"If Japan Can . . . Why Can't We?"
Total Quality Management at Naval Aviation Depot North Island
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ABSTRACT
"If Japan Can . . . Why Can't We?" was the title of a NBC White Paper that was shown on TV in 1980. It addressed the issue of quality and productivity in America as compared to Japan. This paper focuses on the efforts of the Naval Aviation Depot North Island, Ca. over the past five years to implement the philosophy of Dr. W. Edwards Deming. It highlights the cultural gains and lessons learned during our implementation efforts. While we are not completely there yet, North Island is very proud of its accomplishments and its recognition as a leader in the area of Total Quality Management.

INTRODUCTION
"If Japan Can . . . Why Can't We?" was the title of a NBC White Paper that appeared on TV on June 24, 1980. It asked the basic question of what was wrong with the quality and productivity in the American industry. Could we as a society be as productive and quality conscious as the Japanese? However, it was an American who taught these methods to the Japanese. Dr. W. Edwards Deming has been credited for teaching the Japanese the basic principles that has lead to their industrial success. This paper will discuss the implementation of Dr. Deming principles for Total Quality Management (TQM) at the Naval Aviation Depot North Island, San Diego, Ca. It will highlight the cultural gains and lessons learned during our first five years of using Dr. Deming's 14 points. Our country has awakened to the need to improve the quality of our services and goods in order for us to remain competitive in today's markets. The world has recognized that quality can and does cost less. We can no longer live in a society where 25 to 30 percent of our industry is devoted to reworking products or redoing services that were done incorrectly the first time. This paper will provide background information on TQM; a summary of the history of TQM at our facility and what we are doing on each of Dr. Deming's 14 points; an explanation of how we are organized for TQM; and a selected summary of the results that we have seen.

The Naval Aviation Depot North Island is located in San Diego, Ca. We are the largest and oldest of the six Naval Aviation Depots. We currently have over 4700 employees and are the Navy's largest civilian employer in San Diego. We are also the third largest "company" in San Diego County. The Depot is primarily involved with aircraft and aircraft component overhaul and modification. We are currently working on the F-14, F-18, E-2, and H-46 aircraft. We also complete repair on over 24,000 additional aircraft components each year. We have over 500 engineers and logisticians providing service to us and the Naval Air Systems Command.

WHAT IS TQM?
What is TQM? TQM is a lot of things, but we may summarize it into three areas. TQM is continuous improvement, customer oriented, and team work through a participative style of management. TQM results in higher quality, lower costs, and jobs for the future. Some people may call it a Japanese style of management. However, it was an American who taught the Japanese how to do it. The name Total Quality Management originated here at North Island and has now been adopted by our Federal Government as the method to be used to increase quality and productivity. We are often asked "Who can do TQM?" The answer is that everybody can. Many visitors state that we are a production type organization but that they are a service type
company. They want to know if TQM can work for them. The answer is yes. We have had as much success in our service group areas as we have had on our aircraft production lines.

TQM means being customer oriented. Everybody has a customer, both inside and outside their facility. It would be easy for us to say that our only customers are the Navy squadrons who fly the airplanes that we produce. But this is not true. Everybody in our facility provides a service to someone else inside our facility. We all must learn to meet or exceed the needs of our internal customers. It is also important to realize that we all must be good customers and make our needs known as far in advance as possible.

Tom Peters, coauthor of "In Search of Excellence," stated that "When technology is everywhere and worldwide labor is cheap, the only way we are going to win is through Quality." In order to produce quality, we must be willing to change our management style. Don Peterson, Chairman of Ford Motor Company, stated to a group of senior Ford executives at the beginning of a Deming seminar that "It can be very difficult to make significant changes, especially when you have been in the habit of doing things differently for decades, and especially when the very success that brought you to the position you now hold was rooted in doing some things, frankly, the wrong way."

In 1988, Secretary of Defense Frank C. Carlucci stated "We have set Total Quality Management as the key acquisition strategy to affect a permanent change in how we all work." The Under Secretary of Defense for Acquisition, Robert Costello, stated "I am making TQM success my primary objective."

TQM IMPLEMENTATION AT NORTH ISLAND

In June, 1984, our command made the decision to implement the philosophy of Dr. Deming. During the rest of that year, we conducted top level management orientation and awareness training. In January, 1985, we designated an Executive Steering Committee for TQM implementation. This committee now consists of seven top managers and is chaired by the Commanding Officer. In June, 1985, we formed our first prototype Process Action Team (PAT). In December, eight more teams were added. In 1986, we continued to expand the number of teams organized and approved a command wide implementation and training plan. In December, 1987, we sponsored the first All-Navy Deming Seminar. It was conducted in San Diego and was attended by over 650 Navy civilian and military personnel, including several Admirals. Today, we have 46 process action teams working throughout our facility.

The road to implementation has not been easy. We have had our share of setbacks along the way. However, we do consider the overall program to have been very successful from a quality, cost, and an organizational cultural change point of view. We have experienced cultural gains in the following areas: (1) teamwork is occurring at all levels in the organization, (2) the barriers between departments have been reduced and there is a significant improvement in communications, (3) we are following a structured problem solving technique and are no longer "shooting from the hip" in decision making, (4) management is increasing attention to the right details by truly analyzing data prior to making decision, (5) there is a positive attitude towards change in the facility and (6) continuous improvement is accepted as the way of doing business.

We have experienced many lessons learned along the way. We found that there is no cook book approach available. No consultant will be able to install TQM in a turn key type operation. Each activity must seek advise from others who are experienced in this area, but they will still have to determine for themselves the best way to implement TQM taking into consideration their own culture. There is no "instant pudding" in implementing TQM into an organization. Cultural changes take time, many experts estimate that it may take five to ten years to fully implement these principles. You must remember that you are not implementing a program, but a cultural change as to the way the organization
conducted its daily business. Statistical Process Control (SPC), by itself, is not the answer. SPC supports TQM. Organizations will find that many problems can be resolved or avoided by simply implementing the concepts of TQM without having to use a large amount of complicated statistics. We have had great success with using a few simple graphical techniques such as process flow charts, cause and effect diagrams, simple run charts, and a few basic Pareto charts.

DR. DEMING'S 14 POINTS

We will now examine each of Dr. Deming's 14 points and discuss what we are doing at our facility on each of these principles. A shortened version of each of Dr. Deming's principles is listed below.

Principle 1 - Create a constancy of purpose towards improvement of product and service. We are now doing long term strategic and shorter term tactical planning for our facility using a participative management style. We have created a Mission Statement and nine Guiding Principles written to explain the purpose of our facility to our employees. These statements have been printed on small cards and personally handed out by our Commanding Officer.

Principle 2 - Adopt the new philosophy. We are looking more towards the long term vice the short term. We are convinced that quality does cost less. We can no longer accept the traditional $0-30 percent of our effort being devoted to reworking something that was not done right the first time.

Principle 3 - Cease dependence on mass inspection. We have created an Artisan Certification Program where each qualified employee signs off on his/her own work. The Quality Assurance Department is responsible for monitoring the qualifications and, by using sampling plans, help identify those processes that require improvements.

Principle 4 - End the practice of awarding business on the basis of price tag. Instead minimize total costs. This is a more difficult principle for us since we deal very infrequently directly with vendors for a purchase. We order our parts directly from the Naval Supply System. However, there is much talk today in our government about making quality and total costs major items to be considered in awarding contracts.

Principle 5 - Constantly improve the system of production and services. We are dedicated to constant improvement. Our Quality Management Boards (QMBs) and Process Action Teams (PATs) use the Deming's Plan, Do, Check, Act (PDCA) cycle and basic graphic techniques to continuously look for ways for improvement.

Principle 6 - Institute modern methods of training on the job. We are making a major effort to ensure that all our personnel are thoroughly trained for their assignments. This is key aspect of our Artisan Certification Program.

Principle 7 - Institute modern methods of supervision of production workers. Through training and education, we are stressing leadership not just direction. Through the use of TQM, we are identifying special and common causes that will enable our managers to make the appropriate decisions.

Principle 8 - Drive out fear. We call this "Don't shoot the messenger." By looking at all the data and determining the trends, and the special and common causes, we focus on the process vice the person reporting the problem.

Principle 9 - Break down the barriers between departments. TQM has had great success in this area. Interdepartmental Quality Management Boards and Process Action Teams dedicated to following a structured format approach have truly focus the attention on the process and eliminated many of the communication barriers between departments.

Principle 10 - Eliminate numerical goals, MBO, posters and slogans to encourage productivity unless guiding methods are provided. Dr. Deming believes that at least 85 percent of the problems are the fault of management, not the worker. Therefore, only management can resolve these problems. Management should not set goals unless
they are realistic and provide the methods for which they can be achieved. We are incorporating this principle in all our daily work.

Principle 11 - Eliminate work standards that prescribe numerical goals. While work standards are required for upper management level reasons, we have removed the work time standards from our component repair cards that our employees use.

Principle 12 - Remove barriers that inhibit pride of workmanship. We are making a major effort to emphasize team work over individual performance in our reward and appraisal systems.

Principle 13 - Institute a vigorous program of education and retraining. We recognize and encourage our employees to continue the educational program. We will financially support and allow work time for employees pursuing higher levels of knowledge through education.

Principle 14 - Create a structure that will push every day on executing the first 13 points. We believe that we have this type of structure established in our facility. The Commanding Officer is the Chairman of the TQM Executive Steering Committee. The normal line organization is held responsible for the implementation, continuous training, and results of our TQM effort.

TQM ORGANIZATION

It is very important to have a TQM link from the top of the organization to the bottom. We have, at the top level, the Executive Steering Committee (ESC) for TQM which is chaired by our Commanding Officer. This committee reports to the Executive Policy Board which is made up of the top 18 military and civilian department heads in the organization. The ESC provides strategic guidance, identifies major goals, and monitors the implementation effort. In each department and in several divisions, we now have Quality Management Boards. We initially did not have these boards when we first started our TQM implementation. These boards are comprised of interdepartmental members at the top and middle management level. They identify processes that require improvement, determine performance measurements, select the members of Process Action Teams, analyze data, and implement the recommendations of the PATs. Process Action Teams are comprised of personnel from all departments that are involved with the process. Each has a trained in-house facilitator assigned to help organize and train the PAT. They collect, analyze, and interpret data. They provide the QMBs with the data and recommendations. We currently have 18 permanent QMBs and 46 PATs in operation today. The PATs are not permanent in nature. Once they have resolved the issue to the satisfaction of the sponsoring QMB, the PAT may be dissolved.

We have added only five personnel to our staff to support the TQM effort in our 5,000 man facility. TQM implementation is the responsibility of each department, not the responsibility of a separate TQM office. The TQM office has a middle grade TQM manager, two full time facilitators, a statistician, and one management assistant/secretary.

A key to our success has been our 46 part time facilitators. Each department trains as many facilitators as they need. These facilitators are regular employees who have had special training in TQM and communication skills. They assist the PATs when they are formed and provide any needed training and direction.

TRAINING

We have a training plan approved that covers every employee in our organization. All new employees receive a TQM indoctrination. All employees are scheduled for a TQM Philosophy and Awareness Course and a Basic Graphic Methods Course. Managers and supervisors are scheduled for several other courses including the Process Improvement Model, Dr. Deming's Four Day Seminar, Facilitator Training, and Statistical Thinking for Managers Course.
RESULTS

We have seen much success along the way. Five examples will be given, two in the production arena and three in the service group area. At one time, the F-14 AWG-9 Radar System was the number one readiness degrader in the aircraft. A PAT was formed, they evaluated the entire process we used to repair the radar, and made several excellent recommendations. The turn around time in our facility for this radar has now been reduced by 61% from 87 to 32 days. In another area, we faced a problem of overexpenditures of manhours and material on the overhaul program for the F-14 aircraft. Through use of this TQM technique, we reduced labor expenditures by an average of 3,000 hours per aircraft and material expenditures by $100,000 per aircraft.

Due to the nature of our business, we send a lot of field repair teams out on travel. We were experiencing an increase in the number of travelers and the number of customer complaints. A PAT was formed to analyze the process. They created a flow chart that was 35 feet long, describing the route that a travel request must go through from beginning to end. No one really understood the whole process until this chart was created. We now have a system that is more responsive to the needs of the traveler, we have a better educated traveler, and we are saving money on reduced overtime by using this improved process.

We were experiencing excessive processing time in our Beneficial Suggestion Program. A team was established that reviewed the whole process, eliminated duplication, revised the suggestion forms, and defined the critical functions and authority of the personnel working in this area. We have seen a reduction in overdue reports by 60%, a reduction in the time allowed for evaluation by 60%, and an increase in accountability and a reduction in costs to administrate this program.

As a final example, we were having a problem with excessive processing time of bulk/junk mail and unsolicited magazines and brochures. A team recommended sending letters to companies limiting the number of copies that they could send to the command. Also, they recommended that advertisements be sent to one spot where they could be more easily sorted and routed to the appropriate personnel. We also required that employees have their special mail sent to their home vice work. We have seen a 50% reduction in time processing this type of mail with a cost savings of over $30,000 per year.

CONCLUSION

In conclusion, TQM works. It has been the catalyst for improvement in our facility. Command support is required and culture change does not come easily. We are not completely there yet, but we are very proud and satisfied with the effects and results that we have seen over the past five years. We have shared our lessons learned with many visitors over the past few years. We encourage questions and suggestions on how we might continuously improve our process. Please feel free to contact us if you desire any further information.