TECHNICAL PAPER

It's Not About Quality, It's About Culture

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SUMMARY

Bimba Manufacturing Company recently successfully completed its drive for registration to ISO 9001. Along the way many things had to change; but it was not just a process of systemization and quality improvement implementation. Quality improvement at the corporate level is not about quality, it is about cultural change.

INTRODUCTION

The company cited in this paper is Bimba Manufacturing Company, an employee-owned (ESOP) manufacturer of small-bore pneumatic actuators. Located in Monee, Illinois, this company employs approximately 300 people. It was founded in 1957 by Charles Bimba and sold to the current ESOP in 1986. The family orientation that had been the trademark of Bimba Manufacturing had placed it in a good position to grow, serve its customers, and provide a decent living for its employees; but it did not prepare the company for the change that was needed to meet the demands of its changing marketplace.

A significant player in the North American cylinder market, Bimba commands greater than 60 percent of the market share in its niche. But looming on the horizon were at least two foreign suppliers whose total sales dwarfed Bimba's. While much of their revenue is not from the fluid power industry, they could afford to out-leverage Bimba if they chose.

For several years senior management had set its sights on "30 percent improvement in quality in the next year" but had not succeeded. Their old culture was one of measuring only the financials with little or no consequences for inactivity. Their systems were designed to ship several hundred units per day, and they had progressed to shipping well in excess of 5,000 units per day. The Inspection Department was routinely asked to pass judgment on thousands of parts per day and determine if they were fit for use. Once each day a materials review committee, called the OSR review committee, met to decide if those products determined to be "off standard," another word for defective, could be used anyway. More than one manager had not received a salary increase for several years because they had not met the performance and improvement goals set for them by senior management. There was no understanding as to whether or not these goals were attainable, but they were used just the same. Something had to give.

In late 1989, the senior management of Bimba had made the decision to make a serious effort at corporate quality improvement. They had witnessed several years of perceived declining quality in the products and services being offered by the company. This organization was used to "just working smarter" in an effort to get things to happen.

LEADERSHIP

In affecting any change the magnitude of a *change of culture* for a company, the key variable is *leadership*– leadership at the top and wherever needed within the company. Some experts call this responsibility "the champion," some the "torch bearer", whatever title or descriptor you assign it, the person needs to have the ability and authority to lead the process. General H. Norman Schwarzkopf defined leadership as "...character, but more than that it is the ability to stand up and take the flag when the situation calls for it."

This leadership requires the ability to cut across any and all departmental lines to ensure that the appropriate amount of resources are brought to bear to resolve any impediment to success. This leader does not have to be a member of senior management. It is possible to have the leader defined by means of a team charter that calls out who the leader will be and what process he/she will take to resolve roadblocks in the process. At Bimba Manufacturing, the leader of *our change effort* was the director of Engineering and Quality.

ASSESSMENT

In a major change such as the implementation of a corporate quality system, it is important to recognize that this will not be a small change effort–it will require a major cultural shift in the company. The change will not be successful or self-sustaining until the workforce takes the new system into its heart, and then it becomes the new culture of the organization.

When starting such a significant change in culture, it is imperative that you perform some type of rigorous assessment. You need to understand where you are today. In the words of many quality specialists such as Dr. Joseph M. Juran, if you cannot measure it, it will not happen. And, if you are not sure of your starting point, you will not be able to determine how far you have gone. As is true of all management measurement, it should be based on facts, not on perceptions or impressions. While it might be interesting and even politically necessary to know the opinions of the members of senior management, this does not constitute proper assessment.

The assessments should be tied back to the business drivers of the organization. What are the critical missions and visions of the organization? What are our assets and competencies? What are our competitors doing? Who are our key stakeholders, and what are their requirements? If we are looking for improved performance, how will we know when we find it? These are the places to concentrate your measurement tools.

There are many tools you can use for assessment; notable among them are ISO 9000 and the Malcolm Baldrige National Quality Award (MBNQA). ISO 9000 provides guidelines for some systems, but it lacks the clear focus on the stakeholders of the organization. Notice I did not use the word *customer*. The term *customer* has become so overused it is no longer clear who the customers are. We have the inside customer, the outside customer, the royal customer, etc. The list of stakeholders includes the customer but contains six others. The hierarchy of stakeholders includes the following:
- Customer
- Government/regulatory agencies
- Employees
- Executive management
- Shareholders
- Suppliers
- Community

While it is easy to blithely espouse that the customer must be our all-consuming focus, if we satisfy the customer and violate government regulations in the process, we will not be in business long. The requirements of all the stakeholders must be considered and reconciled in order to determine the assessment tools and future directions of the organization.

A much more effective tool for true assessment of the organization is the MBNQA criteria. These criteria force an analysis of the organization from senior management leadership through customer satisfaction measurement. They also include analysis of the human resources functions and their effectiveness.

In the case of Bimba Manufacturing, we chose to use the MBNQA criteria and ISO 9002 as a learning exercise for senior management. We handed a copy of the Baldrige award criteria to each member of senior management and then asked each individual to rate the organization, not by audit but by opinion. It was time to begin to disarm the old culture by illustrating for them the errors in their current perceptions.

The resulting assessment was quite interesting. Of the eight scores, the average was in the middle 400s out of a possible 1,000 points. However, the standard deviation of the scores was 50 percent of the average–200 points. Closer examination of the scores showed that half of the respondents thought the company should score around 700 and half around 250. Half of the people thought the company was doing rather well and half thought the company was doing rather poorly. What was reality? We then spent some time training the staff on the content of the Baldrige criteria. Many of them had professional auditing backgrounds. Four of the eight had been in public accounting. Armed with a better idea of the test criteria, the team set out again to measure the company. This time they used MBNQA and ISO 9002. The end result was a score around 300 points and a standard deviation of approximately 30, 10 percent of the average. Much more stable. We also ended up with an understanding as to the gap between our existing system and the ISO 9002 requirements.

The assessment had a solid effect. It showed senior management that their perceptions were not very accurate, and the systems they thought were in place were not. They also learned the need to measure the company using these tools. They learned enough about the content of the tools to understand the depth of analysis provided by each.

PLAN AND DESIGN

The next phases in your cultural change journey must be the planning and design phases. You need to determine exactly how you expect the change to occur. Remember that there are at least two absolutes: you will never capture or account for everything in your plan; and plans are like forecasts in that they are never accurate, so plan often. Nevertheless, plan in significant detail so as many issues and the need for contingencies are visible and provided for and resource requirements can be determined.

Assign a group to actually design the change process and its goals. This group needs to have the authority to act in this area and derive a reasonable plan. In the case of a major cultural change, each key stakeholder needs to be represented and believe that they are truly represented. You need to lay out the change in terms of the entire resource infrastructure; not just the systems or environmental infrastructure, but also the human resource infrastructure. As described by Svenson, Wallace, and Wallace (1994, 42), the complete resource infrastructure is shown in Figure 1.
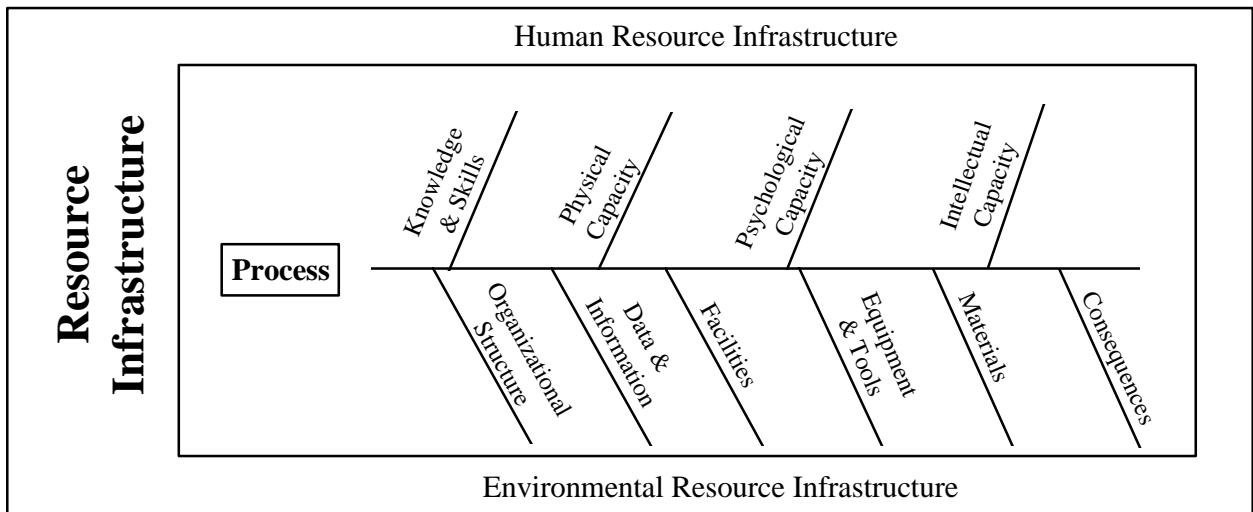

Figure 1

In designing a process for change, most organizations recognize the eventual need to change things like organizational structure or facilities. Most of the elements of the human resource infrastructure shown above make sense, but often we fail to consider the knowledge and skills of the organization in its current state with the skills required by the new systems and culture. Have we determined whether the members of the organization have the intellectual capacity to manage the change? If we decide, in our process of redesigning

the metrology systems on the shop floor, to move away from go/no-go plug gauges to sophisticated bore gauges for better process control, have we ignored that segment of the population that cannot read the existing gauging? All these resource infrastructure items must be considered during the design/redesign process.

At Bimba, the leader was experienced in the process of designing and implementing quality improvement systems. In meeting with the newly formed Corporate Quality Council, made up of all the members of senior management, a consensus was reached to take a two-pronged approach at developing the company's quality system.

First, the company would develop four indices for measuring the company's performance. These would be drawn from the criteria of the Baldrige Award. They would be, in no order of importance, the following:
- Financial Index made up of typical performance measurements of return on investment, sales volume, percent operating profit, and cash flow ratio
- Customer Satisfaction Index developed in concert with an outside marketing agency that surveyed the marketplace of existing customers and noncustomers
- Employee Satisfaction Index made up by survey of the employees every 18 months
- Product and Process Quality Index using seven different metrics to measure performance of production, process control, and supplier performance

Second, the company would embark on a drive to receive registration of its newly designed quality systems to the requirements of ISO 9001. It turns out that the systems already in place at Bimba bridged the gap between ISO 9002 and 9001, so we decided to go for ISO 9001.

After arriving at this consensus, members of the Quality Council were assigned ownership for each index. Dual responsibility was assigned to the director of Engineering and Quality and the vice president of Manufacturing for the product and process quality index. I also had the responsibility of developing the quality systems required to meet the ISO 9001 criteria.

We formed a team of four members of senior management–president, vice president of Sales and Marketing, vice president of Manufacturing, and director of Engineering and Quality–to review and approve the design. This team was chosen because, with the notable exception of the Purchasing Department, all other operational departments affected by the ISO 9001 systems were represented by these four individuals. We had put together a cross-functional team to create the design. We also knew that the greatest challenges for change would occur in these areas, and getting the commitment early from these functional leaders and having the president negotiate any issues would greatly increase the likelihood of success. We reviewed each and every aspect of the system design. This included capital expense layout of approximately $185,000.00, a head count increase of one person for the Quality Assurance Gauge Lab, and the final hardware and software for a paperless document management system. The design work took place in August and September 1992 and was implemented in October 1992.

We had started with a culture that claimed self-inspection but had no follow-up verification except occasional random auditing by Quality Assurance. The audits proved time after time that no such systematic verification was taking place. There was no gauge calibration system for the more than 4,000 gauges in use on the floor. If a gauge appeared to be damaged, it was sent out for repair or discarded and replaced. Documents were stored in at least three places other than the engineering files, and a spot audit of those other locations found approximately 28 percent were the wrong revision level by at least one revision. This might not be very critical in some organizations, but at Bimba we created or revised more than 4,000 drawings per month. There was no material traceability for piston rod raw material after it left controlled storage and was sent to the floor. There was no system for root cause analysis and corrective action. There were many more nonconformities found during our initial audits, but these were some of the most serious.

DEPLOYMENT

The next step in the process is deployment. You must put together a team that understands its mission, its charter, its authority, the rewards for success, and the consequences of failure. Spend the time up-front to help the team determine all of these. You will be setting clear guidelines under which the team can operate. The work performed during the design phase will go a long way toward defining these for the team, but do not be afraid to revisit and test each of the design elements during this deployment phase. The kick-off for this step should include some or all of the members of the design team. The handoff that this provides makes it clear that the design team is confident that the deployment team will see the project through.

We had originally scheduled our deployment kick-off for January 1, 1993. Due to some other business decisions, we postponed our kick-off until April 1, 1993. We took a serious step for Bimba by assigning a significant percentage of the managers' and officers' performance incentives to the completion of the deployment by a certain date. We were to be prepared to request an independent audit by the outside firm ABS Quality Evaluations by no later than December 31, 1993. We had put our money where our mouths were and had empowered the team to accomplish the task. *We had changed the reward system.* Just after that, I had a manager come up to me and say, "Well, I guess you guys are really serious about it this time."

Planning, planning, planning. These are the three most important words in the deployment phase. You have to plan things right up until it is time to stop planning and start doing. Your leadership and design team needs to be able to determine when the point of diminishing returns has occurred and when it is time to start doing. To paraphrase Guy Wallace, of SWI • Svenson & Wallace, Inc., it is usually better to deploy imperfection and continuously improve than to spend too much time planning for perfection and fail completely.

From January through March 1993, we pilot-tested systems like gauge calibration, document control, and training. We performed some training needs assessment of the skills required for our new culture versus those in the existing skills inventory. We wrote the Quality System Manual and, in general, laid the groundwork for the kick-off.

When we had our kick-off meeting in April, we invited 11 members of the new ISO Management Team. These would be the people who would develop the design, write some of the quality standards, and perform most of the internal auditing and training required for integration. All the members of the Corporate Quality Council were there as well, and the meeting was introduced by Pat Ormsby, the president.

We spent three months finishing the design phase with this project team. The design could have been completed by the design team, but this approach made sure that we would have the buy-in of all the managers responsible for the departments that were to be involved. The leadership transition from senior management to operational management would be much more solid this way.

Our plan was to spend six months integrating the new culture described as our new quality system. I assumed that the new system would have to undergo continuous improvement, and we would want the operational people to have an impact on those changes. That way, we would all become familiar with the change control process, and everyone would learn the proper approach for corrective action. If we held to this schedule, we would finish before December 31, 1993.

INTEGRATION

During the integration phase, you need to determine how to weave the changes into the fabric of the organization. The earlier you begin this process with the right people within the organization, the better off you will be.

Remember that the right people are not always managers or officers. In fact, if you ignore the operational level of the company, you will be surprised at just how much power they actually have. You cannot do this alone. In an organization of 330 people, 12 will not be much more successful than 1.

You will find places during this process where the change just does not feel right. Do not be afraid to change it as often as necessary to ensure a proper fit. At Bimba, during the integration phase, we modified the Quality System Manual and the 24 supporting quality standards a total of *60* times in six months.

Our first systemwide training took place in *May 1993* with a one-hour block of training conducted by the leader. Everyone in the company had to attend and hear what the system was and was not. They learned about their responsibilities in the system and their authority. *They learned exactly what their personal accountability to the system was to be.* There would be no place for any of us to hide in this system. We would follow it every day in all aspects of our work. They learned that they would be going through the system design with their managers and other trainers, and we needed to have them tell us if something had to be changed. And they heard these things said with all the members of senior management present. From that date on, every employee orientation cycle included the same one hour of instruction for all new employees. We had just started to *kill off the old bureaucracy.*

You must learn to *expect casualties along the way.* If you believe that everyone will immediately jump on the bandwagon and fall in love with the system changes you are espousing, you will be sadly enlightened early in the integration process. Sooner or later, you will have to be prepared to pull the trigger. The associates in your company will test the systems you have put in place and try to determine just how serious you really are. Your best defense is to have planned for the contingencies early in the design phase where I spoke about the resource infrastructure. Stand your ground and recognize that you are modeling a behavior of accountability.

We had a manufacturing lead person decide, ostensibly to speed things up for a customer, to use nonconforming parts even after a quality technician had instructed him not to. His response was, "I should never have shown you the parts to begin with." It was obvious to management and to the person's peers that he had violated the system and was prepared to do it again if he thought he needed to. If we had vacillated, we would have sent the message that the accountability was not what we had described it to be. After careful investigation, we gave the person a day off and placed him on the road of the disciplinary process that led toward termination.

We had a manager who had decided that he would tacitly follow the system, but when things got tough, he had instructed his subordinates not to follow the requirements for material control. We generated a corrective action request (CAR) written to his supervisor, the vice president of Manufacturing, describing his actions as an active impediment to effective implementation of the system, a direct violation of ISO 9001, Section 4.2. The president had to cosign the response and, needless to say, corrective action was forthcoming.

Our system design was not perfect the first time, however. It is important to note that the integration phase brought with it considerable and constant improvement. The design team needs to recognize that this continuous improvement is predictable, healthy, and definitely needs to occur. The individuals who were required to implement this system had to have input into the design of the system. Otherwise it would not be theirs. In our process at Bimba, we modified the quality system approximately 60 times from our implementation date of July 1, 1993 through our documentation freeze date of around December 15, 1993. In most cases, these changes were required to tailor-fit the system to our actions and describe the system changes needed to match our operations.

The changes were generated from many different sources, but critical among them were three mandatory systems–identification of nonconforming product (rejects), CARs, and internal audits. We subscribed to the notion that the majority of the errors identified in any environment are not the fault of the operator. It is typically the system within which the operator must work. With this in mind, when rejects were returned from the Operational Department and the corrective action was to "retrain the operator," Quality Assurance would go on a quest to identify the *real* root cause. Generally, we found people willing to tell us what was wrong with the system and how the design did not quite fit their needs. At the beginning we had to search this out. The workforce was still not convinced we meant what we said when we talked about their responsibility to help us change the system. But we knew when the steady stream of constructive input started coming our way that the critical mass had been reached.

THE AUDIT

The final stage of the integration was the actual assessment by ABS Quality Evaluations of Houston, Texas, an ISO registrar. We would be assessed by two assessors with expertise in manufacturing. How could we use this as a further integration process?

In my experience as an auditor, I remembered being really irritated with companies who would meet me at the door the day of the audit and included in the opening meeting would be only me and the Quality Assurance manager. I might get to eventually meet the president, but he was rarely involved with the audit. I thought that if we could change that and impress the auditors with our level of involvement at Bimba, we would really have made an impact. We solicited employees who wanted to be part of the audit team. We had secured the cooperation of all of senior management to ensure that volunteers would be given time away from their positions to receive intensive training on how to participate as a member of the audit team.

We had 35 volunteers. They went through eight hours of training on the audit itself. They were assigned time slots during the four-day audit and were matched up with a management representative during the audit. Most of these folks were operational level and quite excited to participate. They came from all areas of the company and were all close to being experts in the entire system before the audit was complete. These were the disciples with the "new religion" that we sent back into the rest of the organization when we had finished.

When it came time for the actual audit, we had 120 employees accept our open invitation to participate in the opening meeting. The auditors were surprised and excited at our level of participation. By the closing meeting, we had more than 200 people in the plant lunch room. The entire first shift chose to attend. Our involvement was well over 90 percent.

One significant measure of the completeness of our cultural change was an unqualified first-time pass in our registration to ISO 9001 and a commendation from the auditors on the tremendous level of commitment and excitement throughout the organization. We became the first American cylinder manufacturer to become registered. We really celebrated, with champagne and cookies for 225 people.

CONCLUSION

If we had set out to write a quality manual and system, we could probably have succeeded in accomplishing that alone. But we would not have succeeded in changing the culture and making quality as a way of work life self-sustaining. Successful cultural change and the final integration ensures an entwining required to make it long-lasting. Do not set your goal to merely improve quality; change the *way* you do business, break the mold, *change the culture.*

It is not about quality alone; it is also about culture.

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