

## **Breakthrough Performance: Creating the Innovative Enterprise** **By Diane Hanson and Jerry Bapst**

"It used to be that we production workers just checked our brains at the door and did as we were told. Now I'm always looking for ways to improve our system," says Steve Reider, a production line employee at Moore Products Company of Spring House, Pennsylvania. Steve was speaking after being recognized for suggesting a manufacturing process change which saved the company \$4,000 and reduced manufacturing lead-time by four days.

Moore Products, a leading manufacturer of instruments and control systems, had suffered through two years of disappointing performance before implementing the organizational changes that allowed Steve to even make his suggestion. In the two years since implementing those changes Moore has reported an increase of 50% in annual sales, with the possibility of realizing record profits this year.

How did this transformation occur? It began with a simple realization by the company leaders that change was necessary. To their credit, their decision was not limited to hiring a consultant to implement the latest Corporate Savior Philosophy. Rather, they reviewed their operation, assessed their position within the marketplace and general business community, analyzed the various management tools available to them, then implemented those techniques that made sense for improvement. In this case, a combination based on Just-In-Time production techniques coupled with employee empowerment made the difference. By reviewing the process Moore Products used to implement their change in corporate operating philosophy we will illustrate the elements of a new model for the innovative enterprise.

### **A New Model for Innovation**

To meet the demands of today's business world, organizations must be flexible, agile, and innovative. One way organizations can develop a competitive advantage is by using speedy response to market demands and offering products and services customized to the needs of specific market segments. To accomplish this they must accept continuous improvement as a way of life. In turn, continuous improvement is accomplished through stimulating innovation with the full support of all members of the organization.

Today's business climate is defined by its pace of change. In working with various organizations, we have observed that no one organizational method such as TQM, re-engineering, or empowerment is sufficient to meet the demands of today's competitive environment. While the methods employed contain many positive ideas, they tend to be rigid, inflexible, or incomplete. A classic example is Ford Motor Company's embracing Total Quality Management as its savior, even basing their "At Ford, Quality is Job One" advertising campaign around the concept. Upon implementing those ideals, they quickly found that other organization enhancement tools, such as Just-In-Time production practices, also had to be embraced just to stay competitive. They now constantly evaluate which additional methods or organizational enhancement tools are necessary to

stay ahead of the competition. If such tools as performance technology, teamwork, statistical process control, and Quality Function Deployment could be combined to produce a model with broader application we would have a superior model for optimizing the performance of the organization and promoting innovation.

The driving force within our model for innovation is adapted from *Human Competence: Engineering Human Performance*, Dr. Thomas Gilbert's book which is the cornerstone of Human Performance Technology. Dr. Gilbert's work is particularly effective for analyzing and facilitating improvement in the performance of an individual within an organization. Our model updates and expands this work to analyze and facilitate improvement of an organization through recognizing the forces, both internal and external, that impact it.

Gilbert's Behavior Engineering Model serves as a barometer for measuring organizational conditions. In adapting this model to today's modern organizations, we recognize organizational behavior as the engine that drives the changes necessary to survive. This new model considers both the internal and external environment of an organization. It begins with the organization's core vision and values, addresses the supply-and-demand levels of activity that dictate the success of an organization, and recognizes the unknowns that can suddenly, and seemingly out of nowhere, have drastic effects on the performance and very survival of an organization.

### **Introduction to the Quantum™ Model**

Quantum means large and significant. The Quantum field theory in physics refers to the interaction between separate physical systems. We chose this name for our new model because it emphasizes the need for an organization to recognize the importance of its internal interactions as well as with factors in the environment beyond the organization itself. We call these interactions Quantum Dynamics.

The basis of our model recognizes that at the core of any organization is its stated vision, mission, and values which provide the focus for the enterprise. Control over destiny wanes the further one gets from the core, through the expanding layers which are called the Sphere of Control, the Sphere of Influence, the Sphere of Interest, and the Sphere of the UNs™ (Unknown, Unpredictable, Uncontrollable, Uncomfortable). Figure 1 illustrates this relationship.

The key element to an organization's success is the leadership required to continually keep its vision of success in focus, translated through a strategic plan with effectively aligned actions. This vision must be presented to, and accepted by, its stakeholders. The plan must recognize that change is constant and continuous environmental feedback is needed to revise the strategic plan on an ongoing basis.

Beyond the core, an organization's work environment and structure are the areas which offer the greatest potential to control the decisions, events, and resources that affect them.

This is the Sphere of Control, where an organization can drive performance improvements.

The Sphere of Influence represents the corporate culture and work environment which can be influenced, but not controlled, by the Sphere of Control.

The Sphere of Interest lies outside the direct control of the organization, but has an effect on the operation of the organization. The external supply chain of materials and labor, product demand, and competition are examples of the factors which influence the success of an organization, yet are often beyond its immediate control.

The Sphere of the UNs™ (Unknown, Unpredictable, Uncontrollable, and Uncomfortable) will always exist and greatly influence all organizations. These external developments are the changing conditions any organization must accept as the challenges to its existence. Natural disasters, computer viruses, governmental regulatory changes, and unfortunate accidents to key people are examples of unpredictable phenomena which can drastically affect an organization.

In working with many organizations, we have concluded that successful organizations will be those who have a very large, influential internal core. This strong core allows them to strengthen and expand their Sphere of Control so the threats from the uncontrollable areas in the Spheres of Interest and the Sphere of the UNs™ are diminished. A weak, reactive organization functions as illustrated in Figure 2-1, while a strong proactive organization is illustrated by Figure 2-2. In the second illustration you can see how the Core and Sphere of Control have expanded to partially overlap the other layers.

By establishing a well developed core and expanding its Sphere of Control to the maximum extent possible, an organization is able to not only maintain its competitiveness but also keep its defenses up to react to external forces.

### **Moore Products: A Case Study**

Referring again to Figure 1, we will review the elements which interact in any organization. Using our example, we can see how one organization implemented a plan which allowed them to make the transition from a weak, reactive organization to a strong, proactive one. Moore Products, in survival mode for over two years, began the transition to profitability with the initial step of developing a vision, the core of the model.

### **The Core**

Moore's leadership looked outside their organization and benchmarked high-performing companies both inside and outside their industry. They decided to try implementing such tools as Just-In-Time inventory management, Total Quality Management, employee empowerment, process reengineering, and increasing productivity through reducing non-value-added activity as a basis to develop their vision for an agile organization.

## **The Sphere of Control**

Redefining and gaining acceptance of the organization's core values allowed for major changes in Moore Product's Sphere of Control in the following ways:

### *Work Environment*

The work environment continues to be positively influenced by the effectively encouraging participation of its workforce.

### *Structure*

The organization's hierarchical structure is going through a continual evolution. The emphasis is now on redesigning the system to better meet the needs of the customer. Bob Hassinger, a manager at Moore, said that his role is evolving so that he is now "approaching a leader servant" whose primary responsibility is to remove obstacles and provide the resources his employees need to do their jobs. In reaction to this transition, Bob says he has "grown and I've allowed and assisted others to grow." This growth parallels the growth of the organization's Sphere of Control, as described below:

### *Information /Feedback*

While establishing the core vision for the organization was the essential first step, without the acceptance of the stakeholders no plan could be enacted. The Core begins to transcend outward through communication of the vision, mission, and values of the organization to the stakeholders. Educational classes began to teach the Just-In-Time techniques to a cross-section of the organization, which included senior management, departmental managers, product design engineers, and production line workers. By including members of various organizational levels in each session communications were improved across functional lines, removing the invisible barrier between the "thinkers" and the "doers."

Better communications allowed for immediate feedback on performance. Until this corporate metamorphosis, feedback happened only "when something went wrong." Few ideas were shared on how to improve efficiency or correct problems. By opening lines of communications to routinely allow essential feedback, long-standing problems were addressed and productivity improved.

Opening lines of communication is not always easy. Some engineers who participated in the initial training objected to the involvement of the production workers and complained to senior management. After reviewing the plan, senior management reaffirmed their commitment and the program continued as initially planned. Resistance became more subdued, first after seeing the commitment of senior management, then after seeing the results. Thus, the stakeholders have now accepted the plan allowing the core to expand.

After a period of initial reluctance to voice opinions, it has become more accepted for employees on all levels to both offer improvement ideas and assist in implementing them. The realization that everyone on all levels involved with the manufacturing process should be actively involved in production-related decisions has been identified as the major turning point that has helped change the fortunes for Moore Products.

### *Resources*

Resources include the personnel, financial capabilities, technological resources, and other facilities at the disposal of the organization. Resource utilization is a primary measure of productivity.

As part of their training in process flow mapping and Just-In-Time inventory management, Moore's production employees began to trace the movement of parts on the shop floor. This review identified many instances of wasted effort, moving parts from one part of the facility to another. Provided with this information on how to improve productivity, and empowered to make the changes, continuous improvements have been implemented.

The organization is now able to utilize its own internal resources to greater competitive advantage by acting on the ideas and suggestions of its own employees. They have also recognized the value of their human resources. One of the production employees was recently reassigned to the sales force, making use of his unparalleled knowledge of the product line.

### *Tools*

In the Quantum™ Model the term tools refers to those techniques for improving human and organizational performance such as Just-In-Time inventory management, Total Quality Management, employee empowerment, process reengineering, teamwork, and statistical process control. These techniques are carefully chosen to meet the specific needs of the organization. They are implemented individually or simultaneously, depending on the most pressing needs of the organization at that time.

One of the tools utilized by Moore in their initial transition is the Kaizen Event method for creating a more efficient physical work environment. Walls are torn down, equipment moved, and supplies located within easy view and reach of the workers. One worker, standing with a sledgehammer in his hand, commented on how he had never felt so empowered as he did after knocking down a wall. "I've been staring at those cinder blocks for years, just waiting for this day!" While the tearing down of this wall was a removal of a physical barrier to productivity, it was also symbolic of the tearing down of mental barriers to productivity within Moore's organization.

### *Capacity*

Organizational capacity is the ability to meet the needs of the customer on a timely basis. Insufficient capacity can result in disappointing customers through delayed deliveries, suffering through cost overruns, inferior quality due to forced overtime and/or improper working conditions. Many of us who suffered through America On-Line's "successful" marketing campaign know firsthand what insufficient capacity feels like.

Moore Products realized they were having capacity problems a few years ago and invested corporate capital funds to expand production into a satellite facility in Montgomeryville, Pennsylvania. After implementing production process re-engineering and employee empowerment, efficiency and improved productivity of the line employees has increased capacity to such an extent that satellite production was shut down and the main facility has excess capacity while overall production has increased.

### *Consequences*

Any action taken by any element will cause a result. These consequences are both positive and negative. The importance is to recognize all consequences of each action.

The various tools implemented at Moore Products have had the desired results in that production has improved. Manufacturing efficiency can be measured in the following terms:

- Reorganizing equipment and supplies and improving processes has decreased set-up times from 30 minutes to as little as one minute.
- Product lead times have decreased from six to eight weeks to as little as under eight hours.
- Shorter set-up and lead times allow for smaller lot manufacturing. Less inventory is required. Customer demands are met quicker, and customized solutions are more easily developed.

Employee empowerment was essential to the overall success at Moore Products, but what are the consequences for the employees? "It is like an unshackling," said Bob Hassinger, a company manager. "Now you can be involved in where the company is going and have time to work on more important and creative activities." Workers feel motivated by the challenge of the job and the respect and interest of others within the organization.

Another consequence is increased employee satisfaction, gained through better communications and empowerment. An employee who excels at an unsavory job is not saddled with this job as he was before. Now, he has the power to improve the conditions for that task, making it more palatable for himself. The trust and openness of senior management allows such improvements.

### *Continuous Learning*

The employees at Moore Products started by developing the basic awareness of their organization, each individual's role, and how they could improve their future prospects. Through information, feedback, and training, they developed awareness of both their

internal and external environment. As they take action on what they learn, they give feedback to other functional areas of the company. This begins a process of continuous improvement that continues today. With lines of communication opening up now, resources are being utilized better, a new round of training sessions has begun focusing on leadership skills and teamwork, with the expectation that expanded production capacity will be the consequence.

Both the company and the employees can broaden their horizons through the empowerment of the employees. The company now realizes that the production workers are among the most knowledgeable employees when it comes to the products, and can be an invaluable sales force. Customer contact is welcome and encouraged fueling continuous improvement further. As one worker put it, "If you don't make improvements for the company and the company stays at the same level, you won't have a job after a while." This continuous learning assures that the whole process leading to improved profits and overall success will continue.

### **Sphere of Influence**

Through expansion of its Sphere of Control, Moore Products was able to extend its core values out to the third layer of the model, the Sphere of Influence which represents the culture and work environment. The inner workings of the company have been altered in ways that increased information and feedback, provided the resources and tools necessary for the transition, increased capacity, and encouraged continuous change and learning. None of this could have happened without a marked change in the organization's culture.

#### *Culture*

While the management team has little, if any, direct influence over the corporate culture, a key to influencing this important factor is to pay attention to the things which may be controlled. By implementing its vision and improving and expanding its Sphere of Control, through improved internal communications and empowering employees, the culture began to change.

Although employee training in implementing the tools and methods needed for improvement was a key impetus to this success story, the main impact came from the feedback and information that resulted from that training. Real employee empowerment is a necessary factor in creating the culture that allows creative thinking to be energized.

The cultural change is illustrated by the shift from Steve Reider's opening comment about previously checking his brain at the door, to the following observations by his fellow employees today: Steve Nelson says, "If I notice a way to decrease the lead time or eliminate unnecessary steps by changing a procedure, I make the change that day." Bruce Fisher adds, "We are empowered to make certain kinds of changes and tell management about it later."

#### *The Internal Supply Chain*

Drastic improvements to the internal supply chain may be illustrated just as easily. Several years ago Moore Products set up a satellite manufacturing operation in Montgomeryville because of inadequate space in the main plant. This smaller operation was used as a test laboratory for implementing the tools and methods identified to improve efficiencies. Success in re-engineering the environment at Montgomeryville was so persuasive that the techniques were adopted in the main plant. End result: overall productivity is up 444% and all manufacturing has been repositioned into the main plant, which now has excess capacity.

"If we didn't do it, I question whether the company would be around as we know it," testifies one company manager.

### **Sphere of Interest**

As the internal operations of the company become more efficient, the company is expanding its Sphere of Control outward through the Spheres of Influence and Interest. The external supply chain has become a more reliable factor. External customers become increasingly involved in giving feedback to the company's internal processes, minimizing the threats from known external sources.

Moore Products has already seen positive results from their changes, but are not resting. They have realized that change is an ongoing process. Now they have the corporate culture attuned to the core ideals, new ideas and systems may be incorporated. This acceptance by all employees allows senior management to address those external forces which provide leads for expanding the client base and to arrange favorable supply deals. Thus, the core values have had an affect all the way out to the Sphere of Interest.

### **Sphere of the UNs™**

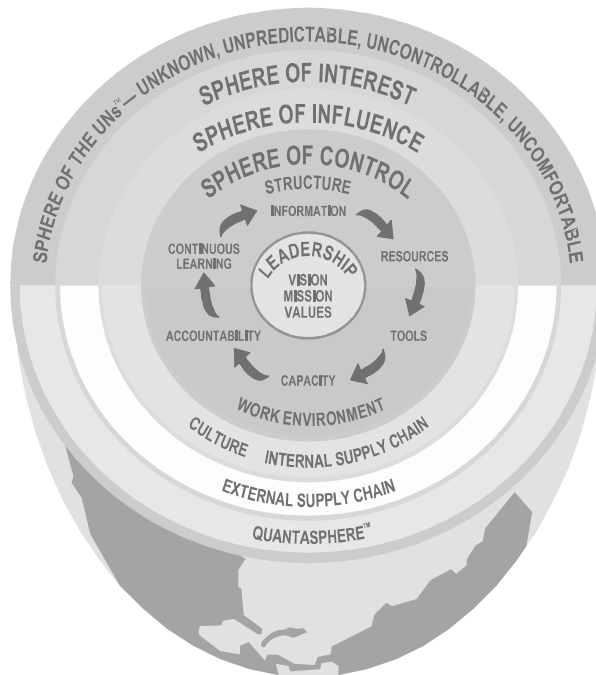
Although there is no controlling the unknown elements external to an organization, with diligence in regards to those factors which are within reach - those within the Spheres of Control, Influence, and Interest - a company can expand its awareness of those external forces and be aware of those threats. The organization has more control over its ultimate destiny.

In the blizzard of January 1996 southeastern Pennsylvania was blanketed with over 30 inches of snow. Like most businesses, Moore Products was shut down by the State of Emergency declared by the Governor. The lost production time and delayed shipments snowballed into major cost overruns, as overtime was required to catch up to commitments. While such a act of God cannot be retested, the agility and flexibility now part of the production line, as demonstrated by the decreased lead time for each product run, indicates that Moore Products will have a shorter recovery period from such impacts in the future.

### **Conclusion**

The Quantum™ Model for creating an innovative enterprise may be applied to any organization, with the expectation of the type of success realized by Moore Products. By actively applying the Quantum™ Model, driven from the core through the Sphere of Control and into the Spheres of Influence and Interest, an organization may exert more control over its destiny through objective actions.

To be successful in implementing this model, an organization must concentrate on identifying its core. It must expand its Sphere of Control to the maximum extent, optimizing its internal operations. Broadening awareness of the external environment, an organization may decrease the potentially negative impacts of those factors over which they have no control. The end result is a stronger organization with better control over its destiny, increasing its odds for survival, success, and growth.



## The Quantum™ Model

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