and further discard the Value Method as not relevant or responsive in solving their critical problems.

Another question that has been postulated is, "If this process and solution is so viable and effective, why isn't every one using it?" The answer to this is complex and has to do more with human behavior than anything else. Therein lies the solution.

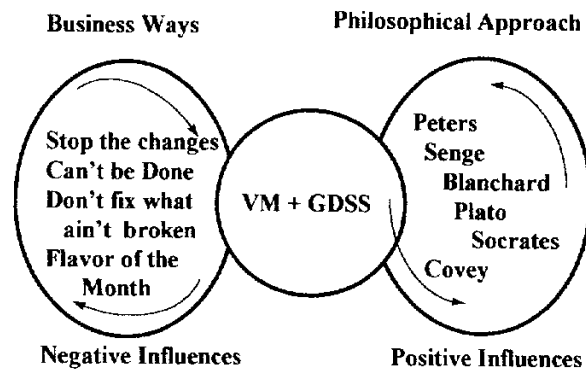


FIGURE 1. Problem and Solution Meet

If you look at Figure 1, you will see the left hand circle that represents business doing business the usual business way. The circles flowing in a clockwise fashion represent the negative standard answers for any innovation or change such as:

It won't work here.
 We don't have time to do it right.
 If it isn't broken don't try to fix it.
 This is the way it has always been done.
 Just hang on and we will out last them.
 Etc.

The circle on the right represents the philosophies of business. The Counter clockwise flow represents the positive practices that have been around since the written word, all very similar, and have been articulated by:

Socrates, Plato,
 Peters, Senge, Covey,
 Blanchard,
 and many others

The center circle represents the union of these two seemingly dichotomous approaches. This circle represents the "How To" link to put the two together,

with a process and a delivery system. The keys to integration of these two separate circles are:

1. To provide a link that is transparent when is use;
2. A process that doesn't require the major up front "Culture Change" which we have been accustom to participating in;
3. It is almost incestuous in bringing about the kind of internal upheaval necessary to cause an organization to change.

It is this last circle that this paper is addressing which is a solution marrying the Value Methodology and 21st Century technology.

BACKGROUND -- Setting the Stage

When business decisions of major magnitude are not made in a timely manner, the result can be extremely negative. This means the lengthy time spent on studying and restudying must be reduced. A question has been posed: "Why does this indecision occur?" Several possible explanations exist as to why management vacillates on making important decision.

1. *The Trust Factor:* It is as if management is inferring, "We do not have a good enough feeling that you looked under every stone for every possible solution."
2. *The Belief Factor:* Management does not believe the study because they do not like or agree with the recommendation.
3. *The Verification Factor:* Management already "knows the answer" and simply wants documentation for justification to support their position.
4. *The Political Factor:* Management does not place any value added in the individual, team or organizational effort.
5. *The Delay Factor:* Management does not want to make the decision at all and continues to use "study the issue" as a stonewalling response. This delays the decision in hope that a long enough delay will make the problem go away.
6. *The Dump Factor:* Management postpones the decision to provide the opportunity for their replacement to deal with the problem.

This starts the negative decision cycle of problem solving all over again by recycling the management circle of indecision again.

When the decisions that are made are done so without the benefit of good information, the result can be even more negative. This is true when the relevant information is ignored. It also applies when

management does not take adequate time to plan and evaluate the options. This may be due to the lack of a robust process that can aid management in the decision process. As has been stated by E. S. Quade:

"It is more important to choose the right objective than it is to make the right choice among alternatives."

Another mitigating reason arises because of not consulting the internal Subject Matter Experts (SME's). Theirs' is the task to support and implement the decision. Discounting their input can be categorized into many "justified reasons." These reasons include: lack of time to consult the SME's; not being perceptive enough to take advantage of the "Intellectual Capital of the Organization"; top management's view of the capabilities and capacities of their unit supervisors; internal politics; "We want a fresh look at the issues."; and a host of other "justified, good reasons." The result is that the organization looks outside itself for "Consulting Power" to solve the problem. This selectively non-utilized information, also known as compartmentalization of the information process, can be fatal to an organization, increases the expenditure of funds on consultants, and will further exacerbate time and re-work situations.

Note: In this area some Value Methodology practitioners may take partial exception to the suggestion that fewer consultants are preferred while depending on more internal experts. Many times the firm is willing to take this approach because of the previously stated reasons. Also, because the firm may not have knowledge about their internal experts or they have a bias against using "internal experts" they follow the guidance of their Value Methodology consultant about the make-up of the team.

Certainly, there are times when outside help is necessary. It may be required in scheduling conflicts, when the company is actually missing the expertise or when the internal experts "admit" knowledge gaps on the subject area. However, although no statistical study is currently available, the evidence gained in over 110 VE studies and with 40 different Business and Government organizations has shown that there is a direct negative correlation between the number or percentage of external consultants on the team and the successful execution of the approved VM recommendations. The larger the number or percentage of external consultants, the less likely the successful execution of the approved solutions.

There is a balance that must be achieved between the need for **rapid** decision making and **quality** decision making. This balance is designed to prevent the inevitable rework needed to correct poor decisions or inadequate processes. It allows business to keep from missing windows of opportunity for lack of an expedient decision process. By focusing on better and more timely decisions the people symptoms, those reactions that occur from poor decision making can be avoided, such as: lack of confidence; decreased morale; and employee initiated transfers. On the other side of the coin, it has been said that the most efficient plan poorly executed is not as effective as a poor plan executed on time. **The optimum is timeliness with the correct information.**

The market place pressures that are being exerted today impact throughout an organization. The ability to react quickly to change and opportunity is at the forefront of a businesses' capacity to compete successfully. The ability of a business enterprise to respond fast and effectively, while always important, has become the key factor in strategic competitive advantage, taking center stage as the point of differentiation for the business. Businesses are either leading the pack or they are being overcome by competition that is more responsive or timely.

The time to market has become the competitive edge of choice. Whether this is a new product introduction, (before some other bright star rolls out the product) a product enhancement, (to counter the other rising bright stars) or a product modification (to adjust to regulatory, safety, legislation, or technology shifts), timeliness is critical.

In either vertically integrated business or horizontally developed operations, a second key is integration. The many players who span the integrated organization of suppliers, vendors, and raw materials providers must fit together and work in unison or harmony. Just as the component parts of the classic clock fit together, these players must work in synchronization. Being able to call on the correct people and develop collaboration among them is central. By focusing on a common goal that is truly win-win, and developing the consensus for buy-in, the cooperation for execution is maximized and conflict is minimized. As has been succinctly stated, "Every one has their oars in the water and they are all paddling in the same direction at the same time."

In the Value Methodology, the traditional or standard six phase process includes:

Information - Phase I
Function Analysis - Phase II
Creativity - Phase III
Evaluation - Phase IV
Development - Phase V
Presentation - Phase VI.

The use of the Value Method process is very powerful in providing the Decision Maker with a sophisticated means of processing a great deal of information. Also, it is very helpful to the participants when a large number of criteria and or alternatives exist for comparison. The focus is on the functionality of the process, items or attributes. Value Methodology is traditionally conducted with a team of varied experts to evaluate a system, design, process, or item for its function. They are attempting to identify whether there is a "better value" in accomplishing the same function a different way. At the very beginning of the process is the effort to ensure that the team is focused on the correct objective, which is the effort of being effective.

IMPACTS OF TECHNOLOGICAL CHANGE

Technology is rapidly overwhelming business as we are evolving to the next levels of knowledge. The visualization has been provided by Tom Peters in the following analogy;

You take the body of knowledge that existed from the beginning of man to the birth of Christ as one unit of knowledge. This unit of knowledge becomes the basic unit of knowledge for comparison purpose. The next equivalent unit of knowledge spans about 1000 years, to the dark ages. The next unit of time is about 500 years, to the beginning of the printed word. When you continue this process, the current time to generate a new equivalent unit of knowledge is approximately 13 months, as of 13 months ago.

We are rapidly getting to the point in time when the equivalent unit of time will be less than a year. We will then effectively leap frog one new level of technology over the previous level of technology. We are seeing this now in the computer and telecommunication industries. A new product roll-out is cut short by new technological developments in a

competitive area and a newer product makes the older one (4 - 6 months) technologically obsolete.

Fundamental pricing strategies that were previously cast in stone, are being completely re-thought. Long range marketing strategies are becoming short term tactics because competitors are able to get newer products to the market faster. The consequence is that the information from which business decisions are made, which were designed to last for months or years, is fundamentally altered. The underlying assumptions which the product development, marketing and pricing strategy through roll-out were based on are changing.

GROUP DECISION SUPPORT SYSTEMS

For business, and Professionals supporting business to keep up with this rapidly increasing pace, new methods and technologies must be incorporated. These new approaches allow for much more rapid information processing and on target, flexible and timely decision making. This represents an opportunity for business to maintain their competitive advantage by leveraging their "Time to Market" efforts for products, upgrades, or services. This new approach has been around for the past decade in a formalized manner. It has a proven track record of over 650 Business and Government organizations. This technology is known in two forms.

One is called Electronic Meeting Systems (EMS) and the other is Group Decision Support Systems (GDSS). For the remainder of this discussion, references to these two items will be addressed using the GDSS term. In its most dynamic environment, GDSS is designed to allow for simultaneous and anonymous input. GDSS allows for facilitated control, documentation, implementation planning and execution.

There are more than a half dozen commercial GDSS products available as well as several proprietary products. These products are decision analysis tools that support the Value Methodology. They are designed to help businesses analyze difficult decisions they must make and provide them the mechanisms to see the trees **and** the forest. These are systems tools that are best applied by groups or teams that must interact or collaborate and develop consensus for the decision recommendations. Some of the specific names of products that are included in GDSS are: Lotus Notes ®; CoVision's Council ®; Facilitate.Com ®; Simplot ®; ESI ®; and Ventana's GroupSystems ®.

The integration of the Value Methodology with the two specific applications discussed occurs within the philosophy of Systems Management. As can be seen in Figure 2, the specific methodology that is reflected is the Value Method because of its flexibility and robustness. The catalyst to allow the execution of the process to proceed much faster is GDSS with its associated tools.

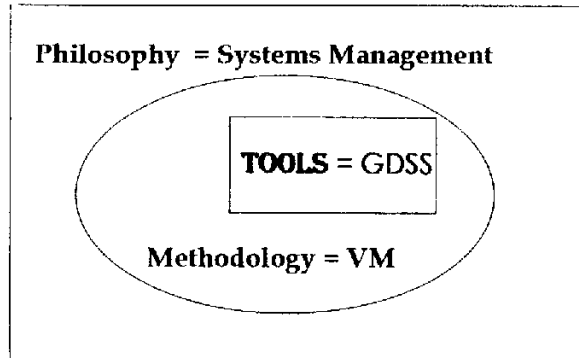


FIGURE 2. Systems Management

ATTRIBUTES

The use of Group Decision Support Systems will help the members of SAVE International accomplish their tasks significantly faster. A list of the capabilities available in the various GDSS products is shown in Table 1. Table 2 indicates the characteristics of GDSS.

<u>CAPABILITIES</u>	
Action Planning	Agenda Development
Brainstorming	Information Gathering
Consensus Development	Paired Comparison
Detailed Analysis Capable	Outlining
Distributed Sessions	Survey Development
Rank and Rate with weights	Execution
Multi-Attribute Analysis	Collection
Modeling	Analysis
Activities	Generation
Processes	Uncertainty Analysis
Functions	Pareto Analysis
Statistics	Force Field Analysis
Costs	Internet Capable
Risk	LAN capable
Life Cycle	Wan Capable
Voting	Risk Analysis
Report Generation	Cause and Effect
	Nominal Group Technique

Table 1. List of Capabilities

As the name infers, the various Group Decision Support Systems have the following attributes:

1. The use of groups or teams to solve a problem.
2. Use of the decision analysis approach to problem solve.
3. Systems view using models to tie together the various experts and subject matter areas of concern.

These attributes are accomplished by improved input utilizing an automated, networked process. The consensus developed by the participants, coupled with the collaboration, helps ensure better process decision making.

The fundamental goal of the GDSS system, regardless of how the individual product works, is support of groups or teams in decision making. The specific products run the spectrum as in any other product arena, from stripped down basic models all the way to the top-of-the-line model. There are products that work individually or in combinations on LAN (Local Area Networks), WAN (Wide Area Networks) or Internet environments. Some of the products are truly interactive and others are simply data base collection agents for distribution. Some offer truly simultaneously collaboration while others are merely information input tools.

The specific attributes these products have depend on the individual package. For example, a product might have the capability to conduct some type of information gathering and processing to consensus. This may take the form of:

1. **Brainstorming:** from the most rudimentary approach of throwing information out, to the most formal academic- based brainstorming approach.
2. **Nominal Group Technique:** is available from a basic approach of collecting the information randomly and anonymously, to applying the most formal approach by electronically selecting the best single idea submitted from each participant.
3. **Consensus:** development of the group on both specific items and on the big picture strategies using various forms of voting to identify areas of agreement or disagreement.

CHARACTERISTICS	
Anonymity	Exporting to Software
Multiple Input	Importing from Software
Simultaneous Input	Distributed Operations
Different Locations	Transparent to Users
Security	Different Platform Capable
Spell Checking	Variable Control to Users
Collaboration	Real Time Interaction
IDEF Modeling with Inputs, Controls, Outputs and Measures (ICOM)	
Use with Different Operating Systems	

Table 2. List of Characteristics

HOW GDSS FUNCTIONS **vis-à-vis THE VALUE METHODOLOGY**

Group Decision Support System in its most sophisticated form allows for each individual to simultaneously input data on an issue, question, or as an information dump. This supports the Phase I process step of the Value Methodology as previously described. Multiple collection methods are available and the participants can see their own input only, or be permitted to see the other members input. However, it is completely anonymous when viewed, unless an individual desires to "self disclose." The input is evaluated on its own merits. All items can be electronically categorized and prioritized quickly. Additionally, comments, questions and clarifications can be added to each item by individual team members, again anonymously. The electronic process methods vary, but usually include Brainstorming, Nominal Group Technique and Force Field Analysis, among others available.

Phase II, the FAST diagramming can be processed in a traditional manner and input to the GDSS system or can be developed by the team on line in an electronic version of the FAST diagram. What GDSS does at this stage of the process is to allow the collection of a large amount of information very rapidly because each team member does it simultaneously.

In Creativity, Phase III, GDSS allows for rapid development and working through the items for clarification, definition, and questioning. This is where the bulk of the time should be spent, instead of spending a lot of time on identifying what the issues are, as is normally the case. Prioritization follows with the initial Pareto Analysis, evaluating what is important to deal with. GDSS allows for a quick processing because it facilitates the team in focusing on the objective at hand and not straying off course, more so than in conventional facilitated processes.

Then the effort to identify the criteria, define it and apply weighting is much simpler because of the built in flexibility with specific tools designed for this process. The functionality is that unless you desire, no re-entering is necessary and nothing is lost or discarded because it is off the subject. It is actually captured for future use in a later, more appropriate discussion.

The next is, Phase IV, Evaluation. The generation of alternatives for the function(s) identified, as solution ideas, is similarly fast and simultaneously documented, as is the entire process. The evaluation of these alternatives is one of the main strengths of GDSS. It allows for input to rank and rate with weights the alternatives against the criteria. You can also use other previously developed spread sheet approaches and import them. Again, this is in a team environment with simultaneous inputs.

Phase V, Development and Phase VI, Presentation, are enhanced because of the electronic nature of the process. The display is visual, graphic and all information is available to all participants to clearly review to ensure nothing has been missed or overlooked. The report is built into the GDSS for instant display, can be printed or downloaded, without any reformatting necessary.

APPLICATION

Appropriate application and utilization of GDSS technology under the Value Methodology process include:

1. When there is a lot of information to cull through.
2. If there is a difficult unsolved problem.
3. If there are unknowns, uncertainties and risk is a concern.
4. If there is a time sensitivity need.
5. The group is seeking collaborative input and desiring consensus driven outputs.
6. Authority can or will relegate some control and share decision making recommendations.
7. When authority desires consensus buy in from all "owners" in developing recommendations and implementation.
8. Management desires collaboration from employees, management, and stakeholders.

Additional areas of consideration for application include the following: Training groups toward team development in the Value Methodology; Repetitive training of groups or teams that require input from participants, again applicable in the VM process;

Process Improvement Teams; and Continuous Improvement Processes are excellent places for GDSS. Decision analysis, recommendation generation, problem solving, decision making, writing, analysis, and the Value Method are highly enhanced when combined with GDSS.

Survey development, writing, and administration for various kinds of applications. These surveys include customer service, employee, supplies, vendor, internal and external, focus groups for marketing and product development. Also, the surveys for the VM team to generate information for further analysis can be developed, tested, administered and evaluated completely within the GDSS tool set. These may be final products or instruments for information generation at the front-end, mid cycle or in the evaluation stage of implementation.

Higher level technical applications include: modeling of process; analyze for weak areas; flow analysis; cost improvements; process improvement; supplier integration with the production team; and choke points. A few of the GDSS packages include the most robust analytical capabilities such as Business Process Reengineering; Strategic Planning; Project Management Integration; Activity Modeling and cost modeling

Some areas of disadvantage are the following. Like the Value Methodology process the use of GDSS is personnel intensive. Without people and their input little will occur. Because the tools are electronic they represent a necessary expensive resource. GDSS is technology and though the prices are falling it is not inexpensive. The facility for the workshop is more important than in a traditional setting because of the increased process activity. Though the various tools are mostly transparent to the users, the technologies must be understood by the technical support personnel and have proper IT support. As in all cases, when it works it is great, but when it does not, distracters are present. The practitioner must be capable of conducting the session in the traditional manner.

Inappropriate areas of utilization are when there is autocratic rule. When decisions can be made without great deliberation or autonomously, the application of GDSS may be counterproductive. The decision is already made and the decision maker is looking to work backwards to generate a "false" appearance of support, collaboration, and consensus toward this predetermined outcome. The usual areas where the application of VM would be inappropriate would be consistent.