AN OVERVIEW
TO THE
APPLICATION OF TOTAL QUALITY MANAGEMENT

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ABSTRACT

The purpose of this document is to provide the reader with an overview of the Total Quality Management (TQM) process. TQM is a management system process that was introduced years ago to a largely indifferent American business community. It advocates continuous process improvement through worker involvement in manpower, methods, machine, and material improvements. In a TQM environment standards are continually challenged and improved, new standards are established only to be challenged and improved again. This loop never ceases, thus an environment of continuous process improvement is created. It is now receiving serious consideration as a solution to the competitiveness issue as foreign countries utilizing it have undermined America's former leadership in the world markets. This paper is an excerpt from a larger paper. The complete manuscript will be furnished upon request.

"In less than two decades—about "two minutes" in world history time—Japan will succeed the United States as the world's productivity leader, and in the twenty-first century this Pacific nation will become the world's economic leader. The United States will drop back to number two or three in the global economy; burdened with a large foreign debt, and faced with a relativity lower standard of living, following the path of decline of Great Britain and other former world leaders."

Grayson & O'Dell
"The Two Minute Warning"

Grow or decline is the message from C. Jackson Grayson and Carla O'Dell in their recent book "American Business: A Two Minute Warning". There is still time to change and avoid this gloomy prophecy. The authors recommend an industrial revitalization focused on management and labor working together to revive productivity and to increase the quality of American products and services.

Tom Peters, Edwards Deming, and Paul Kennedy, prominent authors, also warn of America's economic decline; but each feels that it is not too late to reverse this trend. Quality and Productivity are becoming national issues. Once strong commercial markets have declined and our ability to maintain a strong defense industrial base capable of sustaining prolonged conflict is seriously being challenged. Paul Kennedy in the "Rise and Fall of the Great Powers" observes:

"Although the United States is at present still in a class of its own economically and perhaps even militarily, it cannot avoid confronting the two great tests which challenge the longevity of every major power that occupies the "number one" position in world affairs: whether, in the military/strategical realm, it can preserve a reasonable balance between the nation's perceived defense requirements and the means it possesses to maintain those commitments; and whether, as an intimately related point, it can preserve the technological and economic bases of its power from relative erosion in the face of the ever-shifting patterns of global production."

How do we stop the economic shift that threatens our position as an industrial power? How do we diminish the competitive
attack of the Japanese and Europeans? How do we get back in the ball game? One answer is what the Department of Defense has coined "Total Quality Management" (TQM).

Total Quality Management (TQM) is based on a management system improvement process which was introduced years ago to a largely indifferent American business community. It advocates continuous process improvement through employee involvement in every facet of a business. The heart and soul of TQM is leadership by participation, not just through words but by senior management involvement. Employees are treated as thinking people, motivated to watch the game and become emotionally involved for that team to win; so must corporate leaders instill the basics of pride, enthusiasm, emotion and teamwork in the day to day operation of the company. People are the core of the TQM process. In a TQM environment standards are continually challenged and improved, new standards are established only to be challenged and improved again. The employees become charged and continually challenge the status-quo. This cycle never ceases, thus an environment of continuous process improvement is created.

TQM is now receiving serious consideration as one solution to the competitiveness issue as foreign countries utilizing this concept have challenged America's former leadership in the world markets. When a company decides to implement Total Quality Management, it is committing to a cultural change which as demonstrated by the Japanese, increases a company's ability to compete. Why should you adopt a TQM philosophy? According to Dr. J. M. Juran in "Juran on Planning for Quality":

"The basic reason for taking up Company Wide Quality Management (CWQM) is that companies that have adopted Company CWQM are outperforming companies that retain the methods of the past." (p246)

The outcome of TQM implementation is an awareness of how the organization really operates, and the development of a new born culture which requires participative involvement by the entire work force. It is the growth of the employee from just doer to knowledge based thinker and doer that determines the failure or success of such an endeavor.

TQM creates the environment that permits this growth. The road to TQM is a long one and many barriers will have to be overcome to achieve success. The first such barrier is the commitment by management to a never ending process of continuous improvement requiring employee involvement in daily operations. If management is not committed, the TQM endeavor will become just another short term cost reduction program. Management must realize that by adopting TQM, principles they are committing to a major change in the way they do business, transforming a company's culture from reactive to proactive, from management directed to a management/employee partnership. In short, TQM could determine the future survival of a company, and in the bigger picture the sustained strength of America's industrial base.

This guide is a compilation of approaches from various sources of how to implement a TQM process. The approach is applicable to government and commercial organizations. It is a generic approach that outlines a logical progression through the process. Not all steps need to be sequentially applied. Some steps can be applied in parallel with other steps. For example, training and the formation of the Steering Committee could be performed in parallel. Figure 1 outlines the major implementation steps.

FIGURE 1

The first two steps, awareness and commitment, give life to the TQM process. Awareness of TQM can come from readings, seminars, and visits to organizations that have implemented the principles of TQM. Management commitment is born out of awareness. Once management decides the TQM process makes sense, and is committed to making it work, the next step is to provide the resources necessary for success.

The first resource committed should be a facilitator. The facilitator assists management in the development of the company's TQM implementation strategy. Part of the implementation strategy is to form the organizational structure by which
the TQM process will be managed. When building a structure it is important that all functional departments have a stake in the planning and execution of the TQM process.

The next step is planning the training. Training is the foundation for the success of the TQM process. It gives each employee skill training and TQM tools necessary to foster an environment of continuous improvement. All levels of the organization are trained on the philosophies and methodologies of TQM. One of the first levels to train after it is formed is the Steering Committee.

A Steering Committee is formed to link the process between executive management and the functional organizations. The committee manages the implementation of the process, to include making the organization aware of the process, training, assisting in goal setting, and reviewing TQM progress. One tool the Steering Committee uses to monitor progress is the employee attitude survey. The employee attitude survey enables management to determine how employees view their supervision, work methods, product quality, and their receptivity to change. The survey identifies areas of improvement, and changes necessary to enhance the acceptance of the TQM process by the work force.

The next stage of the process is the creation of the vision statement. The vision statement defines what the company is and where it is heading. Normally the vision is expressed in terms of commitment to quality, responsiveness to customers, and competitive positioning in terms of cost and schedule. The vision statement is the nucleus of the TQM process which ties all the steps together to give the organization purpose.

Once awareness and commitment is established throughout the organization, a structure established to manage the process, and a vision is in place to guide the organization, the improvement cycle can begin.

The improvement cycle must begin with an understanding by everyone in the organization of the processes involved in their day to day work activities. One method is the Customer Needs Analysis (CNA). This method enables the employees to identify all activities they perform, their relationships to their supplier and customers, and the impacts of the activity on cost and schedule. The activities are defined as processes, which are analyzed for improvement potential.

Once activities are broken down into processes, further analysis is normally required to determine the scope of the improvement process. Improvement Teams (IT) are established to analyze potential improvements, present solutions to the Steering Committee, and to implement approved improvements.

From this point on the organization continually measures, monitors and improves all organizational processes. Management, the facilitator, and the Steering Committee provide the required training, create awareness of the process, seek commitment from all levels, and provide the organizational structure to sustain an environment of continuous improvement.

Implementation of a TQM process requires a sizeable investment in time and people resources. Management must be fully committed, ready to take the time and become involved to achieve success. If management invests these resources not only will they achieve short term returns, but also long term benefits in the form of a corporate culture not satisfied to maintain the status-quo; but one that thrives on the challenge of continuous improvement.

Before discussing each of the steps in detail it is appropriate to consider the philosophical basis of TQM. One needs to understand and believe in the philosophy as defined by a set of principles in order to properly apply the steps outlined. Rejection of these fundamental principles greatly enhances the probability of the TQM process failing to produce the expected outcomes described above.

KEYS TO SUCCESSFUL IMPLEMENTATION

Throughout all the literature published on Total Quality Management there is a common set of principles which underscores the success of TQM implementation. The principles require management to change their attitude of the manager/worker relationship from "I lead you follow" to a more participative style which requires partnership. In "In Search of Excellence", Tom Peters and Robert Waterman noted:

*The excellent companies have a deeply ingrained philosophy that says, in effect, "respect the individual," "make people winners," "let them stand out," "treat people as adults."* (p. 277)
Listed below are principles found that are common to many studies of the excellent companies.

1. Recognize the entire work force as thinking people, not just management but everyone. The shop laborers, janitors, secretaries, and more junior supervisors conduct complex business outside of the company. Many might have a side business, they buy houses, invest in the stock market, and raise a family whose daily problems require the parents to be coaches, counselors, and experts of all types, but as soon as they punch the time clock many companies treat them as if they are not capable of a creative problem solving thought. There is an axiom that states if you tell someone they are stupid long enough they will live up to your expectations, but if you encourage the employee to think of process improvements, set high standards, and encourage innovation then the employee will take on a different role. Robert L. Shook in "Honda, An American Success Story" noted the following of Honda's treatment of the worker:

"What separates Honda's associates from other factory workers is that they are authorized to think. They aren't on the line performing by rote, going through the motions, working like zombies. Soichiro Honda said many years ago, "A man's ability can never be replaced by a machine." He believed that machines were tools for relieving tedium in automotive plants."

Shook goes on to say:

"A thinking work force! Imagine having feedback from thousands of people who are right there on the job, each thinking about ways to do things better, to save a little time and a little money for the company. The collective mind of a company's work force can be its most valuable asset. Smart management takes advantage of this." (p. 126)

Management must rethink the role of the work force in the execution and correction of all process elements in the company. Employees should be fully utilized, not just their hands but also their brains.

2. Encourage workers to identify errors, propose solutions and solve problems in the workplace. Workers should be encouraged to identify errors. Quality suffers in an environment where an employee is afraid to admit a mistake or identify a problem for fear he/she will be disciplined. How many defective products are produced because an employee fears he/she will be blamed for the error and disciplined?

In "The Deming Management Method" by Mary Walton, she says of Deming Point Eight: Driving Out Fear:

It is necessary, Dr Deming says, for better quality and productivity, that people feel secure.

Dr. Deming says:

"Fear takes a horrible toll. Fear is all around, robbing people of their pride, hurting them, robbing them of a chance to contribute to the company. It is unbelievable what happens when you unloose fear." (p 72-73)

The sooner the employee identifies a problem, the faster a solution will be identified, and fewer defective products will be produced. Therefore, the work environment must be non-threatening and encourage problem identification.

3. Promote teamwork—eliminate the "we vs they" environment. In the typical organization management and the employee are divided into two camps, the "we" camp and the "they" camp. The "we" camp being management and the "they" camp being the workers. This type of environment encourages adversarial relationships and prohibits effective teamwork. Honda and Hewlett Packard, two successful implementers of TQM have overcome the "we vs they" attitude. Engineers work along side of the production workers on the floor. Fancy private offices and separate dining rooms are not found at these companies. Management considers themselves facilitators with the responsibility to ensure the worker has the proper tools and instructions to perform the job. Everyone participates in problem solving. A problem on the shop floor is solved by management in a typical company. In a TQM company, shop floor
personnel work in teams beside management to solve problems. In TQM organizations management believes the person performing the work has the greatest knowledge of that process, so logically the worker should be an integral part of the problem solving team. There is no "we vs they" attitude at the excellent companies, only the "we" attitude.

4. Make everyone a stakeholder in the future of the company. In the book "Honda, An American Success Story" by Robert Shook he states:

   From day one associates are told, "The quality and acceptance of Honda products is our job security." (p.118)

He went on to explain that the workers must feel they have a vested interest in the factory and what is produced. An employee must feel the quality of his/her work will directly affect the success or failure of the company.

5. Establish "Pride" in workmanship and products. Everyone wants to be part of a winning team. When they feel like winners they usually make that extra effort to ensure success. Pride in workmanship can be influenced by the community's perception of the products a company makes. If the company is viewed as producing poor quality products employee pride would understandably be low. If a company is viewed as a producer of high quality products, workers will add that extra energy to ensure quality products continue to be delivered to the customer. In the book "Honda, An American Success Story" by Robert Shook he quoted an assembly line coordinator as saying:

   "When I see a Honda going down the road, I know that I played a part in making it. With some companies, like a tire manufacturer, a person actually signs his name to the tire. We don't sign our names to the cars, but we have the same feeling of pride." (p. 119)

Honda's name is synonymous with quality, and that reputation has developed because of the pride workers have in their company and their workmanship. Quality and pride feed on themselves because pride promotes quality which promotes pride. Pride in workmanship is an essential ingredient to TQM success.

6. Concentrate on prevention. Everyone should become as concerned about preventing product defects as they are about preventing safety mishaps. Systems for prevention of injury are common place in factories such as electrical overload breakers or machines that will not operate when over stressed. Prevention of product defects must also be common place. All the above principles to success contribute to a successful prevention system. Defect prevention should start in the design phase. System approaches to defect prevention such as concurrent engineering, design of experiments, and statistical process control compliment a TQM culture.

The above elements are the philosophical changes that management must make in the company's culture to have a chance at success. Many of these changes will take place as the TQM process matures within an organization, but the keys to success described above must be consciously fostered by management on a day-to-day basis. Accepting the above philosophical foundation, the steps to developing a quality culture can be successfully implemented.

CONCLUSION

As J.M. Juran noted, companies that implement TQM outperform those that use old methods of management. This reason alone should prompt more acceptance of the TQM approach. The TQM philosophy is well in place in Japan and has enabled them to steadily increase their share of markets once dominated by American business. In some cases America has forfeited complete markets to Japan. The irony of this situation is that the TQ approach was developed in the United States. The Japanese, however had the foresight and discipline to adopt the approach.

Japan is not the only threat to American markets. Korea, Singapore and other Asian countries are now thriving competitors. In 1992 twelve European nations will drop the last of their trade barriers to form consortiums of business partnerships with the intention of competing with the US and Japan. Paul Kennedy in the "Rise and Fall of the Great Powers" says this of competing Powers:

Each of today's large Powers-the United States, the USSR, China, Japan, and (putatively) EEC—is therefore left grappling with the age old dilemmas of rise and fall, with the shifting pace of productive growth, with
technological innovation, with changes in the international scene, with spiraling costs of weapons, with alterations in the power balances. Those are not developments which can be controlled by any one state, or individual. To paraphrase Bismark's famous remark, all of these Powers are traveling on "the stream of time" which they can "neither create nor direct" but upon which they can "steer with more or less skill and experience" (p. 540)

Competition is mounting and survival depends on America's ability to steer the stream of time. We must refine and implement the tools of TQM. Total Quality Management must be America's response to future economic challenges. A cultural revolution must ensue that dictates responsiveness to competitive pressures by implementing a never ending process of continuous improvement which has as its absolute objective - customer satisfaction.