TITLE: A Case Study: Implementation of Total Quality Management in the Wisconsin Air National Guard.

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Having heard an oral defense of the above thesis, the Advisory Committee:

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IN THE
WISCONSIN AIR NATIONAL GUARD

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In the spring of 1991, while involved in an historical flag presentation conducted by the Wisconsin Air National Guard, I entered into a discussion with the Commander of the 128 Fighter Wing and eventually wound up on the latest hot topic, the concept of Total Quality Management in the Wisconsin Air National Guard. At that time, I was enrolled in a Total Quality Graduate class at the University of Wisconsin-Stevens Point and I was interested in the possibility of applying the concepts of TQM to the Guard. The commander of the 128 FW, Brigadier General Fred Sloan encouraged me to conduct a case study and promised to provide me with the information I would need. The concept was new to the Guard and I was excited about the opportunity.

Over the next year or so, I began to investigate all the sources of information I could find on TQM, while still working full time for the Wisconsin Air National Guard. I was able to obtain many articles on the birth of quality in the Air National Guard at the national level. I began to develop the prospectus that would serve as the basis for this thesis which would focus my attention on the TQM implementation process at the 128 Fighter Wing.

Unbelievably enough, during this process I was offered a job as the personnel officer at the state level of the Wisconsin Air National Guard. One of the duties of this new position was to act as the State Total Quality Advisor. Now my research and job could compliment each other.

The original focus of my study on one unit was to examine how they went through the TQM process, but my emphasis quickly changed to a review of the TQM process at a state level and a single focus of one unit to a new challenge of four. The method of the study was also changed to add the participate-observer effect to the case study because in most cases, I was solely responsible for the overall implementation plan. I received training in TQM on the national level and was involved in every part of the TQM plan during the early stages.

The experience of attending the planning meetings on quality and listening to people who believe in the concepts of TQM gave me the momentum I needed to write this thesis. As I developed the study, I constantly reviewed my direction and much of the material with many of the individuals who have incorporated the concept of quality in their own organizations. Their feedback and suggestions were invaluable as were their additional insights and stories that they shared with me.
This thesis will be useful to track the progress the Wisconsin Air National Guard makes as the organization takes the journey toward quality. Hopefully, it will also be a valuable source to those who are just beginning to understand TQM and if you are already starting to apply the quality process, this thesis presents an opportunity to track your current activities.

I would like to thank Brigadier General Fred Sloan and Brigadier Al Wilkening. Both individuals provided an open door for the author to investigate quality and took the time out of their busy schedules to talk concepts with me.

I would also like to acknowledge the guidance that was provided by Dr. William Davidson. The time he spent with me in "theoretical discussion" really helped to energize this author.
AUTHOR’S NOTES

"The Air National Guard is entering the most consequential period in its long history. Having helped bring the Cold War to a successful close, we now must deal with the realities brought on by peace. The clearest consequence is that we must change to meet changing national needs. To remain a ready military force despite the inevitable reduction in resources, we must place greater emphasis on quality than ever before. We must be even more a quality force, with quality based values, committed to continually improving the quality of everything we do for our communities, state and country. We must become a Quality Guard." (Philip G. Killey, Major General, USAF Director, Air National Guard)

"We are moving toward a Quality Guard. I am asking you to be a part of the Quality Guard. If you feel you can not buy into this process, I am asking you to step aside and don’t slow up the TQ process." (Eugene Schmitz, Colonel, 128 Air Refueling Group, Air National Guard)

"I am selfish toward the concept of a Quality Guard. You the commanders, are about to plant the seed of quality. You will nurture it, water it and watch it grow. When it is time for the younger officers to take command, the quality concept will be in place and flourish like the flowers of spring." (author)

"Failure is only the opportunity to begin again more intelligently."
(Henry Ford)
CHAPTER ONE

The Air National guard has a new secret weapon that will reshape the Guard's future, helping it to meet the challenges of the emerging 21st century. This secret weapon is Total Quality Management (TQM) and while it may be new to the military, TQM made its debut in the business community over 40 years ago.

What is TQM? What does it mean to be a TQM manager? How will TQM affect the way we currently view our management systems? Where is TQM being used in the aviation industry or in the Federal system? How can TQM be used at an Air National Guard unit? These questions need to be answered in order to contemplate the possible implementation of TQM in the Wisconsin Air National Guard.

General Mike Loh, USAF defines TQM as:

A leadership philosophy that creates a working environment which promotes trust, team work, and the quest for continuous improvement. While this definition is good, TQM goes beyond this vision. TQM is the blending of theories brought forward by such people as: Walter Shewhart, W. Edwards Deming, Joseph Juran, Kaoru Ishikawa, Genichi Taguchi, Philip Crosby, Tom Peters, Warren Bennis, Peter Drucker, Douglas McGregor, William Ouchi and Abraham Maslow. TQM is developed from various systems and designed to work in different organizations. There is not one method of implementation for upper management to follow.

In any case, it is clear that individuals who are experienced in TQM tend to define the subject in more personal terms. Their perceptions are shaped by what they have observed more than what they read. And their assessments of TQM's potential are strongly
influenced by their vision of where continuous improvement may eventually take their own organizations. (Varian, 1991 p. 5)

Ideally, the TQM process must be implemented at the top level of management and left to filter its way to the lowest possible denominator allowing the worker to communicate upwards their views to the management sector.

Does the Air National Guard have top level support for TQM? Major General Philip G. Killey, Director of the Air National Guard established six goals for the Air National Guard in 1991. His sixth goal was to increase quality in the Guard.

Specifically: Implement a Total Quality Management Program for the Air National Guard; conscientiously manage Air National Guard resources; and institutionalize long range planning at all levels. (Killey, 1991 p. ix)

Donald B. Rice, Secretary of the Air Force, expands on the idea of TQM:

In many of our organizations, we already are implementing the key element of TQM, which is empowering people at the level where the work is done to participate in the process of improvement. More emphasis will be placed on TQM in the future, he said, with each command and organization developing goals and finding ways to achieve them. (West, 1991 p. 4)

It is obvious that the implementation of TQM is of high priority in top level command but how do we get the TQM program down to the organization or Air National Guard unit? When we try to understand the TQM system,
it is important to take a step back and review the birth of Quality and the works of Dr. W. Edwards Deming.

BIRTH OF QUALITY

When the war ended, American industry turned its attention to meeting the huge demand for consumer goods. For almost 20 years there was no significant foreign competition. Costly management methods grew up and took hold during a period of unparalleled prosperity. It was hard to fail in such a rising tide.

Across the Pacific—where "Made in Japan" meant junk—people turned to Dr. Deming for help. They invited him to come to Japan so they could learn about his methods. Dr. Deming told them to find out what their customers wanted, then study and improve their product design and production processes until the quality of the product was unsurpassed. He taught them the product was "still in the development process when it was in the customer’s hands." (Scholtes, 1991 p. 1-3)

Dr. Deming believes that you must place your priorities on methods to improve the product beyond customer expectations. Too often, the traditional management structure is concerned with short term profit and does not view opportunities for long range planning. The Deming method suggests ongoing research and redesign of systems to maintain a high consumer opinion. Accomplishing this task, creates a high demand for your product. "Deming told the Japanese that they would have people demanding their products within five years. He was wrong; within four years the Japanese had already
captured large shares of some markets." (Scholtes, p. 1-3)

Currently, General Motors is scrambling, along with other industries, to catch up to the Japanese in the areas of consumer satisfaction and better product design. Dr. Deming believes that an organization needs to work on improving productivity. If productivity is executed better, waste and inefficiency will go down.

Customers get products and services of increasingly higher value at increasingly lower costs. Anyone who gets high quality at low cost will tell their friends and colleagues and demand for the product or service will increase. Dr. Deming summarizes this cycle in what has come to be called the Deming Chain Reaction. Improvements of such scale cannot happen without everyone's involvement, without a fundamentally different view of the relationship between employees and the company. (Scholtes, 1991 p. 1-9 & 1-10)

Dr. Deming's teachings started to have impact in the United States in the early 70's as the gas guzzling cars vanished from the streets like dinosaurs breathing their last breath before the ice age. High gas prices caught the American car companies off guard while the Japanese products, as a result of new management techniques, were improving every year. At this time, the American companies needed to take a look at their long-term goals for customer satisfaction instead of short-term numerical objectives.
Quality circles have passed through the fad stage and are now used as strategy for changing the cultures at many companies and government agencies. Fundamentally, the quality-circle approach is a team-based strategy for improving quality and reducing costs. On the heels of quality circles came the total-quality approach ("do it right the first time") advocated by Philip Crosby (1979) and implemented at scores of companies across the country. One of the most dramatic efforts to meet the global challenge has been the cooperation of Japanese and American auto manufacturers and U.S. trade unionists. (Parker, 1991 p. 4)

TQM IN THE U.S.

In the spring of 1981, Ford Motor company was facing a $1.6 billion loss in the automobile industry. This was the year Ford President Donald E. Peterson asked Dr. Deming to meet with him and other high-ranking officials. Dr. Deming conducted a series of seminars and began to work his magic with the Ford Motor Company.

Since then, under the rubric "Quality is Job One," Ford has made some fairly dramatic improvements. In five years, warranty repair frequencies dropped by 45 percent, and "things gone wrong" reported by new car owners similarly decreased more than 50 percent. In the same period, Ford's share of the U.S. car market rose to 19.2 percent, the highest it had been in five years. Total sales of cars, trucks, and tractors in 1984 were 5.7 million, up 700,000 over 1983, though still less than the record of 6.6 million in 1978. There were record profits of $4.3 billion before taxes. On the eve of his retirement as chairman of the board, Caldwell was able to report that operating costs had been reduced by more than $4.5 billion since 1979. In other words, Ford was spending $12 million less a day than it had been five years earlier. (Walton, 1988 p.134)
Ford Motor company used the teachings of Dr. Deming to design a new family sized car. This car would have quality teams working on it throughout the entire process. If an item did not meet standards, it was sent back for improvement. Groups from the public sector were established to give additional feedback on the car market and help in the overall design. This car, the Taurus, continues to set sales records.

If Dr. Deming could work wonders with Ford, whose founder had introduced continuous assembly lines more than sixty years ago, he could do it anywhere. Ford was quintessentially American in its approach to quality. The company typically manufactured products to specifications, then sorted out those that didn't conform. (Walton, 1988 p. 132)

AEROSPACE INDUSTRIES

The next question to be asked is, if TQM can work in the automobile industry, can TQM work in the Aerospace industries like the Air National Guard? Recently, Aviation Week & Space Technology dedicated a complete magazine issue aimed at quality in the aerospace industries.

There are a number of other U.S. aerospace companies that have made major strides in TQM, including Martin Marietta, Aerojet, Harris, Westinghouse, Boeing and Rockwell International.
Rockwell has recorded dramatic results at its Tactical Systems Division as a result of TQM, which executives said may have saved the company from losing the Hellfire missile program. (Smith, 1991 p. 56-57)

The main key to Rockwell's TQM program was the time allowed to implement the process. A full 18 months was put aside to train managers in the concept of CPI (Continuous Process Improvement). This process is outlined in Anthony L. Velocci's article, "TQM Makes Rockwell Tougher Competitor."

As part of their training, workers were directed to form self-managed, multifunctional teams. Employees were crosstrained to improve the teams' flexibility. As an incentive, they were given an opportunity to share 30% of the savings from meeting preset performance goals. (Velocci, 1991 p.68)

Velocci points out that the Rockwell company was successful with TQM.

"In 1990, Rockwell won 100% of the Hellfire production, with options extending through 1993, beating arch rival Martin Marietta Corp." (Velocci, 1991 p.68)

But TQM has not been a total success in the Aerospace industries. There have been some failures too as explained in Bruce Smith's article "Competition and Tighter Budgets Push Aerospace Firms Toward TQM."

At Douglas Aircraft Co., too much was expected of TQM too soon. The plan was implemented with the intention of setting up a number of self-managed
production line work teams. At the same time, there was a complete overhaul of the management organization.

The system quickly got out of control and additional executives were dispatched from McDonnell Douglas Companies in St. Louis to restore order at Douglas facilities in Long Beach, Calif. While a number of TQM types of techniques remain in place and have aided in substantial business performance improvements, Douglas essentially is operating under an authoritarian form of management. (Smith, 1991 p.56)

The TQM system still exists around the Douglas plant in the form of improved communications; but, management felt it was more important to "push aircraft out the door" than to implement support groups at the lowest employee level. The management level was not ready to release the power or completely buy into the TQM system.

Others note the system was doomed from the beginning because of the way it was implemented. They maintain it was virtually impossible to make such revolutionary changes on such a broad scale without far more employee preparation, a broad-based and comprehensive training program and a hands-on system to nurture the team. (Smith, 1991 p. 61)

Still, TQM is rapidly achieving a foothold in the aerospace industry as competition for government contracts become important for the survival of today's industries. The government, faced with a shrinking budget, will look toward companies that provide a quality product.

Aviation Week & Space Technology's, report on the topic of TQM, adds some closure to the process
of TQM implementation.

TQM is an enigma to many executives because it has no quick definition and there is no prescribed way to implement its principles. How TQM is implemented depends on such factors as an organization's goals, products, markets and workforce, but most plans generally share some of the following:

* Encouraging employees at all levels to become involved in improving the company's product.

* Teams of specialists from various disciplines developing robust and relatively simple designs in an effort to make production and maintenance of a product easier and less prone to human error.

* Management supporting employee efforts and rewarding workers for the improvements they make to the business.

* Top Management making a long-term commitment to quality.

* The use of statistical methods to measure product quality...

Organizations starting on a path toward TQM must overcome the following hurdles:

* Expecting too much too soon. The initial process can be slow as the framework for future growth is developed.

* A belief that it is necessary only to change the attitudes of employees and that the other changes will fall into place, when in fact it is the new systems and processes that come first.

* Managers mistakenly thinking they no longer have as vital a role with the new organization, because lower-level employees have assumed greater responsibility. (Smith, 1991 p. 56)

Like the Douglas Aircraft Company, the military needs to maintain a "militaristic" attitude to meet its
primary objectives. There is no question, that during the Gulf War, the military was not interested in forming teams to discuss every move. Management needed complete control to ensure success.

On the other hand, there is no doubt that TQM will work in the military environment. In the article "Military Budget Drawdown Spurs Movement Toward Increased Efficiency", David F. Bonds investigates the priority placed on TQM in the Defense Department.

TQM advocates such as Laurie A. Broedling, assistant for quality to the undersecretary of Defense for acquisition, acknowledges skepticism at middle management levels and below, but they believe overall acceptance is high enough that TQM has taken root in Pentagon management.

Advocates expect acceptance to increase. Personnel have been trained in TQM principles, to the point that in some organizations applying them is becoming routine. As time goes by, TQM planners believe, succeeding generations of military leaders will know from experience what current commanders have had to figure out for themselves. (Bond, 1991 p. 58)

It is important to have an understanding of TQM in the military and to find out why this management style is so important to the future of the National Guard.

MILITARY

Glenn Parker in his book Team Players and Teamwork, The New Competitive Business Strategy, explains the need
to change the way we look at organizational environments.

An outgrowth of both the loss of America's worldwide competitive edge and the institutionalization of change has been the new "lean and mean" look of American business. Everywhere there is talk of head-count restrictions, budget cuts, eliminating the fat, cutting overhead, and using temporary help. In this era, teamwork and team players are critical to success. As the number of people decreases while the volume of work and the standards remain the same, organizations will need people who do quality work the first time, pitch in to help others out, quickly create a cooperative atmosphere, and challenge others to do the best job possible. (Parker, 1991 p.5)

No place have organizational environments changed more than in today's Air Force and Armed services. In a recent interview conducted by Joe West which appears in the November 18, 1991 issue of the *Air Force Times*, Lt. General. Thomas J. Hickey said, the military draw down that began in 1986 already has trimmed the Air Force of 95,000 members. "There were some storm clouds on the horizon when I got here in 1986," Hickey said. "It was clear we were going to face some downturns in the future."

Hickey stated that the service already had received some "healthy cuts" in funds for permanent change-of-station moves, and it was evident that the defense budget would be sliced as government leaders tried to cope with a growing national deficit.

In anticipation of future budget cuts, Air Force officials started manpower reductions in 1987 to preserve money for procurement and modernization, Hickey said.
"When I got here in '86, we still had an objective of 40-plus tactical fighter wings," he said. "That quickly went down to, I think, 33." Now fighter wings are projected to drop to 26.

Another area that had to be reduced in order to meet budgets was in the cut backs in active duty personnel. "From 1987 to 1988, we reduced almost 31,000 active military, from 607,000 down to 576,000," he said.

In addition, a reduction of another 35,000 was included in the fiscal 1990 budget, which was prepared before Congress and the Department of Defense agreed to trim a quarter of the force over five years.

"Those are two very large reductions that were almost completed before we got into the 25 percent reduction program that we're dealing with right now," Hickey said during an interview with the Air Force Times.

With the recent reductions in the Air Force, the Air National Guard has picked up more responsibilities in the overall plan of National Defense. The Air National Guard has always had the reputation of doing more with less but as requirement standards increase, a new view of management needed to be developed in order to maintain high quality standards during this time of reduction.

Major General Killey comments,
The Air National Guard is committed to quality -- quality in the way we think, the way we act, and in what we expect of each other. We have established procedures that use collective team efforts and quantitative evaluation to continuously improve all our processes. We are in the process of clarifying and aligning our organization’s purpose, mission, values, visions, goals, and programs. QTT (Quality Through Teamwork) is rapidly becoming a reality in the Air Directorate, and we are encouraging and assisting its implementation in the states. (Killey 1991 p. 25)

When Major General Killey refers to "implementation in the states", he is asking each state guard unit to develop and progress with the TQM system.

My project begins at this juncture. My purpose is to help develop a roadmap for organizational excellence. The project will identify the development of TQM through the direction of the Wing Commanders down to the workers. It will highlight the TQM process from a communication perspective which should prove valuable to any organization and provide some insight into a successful method to implement TQM not only to other levels in the organization but to other Air National Guard units.

REVIEW OF LITERATURE

In an effort to ensure that a thorough search of the literature pertaining to TQM was completed, three areas were researched. First a search was conducted of all
Dissertation Abstracts in the area of quality circles, total quality management and team building. This search was conducted at the facilities of the Memorial Library located at the University of Wisconsin-Madison campus. I conducted a manual search of the indexes in Master Abstracts and Dissertation Abstracts over the last ten years. Three different schools of thought were covered: Education, Business and Communication. This research was followed by a CD-ROM computer data base search using "Pro Quest" software program. This program reviews all Dissertations Abstracts which contains certain words in the title or narrative description. The resulting number of entries from the computer search of the Dissertation Abstract data base is as follows:

- Team building = 31
- Total Quality Management = 7
- Quality Circles = 42

Dissertations which pertained to this subject were printed out. (Appendix two)

Secondly, I examined the different journal articles which covered the same topics. A computer run was conducted at UW-Memorial Library using The Social Sciences Citation Index data base. This data base is an international mult-disciplinary search of journals since

Obviously TQM crosses many lines and requires extensive exploration into different fields during the computer search. The following terms were used to find journal articles: Total Quality Management, Team Building and Quality Circles.

Other research was conducted during the last two years while taking graduate level courses and completing required assignments, writing papers and class discussions in the areas of training and quality circles. During the second semester of 1991, the 770 Communication class conducted extensive journal research in the area of Teams. This annotated bibliography along with the personal research, was organized to develop a file of over 100 articles in the area of TQM.

Finally, research was conducted to cover the information available about TQM in the business community. This research includes information on TQM in the Military and Federal environment. This included checking current computer government computer data bases using the terms Total Quality Management, Quality Circles and Team Building.

The Federal Quality Institute was also investigated for materials in the area of TQM implementation and documents were used to establish a TQ library based on
the federal government's information on quality.

Other military and federal information was provided by an interdepartmental read service which helped to circulate valuable information on TQM. This would include articles from the *Federal Times* and *Air Force Times* along with federal reports. I searched these papers weekly for articles in the area of quality in the government sector. An inquiry letter was sent to Marion Reilly, the librarian of *Aviation Week & Space Technology* requesting information pertaining to the implementation of TQM in the private section of the Aviation industry. Reilly, sent the December 9, 1991, issue of this magazine which contains a special report on Total Quality Management in the Aerospace industry, its integration and the success/failure of the system. Personal interviews were also conducted to get a full understanding of the ramifications of TQM. Most interviews were held with military commanders from not only units in Wisconsin but other states as well. I spent time talking with representatives from Wisconsin Power and Light because this business has been successful in the quality implementation. In fact, some members of Wisconsin Power and Light were also members of the Wisconsin Air Guard which made is easy to conduct interviews. I also had the opportunity to speak with a couple of Total Quality
Consultants from McMannis and Associates based in Washington, DC. This group was involved with TQM implementation at the national level for the Guard. Any time I had the opportunity to pick the brains of people who have studied the concepts of quality, I did!

There were many academic studies in the area of TQM, team building and quality circles. There were a few dissertations in the area of TQM dealing with aerospace organizations. On the other hand, journals are abundant with articles on the new TQM system. Recently, many new books on how to compete with the Japanese way of productivity have appeared. When the subject matter search was narrowed to TQM in the Aviation industry or government agencies, the information dropped off sharply.

This study is specifically concerned with the concept of TQM implementation in an Air National Guard Unit. The summaries are confined to articles which focus on this area with some additional articles listed for background purposes. An annotated bibliography of this literature follows.

Findings [critical review of literature] In ascending order.

General area in: Team building, Total Quality Management, and Quality Circles.

This study reviews current information available in the area of team training and team building. The study concludes that too much emphasis has been placed on individual training in the Air Force and that there is justification for team training. This study is the first mention on how TQM could be applied to the military.


This book is a guide to participation and productivity through the use of Quality Circles. This book gives the basics to the quality circle operation. The book provides us with a good history of quality in the early 80’s.


The author examines what makes the role of leader in a group successful. He reviews the earlier theories of leadership in the industry (i.e., Likert, Managerial Grid, Participative Management). He further reviews the concept behind the "One Minute Manager" and attempts to draw relationships between Transactional leadership vs Transformational leadership. This study answers questions concerning the theories which make up the Total Quality concept.


Mary Walton has written one of the better books on the Deming Management Method and is a must read to understand the concept behind quality circles. The book provides a detailed description on Dr. Deming’s seminars. Successful case studies on the Deming Management Method are cited. There is also a detailed account of quality circles in the automobile industry and how this success sparked the use of quality circles in other industries. All commanders are encouraged to read the works of Mary Walton as their first introduction into TQM.
Scholtes, P. R. *The Team Handbook*. 1988, Joiner Associates Inc.: Madison, WI

Joiner Associates Inc. is a consulting firm based in Madison, specializing in improved quality management principles and techniques. The book is designed to help management administer quality systems based on the teachings of Dr. Deming. The book is a guide to setting up your organization on a quality systems approach. Joiner provides different team-building activities which increase customer services and solve problems. There are many copies of this book circulating around the different units and provided many managers with the concept of project teams.

Aerospace Industries: A review of TQM in different companies.


The study explored the relationships between Quality Circles in an aerospace industries and employee job satisfaction. A total of 518 employees responded to questionnaires to determine if there is a relationship between quality circles and employee attitudes. The study strongly suggests that Quality Circles are an important factor in employee motivation, satisfaction and productivity.


This is a special addition from *Aviation Week & Space Technology* in the area of TQM implementation. The magazine contains a series of nine different articles dealing with TQM in the aviation industry. Articles included are: "Competition and tighter budgets push aerospace firms towards TQM," "Military budget drawdown spurts move toward increased efficiency," "Navy orders full speed ahead on total quality program,"
"Douglas boosts production with key TQM provision," "Israeli military spending declines spurs cost, production improvements," "Motorola nears quality benchmark after 12-year evolutionary effort," "TQM allows European aerospace firms to devote new attention to quality," "Japan focusing on robotics, automation to improve quality, meet
demand" and "TQM makes Rockwell tougher competitor". These articles will help to examine how TQM is working in the aerospace industry and maybe more important, how TQM does not work.

**Military: A Review of Department of Defense studies.**


The study investigates the birth of TQM in the Air Force and initial reactions to the concept. Interviews were conducted with 36 key implementors of six representative United States Air Force Organizations and archival data was collected in this formative evaluation of the implementation process. The study indicated that adequate implementation of resources is lacking in all units and that a summative evaluation is recommended when TQM reaches a more mature implementation stage. The study provides the groundwork to examine an organization as it attempts to implement TQM in a military environment. Lythgoe's study reveals that there is real interest in quality but can the military management providing the education, commitment, resources and a true "buy in" to the concept of TQM.


This report reveals the progress made by the Department of Defense in the area of TQM implementation. The report presents the information that there is real "buy in" at the upper levels of management. Each department chairman gives comments on the TQM systems and how it is currently beginning implemented. There is also a study on problem areas and suggestions for implementation improvement. The study provides good points to help us design our own implementation structure.

Organizational Dynamics Inc. is a consulting firm specializing in Total Quality Management and is working with the Department of Defense to help implement TQM. The newsletter is a series of success stories in the private sector on the use of TQM. It should be noted that all the companies were under the consultation of ODI. Still, the information provided is useful and may help to improve the visibility of the TQM system in the organization as a library source. The newsletter does give TQM information on Grumman industry and shares information on how TQM was implemented in their organization.


The Quality Institute has published a book to explain to government agencies how to get started in the area of quality management. Three different volumes takes the reader through basic concept to in depth analytical tools and techniques. The series of books are designed to help government agencies start to promote the concept of quality. The series establishes the framework for the Wisconsin Air National Guard to proceed with the implementation of Total Quality.

SUMMARY AND IMPLICATIONS

As can be seen from the review of literature, the implementation of TQM in government agencies is very limited as pointed out in a TQM White paper by the ODI (Organizational Dynamics INC.), a consultant firm on quality for the government.

Boeing has had Divisional Quality Councils in place since 1986 and a Corporate Quality Council (chaired by the chief executive officer since 1988). And Grumman has achieved a commendably high level of employee involvement in TQM, with a coordinated network of several hundred trained process improvement teams in operation across its five major operational divisions.
But by the very nature of TQM, the answer to the question 'how far have we come?' is elusive. What constitutes 'doing TQM'? How do you know if what you’re doing is successful? And although it is clear that some progress has been made in various segments of the DoD (Department of Defense) and within defense contractor companies, no one, it seems, would suggest that the U.S. defense community overall has advanced beyond the early stages of implementing TQM. (Varian, 1991 p.15)

With TQM still in the early stages of implementation, how do we progress to the later stages? ODI’s newsletter examines this question on early implementation.

"TQM in the military should not be a mirror image of, say, TQM at Ford Motor Company," Mr. DeLuca (from the Department of the Air Force) cautions. "We have to retain some fundamental truths - our mission is to deter war, not sell cars. But there’s no doubt in my mind that TQM has a vital role to play in that mission. We just have to find our own way. We have to learn how to make the proven strengths of TQM work for us." (Varin, 1991 p.10)

Mr. DeLuca suggests that,

The legitimation of the concept like TQM occurs in six phases: Documentation, Dedication, Education, Habituation, Execution and Recognition by Customers. I still see large parts of the defense community stuck in the Documentation phase - generating paper on TQM, but not much else. (Varin 1991 p. 15)

The goal, then, is to provide a plan to move through the six phases of TQM. It will not be an easy task and there is no one method of implementation.

The Department of Defense has elected not to emaciate Total Quality Management in a directive. We believe the concept cannot be implemented by a standard, simple-minded approach or through a "how to" cookbook.
Instead, we believe each organization must structure its implementation efforts to fit its own mission and culture. (Varin, 1991 p. 2)

METHODOLOGY

SUBJECT OF STUDY

This study will focus on the implementation of TQM within the Wisconsin Air National Guard as the organization moves into the establishment stage of TQM. This study will document, firsthand, the efforts involved in planning and implementing such a management plan. Further, the study will document the reactions (acceptance or rejection) of upper management to encourage the use of TQM in their organizations.

The research method used for this thesis will be a case study conducted at Wisconsin Air National Guard State Headquarters in Madison, Wisconsin. This case study will take place over a six month period of time.

The author has received the necessary authorizations to document all aspects of this case except for documentation not available for public consumption such as information that may contain classified material. Rebecca Rubin, Alan Rubin and Linda Piele, in their book Communication Research: Strategies and Sources cite the uses
of the case study for research.

One observational technique is the case study. This is an objective description of presently occurring events. In our training-study example, a management consultant might observe communication interactions and attempt to describe the patterns and channels of communication in that organization. Or a researcher might choose a typical organization and spend several days observing interactions between superiors and subordinates and then describe what generally occurred. (Rubin, Rubin & Piele, 1986, p.63)

The author must also recognize the need to document this study as a participant observer.

As the term implies, in participant observation the researcher becomes a member of the group he is studying. The rationale is to gain insight into the group's character that could not be attained from the outside. (Dennis P. Forcise and Stephen Richer, Social Research Methods, 1973, Prentice-Hall, INC, Englewood Cliffs, New Jersey)

Robert K. Yin in his book, Case Study Research Design and Methods, reviews the concept behind the participant-observation technique.

Participant-Observation is a special mode of observation in which the investigator is not merely a passive observer. Instead, the investigator may take a variety of roles within a case study situation and may actually participate in the events being studied. (Yin, 1989, p. 92)

In 1992, the author was selected to be the State TQM Quality Advisor for the Wisconsin Air National Guard. As the State TQM Quality Advisor, the author actively participated in all events around the implementation of the TQM program. These included the design of the state
master implementation plan discussed later in chapter four.
All Executive Council meetings with the commanders was set up
and conducted by the author along with all upper level
management training. Due to the level of involvement the
author had in this project, it made sense to use a
participant-observation approach as Robert Yin has indicated.

The most distinctive opportunity is related to
the investigator's ability to gain access to events
or groups that are otherwise inaccessible to scientific
investigation. In other words, for some topics,
there may be no other way of collecting evidence
than through participant-observation. Another
distinctive opportunity is the ability to perceive
reality from the view point of someone inside the
case study rather than external to it. Many have
argued that such a perspective is invaluable in
producing an accurate portrayal of a case study
phenomenon. (Yin, 1989, p. 93)

OBJECTIVES

The intent of this study is to examine each phase of TQM
implementation. The objective is to help other units in
their desire to implement TQM. In the hopes of discovering
what systems worked and which systems need further
development, this study will have two major goals.
First, the study's primary goal is to gain knowledge and
background about TQM. The second major goal is to
build a base of information from which management can
analyze the potential effectiveness of TQM.

The specific objectives of the study will be as
follows:

1) To develop a workable definition of TQM as it applies to the Wisconsin Air National Guard and develop a state master plan for implementation of TQM.

2) To build awareness of TQM and develop an extensive TQM library.

3) To provide a method to improve TQM implementation effectiveness as a communication medium within the organization.

4) To recommend to management the future directions that should be taken with the implementation of TQM.

This documented study of the experience gained by the author will be available for reference by other Guard organizations and studies into other potential uses of TQM in the military.

OVERVIEW

Chapter II provides an overview of TQM and what is involved in this management theory. This chapter will review the current state of TQM implementation in the Air National Guard with an emphasis placed on the state of Wisconsin.

Chapter III will introduce the case study. A profile of the Wisconsin Air National Guard will be presented with information on the master plan for TQM implementation. It will describe the set-up and plan to training management in the area of TQM. An analysis of the training program will be documented identifying structure, design of program, impact, acceptance,
management discussions and future applications.

The state master plan will also be presented.

Chapter IV will be a summary of TQM implementation, what went right and what went wrong. It will highlight the successful factors and identify areas for improvement. The author will also identify areas for future studies in the area of TQM.
CHAPTER TWO

TQM THE MANAGEMENT THEORY

It is not easy to put a definition to TQM. TQM is not a generic package that you can pack and sell to the government like a new jet or the latest computer program. TQM can mean different things to different people. In the effort to develop an understanding of TQM, there is a need to develop a workable definition of the process. The easiest way to form the definition would be to break down TQM itself. Total means the whole or encompassing of systems. Quality means satisfying customers’ needs. Management means a way of doing business or style of leadership within an organization. When putting the definitions together, you get a true understanding of the TQM process. TQM is an all encompassing system in which the organization strives to be customer focused and customer driven, to provide total quality and be in a state of continuous improvement to provide quality to the customer.

In a TQM context, the standard for determining quality is meeting customer requirements and expectations the first time and every time. There are many potential requirements and expectations that customers have, depending upon the particular product or service and needs of the customer. Rather than the organization attempting to specify what it views as quality, a TQM approach to quality systematically inquires of its customers what they want, and strives to meet, and even exceed, those requirements. Such an approach helps to identify the elements of quality that are of paramount importance to customers. It also recognizes that customers expectations may change over time.
How can the TQM process help the Air National Guard?

Few will dispute the need for a quality focus in government. The global challenges that now face private companies in the United States face the Federal Government as well. Often, the ability of private enterprises to function effectively is dependent upon an efficient and quality government.

These global challenges apply to the Air National Guard as well and therefore create a need to investigate specific reasons for using the TQM process.

Recently, members of the Wisconsin Air National Guard conducted a workshop to discuss this issue. The format of the workshop will be discussed later in this chapter but the main reasons the group felt it important to use TQM, included:

*Reduce crisis management. If any organization, is to survive in the future, it must design its systems to be active not reactive. If all you do is "put out fires" all day long, you will have no time to plan for the future.

*Improved organizational communication. How many times have you heard, "What we have here is failure to communicate?" If time is taken to talk to other members, you might find a solution to your problem or proven systems may already exist that can help your organization. Improved communication also means talking to the individuals directly involved with the process.

*Real problem identification. The best person who is able to solve the problem is the person who works directly with it. Management needs to get down to the root cause of the problem. You need to view the problem in an holistic realm.
*Informational based decisions. The process of TQM allows teams to make solid decisions based upon research and facts. This research will result in making the right choice the first time.

*Better Results: TQM will allow us to achieve our objectives in less time and will help to eliminate possible problems in the future from having to reexamine the problem later.

With an understanding of the TQM as a management theory, it is now time to review the background of TQM implementation in the Air National Guard.

TQM IMPLEMENTATION

"The decision to formally initiate Total Quality Management (TQM) in the National Guard was made by the former Chief of the National Guard Bureau, Lieutenant General Herbert R. Temple, Jr., and the members of his general officer policy council in November of 1989. General Temple had been interested in developing a corporate management perspective and a more effective joint organizational structure at the "Chief's" level of the National Guard Bureau. He believed that Total Quality Management, a Department of Defense initiative, might provide the management system he was looking for. The Vice Chief of the National Guard Bureau, Lieutenant General John B. Conaway, was appointed Executive TQM Manager and tasked with starting the new initiative.

General Conaway was appointed Chief of the National Guard Bureau in February of 1990. He stated that institutionalizing
TQM was to be one of the ten National Guard goals for 1990's. General Conaway took the lead as the National Guard Bureau 'Focal Point' for TQM.

General Conaway sponsored the first National Guard Quality Conference in July of 1991. In April of 1992, the National Guard Bureau formed a department called the Production Quality Center. The main task of the Production Quality Center is to develop courses to train Guard units in the area of TQM. One of their primary roles is to act as consultants for Guard units as they develop their own TQM implementation plan.

In the fall of 1991, The Wisconsin Air National Guard launched their TQM program which began with an awareness program. Brigadier General Al Wilkening, Deputy Adjutant General for the Wisconsin Air National, conducted a leadership conference attended by all state Air Guard commanders. The objective was to provide TQM exposure.

The awareness program was designed to peak the interest of guard members and to allow time to provide training for upper management. The main tools of this awareness program consisted of TQM posters located through out the buildings and offices along with a variety of TQM articles in the various unit's house organs.

In order to understand the implementation process of TQM in the Wisconsin Air National Guard, it will be important to
give a little background information on the four units within the state.

The 128 Fighter Wing is located in Madison. The unit is in a transition stage from the A10A aircraft to the F-16C/D aircraft. The commander of this unit is Brigadier General Fred Sloan. The unit has a full-time personnel strength of 264 and a part-time personnel strength of 710.

The 128 Air Refueling Group is located in Milwaukee. The unit currently flies the KC-135 aircraft which is a converted DC-9 used to refuel other aircraft in flight. The commander of this unit is Colonel Eugene Schmitz. The unit has a full-time personnel strength of 292 and a part-time personnel strength of 816.

The 128 Air Control Squadron is located in Camp Douglas. The unit provides control for offensive and defensive air operations combined with early warning detection, tracking and relaying of air surveillance data. The commander of this unit is Lieutenant Colonel Schick. The unit has a full-time personnel strength of 23 and a part-time personnel strength of 69.

The Volk Field CRTC is located in Camp Douglas. The unit is one of four Air National Guard training sites in the nation. The unit has a full-time personnel strength of 73 and no part-time personnel.

Full-time personnel strength refers to the number of
personnel who are hired as full-time permanent employees of the unit to help maintain the unit in between guard drill weekends.

Part-time personnel strength refers to the number of personnel who are the traditional "weekend warriors." This employee group works one weekend a month and an additional 15 days of summer camp training session.

It is important to draw a distinction between the two work force groups because the implementation of TQM will vary. In most cases, the full-time workforce will receive TQM training before the part-time workforce. It is important to note that the part-time force will be an asset in the implementation process. This group may already have had some previous training in TQM from its civilian employer and the units might use these individuals as assets.

It was the plan of Brigadier General Al Wilkening to allow each commander to design separate TQM implementation plans and time schedules. A council would be established to monitor the progress of each in their efforts to implement TQM.

THE EXECUTIVE COUNCIL

This council, called the "Executive Council," met on November 4, 1992, to provide feedback on the commander’s progress toward TQM. The 128 ARG Commander, Colonel Schmitz,
introduced the quality program with caution. He indicated that his attempt to develop team building in the late 80's had failed and while he is a believer in quality, he was slowing down his program to provide time for group training sessions. Colonel Schmitz, initiated TQM in the fall of 1991 and committed vast resources toward the implementation of Total Quality. "In pursuit of Quality" said Colonel Schmitz, a quality process was developed. Here are some of his thoughts on his system:

Have a quality leader who practices the concepts of quality -- a symbol to the organization of the seriousness to pursue quality.

Name a quality coordinator. This quality coordinator, Lt Colonel Malone, began his training process in the spring of 1992. It was his job to increase the awareness of the quality process and establish an infrastructure.

The 128 ARG was extremely fortunate to have a traditional guardsman who teaches TQM at Madison Area Technical College. He accepted the role as quality consultant. This consultant, LT Colonel John Miller, provided awareness and facilitation training to the unit. LT Colonel John Miller expanded his instruction to encompass the 128 FW and CRTC Volk Field units.

The 128 ARG proceeded to establish an education board. Colonel Schmitz added that this board was made up of members from the 128 ARG and was tasked to help the TQ process.
The 128 ARG's education board was initially established as a project improvement team and proceeded the quality improvement council. This order is not recommended because it put the cart in front of the horse and caused some anxiety for QIC members -- specifically who is leading the quality movement. However, it did provide the 128 ARG with a vehicle to have Lt Colonel Miller test quality principles and concepts. It was formally established in July of 1992 and is comprised of nine personnel representing all base wide organizations. There is an approximate 50/50 mix of officers and airmen. Weekly meetings are facilitated by Lt Colonel John Miller and attended by the quality coordinator as a communications conduit between the EB (Education Board) and QIC (Quality Improvement Council). (Taken from the minutes of the executive council meeting on November 4, 1992)

The education board was established to provide "Just in time" training, provide training when needed at each stage of the TQM process.

The 128 ARG also felt the need to establish a communication vehicle to provide information on TQM to all of its members. It was decided that a single sheet of blue paper would be printed every week to inform the members of the latest progress toward quality. The blue piece of paper, nicknamed the "Blue Sheet" quickly became a positive tool. Col Schmitz provided some insight to the TQM Blue Sheet;

Communications is akin to the water around fish. It is the lifeblood of quality. The institution of the blue sheet was a stroke of genius that ensured all base personnel received weekly updates on the quality process at the 128 ARG. They are written by the quality coordinator and are distributed in sufficient quantities to reach all base personnel. It is highly recommended they be posted on bulletin boards and placed in break rooms. (Taken from the...
minutes of the executive council meeting on November 4, 1992.)

The next step in our process was to create a Quality Improvement Council. It is comprised of the quality leader, consultant, coordinator, union president, the support group commanders and four enlisted personnel. Colonel Schmitz explained the roles of the QIC: The QIC is committed to and responsible for overall team management of the total quality management program for the 128th ARG. It promotes quality, plans the unit’s strategy, solicits and receives input, tasks individuals and groups, provides resources, analyzes results, and coordinates and provides reports. Next, the 128 ARG established a quality library which is available to all base personnel.

In order to fund the TQM initiative, the 128 ARG established a "quality budget." This budget is under strict control of the educational board and eliminates the need to discuss whose budget will be cut due to the quality initiative.

Training of both full-time and traditional guardsmen is of extreme importance to Colonel Schmitz. He states:

The training of full-time personnel is a continuous process. As a minimum bimonthly, if not monthly, training sessions are held. The education board identifies appropriate subject matter and prepares briefings. Two identical sessions are scheduled on different days for each event that way each person is ensured attendance availability. All traditional guardsmen receive initial awareness training during
the Unit Training Assembly. The first round of training will be completed by January of 1993. (Taken from the minutes of the executive council meeting on November 4, 1992.)

Colonel Anderson from the 128 FW spoke on behalf of Brigadier General Sloan on the implementation process at their unit. Colonel Anderson explained that they have established an executive council and a training and education board. The unit has established a training plan and is currently sending individuals to National Guard Bureau Quality Center for TQM training. Like the 128 ARG, they are taking advantage of local assets to provide training to unit members.

Lieutenant Colonel McMurry from Volk Field CRTC/CC presented a view of a wait and see attitude, waiting to model their implementation systems off of other successful units in the state. He has selected an executive council and is going to send them to the Quality center for Strategic Awareness Training in the spring of 1993. He is also taking this time to train his Quality Advisor. Lt Colonel McMurry feels it is important to allow the National Guard Bureau to establish the procedures for implementation and they will follow the other units using hybrid a system. The hybrid system would be comprised of the best ideas from the other units.

Lieutenant Colonel Schick from the 128 ACS presented a back to the basics theme to TQM. He believes his members are not yet ready to jump into the concept of quality. Instead,
Lieutenant Colonel Schick feels a need to improve team work and communication. This is a small unit, with about 30 unit members who work very closely to accomplish the tasks at hand. Lieutenant Colonel Schick designed a program called A.B.E. (Attitude Before Enforcement). Using the brainstorming technique, the members developed a common thread of problems to address using communication.

--Professionalism

--Unit Recognition

--Training

--Human Relations

--Conflicts & Management of Conflicts

--Attitudes

--Health/Morale

Each of these items were later addressed during a retreat scheduled at Volk Field. Members were invited to an off-site location to discuss different problems with the unit.

THE STATE QUALITY ADVISOR'S VIEW

Next, the author as the State Quality Advisor, gave a quick overview of his responsibilities and road map of where the program should go.

--Support selected criteria provided by the council

--Explain prioritizing of criteria to organizational members
serve as go-between at all levels (nation, unit and local)

Ensure systems responsiveness to quality

Push for resources (training, supplies and monies)

Promote open communications

Be well versed in TQM

Assist unit TQM Advisors

Research and forward TQM Articles

Help to redirect systems (measure systems and provide feedback)

Publish a State TQM Master Plan

In 1993, we continued to build on the awareness of the TQM program and began to implement TQM systems. The education took place in two ways: Traditional and Non-traditional ways.

Traditional: Five members made up the Quality Council at State Headquarters. The team consisted of the Deputy Adjutant General, TQM Coordinator, one additional officer and two enlisted members. Each quarter, one of the members attended TQM training at the National Guard Quality Training Center. This council also investigated local training assets and made selections for the training of other State Headquarters members. Due to the size of the organization, this quality council was able to handle the TQM implementation process.

Non-Traditional: The organizational structure allowed us to design creative TQ programs. Instead of using a "Blue
Sheet" or some other house organ to inform the members on TQ, we had members inform members. TQ updates were provided in two ways, briefings by Senior Officers and briefings by Guard Members on books or articles read during the month.

For the future, we will look for creative team building programs to help the quality process. Implementation of TQ process will begin with a field training exercise in the area of team building. You become successful by helping others become successful. This is the concept behind a program called "Ropes" developed by the State of Wisconsin’s Youth Service. The Ropes program was designed to build support, pride, respect, initiative, teamwork and education among troubled youth. The program later evolved into a team spirit field exercise for all organizations. This program is now available for the Guard. For our program, director Dave Phillips, designed 15 different ground scenarios which put individuals in unique team building situations.

GOALS:  
* Members will learn that teams are stronger than individual efforts.  
* Members understand the need to improve communication to accomplish the mission.  
* Members will learn their own strengths and weaknesses. They will learn how to increase the effectiveness of teams by assessing the current state of the team.

State Headquarters will spend one day at the field
training center in Oregon, Wisconsin. The cost of this program based on thirty members would be $35.00 per member. If we feel this program is successful, we can train instructors and design our own course.

Quality requires teamwork. Teamwork requires team players. Effective teamwork is based upon an effective mix of people who exhibit a variety of styles or approaches to teamwork. "Ropes" will show us the different mix of people and their styles toward teamwork.

The second part of the implementation of TQ will be to identify a key initial area where TQ will improve the way we do business. The following are just a few examples of where the TQ process will begin.

1. Computer design for the future;
2. Administrative filing systems;
3. Visibility and positioning of State Headquarters.

This plan is designed to set positive goals and reasonable expectations. State Headquarters would continue to look for new and refreshing ideas in the pursuit of TQ Awareness.
CHAPTER THREE

The TQM process in the Wisconsin Air National Guard began with an awareness program slowly introducing management and workers to the terminology of TQM along with providing TQ training to upper level management. The awareness program consisted of the strategic placement of TQM signs around the work area and an introductory video on the TQM concept provided by the Air Force which was shown to all members. The first real training session in TQM occurred during a workshop which was designed to influence senior leadership to buy into the concepts of quality.

THE WORKSHOP

Wisconsin Air National Guard members were introduced to the concept and tools of Total Quality Management during a two day conference held at Volk Field, 23 & 24 June 1992.

The conference encompassed a variety of speakers. Colonel Doug Olsen, from National Guard Quality Center, opened the conference with a lecture called "The Three Revolutions." The speech focused on the future of the Guard in today's rapidly changing world environments and the need to investigate those changes in three key areas: warfare, threat and budget. His message to us stressed the need to change the way we do
business by embracing the Total Quality process to ensure survival in the future.

In the afternoon, Lt Colonel John Miller, from the 128 ARG and Major Rick Turner, from the National Guard Bureau spoke on the importance of the TQ facilitator's role of maintaining focus, stimulating participation, advancing process, ensuring flexibility, seeking clarity and challenging the group during meetings.

Major Rick Turner then presented the concept of "brainstorming" to the group. Brainstorming is a dynamic method of developing creative solutions to problems using a team approach. Members were asked to use the brainstorming process to identify the barriers of TQM and how to neutralize those barriers.

On the second day of the conference, the group listened to a lecture in Statistical Process Control (SPC) by Ms. Diane Schmoller from Wisconsin Power & Light. She shared with the group the types of statistical control methods used at Wisconsin Power & Light to improve customer service that Dr. Deming, the originator of quality, feels are essential to the transformation of American business. He believes when statistical methods are used, they can help us understand the processes, bring them under control and thereby improve them. Andrea Gabor expands on Deming's thoughts in her book The Man
Who Discovered Quality:

The day thirty Ford executives gathered, on a chilly February afternoon in 1981, for their first meeting with Deming, they were still convinced their problems lay somewhere between John Doe’s paycheck and Cincinnati Milacron’s machine tools. They were expecting to hear about cars, about how to transform manufacturing plants that were turning out automobiles with at least 4.5 ‘things wrong’ per car, according to one of Ford’s traditional quality indices, into operations that could produce trouble-free vehicles. Deming, they knew, had made a name for himself forty years before by popularizing a method of statistical analysis that could help minimize variation and control the quality and consistency of manufacturing output. Although this system, known as Statistical Process Control (SPC), had enjoyed a brief popularity in the United States, American Companies had somehow never gotten the hang of it. Deming, the Ford executives thought, would help them apply such techniques properly. The Ford men couldn’t have been further off the mark. While the guru touched on the importance of statistical theory and statistical thinking in that first meeting, he didn’t want to talk about cars or the reject rates on the production line. Nor did he deliver conventional bromides about quality, such as that everything would be okay if everyone just worked a little harder. Instead, what Deming really wanted to know about were processes and people and how they were managed at Ford. He wanted to know about the executives sitting in the room, and what they understood their responsibilities to be -- to the company, to their employees, and to the customer. (Gabor, 1990, pp. 4-5)

TQM’s goal is to achieve customer satisfaction. Major Rick Turner continued to explain customer satisfaction through empowerment and visioning. He stated, "if you understand the needs of your customer, you can then improve your performance."

Empowerment provides workers the resources and tools necessary to get the job done right the first time.
Through visioning, clear and compelling goals are established that determine the direction of an organization. The National Guard leadership is responsible for its organization’s vision and a subordinate organizational vision must be consistent with the overall vision.

Lieutenant Dave Olson, from 128 FW, followed this presentation with an exercise on leadership styles. The group was asked to fill out a survey to determine what type of leadership styles each individual aspires to. He recommended that before organizational training begins, leaders should participate in a competency assessment of their leadership styles and TQM skills in order to understand their own personal strengths and weaknesses better. Teams are successful if they understand the characteristics of the members on the team. The exercise he used was called "The Personal Style Survey" developed by the Carlson Learning Company of Minneapolis, Minnesota. The survey identifies four styles: Dominance Style, Influencing Style, Steadiness Style and Cautious Style. Ligget Associates explains that effective groups will have a combination of all four styles. Ligget Associates characterized a quality team in this way:

* Dominance: Creates ideas and pushes for results.
* Influencing: Builds team morale and promotes team’s message.
* Stability: Develops plans and follows through.
Peter Scholtes, in his book, The Team Handbook, describes the importance of developing successful teams.

A single person using quality improvement practices can make a big difference in an organization. But rarely does a single person have enough knowledge or experience to understand everything that goes on in a process. Therefore, major gains in quality and productivity most often result from teams -- a group of people pooling their skills, talents, and knowledge. With proper training, teams can often tackle complex and chronic problems and come up with effective, permanent solutions.

Besides this pooling of skills and understanding, teams have another distinct advantage over solo efforts: the mutual support that arises between team members. Quality improvement is hard work and takes a long time. It is all too easy for one person’s commitment and enthusiasm to flag during a long project. The synergy that comes from people working together productively on an important project is usually enough to sustain the enthusiasm and support, even through difficult times.

As a spirit of teamwork invades the organization, employees everywhere will begin working together towards quality -- no barriers, no factions, "all one team" moving together in the same direction. (Scholtes, 1990, p. 2-7 and 2-8)

Brigadier General Al Wilkening, Deputy Adjutant General for Air, concluded the conference with the plan for TQM implementation in the Wisconsin Air National Guard. The TQM implementation plan is a series of goals and strategies designed to give guidance to the units. These goals will be discussed in detail, later in the chapter.

The workshop provided commanders with an initial blueprint for building a total quality organization; but, as conference
The group learned, TQM is not a by the numbers game which can be implemented overnight. Total Quality in the Guard is perfectly sensible while at the same time makes good business sense. The key variables in making the program work will rest in the ability of the members to provide commitment, persistence, flexibility, empowerment and follow-through. Human resources are the Air National Guard's primary asset; but, at times, the Guard can unknowingly organize members in such away that may limit a team environment.

The Wisconsin Air National Guard is changing that pattern and is creating a total quality infrastructure as a strategic approach to maximizing its human resources in a wide variety of settings. The contention is that organizing the Guard's workforce into quality teams is a critical factor in creating a work environment that enables and promotes the achievement of peak performance. In order to understand the TQM process, it will be important to go into further detail on the eight goals of action designed by Brigadier General Al Wilkening.

Goal One: Make Total Quality an integral part of the existing and emerging systems. It will not be presented as an all encompassing management system which will replace all other management systems. But Total Quality will enhance the systems in place with the responsibility for Total Quality resting with the members of the unit -- developing systems and
training programs for the members in the area of Total Quality. This system of interbreeding TQM in existing systems allows personnel to design their own Total Quality programs without a drastic change to their operations. Change is good for any organization but quick change can destroy even the best organizations. Commanders are encouraged to find problem areas which could utilize the TQM process and whenever possible, benchmark the successes. Michael J. Spendolini, in his book, *The Benchmarking Book*, explains the process of benchmarking.

Just about anything that can be observed or measured can be benchmarked. In the past, the practice of organizational comparisons was somewhat limited to structural or product--related areas--things that could be readily observed. However, experience with benchmarking has greatly expanded the potential areas for investigation. People are often surprised at the quantity and quality of information that is available to those who make a serious effort to find it. (Spendolini, 1992, p. 28)

Goal Two: Create a Total Quality infrastructure.

Infrastructure refers to the way the organization is designed to accomplish the mission. This infrastructure would be used as a way to organize and support the TQM implementation process and ensure the units are heading in the right direction.

During the establishing phase of total quality, the organization is building its infrastructure to support quality improvement efforts. The organization is beginning to become more aware of quality principles and practices, but it is not a part of the culture across all divisions. As such,
a systematic approach to total quality implementation is developed and process action teams are formed when awareness training is completed. (Air National Guard implementation plan p. 4) See Appendix two for the organizational chart of TQM structure for the State of Wisconsin.

Goal Three: Provide resources for education and training of all assigned personnel. The main concern with this goal lies primarily in numbers. How do you train over 2,200 people in the area of TQM? Does the Government have resources to train the trainers and does the unit have the resources to provide trainers?

The first training conducted in the area of TQM was an hour video providing some insight into the team building concept. This video was shown to all guard members.

The second training scheduled provided awareness training to senior management and facilitators. This training was provided by the National Guard Bureau Quality Center.

The third type of training was to provide instructor training for the trainers at the unit level. These courses were developed by the National Guard Bureau Quality Center and modified by the units. Courses are taught using local instructor assets. A description of these courses are provided in the State Master Plan in Appendix two.

Goal Four: Identify key initial areas where Total Quality will improve the way we do business. Improvement to the organization would be accomplished using benchmarking.

Organizations use benchmarking for a variety of purposes. Some organizations position benchmarking as part of an overall problem-solving process with a clear mandate for organizational improvement. Others position benchmarking more as a proactive mechanism to keep themselves aware of state-of-the-art business practices." (Spendolini, 1992, p. 22)

The Wisconsin Air National Guard’s management decided to educate the organization on TQM by using the TQM process on problem areas which would produce quick results. These results would be benchmarked and praised by the organization. The commanders felt it was important to have examples of success to provide to the members of the organization. The TQM process was tried, with great success, to improve the number of people recruited in the Wisconsin Air Guard. Teams were formed to investigate ways to increase possible recruits. The results were a 6% increase in recruits over a six month period. The process was benchmarked and new goals for improvement were established through the year 2000.

Goal Five: Employ Total Quality and focus energies on success. The concept is based on problem identification and successful implementation of the TQM process. Once the system is used, benchmarking success will be part of the awareness program to help show the rewards of TQ to members of the organization. Once the system is in place, continuous improvement would be used to monitor the problem areas to
determine if desired outputs have been achieved.

Goal Six: Evaluate TQM for failure and redirect for success. Programs will continue to be monitored for continuous improvement using statistical process control systems. Problems will be identified and Project Action teams (PAT) will redesign a new system from lessons learned from previous systems.

Goal Seven: Reward total quality by developing recognition programs based on monetary and non-monetary incentives. The State incentive program was rewritten based on the members ability to encompass the quality process during their work performance over the year. The redesign of the incentive program was to place a special emphasis on the importance of quality in the organization. The State of Wisconsin issued a new award for quality called the "Adjutant General's Award of Quality." This award is given to Wisconsin Air National Guardsmen who go beyond what is required at their duties to execute quality customer service.

The best way to sell the value of implementing TQM throughout the Air National Guard is through the public recognition of the creators of success stories. The existing system of quality related awards will be expanded to provide a standard mechanism for states and major organizations to recognize exceptional individual and group quality champions. A system for widely publicizing such successes will also be instituted."(Air National Guard Implementation Plan p. 16)

Goal Eight: Institutionalize Total Quality by supporting
specific action plans which make the quality vision a reality. Units of the Wisconsin Air National Guard will be asked to identify success stories in quality and provide cross talk to other management teams with the intent to improve upon systems. Each unit will track the journey to quality and make sure members are actively involved with quality process. Role models will be identified and placed into TQM training. Also, each unit will create a master plan to accompany the overall State objectives of quality. The quality objectives above will need to be put in a form of specific improvements which become part of the State Air National Guard Master Plan. This master plan will present objectives to establish a quality organization. The executive council will monitor the progress and provide advice on the desired outcome. It will be up to each unit commander to design a program that will work in their own organization.

As the State Quality Advisor, it was my task to design a State Master Plan for TQM implementation. The master plan captures the ideas from the Executive Council for the Wisconsin Air National Guard along with inputs from Brigadier General Al Wilkening and Lieutenant Colonel Kraemer. Lieutenant Colonel Kraemer was the quality advisor for the State of Wisconsin before his retirement in 1992. He established the ground work for the plan and helped me make
the publication a reality. The State Master Plan was the
guide for implementation of quality in the Wisconsin Air
National Guard and was the final product accomplished during
this case study. A copy of the State Master Plan for the
Wisconsin Air National Guard is included and can be found in
appendix one.
CHAPTER FOUR

SUMMARY OF STUDY

TQM can only succeed when the leadership and employees of the organization have been trained in the quality improvement process. At ANG, the training begins with the top management and permeates the entire organization through a downward training process. The reason training begins at the top is that total commitment is a vital element to long term success. This commitment can only be gained through a complete understanding of TQM principles and practices. In addition, the leadership needs to demonstrate this commitment through action, not just words." (Air National Guard Implementation Plan p.11)

The Wisconsin Air National Guard needed to accept these principles during the "Establishment stage" of TQM implementation. There are five basic elements to the establishment state: awareness communication, training, resources, infrastructure and master implementation plan. At this point, I would like to cover these by identifying the areas and explain the success in each program.

STRENGTHS OF THE TQM IMPLEMENTATION PROGRAM

AWARENESS COMMUNICATION

The Wisconsin Air National Guard did a great job of providing formal awareness communication on the TQ process. The awareness workshop conducted at Volk Field helped to give management a foothold in the process. The ability to bring
in the private sector to provide some different insight into the process, in my opinion was received favorably.

The 128 ARG's use of the TQM blue sheet (TQ information sheet) to inform its unit members progress on the TQ implementation, was a very successful tool to keep the TQ process in front of the user. All units made good use of the monthly house organs to inform the members of the concepts of quality and TQ articles did appear in these publications monthly.

Senior Management took every opportunity to plug the TQ concepts during formal speeches and briefings. TQ concepts were the theme of many formal presentations -- from briefings for newly assigned noncommissioned officers to the briefings given to the retirees, everybody in the organization knew that the leadership backed the TQ concept.

TRAINING

The organization took the lead in training, taking advantage of the courses provided both at the local and national levels. National courses during the establishment stage were filled to capacity and the State negotiated for additional training slots to ensure all key players understood the concepts, principles and practices of TQ. Management was quick to take advantage of local resources to
provide low cost awareness training to the organization. Two members from the state were identified early on in the program and were sent out to the National Guard Bureau Quality Center to receive instructor training. These individuals quickly became an asset to the organization and could provide low cost training capability to the organizations.

RESOURCES

The commitment to quality calls for a commitment of resources. In times of tight budgets, the senior management tried to work every creative angle to make the TQ concept a reality. The 128 ARG committed approximately $3,500.00 of the budget to quality with the rest of the units committing a slightly lesser amounts; the 128 FW projected $2,000.00 for the first two quarters of 1993.

INFRASTRUCTURE

The infrastructure at the executive council level was established quickly and each commander had the opportunity to design his own unit infrastructures according to the unit’s individual style and unique makeup. This increased each unit’s ownership of the TQ unit master plan.

MASTER PLAN
The units moved quickly ahead to develop their own master plan for TQM implementation. A friendly competition was formed at the upper management level to develop an effective program. Each commander was proud to display his design. Of course, there were some problems in the establishment stage that should be reviewed.

WEAKNESSES OF THE TQM IMPLEMENTATION PROGRAM

AWAReNess COMMUNICATION

The Wisconsin Air National Guard could have done a better job with the informal awareness communication process. On the surface, the awareness program was well defined, but the key social role models needed to make the informal communication effective were not identified soon enough. The role models needed to be placed on the side of management, singing the praises of TQ, instead of questioning every item which came down the road. A need to develop a separate "Quality Office" would have helped to promote the program and provide a place where interested members could visit and learn about TQM. Although senior management is busy, they should have taken time out of the day to informally talk about the TQ concept to the average person. This one on one awareness would have gone a long way to defend the TQ concepts and inspire members to develop quality teams.
TRAINING

The different units did a good job of providing training to senior level management but the quality of training needs to be reviewed. While National Guard Bureau Quality Center spent a lot of time designing their Strategic Awareness course, it was too elementary for upper management according to the class exit surveys. The course taught basic concepts on quality and would have been great as an introduction to business class, but did not belong at upper management level. In fact, some principles in quality were incorrectly presented by the instructors. On one occasion the instructor tried to demonstrate Deming's Red Bead test. This test was designed to show students that sometimes systems are to blame and not people. During a recent conference I attended, Dr. Deming instructed the Red Bead test which took three hours and covered every point of the test. At the Strategic Awareness course, the instructor cover this instruction block in less than an hour and he never left any time for follow up discussion. Most students were left confused asking themselves: "What's the point?"

Most feedback from the Strategic Awareness Course was negative because the students at this level did not want nuts and bolts techniques. The students wanted to have
speakers from the private industry explain the concepts and success stories of TQ. Senior management is a hard sell and in order to have total buy in, a necessary ingredient for TQ success, a very solid case for the process needs to be provided. It should be noted that the author suggested changes to the national level training by providing quality feedback to the training center and this feedback was met with resistance. Later, personnel from the center were replaced with a new management team. The team’s main goal was to listen to the customer and they are on their way to producing a solid training program.

Local training was a situation of putting the cart before the horse. It was a great advantage to have a quality coordinator who could provide training to the unit members but the courses were not well thought out.

There never was a plan designed to train key individuals in the beginning establishment process. The commanders took a long time to identify their quality advisors and provide training for the quality advisors, but the commanders should have selected the quality advisors earlier on and used local resources to give them training.

A motivated quality advisor could have been used to design a training system and help instruct unit members. The Quality Advisor could have acted as leader to implement the commander’s program. The commanders realized this
mistake and are making efforts to hire full-time quality advisors. Full-time quality advisors should be in these new positions by the end of 1993.

RESOURCES

During the middle of 1993, the establishment stage of TQ, the units announced the "lack of funds" in the area of training dollars. The Quality Advisors were asked to research methods to provide training on a local level instead of using national level training centers. Media training films were also held up from the national level due to the "lack of funds." With good reason, the units decided to back down on the TQ program, budgets were closely watched to ensure that the "basics" were covered, such as meeting the payroll. TQ programs quickly were reworked based on cash flow instead of quality of the program.

INFRASTRUCTURE

After all the units had designed their infrastructures for TQ implementation, the National Guard Bureau passed down a new organizational structure designed to restructure middle and upper management positions. The new organizational design called the "Tri-deputy" system put the TQ implement process to a quick halt, with the massive changes in
organizational structure, it was hard for the units to implement their current infrastructures. Units also had troubles redesigning infrastructures because it took over three months to receive the new organizational structure from the national level and then personnel changes had to follow.

MASTER PLAN

The master plan developed at the National Guard Level had many delays with numerous rewrites. At this point, the plan is still in the draft stage. The executive council for the State of Wisconsin, took the time to develop the master plan of implementation, basing the information and guidance provided at the National Guard Bureau level. This presented a problem of providing a bridge between the units in the State of Wisconsin and the National level plan. The unit commanders did not have a final master plan product to work from when designing their own implementation system.

The units moved quickly ahead to develop a master plan for TQ implementation. At times, this caused some difficulty with bridging the state and unit levels while following the overall objectives at the national level.

Originally, The National Guard Bureau selected different states as test sites for the implementation of TQ. The National Guard Bureau Executive Council quickly found out that guard units were not going to stand around and wait to
implement a quality process. Each guard unit had its own views on how to implement quality; the question which will require further investigation, is how comparisons will be made between units. In the military production depends on standardization and success of production is often based on the ratings received during inspections.

How can quality be measured during inspections and will inspection teams look for a "standardized" system within each guard unit? The answer lies in the Guard's ability to apply a measure of a quality system like the Malcome Baldridge Award scoring system. The Guard promises to deliver quality resources to help with the implementation of TQ. One action was to provide each flying unit with two full-time TQ coordinators. The National Guard Bureau designed and established these positions but left it up to each unit to find the resources to pay these individuals. Needless to say, during times of minimum funds, hiring these positions become a matter of creative budgeting.

CONCLUSION

Through most of this study, I referred to Marilyn Lythgoe's study on TQM implementation in the Air Force. At first, it appeared that the study would not line up with this study of TQ in the Wisconsin Air National Guard. I was wrong. It most cases, Marilyn Lythgoe was right on target
and there were many common points to her study and this study. Marilyn Lythgoe completes her study by stating the following:

Will TQM succeed? The researcher would answer by saying in some organizations it is off to a promising start. In the more "civilianized" sectors of the Air Force like acquisition and logistics, TQM has become the byword for organizations that aspire to excellence. Just as noteworthy are the clumsy and forced implementation attempts the operational commands are applying.

Despite the obvious barriers to effective implementation (resource constraints, questionable management commitment, misinterpretation of guidance), determined organizational commanders are implementing it (TQM) where they deem appropriate. (Lythgoe, 1990, pp. 127-128)

The same can be said about the implementation of TQ in the Wisconsin Air National Guard. Despite the lack of resources and failed starts to provide a quality program, the Wisconsin Air National Guard will use TQ whenever possible. Subsets of this organization will be more successful at quality than others but this is to be expected. Only time will tell if the military can implement TQ as successfully as the organizations in the private sector.

FURTHER STUDY

This study reviews the "establishment stage" of TQ in the Wisconsin Air National Guard but the process continues. There are many questions to be answered as this organization moves into the implementation and institutionalizing stages
of TQ. Will the TQ process work in all units of the organization and what type of programs will use the quality concept? What type of programs or organizations can not use the TQ process? Is TQ here to stay or is it just a fad of this decade, destined to disappear at the birth of a new management concept?

Follow-up research is recommended within other guard units. Objectives of this follow-up research would be to determine what specific factors contributed to success (or its absence) in individual Total Quality Programs and to develop SPC tools for measuring the Total Quality effects upon the military.

This study has shown the process the Wisconsin Air National Guard used to develop an establishment stage of TQM and through data collection, documented the successes and failures of this stage.
REFERENCES


Scholtes, P. R. The Team Handbook. 1988, Joiner Associates Inc. Madison, WI.


APPENDIX ONE

WISCONSIN AIR NATIONAL GUARD MASTER PLAN
TOTAL QUALITY MASTER PLAN

QUALITY THROUGH TEAMWORK
NATIONAL GUARD

WISCONSIN AIR NATIONAL GUARD
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FORWARD

Over 50 years have passed since the establishment of the Wisconsin Air National Guard. Our workforce of highly capable men and women has elevated from a marginally equipped militia to a highly trained, well equipped and dedicated team of professionals well poised to perform our federal and state missions. As the 21st century approaches, we are expanding a third mission: a mission which "adds value to Wisconsin" in her cities and communities at large.

To set the stage for a challenging future, we have established goals for the 1990’s which serve as multiple targets of opportunity for continuous improvement, growth and development of the Wisconsin Air National Guard. These goals both support my vision and provide the framework for existing and emerging missions at the federal, state and community level.

BG ALBERT H. WILKENING
WIANG
DEPUTY Adjutant General FOR AIR
DEPUTY ADJUTANT GENERAL'S VISION

My vision is the Wisconsin Air National guard will continue to be widely recognized as the leading proponent and practitioner of high quality service to the nation, state and local community. We are an enthusiastic force of highly competent and committed military professionals resolved to continuous improvement. We are proud to add value to Wisconsin as citizens and unit members of the finest militia in The United States...The Wisconsin Air National Guard.

Brigadier General Albert H. Wilkening
23 June 1993
WISCONSIN AIR NATIONAL GUARD
GOALS

PEOPLE

- Quality people, quality work environment.
- Equal treatment for all.
- Manage a diverse work force.
- Optimum staffing.
- Educate and train for quality performance.
- Support the family.

VALUES

- Quality.
- Patriotism.
- Personal integrity and accountability.
- Wisconsin work ethic.
- Trust through teamwork.

RESOURCES

- Equip and right-size the work force.
- Provide mission essential requirements.
- Fund and enhance initiatives, including:
  — Quality.
  — Education and training.
  — Community service.
  — Drug demand reduction.
  — Environmental programs.

MISSIONS

- Help defend the United States through control and exploitation of air and space.
- Attain the highest standards of performance for existing and emerging missions for the Air Force.
- Develop, market and implement new initiatives.
- Plan, organize, advocate and implement public programs and services in partnership with the community.
CONCEPT OF QUALITY OPERATIONS

Changes in the military force structure and cuts in the federal budget will continue to affect how we do business in the future. Such times as these are never easy, especially when force reductions may threaten units and job opportunities in the Wisconsin Air National Guard. We must position ourselves to remain a leading edge, results-oriented organization.

During the history of the Wisconsin Air National Guard, we have developed a momentum and record of success matched by few other states. Public awareness and perception have never been more positive. We must retain this high level of readiness and strong public support. We must be smart. We must be aggressive. We must care about our people.

One of the highest priorities is to recruit and retain top quality guardmembers. As we introduce new systems, upgrade those already in place and set a responsible course to year 2000 and beyond, our primary goal will remain the same ... QUALITY.

To guide the Wisconsin Air National Guard as it embarks on a challenging journey through the 1990’s and beyond, We are instituting “Total Quality” management at the top.

TQ highlights teamwork and team structure. Teamwork aligns personal and organizational goals, objectives and thoughts, and leadership. Teamwork builds communication and cooperation, stimulate creative thinking and provides a mechanism to improve processes and systems.

If we can harness the collective energy and expertise of our organization to better service our dedicated men and women, our future is secure.
METHODOLOGY

BUDGET - the Wisconsin approach for developing TQ is "dollar conscious". TQ as an unprogrammed, unbudgeted requirement that must be resourced "out of hide" until funded. The WIANG will use its limited TQ resources on creating an infrastructure that can support, maintain, and sustain TQ development. NGB schools will be used extensively to train upper management, quality advisors and future TQ instructors. Development of a WIANG instructor base will be top priority in order to support low cost training resources.

SUPPORT SYSTEM - A support system is a fundamental requirement for successful development of TQ within the WIANG. The support system will include a training cadre of instructors who will conduct Quality Awareness Courses, Team Tools & Techniques Courses and Facilitator Courses using computer design programs supplied by NGB/PQ (National Guard Bureau Quality Center.)

EXECUTIVE QUALITY COUNCIL -

THE ADJUTANT GENERAL - MG JERALD D. SLACK
DEPUTY ADJUTANT GENERAL - ARMY - BG JEROME J. BERARD
DEPUTY ADJUTANT GENERAL - AIR - BG ALBERT H. WILKENING
USPFO FOR WISCONSIN - COL HOWARD D. MILLER
EXEC ASST - ERIK OPSALL
ARMY GUARD ENLISTED - CSM THOMAS L. MERONEK
AIR GUARD ENLISTED - CMS DENNIS O'LOUGHLIN
EXECUTIVE QUALITY COUNCIL - AIR

CHIEF ADVOCATE - BG WILKENING, DAG FOR AIR

EXECUTIVE COUNCIL MEMBERS
- BG DRAHN, COS HQ WIANG
- BG SLOAN, 128 FW/CC
- COL SCHMITZ, 128 ARG/CC
- COL GREEN, CRTC/CC
- LTC SCHICK, 128 ACS/CC
- CMS O'LOUGHLIN, HQ WIANG

TQ ADVISOR - 2DLT BUHLER, HQ WIANG

QUALITY ADVISORS
HQ WISCONSIN AIR NATIONAL GUARD - 2DLT BUHLER
128 FIGHTER WING - MAJ PRISLAND
128 AIR REFUELING GROUP - 2DLT SCHULTZ
COMBAT READINESS TRAINING CENTER - LTCOL REIS
128 AIR CONTROL SQUADRON - MAJ PIRWITZ
TOTAL QUALITY GOALS

LONG RANGE (7 YEARS) The long range goals represent the mature application of Total Quality (TQ). They focus on long-term cultural changes.

- Total Quality is institutionalized in the Wisconsin Air National Guard and has become a way of life.

- The Wisconsin Air National Guard Publicizes successes and reward improvements in the area of quality.

- The Wisconsin Air National Guard investigates new methods for continuous quality improvement.

MID-RANGE (3 YEARS) The mid-range goals need to be accomplished in order to support the long-range goals.

- The Wisconsin Air National Guard education and training system is fully operational and provides all categories of required training.

- The Wisconsin Air National Guard TQ continuous improvement program/system is fully operational and implementing improvements which result in cost savings.

- A comprehensive TQ program has been instituted for all Air Guardpersons throughout the Wisconsin Air National Guard.

- The Total Quality process is used to work all major issues in the Wisconsin National Guard.

- All major barriers to TQ implementation have been eliminated.
SHORT-RANGE (1 YEAR) The short-range goals are essential to “doing it right the first time”. They ensure that phase one of the TQ development process is successful.

- The executive council has completed infrastructure designs.

- The Wisconsin Air National Guard has published an implementation plan.

- Wisconsin Air National Guard personnel are attending TQ courses at the professional education center or local designed courses.

- Formal Programs of TQ instruction have been established in all leadership courses conducted by the Wisconsin Air National Guard.

- ALL “CRITICAL MASS” personnel have completed the TQ training.

  -- Executive Council members
  -- Quality Advisors
  -- Commander
  -- Role models
STRATEGY

INTRODUCTION - The Wisconsin Air National Guard will aggressively develop and implement TOTAL QUALITY (TQ) strategy. The preferred approach is called the "CASCADING METHOD". This is because the TQ process should be integrated and operational at each preceding management level before it is allowed to flow or cascade to the next level. This is to ensure that individual leaders from executive level down know and personally use TQ before directing their subordinates to use it. Senior leaders must lead TQ development and implementation by example. Senior leaders will also rely upon traditional guard members who have special skills and training in Total Quality to help them support the cascading of TQ throughout the organization.

TQ PHASES - There are three phases in the TQ process:

Phase one - ESTABLISH - Creates the TQ development strategy, organizes the support structure and establishes the management and cultural environment.

Phase two - IMPLEMENTATION - Is where TQ technologies are applied to daily work functions and processes. These are implemented by teams and boards.

PHASE THREE - INSTITUTIONALIZE - TQ successes are recognized and celebrated, Total Integration of TQ and continuous improvement demonstrated.

PHASE ONE - ESTABLISH

STEP 1: Conduct senior officer training and build senior leader commitment to Total Quality (TQ).

STEP 2: Establish the Executive Quality Council.

STEP 3: Develop a master plan strategy for integrating, implementing, and institutionalizing TQ into the Wisconsin Air National Guard.
STEP 4: Appoint quality council to implement TQ.

STEP 5: Establish an Education and Training council which will conduct training needs analysis, determine resources for education and training, and will create and oversee TQ education and training.

STEP 6: Develop and conduct training in the following categories: awareness, technical, job related, leadership, group dynamics, facilitator, instructor, and continuation—train the "critical mass" first. The critical mass includes key leaders, instructors, facilitators, and council and team members.

PHASE TWO - IMPLEMENT

STEP 1: Identify customers and investigate possible TQ issues.

STEP 2: Utilize the TQ process and benchmark results.

STEP 3: Establish a method for continuous improvement, praising successes and learning from failures.

STEP 4: Continue to provide training to all members.

STEP 5: Organize support teams to create an environment of Quality.

PHASE THREE - INSTITUTIONALIZE

STEP 1: Publicize successes and recognize improvements.

STEP 2: Develop and activate a quality improvement suggestion system.

STEP 3: Integrate Total Quality (TQ) throughout the entire Wisconsin Air National Guard.

STEP 4: Practice and demonstrate continuous improvement.
TOTAL QUALITY (TQ) SUPPORT SYSTEM
RESPONSIBILITIES/FUNCTIONS

The Wisconsin Air National Guard’s Total Quality (TQ) System is designed to allow each unit to develop their own infrastructure and method implementing quality. Each unit has different elements of concern in quality and will need to align their units accept the TQ process.

I. THE STRATEGIC LEVEL is organized into an Executive Quality Council (EQC) and the Executive Quality Council for the Air Guard (EQCA)

EXECUTIVE QUALITY COUNCIL

A. MEMBERSHIP

THE EXECUTIVE QUALITY COUNCIL (EQC) represents the highest level of team management in the Department of Military Affairs.

B. FUNCTION

The EQC establishes the Department’s philosophy. This includes identifying strategic goals for quality improvement efforts. The EQC obtains information from customers to identify major product and service requirements for the Wisconsin National Guard and Division of Emergency Government. It is through the identification of these major requirements that quality goals are defined. After the EQC has identified customer requirements, it prioritizes and lists the goals for quality improvement. During the course of quality improvement efforts there will be changes that require support of resources that can be only be provided by top management. The EQC is expected to ensure that these requirements are met.

After process changes have been made, the EQC is involved in determining the effectiveness of the changes in meeting the quality needs of customers. As effective process changes are made, the EQC provides the resources needed to standardize and document these changes.
EXECUTIVE QUALITY COUNCIL - AIR

A. MEMBERSHIP

The Executive Quality Council - AIR (EQCA) represents the highest level of team management in each of the Wisconsin Air National Guard units. An EQCA is made up of the Deputy Adjutant General For Air, Chief Of Staff For Air, Unit Commanders, The Senior Enlisted and Wisconsin Headquarters Quality Advisor.

B. FUNCTION

The EQCA identifies strategic goals for directorate quality improvement efforts. It obtains information from customers to identify major products and service requirements for the directorate. It is through the identification of these major requirements that quality goals for the directorate are defined. After the EQCA has identified customer requirements, it prioritizes and lists the directorate goals for quality improvement. During the course of quality improvement efforts there will be changes that require support of the resources that can only be provided by top management. The EQCA is expected to ensure that these requirements are met.

After process changes have been made, the EQCA is involved in determining and effectiveness of the changes in meeting the quality needs of customers. As effective process changes are made, the EQCA provides the resources needed to standardize and document these changes.

II. THE OPERATIONAL LEVEL will be determined by the individual units and each unit will make up their unit implementation plans. These plans will be added as appendixes to the state master plan. (See appendix one for the Flow chart on the organizational structure and appendix two for Total Quality Courses).
Organizational Structure for Total Quality
Wisconsin Air National Guard
TOTAL QUALITY COURSES

Introduction to TQ. The course usually runs one hour with an introduction into the concepts of quality.

Senior Leader Awareness. The provides upper management with the philosophy of quality principles and gives some insight into the Malcolm Baldrige award. The course is taught at NGB/PQ but some local courses are available. The course length is 5 days.

Quality Awareness. The course is similar in design to the Senior Leader Awareness but is targeted toward the middle manager. This course is taught by both NGB/PQ and local instructors. The course length averages about 4 days.

Quality Advisor course. This course covers the National Guard Bureau TQ initiative and provides training in the area of designing a master strategy for each state. This course is taught by NGB/PQ and the course length is 5 days.

Training the Trainer. This course provides training to the members who are responsible for the instructing the TQM process at the operational/tactical level. This course is taught by NGB/PQ and the course length is 7 days.

Facilitator. This course provides training in facilitation skills, holding a team meeting and encourage ideas in a group. This course averages 2 to 4 days and is taught at both the NGB/PQ and local levels.

Team Tools & Techniques. This course investigates techniques in SPC tools, how to be a PAT leader and the best way to hold a meeting. This course is currently being taught be NGB/PQ and projected to be taught locally in the future. The course length is 3 days.
APPENDIX TWO

DISSERTATION REFERENCE INFORMATION
Abstract: An explicit team building model was described, demonstrated and evaluated within this Dissertation. Current team building literature was discussed and a review of empirical team building studies was contrasted with a new team building model, the Team Development Model (TDM). An annotated description of how the TDM was implemented, within a 15 member management team of a computer services company, was provided. A pre/post assessment was conducted to measure the impact of the TDM intervention on three dependent variables: Participant Reaction, Work Group Climate and Organizational Effectiveness. Using a standardized climate assessment, (The Work Environment Scale), a customized Work Team Survey, and structured interviews, data was collected from all participants approximately one month prior to, and one month after, the 3 day team building intervention. Program Reaction Forms were used after each team building session to measure participants' reactions to the intervention. Pre/post data were analyzed through a content analysis and a Mann-Whitney U analysis. Data from Program Reaction Forms indicated that participants perceived the team building intervention to be beneficial. Impact on work group climate was inconclusive. There were no significant differences in the pre/post WES scores, although there were several statistically significant improvements in measures from the customized Work Team Survey. No statistically significant differences were found in organizational effectiveness.
Title: THE RELATIONSHIP BETWEEN TEAM EFFECTIVENESS AND SIMULATED JOB PERFORMANCE IN A HIGH-TECHNOLOGY SEMICONDUCTOR COMPANY

Abstract: The semiconductor business in Silicon Valley has always been highly competitive. Companies strive constantly to improve their performance and productivity. One approach to improve performance is based on building a team image that lowers internal competition while generating esprit de corps. This approach was implemented by one medium-sized high-technology company.

A two-day seminar on team building was presented to company employees at four locations in two countries (the United States and Malaysia). The seminar included teamwork in producing a folded paper product (called a boxlot) that was intended to simulate job production. Participants were then tested on their perceptions of their teams' effectiveness, their leaders' effectiveness, and job-simulation activity quantity and quality.

Spearman rank-order correlation coefficients were used to analyze the relationship between perceived team effectiveness and the quantity and quality of job performance. The Mann-Whitney U test was used to compare differences in job performance between the teams in the United States and Malaysia. Spearman correlations were also used to relate demographic variables to perceived team effectiveness; and to relate job performance and team leader characteristics.

The findings of the study showed positive correlation between three of the five dimensions (Organization, Operation Process, and Interpersonal Relationship) of the team effectiveness measure and the quality of job production for both U.S. and Malaysian teams. Less relationship was shown between team effectiveness and quantity of job production.

Demographic characteristics of sex, education level, and years of experience working in the semiconductor industry were related to perceived team effectiveness, but results differed for U.S. and Malaysian teams.

Leader effectiveness and democratic nature were unrelated to job production quality or quantity for the U.S. teams and negatively related to job quantity for the Malaysian teams.
This Project demonstrates how to help business managers, training and development professionals, and organization development practitioners design and implement a system for changing organizational culture. This book presents a way to combine training and employee development methods with the organization development technique of action research.

Action research is presented as a useful methodology for unifying the process. Action research can help diagnose the need for change, formulate system objectives, create a model of managerial competence, design an assessment center process, develop curricula, apply special techniques and evaluate the effectiveness of the new system. The iterative and cyclical nature of action research is particularly well-suited to managerial development programs designed to change organizations over time.

The main themes are presented in the sequence considered necessary for creating an entirely new system, i.e., diagnosis precedes the development of objectives. The rest of the sequence follows a logical progression. There is an assumption in this book that it will be of most value to those professionals who do not have an action research based system, and want to start one. Professionals working within an existing system, however, will find this approach easy to apply by making minor adjustments in their approach.

Changing organizations through managerial development contains practical, "how to" information to assist business professionals with the details of effecting change. This system creates an environment in which managers are engaged in the change process. Mentoring is encouraged. System participants become empowered to act as change agents. Innovation is fostered through the requirement that participants complete an innovative management project. Team building and self-disclosure activities help foster networking. Adult learning theory helps create a sense of responsibility and active involvement in system participants.

Where appropriate, chapters are organized to present both practical advice and bibliographies are furnished. Part I. of this book is an overview and a description of the system. Part II. contains practical guidance and the majority of the scholarly references. Part III. discusses program evaluation methodology from both a micro and macro point of view.
Abstract: This study examined the impact of improved communications resulting from a team-building intervention on organizational effectiveness as perceived by the participants. The team approach solicits the views and opinions of all constituents of a program. The hypothesis was that improved communications among the interdependent project participants result in improved program effectiveness via enhanced group decision making.

Two programs in the Federal Bureau of Investigation were selected for the study. One program was designated a control group, the other an experimental group. Through a literature search, two organizational effectiveness survey instruments were selected, one for Research, Development, and Engineering (R,D, and E) personnel and one for marketing/user personnel. An intervention was designed based upon Hackman's Action Research Model. The intervention ran for six months. Surveys were administered to participants in both programs before and after the intervention.

A statistical analysis was conducted to examine differences in perceptions of organizational effectiveness between both types of personnel in both programs. The R, D, and E survey results showed that: in the control group, only 2 of 7 organizational effectiveness factors changed within a 95% confidence level, and a slight decrease in effectiveness was perceived; in the experimental group, no effectiveness factors were changed within a 95% confidence level, and a slight increase in effectiveness was perceived. The marketing/user survey results showed a significant increase in 12 of 12 organizational effectiveness factors in the experimental group, but not in the control group.

The general results show that significant improvements in perceived organizational effectiveness is possible when a "team" approach among program constituents is used. Unstructured interviews of R, D, and E personnel in both groups indicated that the survey results were not as dramatic as the marketing/user survey results because the R, D, and E personnel in the experimental group did not believe that the organization would act upon their recommendations. The marketing/user personnel, who had never been asked for their input in program decisions, believed that the organization would act on their recommendations. Hence, trust that the organization is sincere and will act on program participants' input seems to be an antecedent for improved perceived organizational effectiveness.
Team building is an important strategy in organization development. The human resources field and the OD profession have lacked an updated theory based definition of team building. Recently the conceptual frameworks of

Goodstein, Cooke & Goodstein (1983) and of Kormanski & Mozenter (1987) have offered new models for team building based on stage development theory and on maintenance and task orientation theories of Bales, Stodgill and Gibb, respectively. The Goodstein, et al., model offers a framework and an instrument, the Team Orientation and Behavior Inventory (TOBI), for assessing and building fully functioning work teams. The present study tests the validity of the Goodstein et al. model and that of the TOBI by matching factors identified by experienced managers against concepts inherent in the TOBI.

Thirty-four managers, employed by the subsidiaries of Joy Manufacturing Company, responded in writing and through interview to questions on the "Group Situation Form" and listed reasons for the outcomes of two specific group experiences, one associated with a successful team building experience and the other with an unsuccessful experience. Frequency counts for each of five categories of responses (termed group mediators) were computed and sorted by roles the executives played in the work team situations reported on. Two independent analysts categorized key words and phrases from individual statements into five classes of coded statements. Task oriented statements were further classified as values (V) or skills and maintenance oriented statements were similarly processed. UNK was assigned to categories of statements that didn't fit the task or maintenance orientation toward work team processes. Frequencies and the content of statements were matched between observers (who achieved a .85 alpha coefficient of reliability) and with fully functioning team membership profiles generated by researchers working with the TOBI Inventory. Discrepancies and comparability of findings were analyzed.

From the analysis, it is suggested that the TOBI should include: conceptual statements that factor in external/structural mediators; embedding circumstances in relationship to task; and certain initiating behaviors involving top management support; selection of team members with power and functional knowledge already intact; and prior experience in successful team situations. Disparities between the Goodstein et al. model for successful team building and the incipient model derived from the responses of the experienced managers were developed.
A STUDY OF THE MANAGEMENT DEVELOPMENT NEEDS OF PHYSICIAN MANAGERS IN U.S. ARMY HOSPITALS (UNITED STATES)

The study identified the management development needs of hospital department and service chiefs (e.g., chiefs of pediatrics, obstetrics, psychiatry, radiology, etc.) in the U.S. Army. The study extends a three-component management development framework consisting of (1) critical skills, knowledge, attitudes, and job demands; (2) development efforts and experiences; and (3) organizational and supportive conditions.

The methodology consisted of surveys and interviews with 71 department/service chiefs and 29 medical staff directors/administrators. Three medical centers and five community hospitals were used as case sites.

The most critical development needs were found to be accepting the managerial role, confronting problems and colleagues, using power and influence, managing time, problem solving, delegating, team building and negotiation, understanding the health care system, planning, motivating staff, procuring supplies and equipment, obtaining personnel, controlling costs, and improving productivity.

The conditions most hindering development were found to be the lack of management training, supportive organizational structure, career counseling, funds and time to attend management training, rewards and incentives, and managerial skills and mentorship by the immediate supervisor. It was found that the chiefs learned to be managers principally through trial and error, observation of hospital managers, a mentor or role model other than their immediate supervisor (usually a former teaching chief), coaching by administrative subordinates, and previous experience as a chief resident or other administrative duties during the internship and residency.

The efforts and conditions most frequently cited as supporting development were management training, supervisory and peer group mentoring, preparatory assignments, an adequate number of knowledgeable support staff, a career development policy, and selection procedures.

The study also found that clinical competence was perceived as a necessary condition for leadership effectiveness and that the medical model (assessment-planning-implementation-evaluation) was highly useful when recognized and applied by chiefs in management. It was concluded that these results could be extended to physician managers in other organizations and that the development approaches of peer review, journal clubs, grand rounds, etc., may hold much potential for wide management use.
Abstract: The problem. Allegations of widespread wrongdoing in the aerospace industry have been made frequently in the last few years. Little attention has been paid to the nature of the motivation in executives with different backgrounds and different business environments. Technological and moral successes and failures are a reflection of motivational patterns of individuals in different companies and industries. The leadership of an industry is provided by its top management—its executives. It has been called the "Shadow of the Leader." To understand the Nature of Motivation in Aerospace Executives is to understand the Aerospace Industry.

Method. A phenomenological research approach was used to examine the motivation of individual aerospace executives. Open-ended questions were used to keep the executive talking about real events from the past that provided clues to the nature of motivation as the executive experiences his world. A value-free environment was created to facilitate free association similar to a therapy session, except that the context was set as the aerospace business world. Transcripts were made of these recorded interviews. A six step procedure was used to develop extended descriptions about the themes that relate to motivation.

Results. A phenomenological approach was used to analyze the lived experiences of 21 aerospace executives. All executives were interested in achievement and promotions. They were also interested in team building and importance of management, most executives recognized an inherent conflict between technical and management orientations. They wanted to please their customers and provide good products to them for the good of the country, but they felt that micro-management, complex rules, and unfair criticism made this very difficult. The adversarial environment that has developed in recent years may be ameliorated by the recent conflict in the Persian Gulf and the public's reaction to the exceptional performance of "high tech" weapon systems.
Abstract: This study identified and compared factors perceived by Quality Circle managers to be necessary for successful Quality Circle implementation in selected service industries; identified perceived consequences of Quality Circle training programs; and identified and compared the main components of Quality Circle training program curricula. Implementation of Quality Circles has led to marked increases in productivity and product quality as well as improvements in the quality of employees' work lives in many organizations. Successful implementation of QCs frequently has proven to be difficult, however, and many attempts have failed (about one-third) with many others achieving only marginal results. The development and initial growth (in the 1960s) of the Quality Circle movement was in large Japanese organizations engaged in manufacturing but spread quickly to other countries and, more recently, has been implemented in the service sector. This study adds to the growing body of literature concerned with Quality Circles in the service sector. A questionnaire was designed to elicit data about the factors perceived by respondents to be necessary for successful QC implementation as well as data regarding major components of QC training programs and was mailed to selected organizations in seven service sector categories including Communications/Utilities, Health Care, Education, Finance/Insurance, ordered and comparisons were made between the response categories and between industries. It was found that organizations implemented QCs to achieve multiple goals and for differing reasons. Consequently, the definition of success varied between organizations, as did the criteria and methods used to measure success. Nevertheless, nineteen categories of factors perceived to be necessary for successful Quality Circle implementation were identified. It was concluded that top management participation in the Quality Circle process was the most important perceived factor in the successful implementation of Quality Circles in the selected service industries, though a number of other factors were also perceived to be important.
Abstract: The effect of participation in a quality circle on job involvement, productivity and job satisfaction was investigated using meta analytic techniques. Three hypotheses were tested, (1) Those who participate in quality circle programs should become involved in the task, (2) Participation in quality circles should lead to higher organizational productivity rates and (3) Participation in quality circles should lead to higher levels of job satisfaction. Forty-three studies were obtained from the literature search, only thirteen met the criteria for inclusion. The point bi-serial correlation r was used to calculate effect sizes (Hunter, Schmidt & Jackson; 1982). Effect sizes and corrections for attenuation due to measurement error were computed for the thirteen studies. A weighted average effect size was derived for each dependent variable. The results of the meta analysis indicate that participation in quality circles programs has no effect on job involvement or job satisfaction. Not enough data was available to calculate effect size for productivity.
Abstract: A study was conducted to assess the influence of internal operating structure upon quality circle productivity in both blue and white collar quality circles in a telecommunications manufacturing firm.

In 1987 twelve newly trained circle groups were broken into matched pairs: each of six departments contained a circle receiving the structured treatment and a control group circle without the structured treatment. The total number of participants was 92. Three departments were blue collar and three departments were white collar. The study ran for twelve months.

The structured treatment consisted of mandatory use of quality circle step-by-step process manuals, use of formal agendas and facilitator interventions. The strongest element in the structured treatment was the use of the steps guide, which mandated exact procedures for all circle activities ranging from Brainstorming and problem selection to project implementation and establishment of financial return on investment.

The primary and secondary hypotheses for the study were that the productivity and success rates of the structured quality circle groups would be higher than the productivity and success rates of the unstructured control group. Increasing the structural characteristics, therefore, of the circle operating environment would cause a corresponding increase in productivity and success rates.

Four sub-hypotheses were used with eight specific data elements and two survey response indices. The eight data elements were all directly measured and collected in the quality circle meetings and from circle activity reports. A twenty question survey was administered twice during the study.

Results of the study indicated a meaningful positive relationship between a highly structured internal operating environment and the productivity and success of quality circle activities. A small relationship was found between productivity and success rates and job class.

The author concludes that structure has been overlooked as one of the critical factors in productive and successful quality circle operation. Companies with current employee involvement activities would benefit from examining ways to increase the levels of support and structure within the circles' operating environment.
Abstract: The problem. The study explored the relationships between Quality Circle membership and employees' reactions to their jobs in aerospace organizations. The study also explored the relationships between employees' extent of participation in Quality Circle activities and their reactions to their jobs in aerospace organizations as a concomitant of such participation.

Method. A total of 518 aerospace employees responded to the survey used.

Results. The responses revealed that Quality Circle members report a significantly higher degree of perceived influence on the job, and of desired influence on the job than non-members. The responses also revealed that perceived extent of influence on the job was greater for Quality Circle members.

Quality Circle members also reported significantly higher job satisfaction, significantly higher perceptions of task variety, and significantly higher degrees of job autonomy and extent of interaction with others than non-members.

Employee age, education, and employee experience in present industry were significantly and positively related to all ten independent variables.

The overall positive associations between Quality Circle membership and the other variables of the study strongly suggest that Quality Circles are likely to be important promoters of employee motivation, satisfaction and productivity.
Abstract: Participative management is regarded as one of the most important determinants of QWL. The purpose of the investigation was to determine to what extent QWL and participative management form part of two sections in the Manpower Services Section of SATS.

From literature it seems that there are various approaches to and definitions of QWL. The quality circle concept in the USA and Japan was also discussed with reference to similarities and differences in the approach of the two countries regarding the pursuit of quality. Worker participation in decision-making is still in an initial stage and workers in both the private and public sectors in the RSA are still basically unexploited natural resources of creativity and enthusiasm. According to Rosenthal (1980), participative management is decision-making by more than one person, about choices concerning the means, processes and outputs of production or service.

Research into worker participation in management indicates that enhanced productivity of the major natural resource, people, is the greatest challenge of the eighties.

The Organisational Diagnostic Questionnaire (ODQ) based on Seashore's five-point scale, as well as a biographical questionnaire were used as measuring devices for QWL.

71 Professional and 100 functional officers were used as investigation groups. Comparing the two investigation groups, the QWL of the functional group significantly excelled that of the professional group on 26 of these dimensions. Only with regard to working group satisfaction was the professional group better off. Substantial structural differences were also observed at the two investigation groups. The conclusion reached, is that the functional group experienced the current organisational climate more favourably than the professional group.

According to these findings, the organisation policy regarding training must shift from a technologically oriented policy to a person-oriented policy. A new managerial philosophy and culture will have to be established where the extended reservoir of behavioural-scientific knowledge and experience of the work must be developed for the benefit of the organisation. The period in which the supervisor thought and the employee acted, is finally over if the organisation wishes to fill its rightful and proud place.
Abstract: The Department of Defense is in the formative stage of implementing Total Quality Management to ensure effective leadership, reduced costs, customer satisfaction, and enhanced productivity. Interviews were conducted with 36 key implementors of six representative United States Air Force organizations and archival data was collected in this formative evaluation of the implementation process. Formative evaluation is a powerful research tool which seeks out discrepancies between the plan and reality. It keeps an intervention true to its design by recommending modifications where appropriate. The data collected show that the necessary cultural transformation is beginning to occur but is meeting with resistance in the more operationally oriented commands. The acquisition and logistics communities, as expected, demonstrate the greatest affinity for and effectiveness in implementing Total Quality Management. Senior leadership is evidencing tentative commitment as it is yet unclear if this is but another in a series of pet management initiatives. Adequate implementation resources are lacking in all units. A summative evaluation (five to seven years hence) is recommended as Total Quality Management reaches a more mature implementation stage.
Abstract: Currently, quality of care in hospitals is limited to the clinical aspects of care. It is managed by committees and focuses on quality assurance, credentialing, utilization review and risk management. Meeting standards set by Peer Review Organizations and the Joint Commission on Accreditation of Healthcare Organizations are its principle goals. Quality programs are typically retrospective and reactive rather than customer focused, prospective and design oriented.

Total quality management techniques (TQM) used in industry can be successfully adapted for use in health care. The techniques are objective, empower everyone in the organization, maintain a customer focus and are prospective. This research surveyed hospitals examining attitudes about quality and the extent to which TQM techniques have penetrated the health care community. This research presents a strategic plan for implementing TQM, identifies issues related to organizational change, discusses training concerns and adapts a technique called Quality Function Deployment to the health care setting.

The survey results show a limited knowledge and understanding of experts, concepts related to TQM or techniques for objectively measuring and monitoring quality. Definitions of quality, by respondents, strongly reflect JCAHO's influence. Obstacles to TQM included organizational issues, management commitment, resources, education and information systems. Quality measures identified were clinical outcomes, satisfaction surveys, nosocomial infections, readmissions, standards of care, peer review and accreditation.