

THE VALUE "ENGINEERING" IN BUSINESS PROCESS REENGINEERING - A BACK TO BASICS APPROACH

Mary J. Rus
Dept. Of Army, HQ, Industrial Operations Command
Rock Island, Illinois

As a Program/Management Analyst for the Dept. Of Army's Industrial Operations Command (IOC), Ms. Rus is a full-time Value Engineering/Analysis practitioner. Her primary responsibility is to oversee VE/VA operational studies for Watervliet Arsenal, NY and Milan Army Ammunition Plant, TN. Ms. Rus has also led and assisted in administrative VE/VA studies for the Plan, Analysis, and Evaluation Directorate at HQ, IOC.

ABSTRACT

Today's government is changing before our eyes. Our government has not always reacted well to change. The purpose of this paper is to:

- introduce you to two programs - Business Process Reengineering (BPR) and Value Engineering/Value Analysis (VE/VA).
- to explain the two programs similarities and differences.
- introduce Business Process Value Engineering (BPVE) and the Process Analysis Redesign Technique (PART) as important tools to use in managing future change.

When combined, the two programs can generate a powerful tool to generate a fundamental rethinking necessary for radical redesign of the government's business processes.

INTRODUCTION

Our "tried and true" VE/VA methodologies can be augmented to include the intensity and drastic cultural changes required in BPR reinvention. The

concept of fundamentally changing the way we conduct business within the federal government is a fresh, new output of the National Performance Review and the Paper Work Reduction Act of 1980. Organizations in the 21st Century will thrive if they focus on their Missions and strive toward their Visions. Since the beginning of my training in Business Process Reengineering, I noticed similarities between BPR methodologies and VE/VA methodologies. They are separate programs within the federal government, yet have the same objective. Both require a management philosophy conducive to fundamental rethinking and redesign of manufacturing and business processes to improve performance.

Much has been written recently about BPR in business journals and trade magazines. It seems that BPR is the latest and hottest management craze to hit the government. However, before Vice President Gore's big push to reinvent government, before the NPR, before the Macarena, there lived a program. This program required the same fundamental rethinking (out of the box) as BPR. This program fertilized peoples intuitive logic and creativity. This same program still exists today - Value Engineering/Analysis, founded by Mr. Lawrence Miles.

Today's interests are on first defining the organizations' business processes, then streamlining around them. When organizations use Business

Process Reengineering in conjunction with proven VE/VA methodologies, they can better manage “the mission” within the Dept of Defense at less cost.

HISTORY

The National Performance Review (NPR) is a movement that exists within the federal government designed to make the government work better and cost less. Under NPR, Federal agencies have begun the process of “reinventing” or “reintroducing” government’s business processes as we know them today. The majority of cost savings/avoidance will result from reengineering or value engineering. In large, government organizations it is very difficult to determine end-to-end business processes. To begin, each organization must ask a few fundamental questions:

- What products or services do we produce or offer?
- Who is our customer?
- Are we aligned with our organization’s current vision?

Once we have answers to these questions, and the core mission process identified, we can begin the BPR/VE process.

The remainder of this paper will focus on the similarities and differences of the two programs. Also, I will explain the difference between processes and functions. By consolidating the two programs, perhaps we could create one “Mega Reengineering” tool.

SIMILARITIES

There are uncanny similarities between the Value Engineering and Business Process Reengineering Programs. Chart 1 (below) is a conversion of terms between the methodologies of the VE program and the BPR program. You will notice that both programs claim separate methodology titles, yet, each title holds similar meanings under each phase.

The Business Process Reengineering and Value Engineering Methodologies Crosswalk

<u>VE Methodologies</u>	<u>BPR Methodologies</u>
• Orientation	• Define · Objectives · Strategies
• Information	• Analyze · Baseline · Functional Processes
• Speculation/Analysis	• Evaluate · Alternatives
• Develop	• Plan · Implementation
• Presentation	• Approve · Proposed Change
• Implementation	• Execute · New Process, Data, Systems

Chart 1

Value Engineering is an organized effort directed at analyzing the **function(s)** of a system, equipment, facilities, procedures and suppliers for the purpose of achieving the required function(s) at the lowest total cost, consistent with requirements for performance, reliability, quality, maintainability, and safety. BPR is also “a back to basics, fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical measures of performance such as cost, quality, service and speed.” Both programs ultimately desire the same outcome - to identify areas of excessive or unnecessary costs, and attempt to improve the value of the product or process.

UNIQUENESS

One of the single characteristics that sets VE apart from other cost reduction programs is analysis of function. Through Function Analysis System Technique (FAST), two word simplistic noun and verbs are used to articulately describe the function of a product or service. Further analysis is done to determine the worth of a product or service.

Conversely, Business Process Reengineering focuses on the process behind the products and services that an organization offers.

Process vs. Function

The traditional vertical government organization is designed to cluster work into like functions. It simplified employee supervision and training, while maximizing managements span of control.

However, the information age has facilitated the need to adjust this hierarchical structure. Work can be designed and managed as an end-to-end process rather than a combination of disjointed functions. This concept is called Process Management. Process Management is a “philosophy of management that advocates an integrated approach to management of an end-to-end process”. The traditional paradigm changes to a total customer focus. Performance is measured by how well products and services are received by the customer, not how well one activity or function within the process was performed.

Because of this drastic culture change, so much of its success depends on how well the workforce embraces this change. It is imperative that the workforce fully understand the organizations Vision, and Mission statements. Once this change in culture is embedded into the organization, the payback will be in the form of a long and lasting improvements.

One critical success factor is a strong, concise strategic plan which contains an organization’s vision and mission statement. If a stated process supports the mission, by managing the process, you are in fact, managing the mission.

When identifying a process, one has to ask three fundamental questions:

1. Who is our customer?
2. What is the product or service which we deliver?
3. What is the process behind this product or service?

Chart 2 (below) illustrates the evolution of a process. The customer defines the product. The product defines the process. A process is then broken down by many subprocess or activities then analyzed at both the micro and macro level.

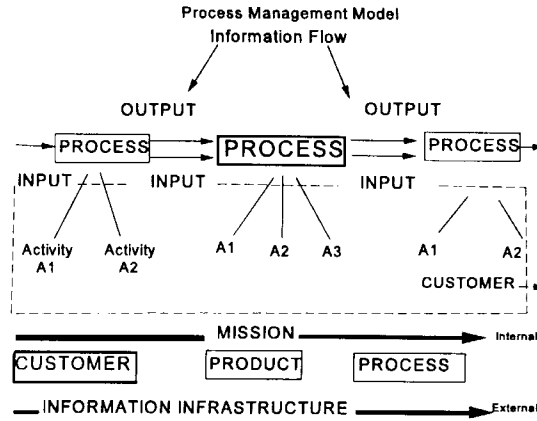


Chart 2

In Value Engineering, these activities are known as functions. In a white collar environment, functions are those duties or activities which contribute to those processes - a micro-organism of a process.

Value Engineering is designed to analyze the existing (hierarchical) organization and does not depend on a shift in organizational philosophy for success. VE can be effective without a sound strategic plan, mission statement or vision - the elements which are the foundation from which BPR is built.

Although the two programs have some fundamental differences, they do share the same objective, similar methodologies, and require the same cross functional expertise.

**VALUE ENGINEERING AND BUSINESS
PROCESS REENGINEERING -
A TOOL FOR CHANGE**

The Business Process Value Engineering (BPVE) Connection

By combining the definitions of both VE and BPR, Business Process Value Engineering (BPVE) can be defined as:

An organizational improvement methodology that focuses on an organization’s key processes, then through analysis, streamlines the processes’ support functions to enhance critical performance factors such as cost, quality, and timeliness.

One technique to use in this analysis phase is the customer-driven administrative Process Analysis Redesign Technique (PART). This technique focuses on the customers and suppliers, and on what products and services the process should provide. Similar to the Function Analysis System Technique (FAST) basic questions of *how*(?) and *why*(?) are asked, with an additional question of *who*(?). The PART model identifies:

- the mission - the reason the organization exist.
- the customer - who the organizations serves.
- the product - what the organization produces for the customer.
- the process - the activities and decisions that are performed in the development of a product or service.

Simply stated, if an organization doesn't have a customer, they don't need a product. If they don't have a product, they don't need the process to produce the product. Those activities (i.e. functions) within the process that add value to your product and/or service should be strengthened and optimized. Those activities that do not add value are reduced or eliminated.

CONCLUSION

It is time to explore the methodologies and techniques of VE/BPR and mold them into a single process to decrease cost, increase quality, and improve timeliness, to satisfy our customers. We must embrace change and learn how to manage change. We no longer can afford to indulge in comfortable acceptance of the status quo. We must change - and actively shape that change to fit the customers future needs.

Business Process Value Engineering provides an excellent medium for synchronizing customer needs with the business process which the organization needs to support the products and services it offers. Together, enabled by a change in organizational culture, process redesign techniques such as those described above will better prepare organizations to manage their missions as they move toward their visions in the 21st century.

REFERENCES

1. Michael Hammer and James Champy, (1993) *Re-engineering The Corporation: A Manifesto For Business Revolution*, HarperCollis, New York.
2. Thomas Davenport, (1993) *Process Innovation, Re-engineering Through Information Technology*, Harvard Business School Press.
3. Gary Hamel and C. K. Prahalad, (1996) *Competing For The Future*, Harvard Business School Publishing.
4. Robert C. Camp, (1989) *Benchmarking, The Search For Industry Best Practices That Lead To Superior Performance*, ASQC Quality Press.
5. Edward P. Bailey, Jr., (1990) *The Plain English Approach To Business Writing*, New York: Oxford University Press.