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THE DEVELOPMENT OF A TOTAL QUALITY MANAGEMENT PLAN FOR DAVID GRANT USAF MEDICAL CENTER, TRAVIS AIR FORCE BASE, CALIFORNIA

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The Office of the Secretary of Defense created a master plan for the implementation of Total Quality Management (TQM) in the Department of Defense (DOD) in response to a 1988 Presidential mandate. TQM is a management philosophy that has been embraced by DOD as the best method to improve quality and productivity and reduce costs within the Department. The TQM concept is primarily based on the pioneering work of Dr. W. Edwards Deming, Dr. Joseph H. Juran, and Philip B. Crosby and is directed at achieving continuous process improvement of products and services. The overriding objective of TQM is to increase customer satisfaction (DOD, 1988).

While the application of TQM in the manufacturing industry and the military acquisition system has been successful, the health care industry has only recently begun to make inroads. Implementation of this new philosophy will prove to be a unique challenge for health care executives (Gillem, 1988). Significant planning will have to be accomplished in order to implement TQM in the military health care system to meet the

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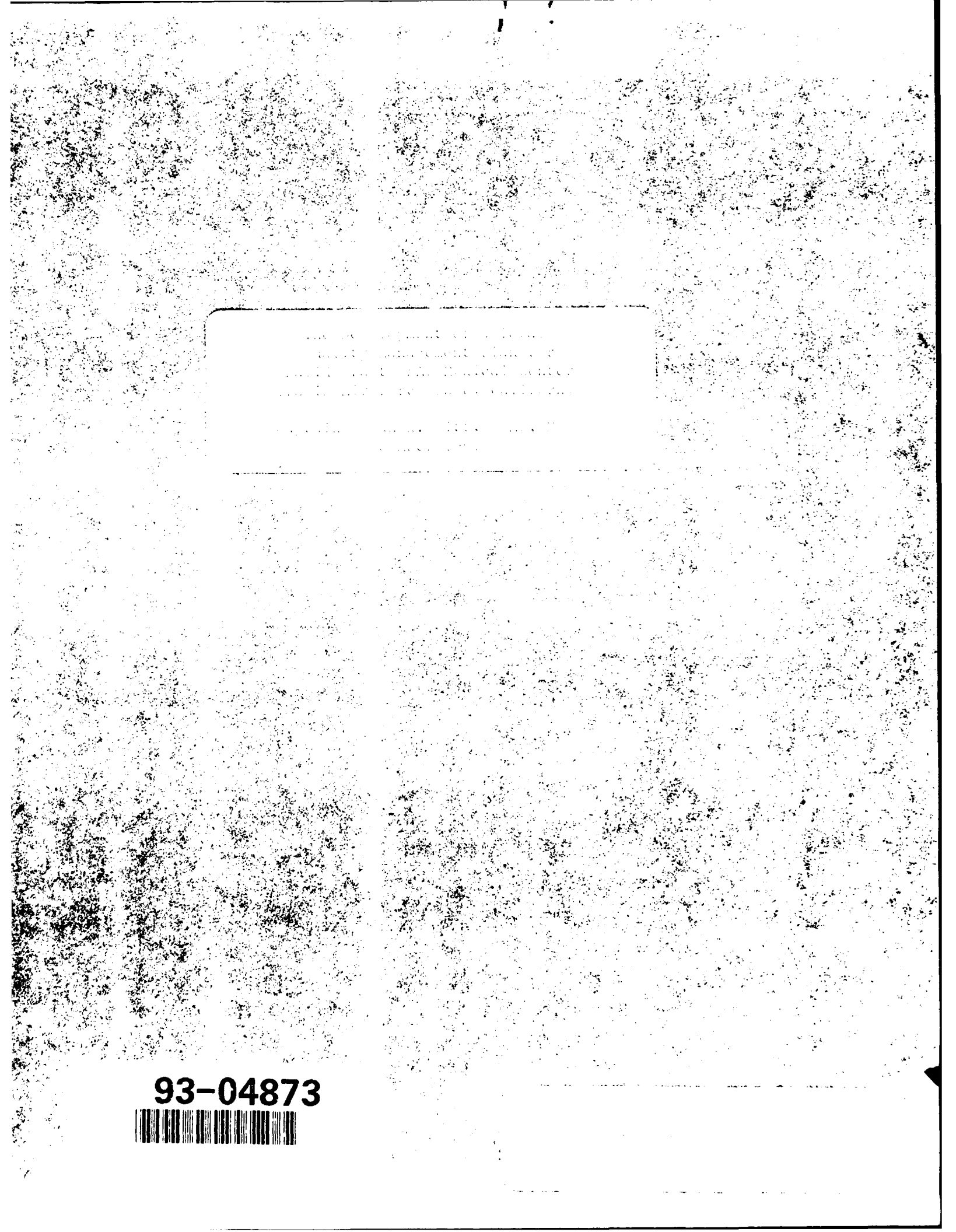
1995 deadline imposed by DOD.

This Graduate Management Project will develop a TQM plan for David Grant USAF Medical Center. It will provide recommendations for assessment, structure, training, measurement, and process improvement team projects.



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DEPARTMENT OF THE AIR FORCE
DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535-5300

REPLY TO ATTN OF: SGAR

SUBJECT: Submission of Graduate Management Project (GMP)

TO: DGMC/SGA
Residency Committee, US Army-Baylor University Graduate Program in Health Care Administration
IN TURN

1. In accordance with the instructions contained in the Administrative Residency Manual, subject report is submitted on Captain Brian K. Witt, Administrative Resident, David Grant USAF Medical Center.

2. A DD Form 1473 and DTIC Form 50 are also attached in addition to the Graduate Management Project.

Brian K. Witt

BRIAN K. WITT, Captain, USAF, MSC
Administrative Resident

3 Atch
1. GMP (Orig and 3 copies)
2. DD Form 1473
3. DTIC Form 50

1st Ind, DGMC/SGA

TO: Residency Committee, US Army-Baylor University Graduate Program in Health Care Administration

1. I have reviewed the attached Graduate Management Project by Captain Brian K. Witt, Administrative Resident, and find it to be a comprehensive document that reflects quality graduate-level work. The GMP thoroughly covers the subject of Total Quality Management (TQM) and will immeasurably aid myself and the Executive Committee as we continue with the implementation of TQM at David Grant USAF Medical Center.

2. Recommend approval.

Ray J. Chappelle

RAY J. CHAPPELLE, Colonel, USAF, MSC
Administrator

3 Atch nc

The Development of a Total Quality Management Plan for David Grant USAF Medical Center Travis Air Force Base, California

A Graduate Management Project

Submitted to the Faculty of

Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration

by

Captain Brian K. Witt, USAF, MSC

July 1991

ACKNOWLEDGMENTS

This Graduate Management Project would have been impossible without the invaluable assistance of numerous individuals. Special thanks to Colonel Ray Chappelle, and Lieutenant Colonels Phillip Marler and John Shwed for their advice, suggestions, and thorough review and critique of this document. A debt of gratitude is also extended to First Lieutenant Bill Harris. His in-depth knowledge of computer systems and software was tapped on several occassions just prior to hopeless abandonment. I would also like to recognize Airman First Class Vanessa Norman for her assistance with preparing over 200 surveys for distribution. Finally, I would especially like to thank my parents for their support, encouragement, and the wise advice that they have offered during the entire course of my graduate education.

Abstract

The Office of the Secretary of Defense created a master plan for the implementation of Total Quality Management (TQM) in the Department of Defense (DOD) in response to a 1988 Presidential mandate. TQM is a management philosophy that has been embraced by DOD as the best method to improve quality and productivity and reduce costs within the Department. The TQM concept is primarily based on the pioneering work of Dr. W. Edwards Deming, Dr. Joseph H. Juran, and Philip B. Crosby and is directed at achieving continuous process improvement of products and services. The overriding objective of TQM is to increase customer satisfaction (DOD, 1988).

While the application of TQM in the manufacturing industry and the military acquisition system has been successful, the health care industry has only recently begun to make inroads. Implementation of this new philosophy will prove to be a unique challenge for health care executives (Gillem, 1988). Significant planning will have to be accomplished in order to implement TQM in the military health care system to meet the 1995 deadline imposed by DOD.

This Graduate Management Project will develop a TQM plan for David Grant USAF Medical Center. It will provide recommendations for assessment, structure, training, measurement, and process improvement team projects.

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Introduction

The President mandated that the Department of Defense implement the principles of Total Quality Management in all areas of its operations to include health care delivery. The Total Quality Management Master Plan dated August 1988 was issued to all DOD organizations with instructions to begin developing a TQM program. This is a significant challenge for military health care executives since TQM is a long-term investment, practiced by everyone in the organization, and results in a radical cultural change. In order to achieve success, managers must be patient and realize that results will not come quickly. They must allow time for the workers to become trained and adapt to the changes associated with the implementation of TQM.

The philosophy behind TQM centers on a belief that the customer comes first and focuses on the continual improvement of quality. The philosophy is based on the following principles: long-term commitment, top leadership support and direction, employee involvement, focus on the customer, communications, reliance on standards and measures, training, and recognition (DOD, 1990a; Harben, 1989). An effective quality management program is one in which all members of the organization view quality and productivity in all organizational activities to be of paramount importance. Deming (1982) describes a "chain reaction" situation whereby when quality improves, the result is cost

decreasing because of less rework, fewer mistakes, fewer delays, fewer snags, better use of machine time and materials. In turn, productivity improves resulting in an increased ability to capture the market with better quality and a lower price. Finally, as a result of the previous events, the organization is better able to stay in business and provide jobs.

Military health care leaders faced with the mandate to implement a TQM program must first begin with an accurate assessment of the current level of quality and productivity within their organization. This assessment will allow commanders and top management to identify strong and weak areas within their medical treatment facility and develop their TQM plan accordingly. Other components of a TQM plan should include recommendations for structure, training, measurement, and process improvement team projects.

Problem Statement

The Federal Government and the Department of Defense require that all military organizations, including medical treatment facilities, implement a Total Quality Management plan by 1995. TQM is a new concept in military medicine and the issue of quality is currently being addressed from only a clinical standpoint. Military medical treatment facilities generally do not have a plan

to guide the TQM implementation process and must develop one in order to meet the requirements stipulated in the DOD Master Plan.

Literature Review

The recent focus on the management philosophy of Total Quality Management has led to an abundance of articles and books on the subject. Many organizations have decided to adopt this new way of doing business in an effort to improve their quality, productivity, and customer satisfaction. Executive Order 12637 issued in April 1988, established a productivity improvement program for the Federal Government and TQM was selected as the new management style for the Department of Defense. It stated that "There is hereby established a government-wide program to improve the quality, timeliness, and efficiency of services provided by the Federal Government. The goal of the program shall be to improve the quality and timeliness of service to the public and to achieve an annual average productivity increase of 3 percent in appropriate functions" (Reagan, 1988, p. 15349). As a result of this executive order, DOD activities are required to begin developing TQM implementation plans. In August 1988, DOD published the Total Quality Management Master Plan that outlined overall short-range (1 year), mid-range (3 years), and long-range (7 years) goals. In addition, each individual military department (Army, Navy, and Air Force) was instructed to develop and submit their own TQM implementation plans by 31 December 1988. The goal

is for all government agencies to establish programs to improve quality and productivity by 1991 (Lambert & Beaudoin, 1989; Shoop, 1990). Furthermore, the Department of Defense stipulated that it wanted to establish TQM as a way of life by 1995 (DOD, 1988). One author points out that "The DOD has mandated that you implement in military health care a TQM program. TQM has a strong foot hold. The philosophy of "Kaizen" (continual improvement) is here to stay, it will not go away" (O'Hallaron, 1989, p. 18).

Although DOD has indicated their desire to implement TQM, several barriers exist. In fiscal year 1990, the House Appropriations Committee denied DOD funding to conduct TQM training (Tomich, 1989) and the new position of deputy assistant secretary for Total Quality Management, created in October 1989, remained unfilled as of March 1990 (Shoop, 1990). Even the problem of skeptics within the government ranks could undermine the TQM effort. One government executive states that "It's (TQM) going to change the way the government runs, and there are people who don't want it to change because they like things the way they are" (Shoop, 1990, p. 25).

It is interesting to note that the term "Total Quality Management" was developed by the Department of Defense as a name to describe its quality drive. In fact, the acronym is "a term Dr. Deming himself does not use but that has gained widespread currency" (Walton, 1990, p. 15). This new management philosophy

is also referred to as the Deming Method, the Deming Management Method, statistical process control, or statistical quality control (Walton, 1986, 1990). In Japan, they use the term "total quality control" to describe their quality system. However, since "control" implies negative connotations in the United States, Americans often substitute the word "management" (Rehder & Ralston, 1984).

The Department of Defense defines Total Quality Management as:

> both a philosophy and a set of guiding principles that represent the foundation of a continuously improving organization. TQM is the application of quantitative methods and human resources to improve the material and services supplied to an organization, all the processes within an organization, and the degree to which the needs of the customers are met, now and in the future. TQM integrates fundamental management techniques, existing improvement efforts, and technical tools under a disciplined approach focused on continuous improvement (DOD, 1990a, p. 2).

According to one author, "It (TQM) is officially the management style of the Department of Defense" (Harben, 1989, p. 3).

The Department of the Air Force has issued very little guidance regarding TQM or its implementation. David Grant USAF Medical Center is a member of the Military Airlift Command (MAC)

and this command issued an initial TQM implementation plan called "ACTION EAGLE" on 4 January 1990. This plan is specific to MAC and outlines implementation strategies and lists milestones through the end of calendar year 1991. Although not specifically orientated to military medicine, the plan indicated that the Scott Air Force Base Medical Center in Illinois was chosen for "spotlight" implementation. The assumption is that this medical center will be a test site for other military medical treatment facilities within the command and will develop recommendations for TQM implementation that are specific to military health care (DOD, 1990a).

Tomich (1989) discusses the adoption of TQM by military medical organizations and predicted that TQM will enhance the quality of medical care. Some of the basic principles discussed in the article included the concept of customer satisfaction, how improving a product's quality will improve productivity, and the recommendation to establish productivity and quality goals. The article also reported that the United States Air Force Medical Center Wright-Patterson, located at Wright-Patterson Air Force Base in Ohio, has been using TQM principles for over one year and improvements in accessibility, teamwork, and suggestions have been observed. Another article also expounded on the TQM initiatives taking place at Wright-Patterson USAF Medical Center and discussed how improvements in their patient relations program occurred as a

result of using TQM principles (Morgan & Shields, 1990). Success at another Air Force medical facility is reported at the clinic at Zweibrucken, Germany. The implementation of TQM at that location achieved an increase in morale, a significant increase in suggestions submitted, and improvements in patient flow and committee meetings (Tomich, 1989).

The literature also reveals that TQM is gaining popularity in the civilian hospital sector. The Hospital Corporation of America (HCA) started developing a quality improvement program based on the principles of Dr. Deming in 1986. Many articles illustrate the application of TQM by HCA hospitals to include Hale Hospital outside Boston, Massachusetts (Albert, Gilligan, & Deevy, 1990), the Massachusetts Respiratory Hospital in Braintree, Massachusetts (Burda, 1988), Parkview Episcopal Medical Center in Pueblo, Colorado (Koska, 1990a), and West Paces Ferry Hospital in Atlanta, Georgia (Walton, 1990). McEachern & Neuhauser (1989) do an excellent job of describing HCA's quality improvement program, their quality guidelines, and their problem-solving strategy called FOCUS PDCA (F - *f*ind a process to improve, O - *o*rganize a team that knows the process, C - *c*larify current knowledge of the process, U - *u*nderstand causes of process variation, S - *s*elect the process improvement, P - *p*lan change to reduce variation, D - *d*o the necessary changes, C - *c*heck to see if changes work, and A - *a*ct upon to continue improvement).

Another hospital system breaking new ground in the quality arena is NKC, Inc. of Louisville, Kentucky (Droste, 1988; Powers, 1988). In 1986 they realized that they had to commit to quality in order to remain competitive and began to develop a quality model, the same year that HCA began developing their quality program. NKC, Inc. developed a model called "Total Quality Management", the same term that the Department of Defense uses to describe their quality improvement program. NKC, Inc. uses a ten-point action plan to support their quality philosophy (Powers, 1988). Their first step in implementing TQM was to conduct patient and physician satisfaction surveys. They then used the survey results to develop a list of 10 management goals. The next step involved developing training programs to ensure all employees were familiar with the principles of TQM and finally, teams were formed to analyze problems (Droste, 1988).

Other hospitals and hospital systems mentioned in the literature that are adopting the Total Quality Management philosophy include the Hospital Association of Rhode Island (Burda, 1990b), Holston Valley Hospital in Kingsport, Tennessee (Burke, 1990), the University of Michigan Medical Center (Heilig, 1990), and Bethesda Hospital in Cincinnati, Ohio (King, 1990).

It appears that much of the pioneering work in applying the Deming Method to health care has been done by two physicians. Dr. Paul Batalden, vice president for medical care at HCA, developed

their quality model and guided its implementation and Dr. Donald M. Berwick, an executive with the Harvard Community Health Plan, directed a 1987 study called the National Demonstration Project on Industrial Quality Control and Health Care Quality (Walton, 1990; Berwick, Godfrey, & Roessner, 1990). The project was funded by The John A. Hartford Foundation and hosted by the Harvard Community Health Plan. It was a one year project that began in 1987. The project matched 21 quality management experts with teams from 21 health care organizations. Together, these 21 different teams set out to answer the question, "Can the tools of modern quality improvement, with which other industries have achieved breakthroughs in performance, help in health care as well?" (Berwick et al., 1990, p. xvi). In June of 1988, eight months later, the teams reassembled in Boston, Massachusetts to report on their progress. Analysis of their performance resulted in "ten key lessons for quality improvement" which are:

1. Quality improvement tools can work in health care
2. Cross-functional teams are valuable in improving health care processes
3. Data useful for quality improvement abound in health care
4. Quality improvement methods are fun to use
5. Costs of poor quality are high, and savings are within reach
6. Involving doctors is difficult

7. Training needs arise early
8. Nonclinical processes draw early attention
9. Health care organizations may need a broader definition of quality
10. In health care, as in industry, the fate of quality improvement is first of all in the hands of leaders (Berwick et al., 1990, pp. 145-157).

The results generated during this short period of time provide the hope that quality improvement techniques will work in health care. The evidence is encouraging and will hopefully convince others in the health care industry to begin a quality revolution within their own organizations.

Dr. Berwick is also the author of an article entitled "Continuous Improvement as an Ideal in Health Care" that appeared in the 5 January 1989 edition of The New England Journal of Medicine. In this article he lists six steps that lead to continuous improvement in health care: (1) leaders must take the lead in quality improvement, (2) investments in quality improvement must be substantial, (3) respect for the health care worker must be reestablished, (4) dialogue between customers and suppliers of health care must be open and carefully maintained, (5) modern technical, theoretically grounded tools for improving processes must be put into use in health care settings, and (6) health care institutions must "organize for quality" (Berwick,

1989).

The importance and applicability of the principles of Total Quality Management to health care have also been recognized by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) in their "Agenda for Change." The JCAHO is "changing its orientation from an assessment of a hospital's capability of providing quality health care to an assessment of the hospital's actual performance" (AHA, 1989, p. 6). The two major goals of the Agenda for Change are:

1. stimulation of health care organizations to create an environment focused on quality of care, whose governance, management, and clinical leaders are devoted to quality improvement, and
2. development and implementation of a national performance measurement database that will help to stimulate continual improvement (JCAHO, 1989, p. 1).

Essentially, the final product will be a data-driven monitoring and feedback system supported by the philosophy and methods of continuous quality improvement. Currently, standards are being revised that will address the hospital's commitment to quality improvement. In addition, performance measures are being developed that extend beyond the traditional clinical indicators into the realm of organizational, management, and support functions.

Dr. W. Edwards Deming, Dr. Joseph M. Juran, and Philip B. Crosby are familiar names in the quality arena and their names appear frequently in the literature devoted to this subject. These quality experts have their own unique recommendations for achieving a quality culture. Lowe and Mazzeo (1986) do a superb job of comparing the management philosophies of these individuals. Although there are many similarities in their approach to creating a quality culture, there are a few differences. For example, all three agree that management commitment is a key component of a successful quality improvement program and each is a proponent of the idea of continuous improvement. They also believe that it is management's job to work with the workers to improve the system. However, differences can be noted in how each expert defines quality. Crosby defines quality as "conformance to requirements" and Juran defines it as "fitness for use." Deming is more verbose in his definition. He states that quality is "a predictable degree of uniformity and dependability, at low cost and suited to the market" (p. 2). Other differences focus on training and quality measurement recommendations where Deming is noted for his emphasis on statistical techniques and opposition to using the cost of quality as a measurement tool. Deming's approach is considered a bottom-up process because of his focus on statistical tools and Crosby's approach is top-down because of his emphasis on changing the management culture first. Juran, on the other hand,

is most beneficial to middle managers because of his project-by-project approach.

Lowe and Mazzeo (1986) also point out that the philosophies and strategies proposed by Crosby, Deming, and Juran are interdependent. In other words, these concepts can be combined and the authors emphasize that they are not sufficient in themselves for reaching a high standard of quality within an organization. The authors make the point that "Many firms choose either Juran, Deming or Crosby, rather than determine how and why the philosophies of each expert can be used together" (Lowe & Mazzeo, 1986, p. 1). Peters and Austin (1985) sum it up the best by saying that:

> The methodology one chooses is not vital (e.g., Deming vs. Juran vs. Crosby), but it is imperative that the program have a clear-cut methodology, that it be systematic, hard-nosed, and quantitative. Moreover, the team should be the organizational focus. Teams should be extensively trained in group problem-solving and statistical techniques relating to quality improvement (p. 526).

Although there are numerous quality experts, the literature tends to focus mainly on the philosophy of Dr. W. Edwards Deming and his 14 obligations of top management. The Hospital Corporation of America adopted the Deming philosophy in guiding their development of a quality model. As a result, they developed

15 quality guidelines that parallel the 14 points of Dr. Deming (McEachern & Neuhauser, 1989). Both HCA and the Hospital Association of Rhode Island recommended that their hospitals purchase Mary Walton's book, The Deming Management Method, to be used by their staff for their initial TQM orientation training (Burda, 1990; McEachern, 1989). Several other articles discuss and explain Deming's Fourteen Points (Gillem, 1988; Neuhauser, 1988; Prowse, 1990). One article discusses Deming's Fourteen Points and also includes a discussion regarding his Seven Deadly Diseases (Darr, 1989). In addition, Dr. Deming does not overlook the fact that his philosophy can be adapted to health care and his book contains two sections entitled, "Adaptation of the 14 points to medical service" and "Suggestions on study of performance in a hospital" (Deming, 1982, pp. 199-205).

The literature does not expound on the philosophies of Philip Crosby and Dr. Juran to the extent it does Dr. Deming. Although most of the literature discusses Deming's Fourteen Points and his Seven Deadly Diseases, it is interesting to note that Philip Crosby also has 14 points that he calls the "14 steps of quality improvement" (Crosby, 1984, p. 99). Walton (1986) lists the Fourteen Points and Seven Deadly Diseases of Dr. Deming as:

The Fourteen Points

1. Create constancy of purpose for improvement of product and service

2. Adopt the new philosophy
3. Cease dependence on mass inspection
4. End the practice of awarding business on price tag alone
5. Improve constantly and forever the system of production and service
6. Institute training
7. Institute leadership
8. Drive out fear
9. Break down barriers between staff areas
10. Eliminate slogans, exhortations, and targets for the workforce
11. Eliminate numerical quotas
12. Remove barriers to pride of workmanship
13. Institute a vigorous program of education and retraining
14. Take action to accomplish the transformation

(pp. 34-36).

The Seven Deadly Diseases

1. Lack of constancy of purpose
2. Emphasis on short-term profits
3. Evaluation by performance, merit rating, or annual review of performance
4. Mobility of management
5. Running a company on visible figures alone
6. Excessive medical costs

7. Excessive costs of warranty, fueled by lawyers that work on contingency fee (p. 36).

In comparison, Crosby (1984) lists the 14 points of Philip Crosby as:

1. Management commitment
2. Quality improvement team
3. Measurement
4. Cost of quality
5. Quality awareness
6. Corrective action
7. ZD (zero defects) planning
8. Employee education
9. ZD Day
10. Goal setting
11. Error-cause removal
12. Recognition
13. Quality councils
14. Do it over again (p. 99).

Both individuals emphasize management commitment, education, and training. However, Deming's 14 principles are more of a management "what to do" list as opposed to Crosby's principles, which could be considered a management "how-to" list. The concepts of both individuals are valuable suggestions and an effective quality improvement plan should incorporate the

ideologies of more than one quality expert and be designed to fit the culture and philosophy of an organization.

There has been some discussion in the literature concerning the feasibility of adapting TQM to the military culture (Lambert & Beaudoin, 1989; O'Hallaron, 1989; Shoop, 1990; Strickland, 1989). Walton (1990) devotes a chapter to the U.S. Navy and discusses how they implemented TQM and their initial perceptions of the Deming Method. In the early stages they noted that several aspects of the military system violated Deming's principles. For example, the mobility of management violated Deming's fourth principle under his Seven Deadly Diseases. The military system was not designed to provide for continuity. However, it was later decided that the mobility of personnel was less of an impediment since personnel essentially stayed within the same corporation or organization. The Navy also realized that it attracted "action-oriented" people who had a tendency to go directly from planning to action, bypassing the "Do" and "Check" stages outlined in the four-stage Deming Cycle (Plan-Do-Check-Act).

Dr. Deming is also an opponent of performance appraisals, his third principle under his Seven Deadly Diseases, and granting contracts to the lowest bidder, his fourth principle under his Fourteen Points. Both of these areas are inherent in the military system. The Air Force, within the past several years, revamped their performance appraisal system, indicating that there were no

intentions to dismantle the system. In addition, Walton (1990) points out that:

> The federal government's determined that we will have competition to the maximum extent possible, so we're not able to cleanly go to a few suppliers. In government contracts, where several bidders met specifications, the contractor had to choose the one with the lowest price (p. 178).

Military TQM planners will have to remember that certain procedures inherent in the military system are not subject to change and must design their plans accordingly.

Two common themes expressed throughout the literature are top management commitment and customer orientation (Boone & Cavanaugh, 1989; Burda, 1988; Crosby, 1984; DOD, 1990a; Gillem, 1988; Heilig, 1990; Lambert & Beaudoin, 1989; Lambert & Lambert, 1989; Leonard, 1989; McEachern & Neuhauser, 1989; Metz, 1984; Morgan & Shields, 1990; O'Hallaron, 1989; Page, 1990; Peters & Austin, 1985; Powers, 1988; Prowse, 1990; Rehder & Ralston, 1984; Shoop, 1990; Tomich, 1989; Walton, 1986, 1990).

Top management is responsible for ensuring that every employee knows the organization's mission statement and understands the organization's definition of quality. They must stay informed, make resources available, encourage participation, reward improvement, and promote an awareness of quality (Gillem, 1988; Leonard, 1989). Boone and Cavanaugh (1989) do an excellent

job of outlining management's responsibility for initiating and sustaining a TQM program in a military medical treatment facility (MTF). They state that "The MTF commander's direct involvement and support is the single greatest factor that contributes to effective initiation of TQM. The commander must: lead the TQM process; clearly be its sponsor; and demonstrate strong and decisive support of TQM" (p. 15). Furthermore, Colonel Osvaldo Bustos, chief of the quality assurance division at the United States Army's Health Services Command Headquarters, states that "The commander has to carry the banner if we are to get anywhere with Total Quality Management" (Harben, 1989, p. 3).

TQM emphasizes that the customer is entitled to receive exactly what has been promised to be produced. Dr. Deming notes that "customers do not complain, they merely switch" (Walton, 1986, p. 58). Therefore, organizations that are not in-tune to the needs of their customers and adhere to the principles of quality and customer satisfaction will face difficulties in a competitive environment. Dr. Deming identifies two types of customers: external and internal. He defines the external customer as "the end user of a product or service" and the internal customer is defined as "the person or work unit that receives the product or the service of another within the same company" (Walton, 1990, p. 21). NKC, Inc. identified their external customers as insurance companies, doctors, and patients.

They consider their internal customers to be coworkers in different departments. NKC, Inc. also uses a customer orientation approach to their definition of quality which they define simply as "meeting the requirements of its customers" (Powers, 1988, p. 30). Peters and Austin (1985) provide excellent information regarding customers in the form of "ten customer promises" (p. 527). They emphasize listening to the customer and using quantitative customer satisfaction measures to maintain a high degree of customer satisfaction.

One author points out that it is important not to give the impression that a quality improvement program is an isolated program. People must understand that a fundamental change is being made in the work system. This same author, recognizing that TQM employs statistical analysis, warns that "Some companies have gotten so bogged down in analysis and measurements that they have made little progress with their productivity and quality efforts" (Metz, 1984, p. 306). In fact, training in basic statistical methods is an important element of a TQM program and Dr. Deming recommends the graphic representation of data through various charts such as: cause-and-effect, flow charts, pareto charts, run (trend) charts, histograms, control charts, and scatter diagrams (Walton, 1986).

Metz (1984) also recommends a diagnostic assessment of an organization prior to TQM implementation. The first step is to

assess and find out where the organization stands and what needs to be done. The survey instrument discussed in Metz (1984) is called the Survey-Guided Development Process developed by the Institute for Social Research at the University of Michigan (for assessing the social and managerial system) and the Team Productivity System Survey developed by the Industrial Productivity Institute (for assessing the productivity of the operating system itself).

The literature also provides some examples of TQM implementation plans used by other organizations. Powers (1988) describes a ten-point action plan used by NKC, Inc. and Heilig (1990) and McEachern and Neuhauser (1989) include a flowchart diagram is their articles that visually describes the steps leading to continuous quality improvement.

DOD (1990b) explains that there are three stages that must be transgressed before TQM can become operational in an organization: awareness, commitment, and implementation. Walton (1990) takes a broader perspective on the stages necessary to implement TQM. She identifies five quality transformation stages: (1) the decision to adopt, (2) incubation, (3) planning and promotion, (4) education, and (5) neverending improvement.

The planning function, as indicated in stage three, is critically important to the overall success of TQM implementation. Comprehensive planning will be required in order to assist and

guide executive management throughout the overall implementation process, especially in the areas of promotion and education. Lambert and Lambert (1989) discuss the planning process and emphasize that planning is a complicated process that involves various stages to include assessment (both indirect and direct), analysis, design, implementation, and evaluation.

Purpose Statement

The purpose of this project is to develop a Total Quality Management implementation plan for David Grant USAF Medical Center, Travis Air Force Base, California.

The development of a plan is a necessary first step before TQM can be successfully implemented in an organization. Both DOD and the Air Force's Military Airlift Command have provided initial guidance with their TQM implementation plans. Unfortunately, their plans are generic in nature and each subordinate unit is faced with the challenge to plan and implement a Total Quality Management Program specific to their organization.

Methods and Procedures

This Graduate Management Project is designed in accordance with the following methods and procedures:

1. Conduct a comprehensive literature review focusing on guidance from DOD and Air Force.

2. Brief the executive committee regarding the purposes of the project and methods and procedures to be used.

3. Assess the organization's internal customers by administering a survey entitled, Quality and Productivity Self-Assessment Guide for Defense Organizations. There are two versions of the survey. The Total Guide Survey (215 questions) will be administered to all members of the executive committee and the Climate Guide Survey (70 questions) will be administered to a representative sample of organizational members. These surveys have been pre-tested at 55 DOD organizations and the test results provide evidence of the Guide's reliability and internal validity. The Total Guide Survey asks questions concerning climate (people's perceptions about their organization and department), processes (the policies, practices, and procedures currently in effect), tools (specific techniques used to promote quality and/or productivity improvements throughout the organization) and outcomes (as they relate to mission accomplishment). The Climate Guide Survey asks questions to assess people's perceptions about their organization and department.

4. Analyze survey results. The Quality and Productivity Self-Assessment Guide for Defense Organizations comes with scoring guidelines along with recommendations and suggestions for corrective action. Strengths and weaknesses with regard to the four areas assessed by the survey (climate, processes, tools, and outcomes) will be identified. The results of the survey will

serve as a basis for developing a TQM plan which will seek to capitalize upon the strengths identified and make recommendations for improving the weak areas.

5. Assess the organization's external customers by analyzing a representative sample of recent patient questionnaires and/or previous patient satisfaction surveys to assess trends and/or problem areas and to determine overall customer (patient) satisfaction. Strong and weak areas will be identified.

6. Develop structural recommendations. This may include guidance for the creation of a quality policy letter, a Quality Council, departmental TQM committees, and process improvement teams. The roles and responsibilities of each of these functions will need to be outlined. The structural recommendations will be presented as a series of steps that will show an orderly progression through four stages: (1) information gathering, (2) awareness, (3) implementation, and (4) monitoring and evaluation.

7. Make training recommendations regarding the use of consultants, training films, written materials, internal resources (personnel and supplies), seminars, and site visits. This will include a discussion of the specialized types of training such as group problem solving and statistical analysis required by facilitators and process improvement team members.

8. Make measurement recommendations regarding the use of quality indicators, tracking, and reporting mechanisms to measure

changes in quality and productivity within the medical center.

9. Identify recommended process improvement team projects as the final part of the plan

10. Finally, develop a comprehensive TQM plan for executive management to use to implement TQM at David Grant USAF Medical Center. This final product will provide recommendations for conducting an organizational assessment of both internal and external customers, designing a structure and schedule to support and guide the implementation process, creating a training plan, developing a measurement system, and selecting projects for process improvement teams.

Organizational Assessment

The first part of designing a Total Quality Management implementation plan for David Grant USAF Medical Center should begin with an organizational assessment. The assessment should be focused on both internal and external customer and designed to evaluate current practices and perceptions regarding quality. The results will be used to identify current strengths and weaknesses and establish a baseline for developing a quality improvement program.

Several health care systems such as NKC, Inc. and the Hospital Corporation of America began their TQM planning with an organizational assessment. In both cases, a survey instrument was used to evaluate their customers. NKC, Inc. conducted both

patient and physician satisfaction surveys and HCA developed the Hospital Quality Trends System (HQT). The HQT is composed of four different surveys which are administered to patients, physicians, employees, and payers (Droste, 1988; Walton, 1990).

The survey instrument used to evaluate David Grant USAF Medical Center is called the Quality and Productivity Self-Assessment Guide for Defense Organizations. This survey will only be administered to the internal customers. A review of patient questionnaires will be conducted in order to assess the external customers.

The organizational assessment is comprised of three sections. The first is a description of the organization with a review of the operating environment and relevant workload statistics. The second section discusses the standardized survey instrument and provides an analysis of internal customers. The third section discusses the perceptions of external customers.

Description of the Organization

Operating environment. David Grant USAF Medical Center (DGMC) serves as one of the largest medical centers within the United States Air Force Medical Service and the Military Airlift Command (MAC), supporting 21 Air Force medical treatment facilities in the eight western states of the continental United States. As the second largest teaching center within the Air Force, DGMC offers postgraduate medical education in general

surgery, pediatrics, obstetrics-gynecology, radiology, internal medicine, and family practice. The oral/maxillofacial surgery residency and general practice dental residency programs have received national acclaim. Other residency training programs include nurse anesthesia, transitional year (internship), and health care administration. The Phase II laboratory, radiology, cardiopulmonary, and medical technician courses prepare young men and women for future challenges in these career fields.

The Joint Commission on the Accreditation of Healthcare Organizations awarded DGMC a full three-year accreditation in 1990. The Department of Pathology received accreditation by the College of American Pathologists in June 1989. In addition, tumor registry and all residency programs are fully accredited.

Physical description. David Grant USAF Medical Center is a 245 bed medical center which is located on Travis Air Force Base in Fairfield, California. This new facility became operational on 19 December 1988 and is located on a 55 acre landscaped site. This massive medical complex contains approximately 3,662 rooms and is greater than two football fields in width and almost four football fields in length. It encompasses over 800,000 square feet in three structures (main hospital, dental clinic, and energy plant). The inpatient side of the structure rises four stories while the outpatient zone is three stories high. The old hospital is located on the other side of the base near the flightline and

remains vacant except for a few offices and storage rooms. Its presence is less imposing and aesthetic, offering an interesting comparison of the old and the new (DGMC/SGG, 1989).

Mission statement. The mission of David Grant USAF Medical Center is to provide or arrange for comprehensive health care for three-fourths of a million Department of Defense beneficiaries in an eight state area, to provide clinical training and education, to maintain assigned readiness capabilities, to conduct clinical investigations, and to operate an aeromedical staging facility (Franklin, 1990, p. 2).

Services available. David Grant USAF Medical Center offers a wide range of medical, surgical, dental, and allied specialties. Medical specialties include emergency medicine, pediatrics, family practice, medicine (allergy, dermatology, gastroenterology, nephrology, pulmonary diseases, cardiology, endocrinology, hematology, oncology, neurology), mental health, radiology, primary care, and hyperbaric medicine. Surgical specialties include surgery (general, neurosurgery, ophthalmology, plastic, thoracic, vascular, urology, and otolaryngology), pathology, obstetrics/gynecology, and orthopedics. Dental specialties include oral/maxillofacial surgery, orthodontics, general dentistry, oral pathology, endodontics, pediatrics, periodontics, and prosthodontics. In addition to the basic allied specialties, David Grant USAF Medical Center also offers

bioenvironmental engineering, dietetics, environmental health, podiatry, physical/occupational therapy, optometry, and social work services (Franklin, 1990).

Manning and funding. A total of 1,631 personnel are authorized to staff the medical center and 1,582 were currently assigned as of the second quarter of fiscal year (FY) 1991, resulting in an overall manning level of 97%. The authorized manning breakdown during FY 1990 was: officers - 415, residents/interns - 126, enlisted - 819, and civilians - 271. Specific authorized manning by corps is as follows: Medical Service Corps - 13, Biomedical Science Corps - 52, Medical Corps - 104, Nurse Corps - 223, Dental Corps - 22, and Judge Advocate General Corps - 1.

The operations and maintenance (O & M) budget for FY 1990 totalled approximately $38.6 million (Franklin, 1990).

Inpatient workload. Inpatient beneficiary categories for FY 1990 based on occupied bed days are as follows: active duty - 28%, retired - 28%, dependents of active duty - 21%, dependents of retired/deceased - 21%, and other - 2%. The top three services in terms of inpatient workload for FY 1990 based on occupied bed days are as follows: medicine, surgery, and psychiatry; respectively. In FY 1990 there were 10,706 admissions with an average length of stay of 6.52 days involving 995,934 laboratory procedures, 83,894 radiology films exposed, 173,532 prescriptions filled, and 34,893

meals served. Total occupied bed days for FY 1990 were 69,543 and the average daily patient load was 191. In addition, in FY 1990, there were a total of 4,559 operations performed and 1,171 births (Franklin, 1990).

Outpatient workload. Outpatient beneficiary categories for FY 1990 based on outpatient visits are as follows: dependents of active duty - 33%, active duty - 24%, dependents of retired/ deceased - 23%, retired - 18%, and other - 1%. The top three services in terms of outpatient workload for FY 1990 based on outpatient visits are as follows: medicine, primary care, and surgery; respectively. In FY 1990 there were approximately 461,990 outpatient visits involving 992,244 laboratory procedures, 219,840 radiology films exposed, and 653,086 prescriptions filled (Franklin, 1990).

Accomplishments. During FY 1990, David Grant USAF Medical Center received a three year accreditation from The Joint Commission on the Accreditation of Healthcare Organizations. Also during this time period, the medical center successfully passed an military specific inspection called a Health Services Management Inspection during which all departments were rated either satisfactory or excellent.

Internal Customers

An internal customer is defined as "the person or work unit that receives the product or the service of another within the

same company" (Walton, 1990, p. 21). For the purposes of this study, internal customers are defined as all employees of David Grant USAF Medical Center to include officers, enlisted, and civilian personnel. In order to assess the employees' perceptions about their organization and department in regards to quality and productivity-related factors, a standardized survey instrument was used.

Survey instrument. The Quality and Productivity Self-Assessment Guide for Defense Organizations was obtained from the Office of the Secretary of Defense. The Guide was developed as a service to Department of Defense organizations by the Defense Productivity Program Office through a contract with General Research Corporation and became available to the public in September 1989. According to the Defense Productivity Program Office, the survey is an appropriate tool to assist organizations with TQM planning and implementation. The Guide contains two survey instruments: the Total Guide Survey and the Climate Guide Survey.

The Total Guide Survey contains 215 questions and should be completed by the Commander and top management within the organization. It asks questions regarding four areas: climate (people's perceptions about their organization and/or work unit), processes (the organization's or work unit's policies, practices, and procedures), tools (the specific techniques used to promote

quality and/or productivity improvements throughout the organization or work units), and outcomes (mission accomplishment).

The Climate Guide Survey contains 70 questions and should be completed by all or a sample of the work force. It asks questions regarding people's perceptions about their organization and department.

Responses to the survey questions used a six-point Likert scale that ranged from a score of one (strongly disagree) to six (strongly agree). Software accompanied the Quality and Productivity Self-Assessment Guide for Defense Organizations and was used to score each survey. The software also allowed for individual survey scores to be consolidated.

The survey results can help establish a baseline and pinpoint current strengths and weaknesses with regard to climate, processes, tools, and outcomes. Strengths can be capitalized upon when proceeding with TQM planning and weaknesses can suggest priority target areas for improvement. In addition, the survey can be repeated at a later date and the results compared across time to track progress (DOD, 1990b).

No permission for reproduction of the survey instrument was necessary since it is the product of a government contract and therefore, considered public domain. However, the project officer, Mr. John Denslow, was contacted to make sure the intended

use of the survey instrument was appropriate. The request for the Quality and Productivity Self-Assessment Guide for Defense Organizations was made by writing to the following address:

Defense Productivity Program Office (DPPO)
Attention: Mr. John Denslow
2 Skyline Place, Room 1404
5203 Leesbury Turnpike
Falls Church, Virginia 22041-3466
Telephone: Defense Switch Network (DSN): 289-2346
Fax: (703) 756-7622
Commercial: (703) 756-2346

Copies of the Total Guide Survey and the Climate Guide Survey, along with their respective cover letters, are contained in Appendixes A and B.

Reliability and validity. The Guide was pre-tested at six DOD organizations and a revised version of the Guide was tested at 49 DOD organizations. Test results provided evidence of the Guide's reliability and internal validity (DOD, 1990b).

Ethical considerations. Participation in the survey was voluntary. Anonymity was guaranteed since no names or social security numbers were requested from the participants.

Study design. All members of the medical center's executive committee (n=10) were surveyed using the Total Guide Survey. The executive committee at David Grant USAF Medical Center is

comprised of the following positions, ranks, and corps:

Executive Committee Membership

Title	Rank	Corps*
Medical Center Commander	Colonel	MC
Director, Hospital Services	Colonel	MC
Administrator	Colonel	MSC
Director, Aeromedical Services	Colonel	MC
Director, Clinical Investigations	Lt Colonel	BSC
Director, Dental Services	Colonel	DC
Director, Medical Education	Colonel	MSC
Director, Nursing Services	Colonel	NC
Senior Biomedical Sciences Officer	Colonel	BSC
Medical Legal Consultant	Captain	JAG

*Corps are abbreviated as follows: MC - Medical Corps, MSC - Medical Service Corps, BSC - Biomedical Sciences Corps, DC - Dental Corps, NC - Nurse Corps, JAG - Judge Advocate General Corps.

A sample of hospital personnel to include officers, enlisted, and civilian personnel were asked to complete the Climate Guide Survey. A stratified random sampling methodology was employed with the Climate Guide Survey. It should be noted that approximately 600 personnel from David Grant USAF Medical Center deployed to an overseas location in support of Operation Desert Storm on 20 January 1991. This deployment resulted in a total

population of hospital personnel of 982 individuals. With the Climate Guide Survey, the goal was to survey approximately 20% of the total population of hospital personnel. This sample size was large enough and stratified in such a manner to adequately reflect the views of the entire population. Officer, enlisted, and civilian personnel were surveyed in terms of three categories: Senior Management, Middle Management, and Work Force. The eight categories are defined as follows:

Senior Management

Officers: Colonel (06), Lieutenant Colonel (05)

Enlisted: Chief Master Sergeant (E9), Senior Master Sergeant (E8), and Master Sergeant (E7)

Civilian: General Manager (GM) 13 and 14, and General Schedule (GS) 11 and 12

Middle Management

Officers: Major (04), Captain (03), First Lieutenant (02), and Second Lieutenant (01)

Enlisted: Technical Sergeant (E6), Staff Sergeant (E5), and Sergeant (E4)

Civilian: General Schedule (GS) 6 - 10

Work Force

Enlisted: Senior Airman (E4), Airman First Class (E3), Airman (E2)

Civilian: General Schedule (GS) 3 - 5, and Wage Grade (WG) 2 - 8

A master personnel roster in the form of a computer printout was obtained from the Medical Readiness department listing all assigned military personnel in terms of their name, rank, duty section, and duty phone. In addition, another printout was obtained from the same department listing all deployed personnel. The names of deployed personnel were deleted from the master personnel roster leaving an accurate listing of assigned and available hospital personnel. A roster of all assigned civilian personnel was obtained from the civilian personnel office. All members of the executive committee were surveyed and the rest of the personnel were surveyed according to a stratified random sampling methodology. The sample receiving the Climate Guide Survey was divided into eight distinct groups as indicated above. The names within each group were numbered and a Table of Random Numbers was used to select individuals to participate in the survey. The goal was to obtain a sample size of 25 individuals in each category. This sample size was determined based on the fact that the goal was to survey 20% of the population or 200 individuals. Since there were eight categories, then the sample size of each category should be 25 individuals.

Each survey was accompanied with a cover letter. The letter explained the purpose of the survey and emphasized the

importance of their participation. Surveys directed to members of the executive committee were accompanied with a cover letter signed by the researcher. In this case, names were used on the surveys in order to provide the participants with individual feedback regarding their survey scores. Confidentiality was maintained since only the researcher had access to the surveys which were stored in a secure location.

Surveys directed to the random sample of hospital personnel were accompanied with a cover letter signed by the hospital commander. This imparted a sense of credibility and importance to the survey and encouraged participation. The cover letter was numbered and participants were instructed to return the cover letter in a separate envelope to ensure accurate accounting of surveys and guarantee confidentiality. The only information required on the front of the survey was rank, corps, and pay grade.

The Total Guide Survey was distributed to all members of the executive committee (n=10) on 3 December 1990 with a suspense of 7 December 1990. Nine completed surveys were returned, achieving an overall response rate of 90%. The Climate Guide Survey was distributed to a sample of hospital personnel (n=194) on 24 January 1991 with a suspense of 1 February 1991. One hundred and forty-seven completed surveys and 10 incomplete surveys were returned, achieving an overall response rate of 77%. Specific

information regarding sample sizes, the number of surveys distributed, and the response rate for both the Total Guide and the Climate Guide Surveys is contained in Table 1.

Sample sizes of the eight categories receiving the Climate Guide Survey ranged from 21 to 26 individuals. The civilians had the largest sample size (n=73) and officers had the smallest sample size (n=61) due to the fact that there were no officers listed in the work force category. The survey response rate for the Climate Guide Survey ranged from 60% to 82%. Enlisted personnel had the lowest response rate and officers had the highest. The overall survey response rate for both surveys was 72%. Ten incomplete surveys were received and they could not be used in the study.

The sample size per corps was determined by using the ratio method. For example, physicians (including medical residents) comprised the largest officer corps in the medical center after the deployment and therefore, they received the largest number of surveys. The exact sample size was computed by determining the ratio of the individual corps size to the total number of officers and multiplying that number by the desired sample size of 25. All categories were relatively equal in sample size. The total sample size for both surveys was 204 individuals. A breakdown by personnel category and corps is contained in Table 2.

All officer and enlisted ranks were represented except for

Airman Basic (E1) because there are none assigned. The majority of the officers participating in the surveys were Majors (n=18) and Colonels (n=16). In terms of enlisted personnel, the majority of the survey participants were Airman First Class (E3) (n=16). The civilian rank structure is divided into three levels: General Manager, General Schedule, and Wage Grade. The majority of the civilian personnel were General Schedule (n=63) and within that category, the majority were GS-11s. A breakdown by military rank and civilian pay grade is contained in Table 3.

Total guide survey scores. The Total Guide Survey was distributed to ten members of the executive committee. Nine surveys were returned. Each survey was scored using computer software and the scores were consolidated for the nine survey participants and are shown in Table 4.

Overall; the Processes, Tools, and Outcomes (PTO) Total score of 2.34 was slightly greater than the mean score of 2.2 indicating that they considered the medical center to be performing satisfactorily in all three areas. Of the three main areas, the only category with a mean score less than the target score was Tools. This seems to indicate that the respondents felt that there were not a lot of specific techniques used to promote quality and productivity improvement throughout the organization. This is not surprising since the hospital is at the beginning stages of TQM implementation. The Consolidated Processes, Tools,

and Outcomes (PTO) Scores report (Appendix C) further breaks down the three main areas into categories and subcategories revealing several areas requiring improvement.

The Processes area is subdivided into the following three categories: Improvement Activities, Enhancement Approaches, and Sustainment. Improvement Activities was the only category with a mean score less than the target score. Within this category there are 10 subcategories of which five had a mean score less than the target score. Three of the five were concerned with definitions and the other two addressed the emphasis on productivity and quality. Based on these low scores, it would appear that the respondents felt that quality and productivity do not receive a lot of emphasis. In other words, the medical center has not yet created an infrastructure to support TQM implementation such as a policy letter, office of responsibility, the establishment of process improvement teams. The low score in the definition subcategories reflects the fact that the respondents acknowledged that goals and objectives have not been established for a quality improvement program. Since David Grant USAF Medical Center just recently decided to incorporate TQM into its culture, the respondent's perceptions are not surprising and accurately reflect our current operating environment.

The Enhancement Approaches category has six subcategories of

which only one had a mean score less than the target score. The low score was in a subcategory entitled "People-Oriented." This suggests that the respondents believe that risk taking and creative thinking are not rewarded in this organization.

The Sustainment area contains six subcategories of which two had a mean score less than the target score. The low score was recorded in questions regarding reward systems. It appears that the respondents believe that improvements are necessary in our reward system. Recognition, pats on the back, and awards for top performing managers and employees typically believed to be important for sustained employee motivation appear to be lacking.

The Tools area is subdivided into the following five categories: Assessments, Definition, Measurement/Process Analysis, Awareness/Communication, and Organizational Development. The last two categories had a mean score less than the target score. The low score in the Awareness/Communications category may be consistent with the fact that top management has not instituted any publicity efforts regarding TQM and its implementation. The low score in the Organizational Development category may reflect the fact that the organization has not established any process improvement teams (PITs).

The Outcomes area is subdivided into the following eleven categories: Work Flow/Delays, Waste, Tools/Equipment, Staffing, Facilities, Training, Supplies/Parts, Organization/Group

Structure, Quality, Quantity, and Reliability. Only one category had a mean score less than the target score. The low score in the Organization/Group Structure category indicated the perception that employees often have to shift work priorities and/or re-do job tasks in order to get the job done. In this case, the formation of a PIT, which are vital components of the TQM philosophy, would be appropriate to help alleviate some of the problems. The Outcomes area also contained the highest mean score which occurred in the Facilities category. This indicates that both working conditions and working facilities are excellent and accurately reflects the fact that this is a new facility which is maintained in a superior fashion.

The executive committee's climate score is contained in Table 5 to allow comparison with the other categories of hospital personnel. Their climate score is discussed in the next section.

Climate guide survey scores. The Climate Guide Survey was distributed to 194 hospital personnel. These individuals were categorized into eight distinctive groups. Approximately 138 surveys were returned resulting in a response rate of 71%. Each survey was scored using computer software and the scores were consolidated for the eight categories and the executive committee and are shown in Table 5.

The Consolidated Climate Scores report (Appendix D) is divided into the following five areas: Strategic Focus, Leadership

and Management, Work Force, Customer Orientation, and Communications. In addition, the Strategic Focus category has five subcategories (Awareness of Strategic Challenge, Vision for the Future, Innovation, Quality Policy/Philosophy, and Value Systems/Ethics), Leadership and Management has five subcategories (Top Management Involvement, Visible Commitment to Goals, Role in Quality Improvement Process, Concern for Improvement, and System/ Structure for Quality Improvement), and Work Force has eight subcategories (Awareness of Productivity/Quality Issues, Attitudes/Morale, Cooperation, Involvement, Perceptions of Work Environment, Social Interactions, Task Characteristics, and Consequential Constraints). The target score for all areas and categories is 3.50. A score lower than or equal to 3.50 means that some practices considered helpful or necessary for quality and/or productivity may be absent in the organization. It is interesting to note that all eight categories of hospital personnel and the executive committee had a mean score greater than the target score. In some cases, a specific subcategory received a low score, but the total mean climate score was always above the target score. In order to identify strong and weak areas, each category of personnel will be analyzed.

In the following five personnel categories there were no mean scores in any area, category, or subcategory less than the target score of 3.50: Senior Management - Officers, Senior Management -

Enlisted, Senior Management - Civilians, Middle Management - Enlisted, and Middle Management - Civilians. Generally speaking, it appears that the majority of personnel have a positive perception about the organization and/or their work unit.

In the following three personnel categories there was only one subcategory with a mean score less than the target score. The personnel categories of Middle Management - Officers, Work Force - Enlisted, and Work Force - Civilians all had a low score in the subcategory Consequential Constraints. A low score in this subcategory indicates that improvements are needed in the organization's reward system. These respondents may feel that top performers within the organization are not recognized or rewarded. The low score in this area may also relate to the low score in the Total Guide Survey (Processes area, Sustainment category, Rewards Systems subcategories).

The other low score was recorded by the executive committee in the subcategory of Awareness of Productivity/Quality Issues. These respondents may feel that there has been limited publicity concerning TQM within the organization. The executive committee members also scored low in the Total Guide Survey regarding this same issue (Tools area, Awareness/Communication category).

The high score was in the Customer Orientation area in six out of the nine personnel categories. This seems to indicate that the majority of the respondents know and care about their

customers, a vital component of the TQM philosophy. The other three categories (Senior Management - Officers, Senior Management - Enlisted, and Middle Management - Enlisted) all recorded their highest mean score in the Social Interactions category. This may indicate that these individuals can easily work together to achieve a common goal.

External Customers

An external customer is defined as "the end user of a product or service" (Walton, 1990, p. 21). For the purposes of this study, external customers are defined as all patients receiving any type of medical care or services at David Grant USAF Medical Center to include inpatients, outpatients, and dental patients.

Study design. In order to assess the external customers, patient questionnaires for calendar year (CY) 1990 were reviewed. Quarterly patient questionnaire statistics are compiled by the Director of Ambulatory Services for the following areas: Ambulatory Services, Inpatient Services, Dental Services, and Ancillary Services (laboratory, pharmacy, physical therapy, and nutritional medicine). These quarterly reports were obtained and reviewed to determine overall customer (patient) satisfaction and to identify strong and weak areas.

Ethical considerations. The statistics reviewed did not contain patient names or social security numbers.

Results. In CY 1990 there were 10,278 patient questionnaires received by the various departments within David Grant USAF Medical Center. Table 6 provides a summary of CY 1990 patient questionnaires.

Overall, 80% of the survey questions received a rating of excellent with 17% of the questions rated as adequate and only 3% rated as poor. The number of favorable comments outnumbered the unfavorable comments by a ratio of greater than five to one.

Inpatient Services received the largest number of questionnaires and Dental Services received the smallest. In all areas, the majority of the survey questions received a rating of excellent. Inpatient Services had the highest percentage of questions rated in the excellent category and Ambulatory Services had the lowest percentage of questions receiving an excellent rating. In addition, Inpatient Services had the lowest percentage of questions rated as poor and the highest number of favorable comments. Ambulatory Services, on the other hand, had the highest percentage of questions rated as poor and the highest number of unfavorable comments. Dental Services had a 75:1 ratio of favorable to unfavorable comments.

In the Ambulatory Services area, the majority of poor ratings were in the waiting time category and the majority of excellent ratings were in the courtesy of clinic personnel category. In the Inpatient Services area, the majority of poor ratings were in the

dietary and waiting time for admission category and the majority of excellent ratings were in the courtesy of personnel category. In the Dental Services area, the majority of poor ratings were in the waiting time category and the majority of excellent ratings were in the courtesy of personnel category. In the Ancillary Services area, the majority of poor ratings were in the waiting time category and the majority of excellent ratings were in the courtesy of personnel category. In all four areas, the majority of our external customers rated waiting times as poor and courtesy of personnel as excellent.

Discussion

The organizational assessment took into consideration numerous factors in order to ascertain the applicability of a Total Quality Management program to David Grant USAF Medical Center. The assessment involved reviewing the capabilities, staffing, pertinent workload statistics, and recent accomplishments of the organization in addition to analyzing the perceptions of both internal and external customers. A quarterly information management summary provided information on capabilities, staffing, workload, and accomplishments and a standardized survey instrument was distributed to a random sample of internal customers. A review of patient questionnaires provided insight into the perceptions of external customers.

The assessment revealed that David Grant USAF Medical Center

is one of the largest and newest medical treatment facilities in the United States Air Force Medical Service. It is a modern, high-tech, fully accredited medical center which offers a wide range of medical services. It is staffed with over 1,500 medical professionals and serves a large beneficiary population. Both the internal and external customers represent a diversified group. The assigned staff or internal customers are composed of a combination of military and civilian personnel and represent a multitude of medical specialties. Employees of the medical center also represent various military ranks and civilian pay grades. Military staff range in rank from Airman (E2) to Colonel (O6) and civilian personnel range in pay grade from wage grade employees to general managers. The patients or external customers are also equally diversified. They are composed of military and civilian personnel and represent the entire gamut of the military rank structure and the different branches of the armed forces. They are also segmented into different eligibility categories ranging from active duty to retired. The diversified nature of all customers emphasizes the need to educate the staff in the importance of customer relations, both internally and externally.

David Grant USAF Medical Center is, essentially, a service organization which provides a service to customers on a daily basis. The workload statistics reveal that the medical center is a complex and busy operation that requires the cooperation of

numerous individuals and departments. On an average day in FY 1990, the medical center admitted 30 patients, treated 972 outpatients, performed 5,447 laboratory procedures, exposed 832 radiology films, and dispensed 2,265 prescriptions. Obviously, this type of productivity requires the ability to do it right the first time coupled with a strong customer orientation if quality is going to be a primary objective.

The workload statistics also revealed that the departments of medicine and surgery were the busiest in terms of both inpatient bed days and outpatient visits during FY 1990. Overall, in the inpatient category, the primary consumers of medical care were active duty and retired personnel. In the outpatient category, the dependents of active duty personnel were the beneficiary category representing the majority of the outpatient visits for FY 1990. This information may be helpful for future patient satisfaction studies since it identifies the primary users of inpatient and outpatient services and the associated departments.

The assessment of the internal customers (employees) involved using the Quality and Productivity Self-Assessment Guide for Defense Organizations. All survey responses were positive. In all cases, the total mean score was greater than the target score. The survey revealed that members of the executive committee felt that more emphasis was needed on risk-taking and innovation within the organization. In addition, their scores indicated that they

felt that improvements were needed in the rewards system and publicity regarding quality and productivity issues. On the other hand, executive committee members indicated that David Grant USAF Medical Center offered excellent working conditions. It is interesting to note that all categories of senior management (officers, enlisted, and civilians) had scores greater than the target score in all categories and subcategories. It appears that these individuals have a positive perception about the organization and their work unit. In the middle management category, only Middle Management - Officers had a score lower than the target score in an area. Their low score indicated that they felt that improvements were needed in the organization's reward system. Surprisingly, the work force categories of enlisted and civilians also scored low in the same area indicating that, they too, wanted to see improvements in the medical center's reward system. On the other hand, high scores were received in the area of customer orientation in all personnel categories except Senior Management - Officers, Senior Management - Enlisted, and Middle Management - Enlisted. However, these three categories all scored high in the area of social interactions.

Overall, the survey revealed that improvements were needed in the organization's reward system and publicity efforts. These two weak areas were taken into consideration in developing the structural recommendations found in Chapter Four. Numerous

recommendations for improving these two areas can be found in Step Six (Develop a Communications Plan) and Step Seven (Develop a Recognition Plan). In addition to these weak areas, the survey also pointed out some strong areas, namely social interactions and customer orientation. It is recommended that these strengths be capitalized upon when proceeding with Step Eight (Establish Process Improvement Teams) and Step Nine (Identify Customers and Their Requirements).

A review of a significant number of both inpatient and outpatient questionnaires provided an insight into the perceptions of the external customers (patients). The majority of the excellent ratings were received by inpatients services and the majority of low ratings were received by ambulatory services. The external customers overwhelmingly rated the courtesy of hospital personnel as excellent but they also unanimously agreed that waiting times throughout the medical center were an irritant. The large number of questions receiving an excellent rating and the large number of favorable comments on the patient questionnaires are an indication of the high quality of service provided by the medical center staff to their customers. However, this review indicated a problem area that needs immediate attention in order to better meet the needs of our customers. It is recommended that a process improvement team be formed to investigate the problem of excessive waiting times, especially in

the outpatient clinic areas. It is also recommended that patient questionnaires be continued to be used throughout the medical center. They are an important tool in understanding the needs of the customer and recommendations to improve this program can be found in Chapter Four, Step Nine (Identifying Customers and Their Requirements).

Overall, David Grant USAF Medical Center received high ratings from both internal and external customers. Although a few problem areas were noted, it appears to be a quality organization that employs quality people doing a quality job. All the weak and strong areas identified during the organizational assessment have been included in the Structural Recommendations section. Numerous suggestions to improve the weak areas along with advice to maintain the strong ones have been included among the various steps. Based on this organizational assessment, it appears that David Grant USAF Medical Center has an organizational environment that is conducive to the implementation of Total Quality Management.

Structural Recommendations

In order for TQM to be implemented successfully in an organization, there should be certain support systems in place at the beginning. These support systems or infrastructures become part of the organization which supports the overall TQM implementation. Without these various components to initiate and

structure the TQM implementation process, institutionalization of this philosophy within the organization would be difficult, if not impossible. Support systems can be individuals, committees, or written plans and their purpose is to support and guide the TQM implementation process. The following structural recommendations are presented as a sequence of steps in the form of a ten-point action plan and conceptual model (Appendix E). Steps one through four are normally followed in the sequence described. Steps five through seven emphasize the role of planning and can be done simultaneously. Step eight reflects the true beginning of a quality improvement system and it can be started early in the implementation process with the creation of pilot process improvement teams. Fully functional PITs should only be formed after the infrastructure has been created and in place. Step nine will really begin to occur only after all personnel have been trained and step ten will result in full institutionalization of the quality improvement program.

Appendix E also illustrates the ten-step plan in a conceptual model format. The central or "core" elements of a TQM implementation plan are steps one through three. Implementation is destined for failure without top management commitment and an active Quality Director and Quality Council. Therefore, these three elements are depicted in the central or "core" circle. The other elements of the ten-step plan (steps four through ten) are

depicted as offshoots of the central circle. This illustrates that the central three elements have numerous responsibilities in regards to implementing a Total Quality Management Program. Finally, the central circle is depicted as being supported by three pillars representing planning, persistence, and patience and also referred to as the three Ps. This illustrates that a strong foundation in those elements is necessary for top management, the Quality Director, and the Quality Council to develop and guide the TQM implementation process.

Step One: Develop Top Management Commitment

One of the basic fundamentals of introducing Total Quality Management into an organization is that the impetus for change should be initiated by top management. Achieving a quality revolution in an organization will only succeed with the constant and unwavering commitment of senior leadership. Health care organizations that have successfully introduced TQM into their organizational culture such as the Hospital Corporation of America, University of Michigan Medical Center, and NKC, Inc., agree that quality improvement must start with management commitment (Heilig, 1990; McEachern & Neuhauser, 1989; Powers, 1988). Lowe and Mazzeo (1986) point out that all three quality experts (Crosby, Deming, and Juran) agree that management

commitment is an essential first step in a quality improvement plan. In fact, the first step in Philip Crosby's 14 steps of quality improvement is management commitment (Crosby, 1984).

The Commander of a medical treatment facility (MTF) plays an important role in the successful implementation of Total Quality Management. This individual should display his commitment to the principles and philosophy of TQM by understanding the concepts and becoming visibly and actively involved. Boone and Cavanaugh (1989) identify the specific responsibilities of the commander as:

- Communicate a clear vision of where the MTF is going
- Question past and present MTF practices with a view toward constantly improving methods and service
- Teach, reinforce and reward desired behavior and achievements associated with TQM
- Provide frequent feedback and coaching to executive management team members and middle managers
- Articulate and implement a philosophy of leadership and management based on continuous quality improvement, and do so in conjunction with the MTF executive committee (p. 15)

The Commander should take a leadership role in demonstrating commitment and cultivating that same attitude in every employee. The challenge will be to create an environment throughout the organization which encourages individual involvement in and personal ownership of the improvement process. The Commander

should be willing to commit resources (money, people, equipment, facilities, and time), listen to suggestions, and promptly implement solutions recommended by the various process improvement teams.

Recommendations. The following recommendations should be considered in order to achieve step one:

(a) The Commander and senior management should understand that TQM is not a fad, it is a new management philosophy that has been endorsed by the Department of Defense and the Air Force Surgeon General subsequent to a 1988 Presidential mandate

(b) Senior management should recognize that TQM is costly to implement, requires a long-term orientation and commitment, and involves a cultural change within the organization

(c) Senior management should be aware that implementation can fail due to lack of management support, short-term orientation, focus on outcomes versus process improvement, lack of employee involvement, and the failure to identify customer requirements (Newbold & Williams, 1991)

(d) Senior management should be aware that implementation can succeed due to communication of a clear vision, understanding and commitment of management, resources available for organization and training, involvement at all levels, patience and perseverance, and celebrating success (Newbold & Williams, 1991)

(e) The Commander and members of the executive committee should make a personal commitment to learn about Total Quality Management by reading the literature; reviewing and discussing the works of quality experts such as Deming, Juran, and Crosby; attending seminars; networking with both civilian and military health care executives; and ultimately reaching consensus on a conceptual framework that is consistent with the organization's culture and quality philosophy

(f) The Commander and all members of the executive committee should read Mary Walton's books: The Deming Management Method and Deming Management at Work

(g) A journal club should be created among the members of senior management and it should meet frequently to discuss TQM articles and the fourteen points of Deming

(h) The Commander should appoint a task force (TQM research committee) consisting of a small number of individuals with the responsibility to study and recommend to top management how to initiate the TQM process

(i) The task force should identify TQM seminars, training programs, make site visits to other health care facilities, invite in guest speakers, talk to consultants, and develop criteria for evaluating vendor proposals

(j) Senior management should educate personnel at every opportunity on why change is needed; the basic philosophy of TQM,

with the emphasis that TQM is not another fad; their role in the process; and the benefits to the individual, department, and organization in an effort to generate support and loyalty from others in the organization

(k) The Commander and senior management should involve physicians early in the process

(l) The Commander should recognize the importance of timely and accurate communication by keeping all personnel informed of the status of the implementation through various forums such as Commander's Call and internal memorandum

(m) The Commander should incorporate the topic of quality as a routine agenda item for the executive committee and all other committees

(n) Senior management should identify a "critical mass" of individuals within the organization who have a background or strong interest in Total Quality Management to serve as consultants to senior management and can be identified for future leadership roles in the implementation process

(o) Senior management should remember that the successful implementation of TQM requires their commitment, involvement, time, and dedication

(p) Senior management should recognize that the "cost" of

implementing TQM may be reflected in terms of substantial amounts of personal and professional time devoted to TQM issues resulting in time away from normal duties

(q) Senior management should recognize that their commitment to TQM may be tested if workload and productivity fall as a result of TQM coming on-line

Step Two: Select a Quality Director

The selection of a competent and highly motivated Quality Director is an important decision to be made by the Commander. Input from members of the executive committee and senior management should be solicited to assure that qualified candidates are not overlooked. The Quality Director works very closely with the Commander to oversee and guide the implementation process.

Recommendations. The following recommendations should be considered in order to achieve step two:

(a) The individual filling the position of Quality Director should be a member of senior management (at least a field grade officer) with proven leadership, planning, communication, and interpersonal skills in addition to a strong interest in and dedication to the principles of Total Quality Management

(b) The Quality Director should be a full-time position that reports directly to the Commander and is supported with adequate staff, equipment, money, and office space

(c) This position and the associated department should be

responsible for initial TQM implementation planning to include identifying the appropriate sequence of steps involved in the implementation and sustainment of a TQM program, recommending consultants to assist with planning and training, developing training plans and time schedules, assisting with the formation of process improvement teams to include reviewing their project proposals and monitoring their progress and results, and monitoring customer relations

(d) The Quality Director should identify resources (books, videos, periodicals, etc) for the establishment of a TQM library

(e) The Quality Director should facilitate the Quality Council as they plan all quality activities and identify, coach, and guide facilitators

(f) The Quality Director should make a personal commitment to extensively learn about Total Quality Management through reading and attendance at various seminars and training programs

(g) The Quality Director should be familiar with the principles of organizational dynamics and personnel psychology in addition to understanding the philosophy of quality improvement

(h) The Quality Director position should be a visible position that requires a multitude of skills such as planning, teaching, coaching, motivating, facilitating, communicating and serving as a liaison between the Commander, Quality Council, facilitators, and consultants

Step Three: Establish a Quality Council

Initially, the primary function of the Quality Council will be to guide the implementation of the quality improvement process within the organization. Eventually, however, the Quality Council will serve as a policy and decision making body with the primary mission of overseeing the entire TQM program. The committee should be composed of 12 to 15 individuals from senior management which represent the major interest groups within the medical center (medical corps, nurse corps, medical service corps, biomedical sciences corps, dental corps, enlisted, and civilian personnel). The committee should be chaired by the Commander and facilitated by the Quality Director. Membership will be at the recommendation and approval of the Commander. Quality Council members play an important role in developing and sustaining a quality management system within the organization and they must be motivated and committed to the organization.

Recommendations. The following recommendations should be considered in order to achieve step three:

(a) The Commander should consider using some members from the executive committee on the Quality Council since they represent senior management and are familiar with the organization's goals and objectives

(b) The Commander should consider using some members of the previously identified "critical mass" on the Quality Council since

they may have a background and/or strong interest in Total Quality Management

(c) The Quality Council should designate one position on the council for a department head or facilitator and rotate these individuals on a regular basis

(d) Members of the Quality Council should be responsible for developing a quality improvement plan that will outline the overall implementation strategy and training objectives

(e) The Quality Council should be responsible for drafting a medical center regulation addressing the policies and procedures associated with the Total Quality Management program

(f) The Quality Council should require all department heads to establish a department quality plan and submit their plans to the Quality Council for review and approval

(g) The Quality Council should be responsible for developing a vision statement, quality policy, quality definition, and quality guidelines

(h) The Quality Council should be responsible for promoting, monitoring, and evaluating the progress of the implementation and adjusting or modifying the system if required

(i) The Quality Council should review and approve all requests for process improvement team projects and their associated team membership

(j) The Quality Council should monitor the progress of teams on quality improvement projects

(k) The Quality Council should oversee the development of a communications plan, reward/recognition plan, and education and training plan

(l) The Quality Council should identify customers and their requirements by conducting an organizational assessment and periodically surveying and/or interviewing patients, employees, and contractors

(m) The Quality Council should be responsible for establishing a quality measurement and review system to measure and monitor whether or not customer requirements are being met

(n) Quality Council minutes should be reviewed and approved by the executive committee

(o) The Quality Council, if not satisfied with the term "Total Quality Management", should pick an unique name to describe the quality improvement program at David Grant USAF Medical Center

Step Four: Create a Vision Statement

One of the initial actions of the Quality Council will be to create a vision statement that describes what the organization wants to be in the next several years. The vision statement will be used to communicate organizational purpose, values and direction to all employees. Belasco (1990) states that "Vision is

a statement of what you want your organization to be. It conveys a picture of where you want to go and how you want to get there. It is a simple-to-understand, inspirational, focusing statement" (p. 104). The vision statement will allow employees to focus their attention on what is important and inspire and empower them to make the change happen.

Recommendations. The following recommendations should be considered in order to achieve step four:

(a) The Commander and members of the Quality Council should read chapter six of James A. Belasco's book, Teaching the Elephant to Dance, for suggestions on how to create a vision statement

(b) The vision statement should be based on input from throughout the organization to ensure "ownership" by the employees

(c) The Quality Council should contact other health care organizations and ask for copies of their vision statements

(d) The Commander should ensure that the vision statement is communicated clearly, consistently, and continually throughout the organization

(e) The Quality Council should develop measurable criteria (success statements) after the vision statement has been drafted to allow senior management to monitor the progress towards achieving the vision

(f) The Commander should direct each department head to create a vision statement and success statements for their department

(g) All departmental vision statements and success statements should be submitted to the Quality Council for review and approval

Step Five: Develop an Education and Training Plan

All personnel assigned to David Grant USAF Medical Center should undergo training in the concepts and philosophy of Total Quality Management. In addition; senior management, members of the Quality Council, process improvement team members, department heads and facilitators should all receive additional training that outlines their specific roles and responsibilities. The Quality Council in conjunction with the Quality Director and the Commander should be responsible for identifying training sources and designing a time-phased training plan. It is also recognized that TQM is a relatively new concept in health care and that an ongoing educational program will be necessary to keep current with any developments or changes.

Recommendations. The following recommendations should be considered in order to achieve step five:

(a) The Quality Council should research consultants with experience in implementing TQM in health care organizations by reviewing the Federal Supply Schedule entitled "Total Quality Management Implementation Services" which identifies contractors

with an established Office of Personnel Management (OPM) contract (Appendix F)

(b) The Quality Council should develop criteria to evaluate the various consulting agencies in terms of experience (both health care and military) with Total Quality Management, reputation of the company, cost, types of training programs available, references, and expertise of the individual consultants (educational background and work experience)

(c) The Quality Council should network with other civilian and military agencies to determine other training sources

(d) The Commander and the Quality Council should invite in guest speakers or visit other health care agencies to discuss their TQM program and training plans

(e) The Commander and Quality Council should identify personnel within the medical center with expertise in TQM and/or education and training and request their assistance with planning and in some cases, teaching

(f) The Commander and Quality Council should recognize that education begins at the top with the Commander and senior management and "cascades" down through the organization until all employees have been trained, ensuring that all managers and employees understand vital quality principles and can speak the same language (Appendix G)

(g) The Commander and Quality Council should recognize that

the training process should be "anchored" at one level before proceeding to the next, meaning that knowledge and excitement must be present in that group of individuals before continuing training with another group

(h) The Commander and Quality Council should recognize that specific training should be designed for senior management, the medical staff, members of the Quality Council, department heads, facilitators, process improvement team members, and members of the work force

(i) Members of the Quality Council should identify all department heads by name and department and request each department head select an individual within their department to be a facilitator

(j) Each department head and facilitator should be trained as a team and then be responsible for training the individual members of their department

(k) Selected individuals should be trained as "free-lance" facilitators to work multidisciplinary groups and cross-boundary groups

(l) The Quality Council should make the recommendation to Personnel and Administrative Services (SGAS) to incorporate quality awareness training into the newcomer's orientation program

(m) The Quality Council should develop a computerized tracking system to monitor all training activities (scheduling,

documentation, no-shows)

(n) The Quality Council should emphasize the importance of education by publicizing the TQM library (within the medical center and on base), posting notices of TQM seminars, encouraging journal clubs within departments, posting articles from periodicals on the quality bulletin board, distributing recommended reading lists, and encouraging all employees to make a personal commitment to learn about Total Quality Management

Step Six: Develop a Communications Plan

Leading David Grant USAF Medical Center through an organizational transformation and culture change requires open communication channels designed to keep everyone informed of the developing Total Quality Management program. Keeping personnel informed will help solicit their participation and minimize rumors. Communication should focus on such issues and topics as the principles and philosophies of TQM, the impetus for change, the vision of the organization, the benefits of TQM, and the elements required to implement TQM into the organization. The goal of communications is to generate awareness of and support for the new program. Communication must be accurate, clear, timely, and disseminated widely.

Recommendations. The following recommendations should be considered in order to achieve step six:

(a) The Commander should distribute a letter to all medical center personnel announcing the decision to implement a TQM program

(b) Discussion of TQM principles and the status of the implementation should be a regular agenda item at both enlisted and officer's Commander's Call with time allotted for discussion and questions

(c) Members of management are encouraged to become TQM advocates by speaking frequently to employees at every opportunity on the importance of quality and clarifying any concerns regarding the implementation process or goals of the quality improvement program

(d) A description of the Total Quality Management program should be incorporated into the newcomer's orientation program with presentations by members of the Quality Council

(e) A bulletin board located in a central location should be designated for TQM related articles and notices to include posting the vision and success statements, identifying members of the Quality Council to include the Quality Director, listing current process improvement teams (to include a team photograph if possible) and their problem issue and recommended solution, quality measurement data and statistics, and training schedules

(f) The picture of the Quality Director should be posted on the quality bulletin board listing his or her office symbol and

telephone number

(g) The Quality Council should design an awareness campaign with "thought provoking" banners, posters, slogans, etc. to stimulate interest and curiosity

(h) The Quality Council should include a "quality message" in the hospital bulletin on a regular basis

(i) The Quality Council should consider publishing a monthly quality newsletter with articles describing Total Quality Management and explaining fundamental quality improvement concepts

(j) The Quality Council should consider printing the organization's vision statement and quality guidelines on a pocket card and distributing to all employees and patients

(k) The Quality Council should promote the employee suggestion program and recognize every suggestion with a "thank you" note, quick feedback, and public recognition of individuals whose suggestions were implemented

(l) The Quality Council should develop a computerized tracking system to monitor all employee suggestions

(m) The Quality Council should publish a telephone number (Quality Action Line) for employees to use to call in with suggestions (telephone and answering machine would be located in the office of the Quality Director)

(n) The Quality Council should develop a slogan and/or a logo to help promote the new quality improvement program

(o) The Quality Council should consider purchasing and installing an electronic bulletin board to convey important TQM information in areas of high employee traffic

(p) The Commander and members of the Quality Council should recognize that the organizational assessment indicated that improvements were needed regarding the publicity of TQM activities

Step Seven: Develop a Recognition Plan

The medical center should develop new ways of recognizing individual employees and process improvement team members for their quality improvement efforts. Recognizing individuals or teams for suggestions, solutions to problems, or for any outstanding contribution or idea is important to the success of the quality improvement program. Recognition, especially in a public forum, is a strong motivator for both participants and observers and helps reinforce the quality program. A strong recognition program also helps insure that people are encouraged and motivated to practice behaviors which promote quality. Sincerity and timeliness are important elements of a recognition program, not its sophistication. A simple, heartfelt "thank you" is never out of place.

Recommendations. The following recommendations should be considered in order to achieve step seven:

(a) The medical center's suggestion program monitor should acknowledge every suggestion submitted with a thank you note

(b) The Quality Council should post pictures of process improvement team members on the quality bulletin board

(c) Individuals that submitted a suggestion which was later implemented should receive a certificate, letter from the Commander, and recognized in a public forum such as Commander's Call

(d) Process improvement teams that researched and proposed a solution to a problem which was implemented should receive a plaque, a letter from the Commander, be recognized in a public forum such as Commander's Call, and be allowed to make an exhibit which explains their project and is located in a public area for employees, patients, and visitors to view

(e) Once a quarter, process improvement teams should have the opportunity to make a public presentation to the staff explaining their project, problem-solving aoproach, and recommended solution

(f) Employees mentioned on a patient questionnaire for contributing tc customer satisfaction should be recognized with a letter of appreciation from the Commander and the questionnaire read at Commander's Call and posted on the quality bulletin board

(g) The Quality Council should develop an internal recognition system such as a "Pat-on-the-Back" program whereby employees can recognize each other for jobs well done

(h) The Quality Council should recognize departments and individuals for accomplishing the goals outlined in their annual

quality plan

(i) The Commander and Quality Council should continue to promote existing recognition programs such as the Airman/ Noncommissioned Officer of the month, quarter, and year; Senior Noncommissioned Officer of the quarter and year; and Company Grade Officer of the quarter and year and require nomination packages to include a paragraph outlining the individual's contribution to the quality improvement program

(j) The Quality Council should institute an annual "Quality Day" where quality successes over the past year are emphasized and a competition is held for the Process Improvement Team of the Year award

(k) Supervisors should recognize an individual's outstanding contributions to quality improvement with laudatory comments in that individual's annual performance report

(l) The Quality Council should research other forms of recognition to include days off, dinners, cash awards, Air Force Achievement Medals, reserved parking spaces, and pictures/articles in the base/local newspaper

(m) The Commander and members of the Quality Council should recognize that the organizational assessment indicated that improvements were needed in the medical center's reward and recognition system

Step Eight: Establish Process Improvement Teams (PITs)

Employees become directly involved in the Total Quality Management process through their participation on process improvement teams. These teams can be either functional (within departments) or cross-functional (across departments) depending upon the nature of the problem. Team assignments and the project proposals should be reviewed and approved by the Quality Council. In addition to receiving quality awareness training, all team members should receive additional training in group dynamics, statistical techniques and analysis, and problem-solving methodologies. Most teams consist of six to ten individuals and usually meet one to two hours per week, with homework assignments between meetings.

Each team has a leader whose leads the meeting of the team and a facilitator who encourages participation and guides the team towards problem resolution. Teams may also elect to have a timekeeper and a recorder. It is important to remember that the quality improvement process would be impossible without teams and teamwork.

Recommendations. The following recommendations should be considered in order to achieve step eight:

(a) The Quality Council should assemble a few initial pilot project teams early in the implementation process as a learning experience which focuses on identifiable problem areas

(b) Personnel identified to be members of the initial pilot project teams should be the first to receive training

(c) PITs should prepare minutes of their meetings and forward them to the Quality Council for review and approval

(d) Process improvement teams should prepare a formal report and briefing at the end of their project for presentation to the Quality Council for their review and approval

(e) Once a problem has been identified and approved by the Quality Council, they should identify the department(s) involved and solicit from each department head the name of a person to participate on the PIT team

(f) The Commander and the Quality Council should encourage physician participation on process improvement teams

(g) The Commander and the Quality Council should recognize teams for their efforts and publicize their results

(h) Solutions proposed by the process improvement teams and approved by the Quality Council should be implemented quickly with periodic monitoring to evaluate the success of any changes

(i) The Quality Council should monitor the progress of all process improvement teams

(j) The Quality Council should recognize that the "rank issue" could be an impediment to effective group process and take measures to "drive out fear" (Deming's eighth principle)

Step Nine: Identify Customers and Their Requirements

In order to meet or exceed the expectations of the customer it is necessary to identify both external and internal customers and understand their needs. Customer satisfaction is a cornerstone of the TQM philosophy and meeting their requirements the first time and every time must be the focus of every employee. Essentially, a customer is "anyone (internal or external) who receives the product of our labor" (3M, 1990, p. 6). Patients and higher headquarters are examples of external customers and coworkers from another department and physicians are examples of internal customers. Every employee should understand the expectations of their customers and be conscious of how well they are meeting their needs.

Recommendations. The following recommendations should be considered in order to achieve step nine:

(a) The monitoring of all customer satisfaction data such as patient questionnaires should be incorporated into one department, preferably the department managed by the Quality Director

(b) The Quality Council should conduct an assessment of both internal and external customers during the initial phases of TQM planning by using surveys, questionnaires, focus groups, interviews (personal and telephone), and through personal observation by MBWA (management by wandering around)

(c) The Quality Council should develop customer awareness at

all levels by requesting each department to identify their customers and to review their current mechanisms for customer feedback

(d) The Quality Council should reevaluate the patient questionnaire, employee suggestion and patient relations programs

(e) The Quality Council should increase the distribution of inpatient and outpatient questionnaires by staff members with a monthly trend analysis reported to the executive committee

(f) The Quality Council should implement employee and patient satisfaction surveys on a periodic basis

(g) The Quality Council should incorporate patient sensitivity training into newcomer's orientation or other appropriate forums

(h) The Quality Council should encourage the appropriate departments to pursue close working relationships with their suppliers and vendors

(i) The Commander and members of the Quality Council should recognize that the organizational assessment indicated that customer orientation and courtesy of hospital personnel were highly rated areas and waiting times were a major source of irritation for patients

(j) The Commander and members of the Quality Council should read the following articles for more information on identifying customers and their requirements:

- Morgan, J. P., & Shields, D. W. (Spring 1990). Total quality management: Improving patient relations programs. USAF Medical Service Digest, 14-17.

- Nelson, C. W. (1990). Patient satisfaction surveys: An opportunity for total quality improvement. Hospital and Health Services Administration, 35(3), 409-427.

- Tuttle, G. R. (Winter 1989). Dumb sheets - A smart idea for continuous improvement. USAF Medical Service Digest, 18-20.

Step Ten: Develop a Quality Review System

A quality review system should be developed in order to monitor the organization's progress towards meeting and/or exceeding the customer's expectations. There should be a quantitative system in-place to measure quality in order to ascertain whether or not goals and objectives are being met at the departmental and organizational levels. Senior management should require statistical data on quality from all departments to evaluate the effectiveness of the quality improvement process, make improvements if necessary and identify potential problem areas requiring further investigation.

Recommendations. The following recommendations should be considered in order to achieve step ten:

(a) The Quality Council in conjunction with the Commander, executive committee and the Quality Director should identify a few

key quality indicators that measure the progress of the organization towards meeting or exceeding customer requirements

(b) Each department should identify a few key quality indicators that measure the progress of their department towards meeting or exceeding customer requirements

(c) The quality review system should measure and monitor quality for all areas of the medical center (clinical, support, and administrative)

(d) The Commander and Quality Council should be aware that quality measurement is the third step in Philip Crosby's 14-step quality improvement program

(e) The Commander and Quality Council should be aware that Deming places more emphasis on statistical analysis in regards to quality measurement than Crosby or Juran

(f) The Commander and Quality Council should recognize the importance of training all personnel in statistics to include measurement tools, data analysis and data display

(g) Quality data should flow upwards from the departments to the Quality Council to allow senior management to monitor progress and identify areas for improvement

(h) Departmental quality reports should consist of graphical displays (control charts) of their top two or three key quality indicators and forwarded to the Quality Council on a monthly basis for review

(i) The Quality Council should compile all the quality indicators from each department and the Quality Director should brief the executive committee on a monthly basis

(j) Each department head should graphically display their quality indicators in a visible location within their department

(k) After a baseline has been established with each quality indicator, the Quality Council and department heads should look for variations in a process with the focus on continuous improvement of a process

(l) The Quality Council and department heads should choose quality indicators which provide useful information to make decisions, take action, or evaluate the success of a current activity

Training Recommendations

The implementation of Total Quality Management at David Grant USAF Medical Center will not be complete until all personnel have been trained in the concepts and philosophy of this new management philosophy. Of all the structural elements needed to implement TQM, developing an education and training program will require a significant investment in time, money, and personnel. All employees must be trained to use the new skills and then empowered by management to apply them to improve work processes throughout the organization.

A critical decision to be made during the initial TQM implementation process is how to accomplish this training. The Commander and his executive staff must identify both external and internal training resources, understand that different groups within the work force require different types of training, and agree on a training methodology and schedule. The specialized training required for process improvement teams must also be considered. Effective training will help remold the corporate culture and gain employee commitment to this new way of thinking. All employees must be knowledgeable of the mission of the hospital, understand the organization's definition of quality, know how quality is measured and what statistical tools are employed, and understand their role in the quality improvement process (Caldwell, McEachern, & Davis, 1990).

External Resources

The philosophy of Total Quality Management has expanded over the past several years from the manufacturing sector of our economy into the health care industry. Recognizing the growing health care market in the area of Total Quality Management, many consultants have started to advertise their expertise and willingness to assist organizations with their implementation efforts. Casalou (1991) states that,

> The need to develop and continually improve an infrastructure for TQM often necessitates the expertise of consultants. Top

> management may lack the necessary expertise and training when charged with collaborating in the design, development, and implementation of TQM. In these cases, the proper use of outside assistance is critical to helping the organization design and implement the TQM infrastructure (pp. 144-145).

However, Burda (1991b) recognizes the influx of consultants into the health care arena and cautions that "the healthcare market is becoming saturated with poorly trained total quality management consultants who are selling programs that have little chance of working" (p. 25). Commanders who decide to employ an outside agency to assist them with TQM implementation must critically evaluate the consultant before entering into a contractual arrangement.

Many nationally recognized consulting agencies have entered the health care market and, over the past several years, established their reputation and credibility in Total Quality Management. For example, Organizational Dynamics, Inc. (ODI) in Burlington, Massachusetts is involved with several health care organizations to include Baptist Memorial Hospital in Memphis, Tennessee; Framingham Union Hospital in Framingham, Massachusetts; Catherine McAuley Health System in Ann Arbor, Michigan; and Sutter Health Systems in Sacramento, California. ODI has also recognized the military's interest in TQM and has entered into a contract with the Military Airlift Command, United States Air Force. Other

consultants active in the health care field include the Minnesota Mining and Manufacturing Company (3M) and Philip Crosby Associates. 3M assisted Rush-Presbyterian-St. Luke's Medical Center in Chicago, Illinois with their TQM program and Philip Crosby Associates helped implement TQM at Monmouth Medical Center in Long Branch, New Jersey.

Deciding on a consultant is no easy task. Before a contract with a particular consultant is negotiated, the Commander should have thoroughly researched all potential contractors. The decision to hire a consultant should be based on the fact that no internal resources exist and senior management is committed and willing to invest time and money in this endeavor.

In order to assist federal government agencies, the Federal Supply Catalogue identifies 24 TQM contractors with established Office of Personnel Management (OPM) contracts (Appendix F). These consulting agencies have been identified to provide government agencies with Total Quality Management implementation and training services. Commanders of military medical treatment facilities should review this list first when beginning the search for a consultant. The fact that a contract has already been established and services are provided at the government rate makes the procurement process easier and more cost-effective. Government executives that require further information regarding TQM or authorized contractors are encouraged to write the Federal

Quality Institute at Box 99, Washington, DC 2004-0099 or call (202) 376-3747 or 376-3754.

Internal Resources

Many health care organizations or systems already employ recognized quality experts and do not have to rely on consultants to assist them with TQM implementation. For example, Paul Batalden, M.D., of the Hospital Corporation of America, was a pioneer in their quality improvement efforts in the mid-1980s (McEachern & Neuhauser, 1989). In addition, Donald Berwick, M.D., of the Harvard Community Health Plan, introduced Total Quality Management principles to the Brookline, Massachusetts-based health maintenance organization at around the same time frame (Burda, 1991a). Other health care systems such as NKC, Inc. of Louisville, Kentucky and the Hospital Association of Rhode Island based in Providence, Rhode Island developed their own TQM implementation and training plans by using internal resources (Burda, 1990b; Powers, 1988).

As TQM is becoming more ingrained in military health care, Commanders should canvass their organizations to identify individuals with previous TQM experience. If enough individuals are identified with sufficient experience, the Commander should consider organizing these individuals into a task group with the charter to develop a TQM implementation and training program for the organization. Another option for the Commander would be to

identify several key individuals within the medical center to attend an outside TQM training seminar. As a result of their training and hopeful transformation into quality champions, they would return and spearhead the TQM planning process. One such program is sponsored by Quorum Health Resources, Inc. of Nashville, Tennessee (formerly HCA Management Company). According to the Air Force Surgeon General's Office, military personnel are allowed to attend this training course on a space-available basis and several senior officers in the medical service have already attended. The Air Force Surgeon General's office is maintaining a waiting list for this course and interested individuals are encouraged to call DSN 297-2550 for more information. Quorum Health Resources, Inc. can be contacted by calling 1-800-233-1470 or (615) 340-5765.

Staff Training

One of the greatest challenges facing David Grant USAF Medical Center will be to analyze the training needs of the over 1,500 personnel assigned and to develop a training schedule to meet their needs. It is important to recognize that different people will require different training. Sage Analytics International, a recognized consulting agency in the area of Total Quality Management, states that:

> A successful TQM program requires (senior) leadership to be trained in change strategy, statistics, problem solving and

> innovation management, communication management, and human resource management. Middle management must acquire skills in quality awareness, empowering employees, problem identification and evaluation, statistical process control, delegation and follow through, communication management and human resource management. The on-line work force needs training in quality awareness, problem identification, development and implementation of improvement actions, monitoring processes, teamwork and communication skills (Sage Analytics International, 1990, p. 5)

The different groups within the medical center that require a training needs analysis include the Commander, the executive committee, the Quality Council, the Quality Director, senior management, physicians, department heads, middle management, facilitators, process improvement team leaders and members, pilot project team leaders and members, the work force, civilian employees, medical residents and clinical students, volunteers (Red Cross and retirees), and new employees. TQM training will have to be designed to meet the needs of each specific group and should be implemented in a top-down (cascading) fashion. It is important that the educational and training process be anchored at one management level before proceeding to the next. Training should begin with senior management and proceed down through the organization until all personnel have been trained. Another

important consideration in regards to TQM training is the need to establish an on-going orientation program for new employees. David Grant USAF Medical Center is a military organization and, as a result, experiences a high level of employee turnover. This top-down training philosophy and the associated concepts of cascading, anchoring, and orienting can be diagramed in the form of a "training pyramid" (Appendix G).

Senior management. The first step in the education and training process for senior management begins when the Commander makes the personal commitment to research the application of Total Quality Management to David Grant USAF Medical Center. Once the Commander and the executive committee agree to implement Total Quality Management at the medical center, it is incumbent upon them to learn as much as possible about this new management philosophy. The learning process involves inundating themselves in the subject of quality by reading, discussing, and networking. The result of this information gathering stage is a basic understanding of the principles and philosophy of Total Quality Management and a commitment by senior leadership that this is the right thing to do. Through the assistance of external or internal resources, they must understand the overall implementation process and the responsibilities associated with guiding the process. Their initial responsibilities include developing a vision statement and quality definition, appointing a Quality Director,

and creating a Quality Council. Once this "core group" has been established, it will be their responsibility to decide on the use of an outside consultant to assist them with the development of an implementation and training plan for the entire organization. Irregardless of the method of instruction, separate and specialized training is recommended for executive management and the Quality Council. This training should focus on quality awareness and outline their particular roles and responsibilities associated with implementing and designing a quality improvement program.

Middle management. Middle management will be the next group trained after senior management. The key groups requiring training at this management level include department heads, facilitators, and process improvement team leaders and members. Again, each group has specialized training needs due to their unique role in the quality improvement process. A key responsibility for executive management at the initial stages of implementation is to identify all department heads and request the appointment of a facilitator from each department. The training concept is that each department head and facilitator will be trained as a "team" and, in turn, be responsible for training the members of their department. This "train the trainer" philosophy is endorsed by 3M, a leading consultant in Total Quality Management with extensive health care experience (3M Company,

1990). It also appears to be the most cost-effective way for government agencies, operating in the face of reduced budgets, to implement TQM. Using an outside consultant for only the initial training phase is an effective cost-savings device the Commander should consider. Middle management must learn how to "empower" their employees and not feel threatened by this new way of managing. Managers must change their management mind-set and focus more on leading and guiding rather than managing and directing. Encouraging innovation and giving employees the authority to make changes may cause middle managers to feel that they are losing their authority. However, it is an important concept that must be employed by all members of management. Rehder and Ralston (1984) note that "understanding motivational theory and the management skills of delegation and positive reinforcement is necessary for the manager interested in involving people in the identification and permanent resolution of quality and productivity problems" (p. 29).

Work force. At the final level of the training cascade are the members of the work force. The majority of the work force will receive TQM training from their department head and assigned facilitator. Personnel at this organizational level are critical to the quality program since, in many cases, they are closest to both the customers and the work processes. This "front line" orientation gives them an unique perspective on operations within

the medical center, and their perceptions of how things really work are vital to understanding a process. Although some members of the work force may receive specialized training to allow them to participate on process improvement teams, all members must receive basic training in quality awareness and understand their role in the overall Total Quality Management program. They must feel "empowered" to take a new look at how things are done and not feel threatened to make recommendations on how to improve a process. The key is that all personnel must be trained in quality, not just management, in order for this new philosophy to permeate the organizational culture. This training will allow all individuals from the "one striper" to the "old man" to be able to speak a common language and focus their new skills towards achieving a common goal of meeting or exceeding the customer's needs and expectations.

Other personnel. The Commander and members of the Quality Council must recognize that within and in addition to the three aforementioned organizational levels, there are many distinctive groups that may require special attention in regards to TQM training. Physician involvement and acceptance is vital to the success of a quality improvement program. Military health care is unique in the fact that the medical staff are considered "salaried employees" who work in the facility, not "outside contractors" who have their own private practice. The military medical treatment

facility is at an advantage in this respect since some degree of control is maintained over the military physician and, as a result, TQM training can be integrated easier into their daily work schedule. Obtaining physician support, commitment, and involvement is a challenging but necessary component of an effective Total Quality Management program.

Civilian personnel are an integral part of the work force at David Grant USAF Medical Center and pervade all management levels from senior management to the work force. Their training should be no different from that scheduled for the military member and the two groups should be trained together. Civilians should be considered for leadership positions such as Quality Council members and facilitators or team leaders since they usually have more job stability as compared to the military member who is normally reassigned after three to four years on station. It is expected that civilians will play an important role in the new quality improvement program. Civilians should receive basic orientation in quality by attending newcomer's orientation, the quarterly Commander's Cross-Talk, and through departmental training. Civilian department heads or those selected to be facilitators or team members should receive specialized TQM training.

David Grant USAF Medical Center is the second largest teaching facility in the United States Air Force with eleven

residency programs (119 students as of May 1991) and four enlisted clinical training programs (30 students on average). These students should receive quality awareness training through orientation and department programs. Although assigned as students; many have direct contact with patients, staff, and the public. Their awareness of quality principles and the importance of customer satisfaction will contribute to the overall quality improvement program. Their suggestions, comments, and recommendations on how to improve any process should be encouraged and evaluated in a timely manner.

A minority of the staff are contract personnel who work mainly in the departments of dentistry and radiation therapy. These ten individuals are in positions that require interactions with both external and internal customers. Therefore, it is important that they be aware of the philosophy and principles of Total Quality Management to better meet the needs of their customers. Another similar group working within the medical center based on a contractual agreement are personnel hired through a resource sharing agreement. These individuals are located throughout the hospital, mainly providing support to numerous clinical areas. Currently there are twelve individuals assigned as part of a resource sharing agreement, however, this number could increase to over fifty with the addition of a surgery and mental health contract. The challenge facing the individuals

responsible for TQM training will be deciding how to orient and train these individuals and evaluating the effect, if any, that this will have on the contract. In other words, will the contract have to be amended or modified to stipulate that these individuals may be required to attend TQM training and conform to the philosophy of Total Quality Management while employed at David Grant USAF Medical Center?

While the aforementioned groups (physicians, civilians, residents/students, and contract personnel) perform their duties on a full-time basis, there are numerous groups that work part-time or are not permanently assigned. These groups must also be considered for TQM training and orientation.

Red Cross volunteers and members of the Medical Retirees Activity provide outstanding support to the medical center. Their contributions are numerous and they fill positions throughout the hospital ranging from the information desk to the pharmacy. The two groups comprise over 300 individuals who donate their valuable time to David Grant USAF Medical Center. These groups should not be overlooked when designing a TQM training and orientation program. Training in quality awareness and specifics regarding the hospital's TQM program should be incorporated into their orientation programs. Their awareness of the hospital's mission, values, vision, and quality definition is necessary for their smooth augmentation into the hospital's culture. Their

suggestions, recommendations, and participation should be encouraged.

Another group important to the hospital's mission are the Individual Mobilization Augmentees (IMAs). There are currently 65 IMAs assigned to David Grant USAF Medical Center. In most cases, each IMA is required to accrue numerous training days in addition to a two week tour on an annual basis. It will be important to incorporate TQM orientation and training into their annual tour.

The United States Air Force Reserves and the Air National Guard also use David Grant USAF Medical Center to accomplish required annual training for their personnel. There are currently twenty units that schedule training at DGMC at various times throughout the year. On average, there are 100 Reserve or Guard personnel working in the medical center during any given month. Again, a comprehensive orientation program that includes an overview of Total Quality Management principles and philosophy should be mandatory for all incoming personnel. Hopefully, this training will enhance their annual tour and allow them to contribute to a culture where quality prevails.

The development of a comprehensive training plan that incorporates all the various groups within the medical center will be a challenge. Planners must recognize the various personnel categories such as active duty military, civilians, volunteers, retirees, contract, IMAs, and Reserve/Guard and tailor their

training plans accordingly. They must also recognize that a number of employees are shift workers and some work schedules may have to be modified to accommodate TQM training.

A critical component of TQM training will be the development of an orientation program for all new employees. As suggested earlier, quality awareness training should be incorporated into the newcomer's orientation program. The exact format, content and length of this training will have to be decided by the Commander and members of the Quality Council. Planners will have to coordinate with the other groups or appropriate offices of responsibility to ensure that all personnel assigned to DGMC, whether on a full- or part-time basis or working the day or night shift, are properly oriented to this new philosophy.

Team Training

The heart of a quality improvement process is the "team concept" whereby employees from different departments or within the same department come together to collectively research and make recommendations to improve a process. The basic premises behind this concept are that those who do the work know where the problems are and two or more heads are better than one. All the members of a process improvement team require specialized training in a problem-solving methodology and statistical tools. In

addition, members in leadership positions such as facilitators or team leaders will require additional training in skills required to keep the team functioning and on schedule.

Problem-solving methodology. In order for the teams to function effectively, they must apply scientific thinking to defining and solving a problem. The scientific method is closely akin to the analytic process used by physicians to reach a diagnosis. Team members become scientists that "state questions, make a plan, formulate hypotheses, gather data to test hypotheses, draw conclusions, and test those conclusions" (Berwick et al., 1990, pp. 47-48).

The team must apply some type of standardized methodology in order to logically diagnose and solve a problem. The Hospital Corporation of America uses a nine-step process-improvement method called FOCUS-PDCA (Burda, 1988; McEachern & Neuhauser, 1989; and Walton, 1990). Walton (1990) defines the acronym as follows:

- Find a process to improve
- Organize a team that knows the process
- Clarify current knowledge of the process
- Understand causes of process variation
- Select the process improvement
- Plan the improvement and continue data collection
- Do the improvement, data collection and analysis
- Check the results and lessons learned from the team effort

- Act to hold the gain and to continue to improve the process (p. 109).

The Plan-Do-Check-Act (PDCA) cycle is commonly referred to as the Shewhart or Deming Cycle. This concept was conceived by Walter Shewhart, a pioneer in statistical quality control, and was later introduced to the Japanese by Dr. Deming. The PDCA cycle is always represented as a circle, emphasizing that improvement is a neverending process.

Organizational Dynamics, Inc. (ODI), an international management consulting, research, and training company, recommends a problem-solving process called FADE for their "quality action teams." ODI (1990) defines the acronym as follows:

- Focus on a particular quality problem or opportunity
  - -- Generate problem list
  - -- Select one problem
  - -- Verify and define problem
- Analyze data
  - -- Decide what you need to know
  - -- Collect data: baselines and patterns
  - -- Identify most influential factors
- Develop solutions and action plans
  - -- Generate promising solutions
  - -- Select one solution
  - -- Develop implementation plan

- Execute plans for prevention of quality problems
  - -- Gain commitment
  - -- Execute solution
  - -- Monitor and adjust (p. 8).

The FADE problem-solving process is a four stage process represented in a circular manner just like the PDCA cycle.

The "quality improvement teams" associated with Alliant Health System of Louisville, Kentucky use a problem-solving model called IMPROVE. Newbold and Williams (1991) defines this acronym as follows:

- Identification
  - -- Describe present situation
  - -- List symptoms, evidence of problems/opportunity
  - -- State the opportunity, goal
- Map
  - -- chart the process
- Problems
  - -- Look for complexities, gaps, misalignment, variance
- Reasons
  - -- Determine cause(s)
  - -- Identify root cause
- Options
  - -- List alternative solutions/improvements

- Venture

  -- Plan and implement or recommend action to improve, test solutions

- Evaluate

  -- Measure results, track improvement

  -- Integrate improvements, hold the gain (p. 23).

This model is also diagramed in a circular fashion to emphasize the concept of continuous improvement.

The key point in illustrating the various problem-solving methodologies (FOCUS-PDCA, FADE, and IMPROVE) is that teams must have some type of modus operandi in order to identify, analyze, and resolve problems. With a standardized methodology, team members are more easily oriented to the realm of scientific thinking and their efforts will follow a logical progression of steps.

The most critical first step in the scientific process is to clearly define the problem under investigation. Berwick et al. (1990) offer five principles for constructing a sound problem statement:

1) The problem statement should reflect shared values and a clear purpose

2) The problem statement should not mention either causes or remedies

3) The problem statement should define problems and processes of manageable size

4) The problem statement should, if possible, mention measurable characteristics

5) The problem statement should be refined as process knowledge is gained (pp. 59-63).

Teams must consider narrowing the scope of their problem if it is decided after some preliminary research that the issue is too broad. In addition, teams must avoid "simple solutions" to problems such as more personnel, more space, or more equipment. Normally, problems are a result of process flaws inherent within the system and require, in most cases, the design of a better process.

Team training must teach skills in scientific thinking, problem-solving, and teamwork. The role of an individual process improvement team member is critical to the success of the overall team. Leonard (1989) states that "the duties of individual team members are many and include: communication, identification of improvement opportunities, data gathering, problem or opportunity selection, analysis of root causes, recommending solutions, tracking solutions, and sharing experiences" (p. 159). In addition, team leaders and facilitators also play important roles on the team. These individuals guide the teams through the problem-solving process and should receive specialized training in

group process skills. Their ability to lead a discussion, listen, give and receive feedback, encourage brainstorming, and resolve conflicts is critical to the success of the group. Breaking down organizational barriers (Deming's ninth principle) and emphasizing teamwork will become new and challenging concepts for all employees.

Statistical tools. Process improvement teams will not be successful at identifying and analyzing problems unless they have been trained in the application of some basic statistical tools. These tools will provide team members with the skills to collect, display and analyze data. The tools are an integral part of the diagnostic journey because it helps the team to organize their thoughts and identify any process variations. The tools can also be used to assess whether or not changes made to a process have had the desired impact.

In order to use statistical tools, one must have data. Basically, the first step after defining the problem is to start to understand the process by collecting pertinent data. Team members must understand how to locate and collect information. The data may be readily available or it may have to be collected, in which case, skills in how to design a data collection form or administer a survey will be essential. They should also understand basic descriptive statistics such as the mean, median, mode, and standard deviation. In addition, team members should

understand sampling theory and the importance of random sampling to prevent skewed or inaccurate data.

Once the data has been collected, it should be displayed using various graphs and charts. Walton (1986) identifies seven helpful charts: cause-and-effect diagrams, flow charts, pareto charts, run charts, histograms, scatter diagrams, and control charts. Berwick et al. (1990) reveal that most teams participating in the National Demonstration Project on Quality Improvement in Health Care started their analysis by designing a flow chart to understand the existing process. Their next step was to brainstorm the possible causes of process failure which resulted in the creation of a cause-and-effect diagram.

Other statistical tools are considered to be more sophisticated. They include delphi studies, nominal group technique, hypothesis testing, regression analysis, correlation analysis, and analysis of variance. These tools require additional training and should be considered for use in interpreting data. However, it must be recognized that the "simpler tools" are easy to learn and do an adequate job of assisting with problem solving. Anything more complex may overwhelm or intimidate those team members with limited or no experience with statistics.

Recommended training references. In cases where an external consultant is involved, most training materials will be provided

by the consultant. It is important that these training manuals be health care specific and can be retained by the employees after the training. In cases where training is to be developed by in-house personnel, an extensive literature search and research will be required. Identification of the key books and articles related to quality improvement programs will enhance the development of a training manual. Other health care facilities, both military and civilian, that have established TQM training programs should be contacted for suggestions and/or copies of their training manuals. Training is a vital component of the TQM implementation plan and only individuals with previous training in both education and quality principles should be tasked with developing a training program. Training is, essentially, the "backbone" of Total Quality Management and it must be done right in order for it to work.

The following books are available locally at the Travis Air Force Base library and are considered good reference books:

a) Belasco, J. A. (1990). Teaching the elephant to dance. New York: Crown Publishers, Inc.

b) Crosby, P. B. (1979). Quality is free: The art of making quality certain. New York: McGraw-Hill.

c) Deming, W. E. (1982). Out of the crisis. Cambridge, MA: Massachusetts Institute of Technology.

d) Juran, J. M. (1988). Juran on planning for quality. New York: The Free Press.

The following books are excellent resources and can be used to supplement or augment any training program:

a) Berwick, D. M., Godfrey, A. B., & Roessner, J. (1990). Curing health care: New strategies for quality improvement. San Francisco: Jossey-Bass, Inc.

b) Crosby, P. B. (1984). Quality without tears: The art of hassle-free management. New York: McGraw-Hill.

c) GOAL/QPC (1988). The memory jogger: A pocket guide of tools for continuous improvement. Methuen, MA: Author.

d) Scholtes, P. R. (1988). The team handbook. Madison, WI: Joiner Associates, Inc.

e) Walton, M. (1986). The Deming management method. New York: Putman Publishing Group.

f) Walton, M. (1990). Deming management at work. New York: G. P. Putman's Sons.

The following references are military specific:

a) Department of Defense (DOD). (1988). Total quality management master plan. Washington, DC: Author.

b) Department of Defense (DOD). (1990). ACTION EAGLE initial implementation plan. Scott Air Force Base, IL: Headquarters, Military Airlift Command.

c) Department of Defense (DOD). (1990). Total quality management guide: Vol. 1. (DOD Regulation 5000.51-G). Washington, DC: Author.

d) Department of Defense (DOD). (1990). Total quality management guide: Vol. 2. (DOD Regulation 5000.51-G). Washington, DC: Author.

e) Reagan, R. (1988). Executive order 12637: Productivity improvement program for the federal government. Federal Register, 53(83), 15349-15351.

The above references provide good information to aid in the development of a training program. Some books can be used as actual training manuals such as The Team Handbook and The Deming Management Method. All of the books should be part of the organization's TQM library and required reading for the executive committee and Quality Council.

Other training references include material received from other seminars and educational programs, guest speakers, and networking. The availability of training videos and films should also be researched. Recommended resources for videos include: Air Force Logistics Command, DSN 787-4679; The Hospital Corporation of America in Nashville, Tennessee, 1-800-251-2561; Films, Inc. in Chicago, Illinois, 1-800-323-4222; The Juran Institute in Wilton, Connecticut, (203) 834-1700; Philip Crosby Associates, Inc., in Winter Park, Florida, (407) 645-1733; the American Hospital

Association in Chicago, Illinois, (312) 280-5900; and The Federal Quality Institute in Arlington, Virginia, (703) 235-2930.

Other considerations. Implementing Total Quality Management at David Grant USAF Medical Center will be a costly and time consuming process. The majority of the expenses will be associated with training. In times of budget constraints and austere funding, federal agencies must meet the requirements of Executive Order 12637 in a cost-effective manner. The Commander and executive committee will have to closely examine the current financial status of the hospital and determine the availability of funds to be used for TQM implementation related expenses. The availability of funds will also determine the extent of involvement, if any, by an outside consultant. Consultants must be closely scrutinized and negotiated with to ensure they provide services in an economical manner. In order to limit training and consulting expenses, Commanders should consider using the "train the trainer" concept. In this manner, a select number of hospital employees are trained by a consultant and then train others in the work force. This method creates "in-house experts" capable of designing and delivering TQM courses that would otherwise require professional educators or consultants. If this method is employed at David Grant USAF Medical Center, training expenses would only be associated with less than 100 individuals as opposed to 1,500, a significant cost savings.

If a consultant is employed, the Commander should pursue the possibility of videotaping training sessions for future use. In addition, permission should be obtained to copy training manuals, videos, overhead slides, etc. used by the consultant to avoid copyright infringement. Copying would allow for an adequate supply of training materials for the remainder of the work force. In addition, copying would be less expensive than direct purchasing.

The training, whether performed by a consultant or in-house personnel, should be scheduled in a logical sequence beginning with top management. Developing a training plan should begin with the recognition of the various types of training required and the recommended sequence of events. In addition, the training should be scheduled in such a manner that all personnel receive training.

The importance of monitoring personnel training can not be overemphasized. Recognizing the large number of people employed at David Grant USAF Medical Center, the high turnover, the various types of training offered, and the various groups within the hospital supports the need for an effective tracking system. Planners should consider the use of a computerized tracking system to monitor all TQM related training.

Quality Measurement

Another key component of a TQM implementation strategy is the development of a quality measurement system. This system should

be established throughout the medical center and will require active participation by every department and employee. This measurement system is a method to institutionalize TQM and ensure its ongoing and long-term success. TQM is more than identifying problems and forming process improvement teams; it must become a way of life for all employees. It requires the participation of all employees on a daily basis. A mature TQM culture will be characterized by knowledgeable and trained workers who recognize the importance of measurement as a tool for continuous improvement and apply it routinely to their work. A quality measurement system will monitor performance and trends over time at both the organizational and departmental levels. Measurement is the tool that tells us if we are doing the "right things right." It is also a tool to ensure that a process does not regress to its prior level of performance. Measurement will also allow decision makers to identify where improvement is possible, to focus where corrective action is necessary, and to assess the impact of any changes. Variation in a process can be identified and corrective action, if appropriate, can be instituted and monitored.

Organizational Responsibilities

It is recommended that the Quality Council be responsible for the establishment of a quality measurement system at both the organizational and departmental levels. The Quality Council should identify several key quality indicators in order to manage

and evaluate the services provided by David Grant USAF Medical Center. These key quality indicators should directly tie into the mission statement, vision statement, quality definition, quality guidelines, and success statements. These indicators are standards by which the Commander and Quality Council can measure whether products or services meet or exceed customer requirements. Quality indicators can be designed to monitor areas such as access, appropriateness, cost, clinical outcomes, overall satisfaction (patient and employee), and timeliness. To determine the quantity and content of these key quality indicators will require much forethought by the members of the Quality Council. These indicators will serve as a tracking mechanism so that continuous process improvement can be undertaken. These indicators should be frequently monitored and briefed to the executive committee by the Quality Director on a monthly basis.

The Quality Council should also require the same type of system at the departmental level. Each department should be required to participate in the quality measurement system by identifying key quality indicators that provide accurate measures of quality. Each department should be required to maintain a "quality notebook" and submit their quality indicators as part of a quality report to the Quality Council on a monthly basis. Departmental key quality indicators should be forwarded to the respective department chief (three letter office symbol and member

of the executive committee) who will review all indicators and brief the Commander on a monthly basis during an executive committee meeting.

Departmental Responsibilities

Department heads will have several new responsibilities as a result of a quality measurement system. Their primary responsibility will be to ensure that all employees within their department are trained in statistical process control techniques in addition to a basic quality orientation. Measurement and the use of control charts will be ineffective if employees do not have an understanding of their purpose and role in the quality improvement process. Other responsibilities will include developing key quality indicators, creating control charts, displaying the control charts in the work center, maintaining a "quality notebook", and forwarding their quality indicators to their respective department chief on a monthly basis.

The selection of key quality indicators should be at the discretion of the department head, hopefully based on input from members of their work center. Deciding upon these key quality indicators would be an excellent opportunity to practice group process skills and it would reflect management's commitment to involve employees in the decision making process.

The key to developing accurate indicators is based on a thorough knowledge of the scope of service provided by the

department and identification of both internal and external customers. Recommended references to aid in the creation of quality indicators include the Health Services Management Inspection (HSMI) checklists, The Joint Commission on Accreditation of Healthcare Organizations' (JCAHO) Accreditation Manual for Hospitals, and any quality assurance (QA) guidelines.

Selection of the appropriate key quality indicators is critical to ensure that accurate measurements are being made in regards to quality, productivity, and customer satisfaction. The following are some examples of quality indicators:

- Time it takes to admit a patient
- Time it takes for a food tray to reach a patient
- Number of repeat X-rays
- Number of incomplete medical records
- Patient waiting times
- Number of medication errors, needle sticks, incident reports
- Number of laboratory tests ordered but not performed
- Turnaround time on laboratory tests
- Turnaround time in the operating room
- Number of patient complaints, Inspector General (IG) complaints

Obviously, there could be hundreds of indicators used in a facility the size of David Grant USAF Medical Center. The

challenge will be to select those indicators that provide the best measures of quality. The movement to a Total Quality Management orientation will hopefully refocus departments towards teamwork, statistical thinking, boundary spanning, a process and customer orientation, and management by facts rather than intuition.

Quality notebooks. In order to institutionalize and standardize the quality measurement program, it is recommended that each department maintain a "quality notebook" which may contain the following documents:

- DGMC mission statement
- DGMC vision statement
- DGMC quality definition
- DGMC quality guidelines
- Quality Council members (name/title/office symbol/telephone number)
- Deming's 14 points
- Medical center regulation on Total Quality Management
- Department quality improvement plan
- Department vision statement
- Department quality improvement goals
- Training schedule (list of all personnel and their training level)
- Training plans (used by department head and facilitator for department training)

- Key quality indicators (displayed on control charts)
- Other quality indicators (graphically displayed)
- Patient/Customer identification and satisfaction information (questionnaire analysis/complaints)
- Minutes (Quality Council/PIT team)
- Monthly quality reports
- Proposed quality improvement projects

It is recommended that the "quality notebook" system be similar to the current Management by Objectives (MBO) notebook system. All "quality notebooks" will be the responsibility of the department managed by the Quality Director.

Quality Improvement Projects

The real success of a quality improvement system will be based on the effectiveness of the process improvement teams to resolve quality problems. Normally, a problem will be identified to the Quality Council or a department head, who in turn, will form a team, if appropriate, to research and make recommendations on how to resolve the problem. Teams may be either inter- or intra-departmental, depending upon the nature of the quality improvement project. A trained and motivated PIT focused on a worthwhile project is a winning combination. PITs should have standardized operating procedures and the Quality Council should also have established criteria to use to evaluate potential quality improvement projects. The process improvement team is the

The Development of [illegible]
[illegible] Management [illegible]
David Grant USAF Medical Center
Travis Air Force Base, California

Captain Brian K. Witt, USAF, MSC
December 1991

"meat" of a quality improvement system, and the Quality Council and department heads should always be on the lookout for future PIT projects.

PIT Operating Procedures

PITs will function more effectively if there are standardized operating procedures. Even before a PIT can be formed, it must be chartered by the Quality Council. It is recommended that procedures be incorporated to streamline the approval process. A form entitled "Request to Form a PIT" could be used that identifies the problem and the process owner, makes recommendations regarding team composition, explains the potential benefits to be gained from resolving the problem, and has a section for the Quality Council to indicate their approval or disapproval along with a comments/recommendations section. The Quality Council should be the final approving authority on all intra-departmental quality improvement projects. This simple one page form would be returned to the process owner and a copy maintained by the Quality Council for tracking purposes. It is also recommended that PIT teams maintain minutes of their meetings and forward a copy to the Quality Council. This would allow the Quality Council to monitor the progress of all PIT teams. At the conclusion of a project, procedures should be incorporated to allow the PIT team to brief the Quality Council on their findings and recommendations. A final, written report should be submitted

to the Quality Council. Presentations at a public forum such as Commander's Call and the creation of a public display that describes the project should be considered. It will be the responsibility of the process owner to monitor the process to verify the effectiveness of the solution.

Project Selection Criteria

The Quality Council should have a way to decide what makes a good project for a process improvement team. Establishing project selection criteria will also allow them to justify their approvals and disapprovals. Berwick et al. (1990) recommends the following criteria:

- Avoid working on processes for which change is currently planned or already underway
- Choose processes that managers and employees believe need to be improved
- Choose processes that are already defined - ones with clear starting and ending points
- Choose processes that have short "cycle times," so that data are readily available and the effects of interventions easier to study (p. 57).

The chief executive officer of West Paces Ferry Hospital in Atlanta, Georgia applies four criteria before granting a PIT team the approval to investigate and improve a process. Walton (1990) lists the criteria as follows:

- The improvement had to support a set of hospital objectives determined by the surveys
- It had to be process related
- The improvement had to be measurable
- The team had to fill out a "blueprint" describing how the preceding three conditions had been satisfied and submit it to the Quality Improvement Council for review

The survey that is referred to in the first criteria is called the Hospital Quality Trend (HQT) system. There are four surveys that gathered information on patients, physicians, employees, and payers. The survey information is then used to develop goals for the hospital (Walton, 1990, p. 102).

Current and Future Projects

As of May 1991, David Grant USAF Medical Center had established four pilot process improvement teams. The teams were designed to research and resolve the following issues:

- Improving dining hall customer flow
- Improving surgical scheduling and utilization
- Streamlining quality assurance
- Expediting flying physicals

Preliminary results are promising and most teams are in the initial phases of problem definition or data collection.

As the TQM effort gets underway, the Quality Council and department heads should start identifying future PIT team projects. Future possibilities may include such issues as:

- Pharmacy operations and waiting times
- Delinquent inpatient medical records
- Advanced cardiac life support (ACLS) training
- Advanced trauma life support (ATLS) training
- Medical readiness training
- Internal and external patient referrals
- Timely laboratory reports
- Inprocessing of new personnel
- Involuntary separation of personnel
- Streamlining medical board procedures
- Patient access and waiting times
- Outpatient medical records filing system
- The appointment system
- Emergency room utilization
- Medical transcription turnaround time
- Improving communications within the medical center
- Resolving personnel shortages
- Integrating medical information systems

For more ideas regarding quality indicators, refer to Deming (1982) and his section entitled "Suggestions on study of performance in a hospital."

Obviously, this list is just the tip of the iceberg. As the organization and departments gain a better understanding of their customers, the scope of their responsibilities, and the philosophy and concepts of TQM; this list should expand substantially. Hopefully, the quality transformation at David Grant USAF Medical Center will be characterized by the active involvement of PIT teams and an awareness by all employees that quality improvement is a way of life.

The Quality Council and department heads should always be looking for the opportunity to improve a process. Employees and patients are excellent starting points for suggestions regarding potential quality improvement projects. Surveys, questionnaires, focus groups, suggestion programs, or simple management by wandering around (MBWA) are means to collect information. Meetings such as the executive committee or the Health Consumers Advisory Council are forums for identifying future projects. Department heads should constantly canvass their employees for suggestions at department meetings. Most importantly, quality should become a regular agenda item at all meetings.

Conclusions

It is imperative that DOD organizations, such as military medical treatment facilities, begin developing TQM implementation plans in order to meet the 1995 deadline imposed by Executive Order 12637. The adaptation of this new way of thinking will be a

major paradigm shift for the military health care culture and comprehensive planning is required. TQM planners at David Grant USAF Medical Center will be faced with two challenges: integrating TQM into both a health care and military culture.

The literature indicates that, over the past several years, TQM has gained widespread attention in the civilian health care industry. Several major hospitals, such as Chicago's Rush-Presbyterian-St. Luke Hospital, and health systems, such as the Hospital Corporation of America, have expounded on the benefits of Total Quality Management. The National Demonstration Project on Quality Improvement in Health Care also concluded that quality improvement tools can work in health care. In fact, quality improvement has gained so much attention in health care that the Joint Commission on the Accreditation of Healthcare Organizations has included the principles of quality improvement in their "Agenda for Change."

The Air Force health care system appears to be a neophyte in regards to applying the principles of Total Quality Management. For example, the literature only references three medical treatment facilities: the medical centers at Wright-Patterson and Scott Air Force Bases and the clinic at Zweibrucken Air Force Base. Recent emphasis by the Air Force Surgeon General and line officers such as General Hansford T. Johnson, Military Airlift Command Commander in Chief, have provided the impetus for local

hospital commanders to take action to implement Total Quality Management at their level.

The military culture will provide a formidable challenge for TQM planners. Common characteristics of the military system include frequent personnel turnover, little emphasis on innovation and risk taking, frequent inspections, and awarding contracts to the lowest bidder. All these examples violate the major tenets of TQM and emphasize the importance of developing comprehensive TQM implementation plans. Commanders must remember that the effective implementation of TQM into their organizational culture depends on the "three P's": planning, persistence, and patience.

Planning should begin with the development of a comprehensive TQM implementation plan. Recognizing the important components of this plan will require extensive research into the fundamentals of Total Quality Management. In order to assist Commanders and/or planners with developing a TQM plan, the acronym TEAMS was coined by this researcher which identifies all the major components of a TQM implementation plan. The letters stand for:

T - Training

E - Empowerment

A - Assessment

M - Measurement

S - Structure

This Graduate Management Project has addressed each of these

components and recommends that the Commander and Administrator of David Grant USAF Medical Center consider each one carefully before starting the TQM implementation process.

Training is obviously necessary before TQM can become a way of life at DGMC. Careful planning is needed in the areas of evaluating external and internal resources and developing staff and team training curriculums. The training should begin with top management and "cascade" down through the organization until everyone is trained. All personnel to include civilians, volunteers, contract, students, and Reserve and Guard personnel must be oriented and/or trained in the principles of quality improvement.

Empowerment is a basic fundamental of Total Quality Management. The basic concept is that managers will involve employees in the decision making process and give them the authority to seek new ways of doing business or improving a process. Managers must be willing to let employees work on their own ideas and objectives without feeling threatened.

Assessment is normally the first step in the TQM implementation process. An accurate assessment of both internal and external customers will pinpoint strengths and weaknesses in the organizational culture. The survey instrument used in this project, the Quality and Productivity Self-Assessment Guide for Defense Organizations, established a baseline and provided an

insight into the employee's perception of the organization and their individual work units. The survey should be repeated at a later date to assess the effectiveness of the TQM implementation.

Measurement is critical to a quality improvement program. It is a method to institutionalize TQM and ensure its long-term success. It is also a tool by which the organization and departments establish quality indicators to gauge their effectiveness in meeting or exceeding customer requirements.

Structure is the system that supports the entire quality improvement program. TQM would be impossible without an infrastructure to support it. This project identified 10 structural components that are necessary for the implementation of TQM at David Grant USAF Medical Center. Top management, the Quality Director, and the Quality Council will have oversight responsibility to ensure each step in the structural development process is followed.

The acronym itself refers to process improvement teams or PITs, a vital component of a Total Quality Management program. They allow individuals to work together to identify problems and use statistical tools to analyze and propose solutions. PITs can be formed within a department or across departmental boundaries. Training team members in a problem-solving methodology, basic

statistical tools, and group process techniques is mandatory. In addition, procedures should be implemented to provide guidance regarding forming PITs and selecting quality improvement projects. A list of future PIT team projects should always be maintained at both the organizational and departmental levels.

Once the plan has been developed, the Commander will realize that the implementation of TQM into a large organization is an often difficult and long-term process. Therefore, persistence and patience must become personal attributes of top management.

Currently, David Grant USAF Medical Center is proceeding with TQM implementation. Earlier this year, the decision was made to adopt this new philosophy at the medical center. As a result of this decision, a Quality Council was formed, an outside consultant was hired, and a vision statement was created. Training began in May 1991 with senior management, department heads, and facilitators. Further training is scheduled for July 1991. In addition, the medical center is preparing for its first "Quality Visit" from higher headquarters scheduled for 19 - 28 June 1991. Based on this information, it appears that TQM is quickly moving ahead at both the organizational and headquarters levels.

It is hoped that this Graduate Management Project will assist the Commander, senior staff, and the Quality Council of David Grant USAF Medical Center with the implementation of Total Quality Management. The steps and recommendations in this project are

provided in an effort to easily integrate quality improvement principles into David Grant USAF Medical Center and help the organization achieve the goals as outlined in its 1991 vision statement: "We will be the premier medical center in the Air Force, providing unsurpassed care and mission support which exceeds expectations of our patients, staff, and nation" (Gilmore, 1991, p. 5).

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Table 1

Total Guide and Climate Guide Survey Distribution

	Rank structure			
Category	Officer	Enlisted	Civilian	Total
Executive committee	10	0	0	10
Senior management	25	21	23	69
Middle management	26	25	25	76
Work force	0	24	25	49
Total	61	70	73	204
Response rate	82%	60%	75%	72%

Note. The Total Guide Survey was distributed to members of the executive committee only.

Table 2

Survey Sample Breakdown by Personnel Category

Personnel category	Sample size	% of total
Officers		
Medical corps	28	14.0
Nurse corps	15	7.0
Dental corps	6	3.0
Medical service corps	3	1.5
Biomedical science corps	8	4.0
Judge advocate general corps	1	0.5
Total	61	30.0
Enlisted	70	34.0
Civilian	73	36.0
Total	204	100.0

Table 3

Survey Sample Breakdown by Military Rank and Civilian Pay Grade

Rank / Pay grade	Sample size	% of total
Military		
Colonel (O6)	16	8.0
Lieutenant colonel (O5)	18	9.0
Major (O4)	7	3.0
Captain (O3)	14	7.0
First lieutenant (O2)	3	1.5
Second lieutenant (O1)	3	1.5
Chief master sergeant (E9)	4	2.0
Senior master sergeant (E8)	5	2.0
Master sergeant (E7)	12	6.0
Technical sergeant (E6)	5	2.0
Staff sergeant (E5)	8	4.0
Sergeant (E4)	12	6.0
Senior airman (E4)	2	1.0
Airman first class (E3)	16	8.0
Airman (E2)	6	3.0

(table continues)

Rank / Pay grade	Sample size	% of total
Civilian		
General manager 14	1	0.5
General manager 13	2	1.0
General schedule 12	2	1.0
General schedule 11	18	9.0
General schedule 9	2	1.0
General schedule 8	1	0.5
General schedule 7	6	3.0
General schedule 6	16	8.0
General schedule 5	7	3.0
General schedule 4	10	5.0
General schedule 3	1	0.5
Wage grade 8	2	1.0
Wage grade 6	1	0.5
Wage grade 4	3	1.5
Wage grade 3	1	0.5
Total	204	100.0

Table 4

Total Guide Survey Scores

Area	Target score	Mean	Standard deviation	95% Confidence interval
Processes (P)	2.0	2.13	1.08	1.92 - 2.34
Tools (T)	1.5	1.38	0.27	1.26 - 1.50
Outcomes (O)	3.5	4.25	0.63	3.99 - 4.51
PTO total	2.2	2.34	1.27	2.14 - 2.55

Note. The climate score is listed in Table 5.

Table 5

Climate Guide Survey Scores

Area	n	Target score	Mean	Standard deviation	95% Confidence interval
Exec committee	9	3.5	4.56	0.51	4.44 - 4.68
Senior mgmt					
Officer	22	3.5	4.54	0.47	4.43 - 4.65
Enlisted	15	3.5	4.78	0.36	4.69 - 4.86
Civilian	19	3.5	4.66	0.45	4.56 - 4.77
Middle mgmt					
Officer	19	3.5	4.13	0.48	4.02 - 4.24
Enlisted	16	3.5	4.57	0.39	4.48 - 4.66
Civilian	19	3.5	4.64	0.50	4.52 - 4.76
Work force					
Enlisted	11	3.5	3.86	0.50	3.74 - 3.98
Civilian	17	3.5	4.15	0.55	4.02 - 4.27

Table 6

1990 Patient Questionnaire Statistics

Department	Number of questionnaires	% of questions rated: Excellent	Adequate	Poor
Ambulatory svs[a]	3,961	73	22	5
Inpatient svs[b]	4,148	85	14	1
Dental svs[c]	842	79	19	2
Ancillary svs	1,327	81	15	4
Total	10,278			

[a] 1,220 favorable comments and 698 unfavorable comments

[b] 2,835 favorable comments and 189 unfavorable comments

[c] 673 favorable comments and 9 unfavorable comments

DEPARTMENT OF THE AIR FORCE
DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535-5300

REPLY TO
ATTN OF: SGAR

3 December 1990

SUBJECT: Total Quality Management Survey

TO:

1. You have been selected to complete the attached quality and productivity self-assessment survey. Your responses will provide valuable information regarding the current practices, policies, procedures and attitudes throughout David Grant USAF Medical Center as they relate to quality and productivity. This survey is an important part of my graduate research project and the results will assist me in designing a Total Quality Management implementation plan.

2. Although your name is on the survey, confidentiality will be maintained. Your name is required in order for me to score the survey and provide you with the results. Your scores and a reference booklet will be provided to you at a later date. In addition, the scores of all individuals completing this survey will be consolidated and briefed to the Executive Committee.

3. Request that you return the survey to SGA NLT Friday, 7 December 1990. I will be TDY during the week and have asked Col Chappelle's secretary to collect the surveys for me.

4. Conducting an organizational assessment is an important first step towards achieving Total Quality Management. Your cooperation is appreciated.

Brian K. Witt

BRIAN K. WITT, Captain, USAF, MSC
Administrative Resident

1 Atch
Quality & Productivity
Self-Assessment Survey

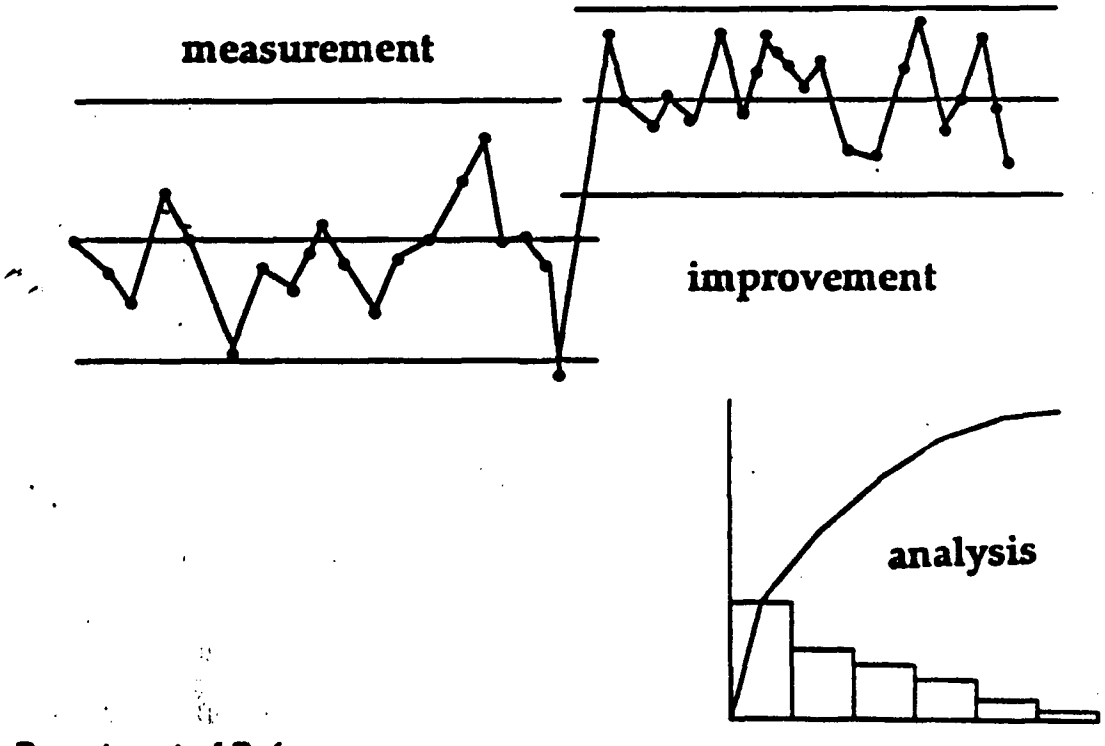
CONTENTS

Developed by General Research Corporation for the Defense Productivity Program Office under Contract No. MDA903-88-C-0267.

This guide is also available in an automated format for personal computers. For further information, contact your productivity principal or Mr. John Denslow, Project Officer (703) 756-2346.

QUALITY AND PRODUCTIVITY SELF-ASSESSMENT GUIDE FOR DEFENSE ORGANIZATIONS

TOTAL GUIDE - SURVEY
INCLUDES: DIRECTIONS AND QUESTIONS



Department of Defense
Washington, DC.

TOTAL GUIDE

Directions for Completing Self-Assessment Guide

Description

The guide has been designed for several purposes: (1) to provide you with an assessment of the current practices, policies, procedures and attitudes throughout your own organization as they relate to quality and/or productivity enhancement; (2) to give you the opportunity to assess the effects of any changes as they relate to quality and/or productivity enhancement through periodic re-use of the guide; (3) to stimulate your thinking about some of the tools/techniques which can be used for quality and productivity enhancement and help you discover areas where there may be opportunities for improvement.

The guide will ask questions concerning

climate:	peoples' perceptions about their organization and/or work units
processes:	the organization's or work unit's policies, practices and procedures
tools:	the specific techniques used to promote quality and/or productivity improvements throughout the organization or work units
outcomes:	mission accomplishment

There are two versions of the guide: climate and total. Each version has two booklets associated with it. One booklet, the survey booklet, contains questions. The other, the reference booklet, contains scoring instructions and suggestions that people are invited to read based on their scores.

This is the total version which is to be completed by a commander, director, manager, or a project officer with equivalent knowledge about your organization's policies, practices and procedures. In either case, some inputs regarding specific processes, tools and outcomes may need to be obtained from others within the organization before answers can be completed. If you have a specific person assigned to oversee a quality and/or productivity process you may wish to have this person complete this version. Scoring is presented in the total guide - reference booklet. Based on scores, the user is invited to review various suggestions contained in later pages of that booklet.

The climate version can be completed by all or a sample of organizational members. This version can be scored in 2 ways. The organizational member completing the guide can score it using the climate guide - reference booklet, and receive results based on his/her scores. If the climate scores are collected, they can be collectively grouped (consolidated). Grouping the scores can allow you to make comparisons of the climate scores between various sub-elements of your organization. Scoring for this

purpose is explained in the total guide - reference booklet. A word of caution with respect to interpretation of the consolidated climate scores. It is important to highlight here that, as with any survey of this type, participants must not feel threatened if useful, straight answers are to be obtained. The instructions for completion of the individual climate version have been prepared with this in mind. You may wish to reinforce those printed words (see first page of climate version) with your personal assurances.

Background

This guide has been developed as a service to DoD organizations by the Defense Productivity Program Office through a contract with General Research Corporation (Contract No. MDA903-88-C-0267). The guide has undergone 3 revisions as a result of testing at 55 DoD organizations including "headquarters", "administrative", "combat", and "industrial" organizations. The test results and evaluations of the guide indicate that it is applicable for all four types of organizations.

Procedure

- If used strictly as an awareness tool to stimulate thinking.

  1. Commanders, directors, managers, project officers should complete total survey and scoring in reference booklet.

  2. All organizational members should complete climate survey and scoring in reference booklet.

- If used as a diagnostic tool.

  1. Commanders, directors, managers, project officers should complete total survey and scoring in reference booklet.

  2. All or a sample of organizational members should complete climate survey and scoring in reference booklet.

  3. The reference booklets should be collected by a designated person who can then complete the consolidated scoring. Consolidated scoring is explained in the total guide - reference booklet.

In all cases, make sure that each individual has two booklets - a survey and a reference booklet.

Directions

As noted previously, the questions are divided into 4 groups: climate, processes, tools, and outcomes. Some of the questions ask people to consider the entire organization in their response and others ask people to think about their immediate work unit. These two terms need to be clearly defined prior to the use of this guide so that everyone completing the guides is referring to the "same" organization and work unit.

Please decide which "organization" and "work unit" you wish to examine and enter the names below. For example, you may be in charge of a squadron. The squadron may contain 3 branches. The branches, in turn, may be composed of several departments. Depending upon your interest, the squadron may be designated as the "organization", and 1 of the 3 branches as the "work unit". Or, if you prefer, 1 of the 3 branches could be designated as the "organization" and 1 of several departments as the "work unit".

Name of organization = _____

Work unit = _____

The name of the organization and work unit chosen should be entered in all of the climate guides prior to their distribution. This will ensure that everyone has the same reference point.

Another term which you will encounter is defined below.

Customer = may be anyone who receives the work that your work unit(s), or your organization, performs. Please note that customers can be another organization, another work unit, or any organizational member (including supervisors). The traditional notion of "customer" as someone outside your immediate organization or work unit that uses or buys your product or service can also apply. In all cases consider that your customer relies on and judges the quality of the work that you do.

CLIMATE

A list of statements will be presented. Use the scale in the box to indicate your answers. There are no right or wrong answers. Circle the number 1, 2, 3, 4, 5, or 6 that you feel best indicates your extent of agreement with the statement.

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

1. People in this organization are aware of its overall mission.	1	2	3	4	5	6
2. In general, this organization's customers believe that we care about what they think.	1	2	3	4	5	6
3. People in this organization are aware of how their jobs contribute to the organization's mission.	1	2	3	4	5	6
4. It's in everyone's best interests that this organization be successful.	1	2	3	4	5	6
5. People in this organization are aware of how the organization's mission contributes to higher level (Defense) (Army) (Navy) (USMC) (Air Force) (Agency) missions and national well-being.	1	2	3	4	5	6
6. In general, this organization's customers would not "go elsewhere" even if it were possible.	1	2	3	4	5	6

	1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree

People in this organization:

7.	try to plan ahead for changes (such as in policy) that might impact our mission performance.	1 2 3 4 5 6
8.	try to plan ahead for technological changes (such as new developments in computer software) that might impact our mission performance.	1 2 3 4 5 6
9.	regularly work together to plan for the future.	1 2 3 4 5 6
10.	see continuing improvement as essential.	1 2 3 4 5 6
11.	care about what will happen to the organization after they are reassigned.	1 2 3 4 5 6
12.	Creativity is actively encouraged in this organization.	1 2 3 4 5 6
13.	Innovators are the people who get ahead in this organization.	1 2 3 4 5 6
14.	The quality of our work is second only to mission accomplishment as the overriding focus of this organization.	1 2 3 4 5 6
15.	Every member of this organization is concerned with the need for quality.	1 2 3 4 5 6
16.	Continuous quality improvements within this organization can lead to more productive use of our resources.	1 2 3 4 5 6
17.	People in this organization know how to define the quality of what we do.	1 2 3 4 5 6
18.	Every member of this organization needs to contribute to quality improvement.	1 2 3 4 5 6

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

People in this organization:

19. live up to high ethical standards.	1	2	3	4	5	6
20. like to do a good job.	1	2	3	4	5	6
21. emphasize doing things right the first time.	1	2	3	4	5	6

The leader(s) in this organization (people at the highest level):

22. are committed to providing top quality services/products/work.	1	2	3	4	5	6
23. regularly review the quality of work produced.	1	2	3	4	5	6
24. ask people about ways to improve the work produced.	1	2	3	4	5	6
25. follow-up on suggestions for improvement.	1	2	3	4	5	6

The leader(s) in this organization (people at the highest level):

26. set examples of quality performance in their day to day activities.	1	2	3	4	5	6
27. regularly review the organization's progress toward meeting its goals and objectives.	1	2	3	4	5	6
28. attempt to find out why the organization may not be meeting a particular goal/objective.	1	2	3	4	5	6

---

	1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree

People in my work unit:

29. turn to their supervisors for advice about how to improve their work.	1 2 3 4 5 6
30. know that their supervisors will help them find answers to problems they may be having.	1 2 3 4 5 6
31. are challenged by their supervisors to find ways to improve the system.	1 2 3 4 5 6

The supervisors in my work unit:

32. make the continuous improvement of our work top priority.	1 2 3 4 5 6
33. regularly ask our customers about the quality of work they receive.	1 2 3 4 5 6

---

34. The structure of our organization makes it easy to focus on quality.	1 2 3 4 5 6
35. The way we do things in this organization is consistent with quality.	1 2 3 4 5 6

---

36. People in my work unit understand how a quality emphasis leads to more productive use of resources.	1 2 3 4 5 6
37. People in my work unit can describe the organization's quality and productivity policy.	1 2 3 4 5 6

---

	1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree

38. People in my work unit believe that quality and productivity improvement is their responsibility.	1 2 3 4 5 6
39. People in my work unit take pride in their work.	1 2 3 4 5 6
40. People in my work unit share responsibility for the success or failure of our services/products.	1 2 3 4 5 6
41. People in my work unit believe that their work is important to the success of the overall organization.	1 2 3 4 5 6

---

42. We have good relationships between departments in this organization.	1 2 3 4 5 6
43. Co-workers in this organization cooperate with each other to get the job done.	1 2 3 4 5 6
44. A spirit of cooperation and teamwork exists in this organization.	1 2 3 4 5 6
45. We have good relationships with other organizations that we work with.	1 2 3 4 5 6

---

46. Supervisors in my work unit request employee opinions and ideas.	1 2 3 4 5 6
47. People in my work unit are involved in improving our services/products/work.	1 2 3 4 5 6

---

	1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree
48. We have the appropriate personnel in my work unit to get the job done properly.	1 2 3 4 5 6
49. The work goals or standards in my work unit are generally fair.	1 2 3 4 5 6
50. The supervisors in my work unit do a good job of setting work expectations.	1 2 3 4 5 6
51. People in my work unit are friendly with one another.	1 2 3 4 5 6
52. People in my work unit enjoy their co-workers.	1 2 3 4 5 6
53. We have the right tools, equipment, and materials in my work unit to get the job done.	1 2 3 4 5 6
54. The materials and supplies we need in my work unit are delivered on time and as ordered.	1 2 3 4 5 6
55. The distribution of work among the people in my work unit is well balanced.	1 2 3 4 5 6
56. In my work unit, we have enough time to perform our jobs in a professional manner.	1 2 3 4 5 6
57. My work unit is structured properly to get the job done.	1 2 3 4 5 6

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

58. People in my work unit are rewarded for good work.	1 2 3 4 5 6
59. People in my work unit are paid fairly for the work that they do.	1 2 3 4 5 6
60. Attempts are made to promote the people in my work unit who do good work.	1 2 3 4 5 6
61. People in my work unit receive promotions because they earned them.	1 2 3 4 5 6
62. Supervisors in my work unit give credit to people when they do a good job.	1 2 3 4 5 6
63. There are penalties for people in my work unit who do not perform well.	1 2 3 4 5 6
64. There is quick recognition for people in my work unit for outstanding performance by an individual or team.	1 2 3 4 5 6
65. People in my work unit know who their customers are.	1 2 3 4 5 6
66. People in my work unit care about our customers.	1 2 3 4 5 6
67. There are effective communication channels between departments in this organization.	1 2 3 4 5 6
68. People in my work unit do not have to rely on "the grapevine" or rumors for information.	1 2 3 4 5 6
69. People in my work unit have ample opportunity to exchange information with their supervisors.	1 2 3 4 5 6
70. People in my work unit get the facts and the information they need to do a good job.	1 2 3 4 5 6

PROCESSES

The statements in the following sections are varied in format. In each case, you are asked to circle the response number to the right of each statement that most closely represents your organization.

This organization has:	Yes	No	Not Sure
71. used surveys of some/all of its members in order to determine whether improvements in quality and/or productivity are needed.	2	1	1
72. used formal interviews with some/all of its members in order to determine whether improvements in quality and/or productivity are needed.	2	1	1
73. informally asked some/all of its members for their opinions about whether improvements in quality and/or productivity are needed.	2	1	1
74. asked senior management for their opinions about whether improvements in quality and/or productivity are needed.	2	1	1
75. analyzed data concerning goal/objective accomplishment in order to determine whether improvements in quality and/or productivity are needed.	2	1	1
76. relied on "higher order" directives in order to determine whether improvements in quality and/or productivity are needed.	2	1	1
77. asked established "team" members to report periodically. (Teams are usually composed of volunteers who meet to discuss quality and/or productivity concerns.)	2	1	1

This organization is (or might become) committed to quality and/or productivity improvement because:		Yes	No	Not Sure
78.	we are mandated to do so by a higher authority.	2	1	1
79.	the people at the top level of this organization are/were dissatisfied with the quality and/or productivity being achieved.	2	1	1
80.	we want to improve an already acceptable quality and/or productivity record.	2	1	1
81.	we want to maintain a specified level of service in the face of budget reductions.	2	1	1
82.	the people we serve deserve our best efforts.	2	1	1

This organization has a quality and/or productivity improvement policy that:		Yes	No	Don't Have Policy
83.	is written.	2	1	1
84.	has specific goals and objectives.	2	1	1
85.	everyone in the organization has seen.	2	1	1
86.	is taken seriously by people.	2	1	1
87.	holds people accountable for success/failure.	2	1	1

		Yes	No	Does Not Apply
Responsibility for quality and/or productivity performance improvement:				
88.	is accepted by senior management.	2	1	1
89.	is accepted by middle management.	2	1	1
90.	is accepted by almost all organizational members.	2	1	1
91.	This organization has a separately identified unit or office which oversees its quality and/or productivity improvement process.	2	1	1
92.	Quality and/or productivity improvement concerns are discussed/monitored at least on a quarterly basis.	2	1	1
93.	Managers at all levels have clearly defined roles in our quality and/or productivity improvement process.	2	1	1
94.	This organization uses "teams" to monitor quality and/or productivity improvement projects. (Teams are usually composed of volunteers who meet to solve problems.)	2	1	1
95.	Managers at all levels are responsible for the success or failure of our quality and/or productivity improvement efforts.	2	1	1
96.	This organization has a data base or tracking system for relevant quality and/or productivity improvement information.	2	1	1

	Yes	No	Not Sure
In order to determine what our customers think about our products/services/work we:			
97. conduct surveys on a regular basis.	2	1	1
98. ask them informally.	2	1	1
99. monitor complaints.	2	1	1
100. ask our employees who have contact with our customers.	2	1	1

	Yes	No	Not Sure
The leaders at the top-level in this organization:			
101. have agreed upon a definition of quality and/or productivity improvement.	2	1	1
102. have set long-term goals concerning quality and/or productivity improvement.	2	1	1
103. have set short-term objectives concerning quality and/or productivity improvement.	2	1	1
104. have defined performance measures to monitor progress toward reaching objectives and goals.	2	1	1

1. almost none
2. very few
3. some
4. quite a few
5. most
6. almost all

How many work units within this organization:

105.	know how the organization defines quality and/or productivity improvement?	1	2	3	4	5	6
106.	have set long-term goals concerning quality and/or productivity improvement?	1	2	3	4	5	6
107.	have set short-term objectives concerning quality and/or productivity improvement?	1	2	3	4	5	6
108.	have defined performance measures to monitor progress toward reaching their objectives and goals?	1	2	3	4	5	6

How many organizational members:

109.	can specify, if asked, what goals or objectives they are working toward?	1	2	3	4	5	6
110.	were invited to participate in setting goals or objectives related to their work?	1	2	3	4	5	6
111.	know how the goals/objectives they are working toward relate to their work unit's mission?	1	2	3	4	5	6
112.	know how performance measures relate to monitoring their accomplishment of goals and objectives?	1	2	3	4	5	6

	Yes	No	Not Sure
Long-range planning in this organization includes:			
113. integration of quality and/or productivity improvement planning into general business planning.	2	1	1
114. prioritizing quality and/or productivity improvement issues.	2	1	1
115. customer input.	2	1	1
116. employee input.	2	1	1
117. quality and/or productivity improvement implementation strategies for all work units.	2	1	1
118. a means for monitoring quality and/or productivity improvement effectiveness over time.	2	1	1

	Yes	No	Not Sure
In terms of setting organizational improvement priorities, we have considered or evaluated:			
119. changing our business strategy.	2	1	1
120. improving our work methods or procedures.	2	1	1
121. bettering our employee utilization.	2	1	1
122. revising or instituting training programs.	2	1	1
123. acquiring recent technological improvements (equipment, materials).	2	1	1

		1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree
124.	The structure of this organization supports its efforts to carry out its mission.	1 2 3 4 5 6
125.	Organizational members have the information they need to do their work.	1 2 3 4 5 6
126.	This organization has a realistic schedule for replacing outdated equipment.	1 2 3 4 5 6
127.	Organizational members have been adequately trained to use the equipment they have.	1 2 3 4 5 6
128.	Before equipment is bought by or issued to this organization, plans have been made concerning how it will be used and who will use it.	1 2 3 4 5 6
129.	Efforts are made to update work methods in this organization (e.g., the way work is organized and the tools or materials used to accomplish it).	1 2 3 4 5 6
130.	People in charge of similar work units frequently share information about their work methods and practices.	1 2 3 4 5 6
131.	Updating work methods can be key to quality and productivity improvement.	1 2 3 4 5 6

Organizational members with good ideas are likely to:

132.	formally submit them through a suggestion system.	1 2 3 4 5 6
133.	tell their supervisors.	1 2 3 4 5 6
134.	be asked periodically what they think.	1 2 3 4 5 6

		Yes	No	Not Sure
135.	This organization has a suggestion program(s).	2	1	1
136.	This organization has conducted "brainstorming" sessions that included lower level organizational members.	2	1	1
137.	This organization has used teams to gather information or solve problems. (Teams are groups of organizational members who come together to work on a task.)	2	1	1

---

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

138.	Creative thinking is rewarded in this organization.	1	2	3	4	5	6
139.	Taking risks is rewarded in this organization.	1	2	3	4	5	6
140.	Managers at all levels have the authority to try a promising new approach.	1	2	3	4	5	6
141.	A promising new approach is likely to be approved quickly for a trial.	1	2	3	4	5	6
142.	The future strength of this organization is dependent on the continuing growth of its members through appropriate training.	1	2	3	4	5	6

143. Circle one response number next to the statement that best represents your organization.

Most non-supervisory members have direct input in setting goals or expectations for their work.	6
Most non-supervisory members have indirect input through representatives in setting goals or expectations for their work.	4
Most non-supervisory members can negotiate with management after they are assigned goals or expectations for their work.	3
Most non-supervisory members have no input about goals or expectations for their work.	1

144. Circle one response number next to the statement that best represents your organization.

Most organizational members attend mandatory in-house training programs to learn about quality and/or productivity improvement techniques.	6
Most organizational members attend in-house training programs on a voluntary basis to learn about quality and/or productivity improvement techniques.	5
Most organizational members attend outside seminars to learn about quality and/or productivity improvement techniques.	4
Most organizational members review resources (books, tapes) that are available in-house to learn about quality and/or productivity improvement techniques.	3
None of the above.	1

	Yes	No	Not Sure
In order to tell how well we are doing as an organization, we monitor data about:			
145. our efficiency.	2	1	1
146. our effectiveness.	2	1	1
147. our productivity.	2	1	1
148. the quality of our services/products/work.	2	1	1
149. the timeliness of our work.	2	1	1
150. our innovativeness.	2	1	1
151. the quality of working life for our members.	2	1	1
152. our finances.	2	1	1

	Yes	No	Don't Collect Data
The performance data that this organization collects:			
153. are tracked over time.	2	1	1
154. are compared with goals, standards, or objectives.	2	1	1
155. are compared with other similar organizations.	2	1	1

The performance data that this organization collects:			
156. are evaluated at least quarterly.	2	1	1
157. are used to identify problems/barriers.	2	1	1
158. are evaluated by a team or task force.	2	1	1
159. are used to identify opportunities for quality and/or productivity improvement.	2	1	1

	Yes	No	Not Sure
160. Organizational members are informed about how their work unit stands in relation to goals, objectives, or standards.	2	1	1

	Yes	No	Not Sure
Top-performing managers at all levels in this organization:			
161. can expect a monetary bonus or award.	2	1	1
162. can expect an award.	2	1	1
163. can expect to be recognized by leaders at the top level.	2	1	1
164. can expect to be told they are doing a great job.	2	1	1
165. can expect increased responsibility.	2	1	1
Top-performing organizational members:			
166. can expect a monetary bonus or award.	2	1	1
167. can expect an award.	2	1	1
168. can expect to be recognized by leaders at the top level.	2	1	1
169. can expect to be told they are doing a great job.	2	1	1
170. can expect increased responsibility.	2	1	1
171. The performance appraisals of managers at all levels include quality and/or productivity improvement criteria.	2	1	1
172. The performance appraisals of organizational members include quality and/or productivity improvement criteria.	2	1	1

TOOLS INVENTORY

		Yes	No	Not Sure
This organization has:				
173.	used surveys to assess employee opinions about the organization's practices or policies.	2	1	1
174.	used surveys to gather information about "where" and "what" in the organization needs improving.	2	1	1
175.	used surveys to assess the outcomes of its work.	2	1	1
176.	used surveys to assess the quality of its work.	2	1	1
177.	used surveys to assess employee opinions about the goals/objectives they are working toward.	2	1	1
This organization has:				
178.	called groups of individuals together to define or clarify the organization's mission and or work unit missions.	2	1	1
179.	called groups of individuals together to define long-term organizational level goals and/or long-term work unit level goals.	2	1	1
180.	called groups of individuals together to define short-term organizational objectives and/or short-term work unit objectives.	2	1	1
181.	called groups of individuals together to identify obstacles to goal/objective accomplishment.	2	1	1
182.	called groups of individuals together to define performance measures to track progress toward goal attainment.	2	1	1

		Yes	No	Not Sure
183.	This organization uses charts or graphs to track data over time. (example: statistical process control)	2	1	1
184.	This organization uses diagrams or flow charts to highlight potential causes of problems. (example: fishbone diagram - Pareto chart)	2	1	1
185.	This organization has evaluated its office and work space design.	2	1	1
186.	This organization has a quality and/or productivity resource library.	2	1	1
187.	This organization has arranged workshops to promote quality and/or productivity awareness among its members.	2	1	1
188.	This organization has published newsletters containing quality and/or productivity improvement information.	2	1	1
189.	This organization has posted information on bulletin boards about quality and/or productivity improvement.	2	1	1
190.	This organization has held contests to reward the "most improved" work units.	2	1	1
191.	This organization has attempted to inform and involve everyone in quality and/or productivity improvement.	2	1	1
192.	This organization has used team building (techniques to improve group member relationships).	2	1	1
193.	This organization has established quality improvement teams (groups of individuals who come together to solve quality-related problems).	2	1	1

ORGANIZATIONAL OUTCOMES

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

194.	Work delays are uncommon in this organization.	1	2	3	4	5	6
195.	Once a job or project gets started, it's usually finished without undue delay.	1	2	3	4	5	6
196.	There is little wastage of materials and supplies.	1	2	3	4	5	6
197.	People make efforts to reuse or salvage excess materials and supplies whenever possible.	1	2	3	4	5	6
198.	Tools and and/or equipment are maintained and operated at peak efficiency.	1	2	3	4	5	6
199.	Our tools and/or equipment rarely require repair.	1	2	3	4	5	6
200.	This organization has sufficient personnel to accomplish its mission.	1	2	3	4	5	6
201.	The turnover rate is low (for civilians).	1	2	3	4	5	6
202.	Working conditions (noise, heat, light, dirt) in this organization are excellent.	1	2	3	4	5	6
203.	Work facilities (bathrooms, cafeterias, conference rooms, etc.) are excellent.	1	2	3	4	5	6

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

204.	Organizational members are well trained.	1 2 3 4 5 6
205.	Organizational members receive the guidance and assistance they need to accomplish their work.	1 2 3 4 5 6
206.	This organization's materials and supplies are well accounted for without unexplained losses.	1 2 3 4 5 6
207.	This organization's materials and supplies meet quality specifications.	1 2 3 4 5 6

Organizational members rarely need to:

208.	shift work priorities in order to get jobs done.	1 2 3 4 5 6
209.	re-do a job or task.	1 2 3 4 5 6

The organization's customers:

210.	are satisfied with the quality of our work.	1 2 3 4 5 6
211.	seldom complain.	1 2 3 4 5 6

The organization's customers:

212.	are satisfied with the quantity of our work.	1 2 3 4 5 6
213.	are satisfied with the timeliness of our work.	1 2 3 4 5 6

The organization's customers:

214.	find minimal errors in our work.	1 2 3 4 5 6
215.	find our work consistent.	1 2 3 4 5 6

DEPARTMENT OF THE AIR FORCE
DAVID GRANT USAF MEDICAL CENTER (MAC)
TRAVIS AIR FORCE BASE, CALIFORNIA 94535-5300

REPLY TO
ATTN OF: SGAR (Capt Witt)

24 January 1991

SUBJECT: Total Quality Management Survey

TO:

1. You have been selected to complete the attached Quality and Productivity Self-Assessment Survey. Your responses will provide valuable information regarding the current practices, policies, procedures and attitudes throughout David Grant USAF Medical Center as they relate to quality and productivity. While this survey is part of a graduate research project, its primary purpose is to assist myself and the Executive Committee in designing a Total Quality Management implementation plan.

2. All surveys will be anonymous. The only information needed on front of the survey is your rank. Additionally, officers will indicate their corps (MC, DC, NC, BSC, or MSC) and civilian employees will fill in their pay grade only.

3. All cover letters have been numbered for administrative purposes only. After you have completed the survey and sent it to the appropriate office using the attached pre-addressed envelope, please sign the statement at the bottom of this letter and send it to SGAR using the other attached pre-addressed envelope. This will prevent you from receiving a reminder notice in a few days.

4. Request that you return the survey to SGAR NLT Friday, 1 February 1991. Questions pertaining to this survey should be directed to Captain Witt/SGAR at extension 7485 or 7837.

4. Conducting an organizational assessment is an important first step towards implementing Total Quality Management. Your responses are very important, please take a few minutes to complete the survey. Your cooperation is appreciated.

ROBERT W. GILMORE, Colonel, USAF, MC
Commander

3 Atchs
1. 70 Question Survey
2. SGAR Envelope (survey)
3. SGAR Envelope (cover ltr)

I have completed the Quality and Productivity Self-Assessment survey and sent it to SGAR on _____ (date).

_____
Signature

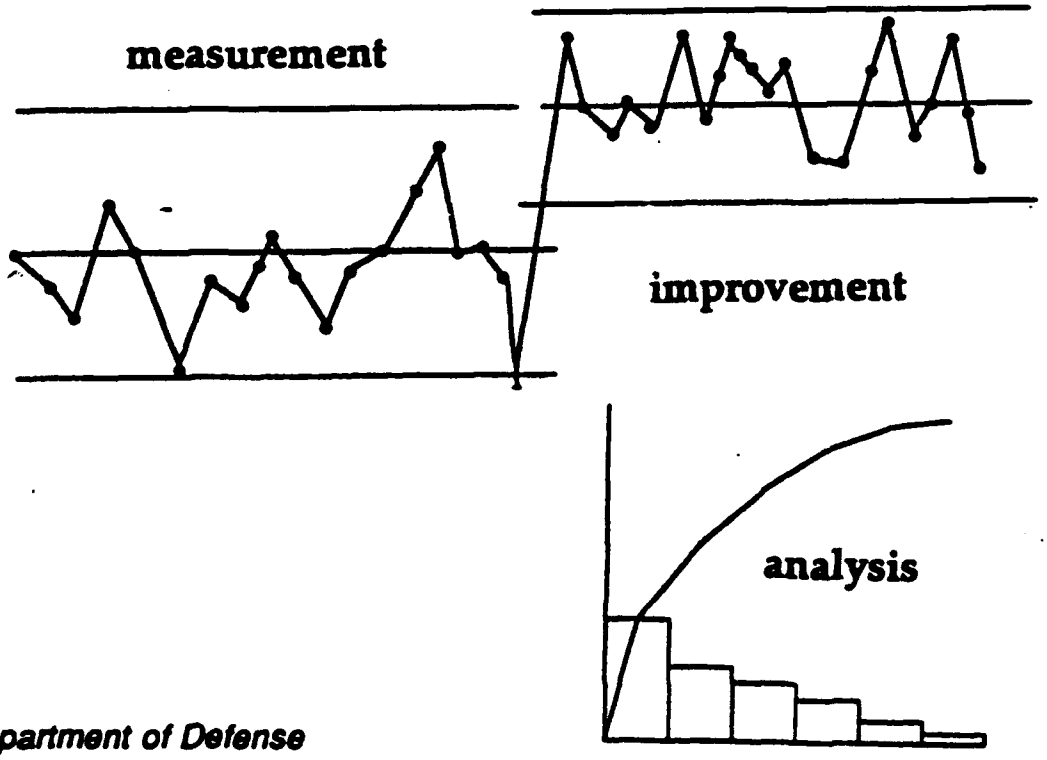
RANK _____

CORPS _____

PAY GRADE _____

QUALITY AND PRODUCTIVITY SELF-ASSESSMENT GUIDE FOR DEFENSE ORGANIZATIONS

CLIMATE GUIDE - SURVEY
INCLUDES: DIRECTIONS AND QUESTIONS



Department of Defense
Washington, DC.

CONTENTS

Developed by General Research Corporation for the Defense Productivity Program Office under Contract No. MDA903-88-C-0267.

This guide is also available in an automated format for personal computers. For further information, contact your productivity principal or Mr. John Denslow, Project Officer (703) 756-2346.

CLIMATE GUIDE

Directions for Completing Self-Assessment Guide

Purpose

This guide is intended to help stimulate thinking about the climate for quality and productivity within your organization. If you aren't sure exactly what the terms quality and productivity mean, completing the questions and later reviewing some of the accompanying explanations/suggestions should give you some ideas.

Your guide can be scored in 2 ways. First, you will be asked to score your own answers and then invited to read various explanations/suggestions depending upon your scores. If you are asked to return your scores, they may be grouped together with those of your co-workers. No one will know how you responded as an individual, but by looking at "averages", both you (when you get feedback) and your leaders may be helped in finding ways to make it easier to get the job done.

Directions

Complete the questions beginning on page 1 of this booklet. Then, complete the scoring section which begins on page 1 of the companion reference booklet.

Some of the questions ask people to consider the entire organization in their response and others ask people to think about their immediate department or work unit. Please consider the following as your "organization" and "work unit" as you complete the guide.

Name of organization = _____

Work unit = _____

If the above blanks have not been filled in, please check for this information and complete it prior to answering the survey questions.

Another term which you will encounter is defined below.

Customer = may be anyone who receives the work that your work unit(s), or your organization, performs. Please note that customers can be another organization, another work unit, or any organizational member (including supervisors). The traditional notion of "customer" as someone outside your immediate organization or work unit that uses or buys your product or service can also apply. In all cases consider that your customer relies on and judges the quality of the work that you do.

CLIMATE

A list of statements will be presented. Use the scale in the box to indicate your answers. There are no right or wrong answers. Circle the number 1, 2, 3, 4, 5, or 6 that you feel best indicates your extent of agreement with the statement.

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

1.	People in this organization are aware of its overall mission.	1 2 3 4 5 6
2.	In general, this organization's customers believe that we care about what they think.	1 2 3 4 5 6
3.	People in this organization are aware of how their jobs contribute to the organization's mission.	1 2 3 4 5 6
4.	It's in everyone's best interests that this organization be successful.	1 2 3 4 5 6
5.	People in this organization are aware of how the organization's mission contributes to higher level (Defense) (Army) (Navy) (USMC) (Air Force) (Agency) missions and national well-being.	1 2 3 4 5 6
6.	In general, this organization's customers would not "go elsewhere" even if it were possible.	1 2 3 4 5 6

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

People in this organization:

7. try to plan ahead for changes (such as in policy) that might impact our mission performance.	1	2	3	4	5	6
8. try to plan ahead for technological changes (such as new developments in computer software) that might impact our mission performance.	1	2	3	4	5	6
9. regularly work together to plan for the future.	1	2	3	4	5	6
10. see continuing improvement as essential.	1	2	3	4	5	6
11. care about what will happen to the organization after they are reassigned.	1	2	3	4	5	6
12. Creativity is actively encouraged in this organization.	1	2	3	4	5	6
13. Innovators are the people who get ahead in this organization.	1	2	3	4	5	6
14. The quality of our work is second only to mission accomplishment as the overriding focus of this organization.	1	2	3	4	5	6
15. Every member of this organization is concerned with the need for quality.	1	2	3	4	5	6
16. Continuous quality improvements within this organization can lead to more productive use of our resources.	1	2	3	4	5	6
17. People in this organization know how to define the quality of what we do.	1	2	3	4	5	6
18. Every member of this organization needs to contribute to quality improvement.	1	2	3	4	5	6

1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

People in this organization:

19. live up to high ethical standards.	1	2	3	4	5	6
20. like to do a good job.	1	2	3	4	5	6
21. emphasize doing things right the first time.	1	2	3	4	5	6

The leader(s) in this organization (people at the highest level):

22. are committed to providing top quality services/products/work.	1	2	3	4	5	6
23. regularly review the quality of work produced.	1	2	3	4	5	6
24. ask people about ways to improve the work produced.	1	2	3	4	5	6
25. follow-up on suggestions for improvement.	1	2	3	4	5	6

The leader(s) in this organization (people at the highest level):

26. set examples of quality performance in their day to day activities.	1	2	3	4	5	6
27. regularly review the organization's progress toward meeting its goals and objectives.	1	2	3	4	5	6
28. attempt to find out why the organization may not be meeting a particular goal/objective.	1	2	3	4	5	6

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1. strongly disagree 2. disagree 3. somewhat disagree 4. somewhat agree 5. agree 6. strongly agree

People in my work unit:

29. turn to their supervisors for advice about how to improve their work.	1 2 3 4 5 6
30. know that their supervisors will help them find answers to problems they may be having.	1 2 3 4 5 6
31. are challenged by their supervisors to find ways to improve the system.	1 2 3 4 5 6

The supervisors in my work unit:

32. make the continuous improvement of our work top priority.	1 2 3 4 5 6
33. regularly ask our customers about the quality of work they receive.	1 2 3 4 5 6

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34. The structure of our organization makes it easy to focus on quality.	1 2 3 4 5 6
35. The way we do things in this organization is consistent with quality.	1 2 3 4 5 6

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36. People in my work unit understand how a quality emphasis leads to more productive use of resources.	1 2 3 4 5 6
37. People in my work unit can describe the organization's quality and productivity policy.	1 2 3 4 5 6

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1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

38. People in my work unit believe that quality and productivity improvement is their responsibility.	1	2	3	4	5	6
39. People in my work unit take pride in their work.	1	2	3	4	5	6
40. People in my work unit share responsibility for the success or failure of our services/products.	1	2	3	4	5	6
41. People in my work unit believe that their work is important to the success of the overall organization.	1	2	3	4	5	6

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42. We have good relationships between departments in this organization.	1	2	3	4	5	6
43. Co-workers in this organization cooperate with each other to get the job done.	1	2	3	4	5	6
44. A spirit of cooperation and teamwork exists in this organization.	1	2	3	4	5	6
45. We have good relationships with other organizations that we work with.	1	2	3	4	5	6

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46. Supervisors in my work unit request employee opinions and ideas.	1	2	3	4	5	6
47. People in my work unit are involved in improving our services/products/work.	1	2	3	4	5	6

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1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

48. We have the appropriate personnel in my work unit to get the job done properly.	1	2	3	4	5	6
49. The work goals or standards in my work unit are generally fair.	1	2	3	4	5	6
50. The supervisors in my work unit do a good job of setting work expectations.	1	2	3	4	5	6

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51. People in my work unit are friendly with one another.	1	2	3	4	5	6
52. People in my work unit enjoy their co-workers.	1	2	3	4	5	6

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53. We have the right tools, equipment, and materials in my work unit to get the job done.	1	2	3	4	5	6
54. The materials and supplies we need in my work unit are delivered on time and as ordered.	1	2	3	4	5	6
55. The distribution of work among the people in my work unit is well balanced.	1	2	3	4	5	6
56. In my work unit, we have enough time to perform our jobs in a professional manner.	1	2	3	4	5	6
57. My work unit is structured properly to get the job done.	1	2	3	4	5	6

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1. strongly disagree
2. disagree
3. somewhat disagree
4. somewhat agree
5. agree
6. strongly agree

58. People in my work unit are rewarded for good work.	1	2	3	4	5	6
59. People in my work unit are paid fairly for the work that they do.	1	2	3	4	5	6
60. Attempts are made to promote the people in my work unit who do good work.	1	2	3	4	5	6
61. People in my work unit receive promotions because they earned them.	1	2	3	4	5	6
62. Supervisors in my work unit give credit to people when they do a good job.	1	2	3	4	5	6
63. There are penalties for people in my work unit who do not perform well.	1	2	3	4	5	6
64. There is quick recognition for people in my work unit for outstanding performance by an individual or team.	1	2	3	4	5	6

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65. People in my work unit know who their customers are.	1	2	3	4	5	6
66. People in my work unit care about our customers.	1	2	3	4	5	6

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67. There are effective communication channels between departments in this organization.	1	2	3	4	5	6
68. People in my work unit do not have to rely on "the grapevine" or rumors for information.	1	2	3	4	5	6
69. People in my work unit have ample opportunity to exchange information with their supervisors.	1	2	3	4	5	6
70. People in my work unit get the facts and the information they need to do a good job.	1	2	3	4	5	6

Consolidated Processes Tools and Outcomes (PTO) Scores

Next to each category, if any score is lower than or equal to the target score, you may want to review the actions/suggestions on the second disk (PTO2).

Area Categories Subcategories	Target Score	Mean	Standard Deviation	95% Confidence Interval	
(1) Diagnosis	1.5	1.62	0.20	1.47	1.76
(2) Diagnosis	1.5	1.64	0.31	1.37	1.92
(1) Productivity/Quality Emphasis	1.7	1.38	0.21	1.20	1.56
(2) Productivity/Quality Emphasis	1.6	1.57	0.30	1.37	1.77
Customer/Service Activities	1.6	1.69	0.20	1.50	1.89
(1) Definition	1.6	1.33	0.08	1.26	1.41
(2) Definition	3.5	3.00	0.11	2.89	3.11
(3) Definition	3.5	2.94	0.25	2.69	3.19
(1) Planning	1.5	1.56	0.28	1.33	1.78
(2) Planning	1.5	1.60	0.17	1.45	1.75
IMPROVEMENT ACTIVITIES	1.8	1.77	0.57	1.62	1.92
Organizational Streamlining	3.5	4.72	0.06	4.65	4.80
Investment/Appropriate Technology	3.5	4.81	0.05	4.76	4.87
Methods/Process Improvement	3.5	4.59	0.38	4.17	5.02
(1) People-Oriented	3.5	4.15	0.38	3.72	4.58
(2) People-Oriented	1.4	1.67	0.24	1.40	1.94
(3) People-Oriented	3.5	3.44	0.82	2.84	4.05
ENHANCEMENT APPROACHES	3.2	3.77	1.14	3.28	4.26
Measurement	1.5	1.64	0.30	1.43	1.85
(1) Feedback	1.4	1.96	0.05	1.90	2.02
Evaluation	1.5	1.72	0.24	1.48	1.96
(2) Feedback	1.0	1.11	0.00	1.11	1.11
(1) Reward Systems	1.5	1.44	0.34	1.24	1.65
(2) Reward Systems	1.5	1.33	0.00	1.33	1.33
SUSTAINMENT	1.5	1.58	0.34	1.45	1.70
PROCESSES	**2.0**	**2.13**	**1.08**	**1.92**	**2.34**
Assessments	1.3	1.31	0.19	1.14	1.48
ASSESSMENTS	1.3	1.31	0.19	1.14	1.48
Definition	1.5	1.58	0.08	1.50	1.65
DEFINITION	1.5	1.58	0.08	1.50	1.65
Measurement/Process Analysis	1.5	1.74	0.23	1.48	2.00
MEASUREMENT/PROCESS ANALYSIS	1.5	1.74	0.23	1.48	2.00
Awareness/Communication	1.5	1.09	0.08	1.02	1.16

AWARENESS/COMMUNICATION	1.5	1.09	0.08	1.02	1.16
Organizational Development	1.5	1.30	0.19	1.08	1.51
ORGANIZATIONAL DEVELOPMENT	1.5	1.30	0.19	1.08	1.51
TOOLS	**1.5**	**1.38**	**0.27**	**1.26**	**1.50**
Work Flow/Delays	3.5	3.78	0.00	3.78	3.78
WORK FLOW/DELAYS	3.5	3.78	0.00	3.78	3.78
Waste	3.5	3.89	0.00	3.89	3.89
WASTE	3.5	3.89	0.00	3.89	3.89
Tools/Equipment	3.5	4.22	0.11	4.07	4.38
TOOLS/EQUIPMENT	3.5	4.22	0.11	4.07	4.38
Staffing	3.5	3.61	0.61	2.76	4.46
STAFFING	3.5	3.61	0.61	2.76	4.46
Facilities	3.5	5.44	0.00	5.44	5.44
FACILITIES	3.5	5.44	0.00	5.44	5.44
Training	3.5	4.56	0.22	4.25	4.86
TRAINING	3.5	4.56	0.22	4.25	4.86
Supplies/Parts	3.5	4.61	0.06	4.53	4.69
SUPPLIES/PARTS	3.5	4.61	0.06	4.53	4.69
Organization/Group Structure	3.5	3.33	0.33	2.87	3.80
ORGANIZATION/GROUP STRUCTURE	3.5	3.33	0.33	2.87	3.80
Quality	3.5	4.50	0.17	4.27	4.73
QUALITY	3.5	4.50	0.17	4.27	4.73
Quantity	3.5	3.94	0.06	3.87	4.02
QUANTITY	3.5	3.94	0.06	3.87	4.02
Reliability	3.5	4.83	0.06	4.76	4.91
RELIABILITY	3.5	4.83	0.06	4.76	4.91
OUTCOMES	**3.5**	**4.25**	**0.63**	**3.99**	**4.51**

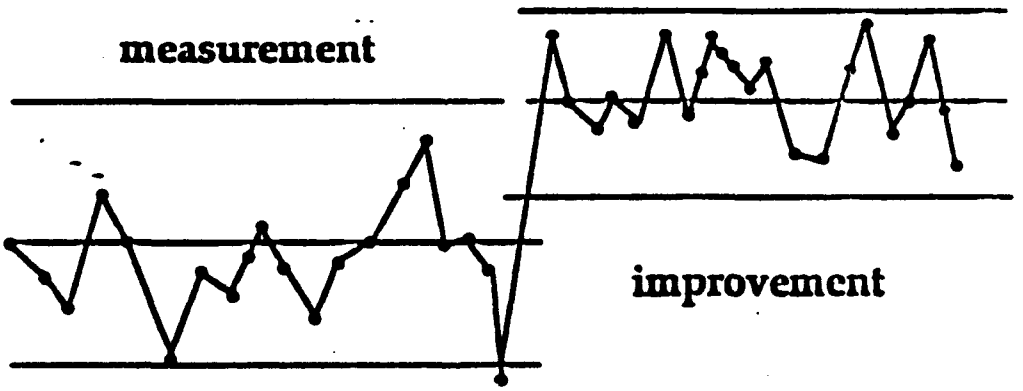
PTO Total	2.2	2.34	1.27	2.14	2.55

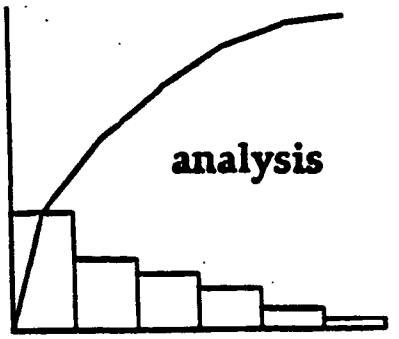
Number of Questionnaires: 9 As of: 04/12/91

Executive Committee

QUALITY AND PRODUCTIVITY SELF-ASSESSMENT GUIDE FOR DEFENSE ORGANIZATIONS

TOTAL GUIDE - REFERENCE
INCLUDES: SCORING, ACTIONS AND SUGGESTIONS





Department of Defense
Washington, DC.

PROCESSES SCORES

Copy the result for each category to the spaces below. After you have placed your scores in the appropriate spaces, please refer to the adjacent column for score interpretation. Next to each category, if your score is lower than or equal to the target score, you may want to review the actions/suggestions on the page listed next to the target.

Category	Your Score	Target Score	Page Number
(1) Diagnosis	____	1.50	42
(2) Diagnosis	____	1.50	43
(1) Productivity/Quality Emphasis	____	1.70	44
(2) Productivity/Quality Emphasis	____	1.55	45
Customer/Service Activities	____	1.60	46
(1) Definition	____	1.60	47
(2) Definition	____	3.50	51
(3) Definition	____	3.50	52
(1) Planning	____	1.50	53
(2) Planning	____	1.50	54
Organizational Streamlining	____	3.50	55
Investment/Appropriate Technology	____	3.50	56
Methods/Process Improvement	____	3.50	57
(1) People-Oriented	____	3.50	58
(2) People-Oriented	____	1.40	59
(3) People-Oriented	____	3.50	62
Measurement	____	1.50	63
(1) Feedback	____	1.40	64
Evaluation	____	1.50	65
(2) Feedback	____	1.00	66
(1) Reward Systems	____	1.50	67
(2) Reward Systems	____	1.50	68

TOOLS INVENTORY SCORES

Copy the result for each category to the spaces below. After you have placed your scores in the appropriate spaces, please refer to the adjacent column for score interpretation. Next to each category, if your score is lower than or equal to the target score, you may want to review the actions/suggestions on the page listed next to the target.

Category	Your Score	Target Score	Page Number
Assessments	____	1.30	69
Definition	____	1.50	70
Measurement/Process Analysis	____	1.50	72
Awareness/Communication	____	1.50	78
Organizational Development	____	1.50	79

OUTCOMES SCORES

Copy the result for each category to the spaces below. If any score is lower than or equal to 3.50, you may want to review the actions/suggestions on the page listed next to your score.

Category	Your Score	Page
Work Flow/Delays	_____	80
Waste	_____	81
Tools/Equipment	_____	82
Staffing	_____	83
Facilities	_____	84
Training	_____	85
Supplies/Parts	_____	86
Organization/Group Structure	_____	87
Quality	_____	88
Quantity	_____	89
Reliability	_____	90

Please note: In order to improve outcome scores, many of the actions/suggestions presented in the earlier sections (pages 21 - 79) could be applied. A few specific ideas are presented on the above-listed pages.

(1) Diagnosis

There are many methods which can be used to identify the need for quality and productivity improvement within work groups. (This guide is an example of one method). Relying on "higher order" directives is not the most useful means since these are necessarily general in nature. Analyzing recent mission and objectives accomplishment can be very helpful when coupled with input from organizational members. The people who actually "do the job" are often the best source of information about how to improve quality and productivity. Some ideas for gathering peoples' opinions include:

- formal surveys.
- formal structured interviews.
- informally asking people what they think.
- establishing teams comprised of representatives.

For more information about survey development and conduct, see

Nadler, D. A. (1977). Feedback and organization development: Using data-based methods. Reading, MA: Addison-Wesley.

Organizational Survey System
Lehew-Tyler, Inc.
Cypress Plaza, Suite 102
350 Wesley St. Ext.
Myrtle Beach, SC 29577
(803) 236-1454

provides PC based tool that allows you to create your own survey, maintain organizational charts, enter responses for analysis, and print management reports on results. Can provide additional consulting services if required.

For more information about interviews, see

Kaman, V. S. (1986). Why assessment interviews are worth it. Training and Development Journal, May, pp. 108 - 110.

(2) Diagnosis

Obviously there are many reasons for implementing quality and/or productivity improvement processes, but if the sole reason is because they were mandated by a higher authority, the process is not likely to be successful. Other reasons, if they are truly communicated throughout the organization, are much more likely to be associated with successful initiatives and can include:

- a belief that the people served deserve the organization's best effort.
- top management dissatisfaction with current quality/productivity levels.
- a desire to improve an already acceptable record.

For more information, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Crosby, P. B. (1980). Quality is free. New York: McGraw-Hill.

(1) Productivity/Quality Emphasis

A quality and/or productivity improvement policy is important for the success of the improvement effort. To be most effective, the policy should:

- be written.
- contain specific goals and objectives.
- be published and widely disseminated.
- hold people accountable for successes/failures.
- be taken seriously by organizational members.

For more information, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley.

Crosby, P. B. (1980). Quality is free. New York: McGraw-Hill.

(2) Productivity/Quality Emphasis

The first step in implementing a quality and/or productivity improvement initiative should be the establishment of a central focal point for leadership of the effort. The central point should be at the top of the organization with overall responsibility for development and direction of the program. The size of this unit will vary with the size of the overall organization. However, personnel in the unit should have the necessary skills to provide technical advice on measurement and data collection systems, analysis of trends, and identification of opportunities for quality and productivity improvement. Additionally, a council or committee consisting of representatives from all parts of the organization may be useful.

A quality and/or productivity improvement process should be viewed as an integral part of the overall management process. The development of data collection and reporting systems should take into account the financial and other reporting systems already in operation.

For more information, see

Implementing a productivity program: Points to consider. Joint Financial Management Improvement Program, Suite 705, 666 Eleventh Street, NW. Washington, DC 20001 (202) 376-5415.

Customer/Service Activities

How do your products or services measure up? The best way to find out is by asking the customers. Waiting for complaints is not the most helpful method since complaints usually do not point out what you are doing right. Better methods include:

- periodically asking customers to complete a short survey.
- phoning some customers periodically to ask them about your service.
- catching people while they're being served to ask them what they think.
- asking your front-line personnel about how to improve.

For more information, see

Crosby, P. B. (1980). Quality is free. New York: McGraw-Hill.

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 47 - 84.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 88 - 101 and 128 - 137.

Peters, T. J. & Waterman, R. H. (1982). In search of excellence. New York: Harper & Row.

(1) Definition

In order to successfully implement a quality and/or productivity improvement process, top management must have clearly defined

a macro definition of quality/productivity improvement (doing better is not enough).

long-term goals for improvement.

short-term objectives for improvement.

performance measures to monitor progress.

Mission, goal, objective, and performance measures definitions and examples are presented below.

Mission

The mission of an organization (and of an activity) describes its reason for existence. Mission statements are broad and expected to remain in effect for an extended period of time. They are often accompanied by an overarching statement of philosophy or strategic purpose intended to convey a vision for the future and awareness of challenges from a top-level perspective.

Even if the organization has well-established written procedures, there should be a comprehensive and fresh look at the entire mission and operation of the organization.

Key Result Areas

KRAs are the few really important areas in which an activity must perform well in order to accomplish its mission. They are a way of breaking the mission down into parts amenable to measurement. Like the mission itself, they may be expected to remain relatively stable over time. KRAs identify subject matter, not goals or objectives which follow later. They provide a framework for goals, objectives and performance indicators and, as such, must embrace collectively all core mission elements.

Goals

Goals are broad statements of desired end-states which, when considered cumulatively, will lead to mission accomplishment. They should be directly relatable to KRAs and thus, should collectively, embrace all key mission components.

While a KRA is a mission subdivision which defines subject matter, goals set specific directions for performance, excellence, quality, service, and/or cost effectiveness in those subdivisions. Goals typically remain valid over multiple planning periods, although they should be revisited at least annually and can be expected to be less stable than the mission and its attendant KRAs.

(continued on the next page)

Goals should be set for the overall organization and also for component units. Goals should be based on a specific potential for quality and productivity improvement for the organization/unit during a specified time period.

Objectives

Objectives are specific, verifiable commitments to results toward which resources will be allocated during a given planning period. Objectives derive from goals and, when accomplished, will move activities toward goal attainment. Objectives are specific as to what, how much, and by when. Objectives should provide a basis for setting performance indicator standards or targets.

Performance Indicators

Performance indicators measure the degree of accomplishment of objectives and, thus, quantify progress toward the attainment of goals within KRAs. Indicators themselves are formulas - precise specifications of the types and sources of numbers and calculations used to derive the relevant measurement.

There are 8 commonly recognized generic types of performance indicators. It is usually desirable for all 8 types to be included among an activity's set of indicators to achieve balanced measurement across an activity mission.

The 8 types of indicators include:

Efficiency

Ratio of the quantity of resources expected or planned to be consumed in meeting customer requirements to the resources actually consumed.

Examples: Estimated no. labor hours / Actual no. labor hours

Planned or allowed costs of service delivery / Actual costs of service delivery

Effectiveness

How closely an organization's output meets its goal and/or meets the customer's requirement.

Examples: Actual customer service rating / Customer service rating goal

No. project milestones satisfactorily met / No. milestones established for period

(continued on next page)

Timeliness

The promptness with which quality products and services are delivered, relative to customer expectations.

Examples: # transactions completed by target time / total # transactions for period

Actual # defect-free products delivered / Total # products planned for delivery

Productivity

Ratio of outputs produced (or service transactions) to inputs required for production/completion. Productivity is an expected outcome of quality and a necessary companion to improving service.

Examples: Actual # of completed transactions / Total cost of operations

Quality

The extent to which products and services produced conform to customer requirements. Customers can be internal as well as external to the organizational system (e.g., products or services may flow to the person at the next desk or work area rather than to people outside of the immediate organization).

Examples: No. defect free reports / No. reports produced

No. hours spent on rework / No. hours worked

Innovation

The extent to which the organization makes creative changes as required to meet customer expectations and/or adapt to changes in the environment (e.g. improving the quality of transient quarters' furnishings to meet or exceed commercial motel standards).

Examples: # Model Installations Program Recomm. implemented / Sizing denominator (installation population or budget)

$ revenue from or hours spent on new services / Total $ of revenue or workhours for function

(continued on the next page)

Quality of Working Life

The extent to which the organizational culture provides employees with information, knowledge, authority and rewards to enable them to perform safely and effectively, be compensated equitably and maintain a sense of human dignity.

Examples: Perceptions measured through surveys

Proxy measures such as absenteeism, grievances, turnover rates, safety performance, etc.

Financial Performance

The difference between revenue received and costs incurred, usually measured in relation to a financial plan or budget.

Examples: Revenues - expense (actual)
Revenues - expenses (budget)

For more information, see

Implementing a productivity program: Points to consider. Joint Financial Management Improvement Program, Suite 705, 666 Eleventh Street NW. Washington, DC 20001 (202) 376-5415

Improving productivity: A self audit and guide for federal executives and managers. National Center for Productivity and Quality of Working Life, Fall 1978, US Government Printing Office.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 33 - 49.

For more information about goal setting, see

Locke, E. A. & Latham, G. P. (1984). Goal setting: A motivational technique that works!. Englewood Cliffs, NJ: Prentice-Hall.

(2) Definition

In order to successfully implement a quality and/or productivity improvement initiative, the various units within the organization must:

know how top management defines quality/productivity improvement.

have defined long term-goals.

have defined short-term objectives.

have defined performance measures to monitor progress.

For more information, see definitions and examples listed under (1) definition beginning on page 47.

(3) Definition

In order to successfully implement a quality and/or productivity improvement initiative, organizational members must be able to

specify what goals and objectives they are working towards.

know how these goals and objectives relate to their unit's mission.

know how performance measures relate to the monitoring of goal and objective accomplishment.

A good way to ensure this is to invite organizational members or representatives to participate in setting goals and defining performance measures. In the event that this is not possible, make sure that organizational members know what goals they are working towards and how performance measurement relates to them.

For more information, see

Locke, E. A. & Latham, G. P. (1984). Goal setting: A motivational technique that works!. Englewood Cliffs, NJ: Prentice-Hall.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 65 - 91.

(1) Planning

A very thorough planning process is crucial whether an organization is developing its overall strategic plan or developing plans for specific quality and productivity improvements. Quality and productivity improvement planning should be integrated with strategic planning. Planning can help identify the primary targets for improvement. It can also provide a basis for estimating the resources needed to do the job.

Identifying quality and productivity improvement priorities can be an important part of the planning process. Consider the development and use of criteria to select those areas most in need of improvement. Some criteria which has proven useful for others are:

combat capability leverage (potential for enhancing combat capability).

investment plans (potential that investment will lead to increased quality and productivity).

net benefit (greatest resource savings for given investment).

information/data gathering system (easy to track, automated).

quality and/or productivity improvement potential.

size of input variables (high burners of labor or capital).

For more information about how to develop a strategy and plan for your organization, see

Bryson, J. M. (1988). Strategic planning for public and nonprofit organizations. San Francisco: Jossey-Bass.

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 49 - 91.

Implementing a productivity program: Points to consider. Joint Financial Management Improvement Program, Suite 705, 666 Eleventh Street NW. Washington, DC 20001 (202) 376-5415

(2) Planning

After some likely candidate areas for quality and/or productivity improvement have been identified, a variety of possible strategies for improvement can be considered. Any strategy considered should be evaluated against and subsequently integrated into the overall business plan. The strategies presented below represent a "checklist" for consideration. They are not always appropriate for every situation.

Change in strategy

Improved procedures/work methods

Better employee utilization

Training

Technological improvements

For more information, the above strategies as well as others are discussed in

Bryson, J. M. (1988). Strategic planning for public and nonprofit organizations. San Francisco: Jossey-Bass.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 101 - 124.

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Organizational Streamlining

Obviously the structure of your organization is not open to dramatic or sweeping changes. However, working within the basic structure, there may be opportunities for streamlining that can enhance the organization's ability to support its mission.

Is timely information getting to the people and work units that need it?
Re-routing or opening channels may solve this problem.

Are there "chronic complaints" often expressed between work units?
Set up a cross-functional team to define problems and suggest solutions.

For more information about streamlining relating to public sectors, see

Peters, T. (1987). Thriving on chaos. New York: Alfred A. Knopf. especially pp. 377 - 386.

For more information about methods improvement, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Investment/Appropriate Technology

The lack of appropriate technology (or abuse of existing technology) may be hampering your organization's quality and/or productivity improvement process. Budget constraints play a major role in the acquisition of "needed improvements". Besides a healthy budget, here are some other things to consider.

Make sure people are trained in a timely fashion to use the equipment they do have.

Regularly review and update a realistic schedule for replacing outdated equipment and/or investing in appropriate technology.

Plan ahead when purchasing new equipment - Who will be using it? How will they receive needed training?

For more information, see

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 225 - 265.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill. pp. 58 - 73.

Methods/Process Improvement

Work processes or methods can often be streamlined or re-structured resulting in significant quality and productivity improvement. The ways in which work is accomplished should be reviewed on a regular basis. Some techniques and tools to use are Root Cause Analysis (explained on page 72), Statistical Process Control (explained on page 74), and the Design of Experiments (explained on page 75).

For more information, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 65 - 79.

(1) People-Oriented

The people who are doing the job are often the people with the best information and ideas about how to improve the process. A formal suggestion program is one vehicle used to obtain "good ideas". But sometimes people don't bother to use them. Someone might feel that "others must have certainly suggested this earlier, so why bother?" Some other methods include:

Walk through work units and ask people for ideas about how to improve.

Have supervisors periodically schedule short meetings to gather suggestions.

Use quality teams or performance action teams.

Quality teams are described on pages 59 - 60.

(2) People-Oriented

The success of a quality and productivity improvement process depends upon everyone in the organization. Here are some ways to get people involved.

Brainstorming - A technique used by a group of people for thought generation. The aim is to elicit as many ideas as possible within a given time frame.

For more information, see

Crocker, O. L., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications. pp. 96 - 101.

Nominal Group Technique - A technique used by a group of people to define and solve problems. This technique is described on page 70.

Modified Delphi Technique - A technique used to select the "best" or "most important" idea or solution from among a set of suggested ideas or solutions.

For more information, see

Crocker, O. L., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications. pp. 101 - 104.

Quality Teams - These teams are also referred to as Performance Action Teams, or Quality Improvement Teams. These teams might be composed of volunteers who meet regularly to review progress toward goal attainment, plan for changes, decide upon corrective actions, etc. Members are usually from the same work unit.

(continued on the next page)

Cross-Functional Teams - These teams are similar to quality teams but the members are from several work units that interface with one another. These teams are particularly useful when work units are dependent upon one another for materials, information, etc.

For more information about quality teams and cross-functional teams, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 51 - 75.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 107 - 135.

Crosby, P. B. (1984). Quality without tears. New York: New American Library. pp. 106 - 113.

Juran, J. M. (1989). Juran on leadership for quality. New York: The Free Press. pp. 56 - 71.

Quality Circles - A quality circle is a group of workers and their supervisors who voluntarily meet to identify and solve job-related problems. Structured processes are used by the group to accomplish their task.

For more information, see

Crocker, O. L., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications.

Ingle, S. (1982). Quality circles master guide. New Jersey: Prentice-Hall.

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Scanlon Committees - The committees are comprised of managers, supervisors and employees who work together to implement a philosophy of management/labor cooperation which is believed to enhance productivity. There are a number of principles and techniques involved, with employee participation being a major component.

For more information, see

Ramquist, J. (1982) Labor-management cooperation - The scanlon plan at work. Sloan Management Review, 49-55.

(3) People-Oriented

Quality and productivity improvement requires that everyone be involved. Organizational members need to know why it's important, what is important and how to keep track of progress. Certainly every organizational member need not become an expert in statistical process control. However, people should be aware of the basics and the reasoning behind them. Formal training programs may not be realistic for your organization. Other possibilities include:

Provide training to top level managers and have them pass the word.

Encourage attendance at outside seminars.

Provide resources in-house and publicize them.

For more information, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill.

Measurement

Measurement, a method for tracking progress, is fundamental to management even without a formal quality and/or productivity improvement process. There are many types of data that can be collected and monitored concerning quality and productivity improvement progress. Generally, people often refer to 8 types of data, or performance indicators. These include efficiency, effectiveness, timeliness, productivity, quality, innovativeness, quality of working life, and financial data. Each of these types is discussed in an earlier section (1) Definition beginning on page 47.

(1) Feedback

The data regarding quality and productivity improvement that can be collected are the "performance indicators" which are described in an earlier section, (1) Definition, beginning on page 47. These data include efficiency, effectiveness, timeliness, productivity, quality, innovativeness, quality of working life, and financial data. These data are just "numbers" unless they are compared to something meaningful. Some meaningful comparisons include:

Data compared at time intervals (are we doing better? worse? the same?).

Data compared to goals, objectives.

Data compared with similar organizations.

For more information, see

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 185 - 205.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 125 - 139.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 102 - 114.

Evaluation

The data concerning a quality and/or productivity improvement process that are collected need to be evaluated periodically. For example, suppose data have been collected and tracked over time. Results indicate that improvement has steadily occurred. How much improvement is good enough? When should priorities shift? Some strategies to use for evaluative purposes include:

Assign a task force or establish performance action teams to review data periodically.

Use data to identify problems/barriers.

Revise data being collected to reflect changes in emphasis, etc.

Quality teams, cross-functional teams, and quality circles are described on pages 59 - 60.

For more information about how to evaluate data, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

Crocker, O. L., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications.

(2) Feedback

The data concerning a quality and/or productivity improvement process that are collected need to be seen by the people involved so that they are aware of how they are doing. Feedback should be provided as soon as possible after data collection.

Report data in summary form - perhaps bulletin boards.

Include any comparative data (such as trends over time, or goals).

Spread the word - share comments about any improvements noted by "customers".

For more information, see

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 102 - 114.

Locke, E. A. & Latham, G. P. (1984). Goal setting: A motivational technique that works!. Englewood Cliffs, NJ: Prentice-Hall.

(1) Reward Systems

While salary increases and promotions can be powerful rewards, there are other reasons that people find work to be rewarding. Since your organization is limited in the types of monetary rewards that can be utilized, concentrate on some other possibilities.

Awards - (formal and informal) It's always possible to set up an in-house award for "best effort" or "most improved".

Recognition - Publicize success stories.

Pats on the back - Everyone likes to be told they're doing a great job.

For more information, see

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 102 - 114.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 77 - 100.

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 109 - 134.

(2) Reward Systems

Although salary increases and promotions cannot be tied directly to the quality and/or productivity improvement process, it can be helpful to include an evaluation of such efforts in the performance appraisals of managers and employees. The use of this option presupposes the establishment of fair goals and/or objectives.

For more information, see

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 65 - 79.

Assessments

Formal surveys and/or assessments are not always necessary. However, surveys can often be conducted by in-house personnel and can provide a quick means to gather important information. Surveys are also another way to get organizational members involved in quality and productivity improvement. People appreciate the chance to provide input into a process that affects them. Surveys can be used to assess peoples' opinions about:

the need for quality/productivity improvements.

the goals and/or objectives which have been proposed.

the data which is being collected or being proposed for collection.

the outcomes of ongoing quality and/or productivity improvement efforts.

For more information about survey development and conduct see the suggestions listed on page 42.

Definition

Some tools that can be utilized to define missions, goals and objectives will be described below.

Nominal Group Technique - a tool for idea generation, problem solving, mission and key result area definition, performance measure definition, goals/objectives definition. Participants should include a variety of levels (i.e. workers, supervisors, managers). A group leader addresses the subject and presents the problem or issue to be dealt with by the group. Participants spend a few minutes writing down their ideas. The leader conducts a round-robin listing of the ideas by asking each participant in turn for one idea. All ideas are written on a flip chart as stated and no judgments or evaluations are made at this time. Each item is then discussed in turn. Some ideas are combined, some discarded, some new ideas are added. The leader then asks participants to vote for the top 3, 5, or 7 priority items. The results are tallied and the top 5 priority items (based on the voting results) are discussed. For example, as applied to key result area definition, the top 5 priority items would be the 5 key result areas chosen by the group as most important for mission accomplishment.

For more information, see

Sink, D. S. (1983) Using the nominal group technique effectively. National Productivity Review, Spring, pp. 173 - 184.

Roadblock Identification Analysis - a tool that focuses upon identifying roadblocks to performance improvement and/or problems that are causing the group to be less productive than it could be. This tool utilizes the nominal group technique to identify and prioritize performance roadblocks. Action teams are formed to analyze barriers and develop proposals to remove roadblocks. The proposals are implemented, tracked and evaluated.

For more information, see

Sink, D. S., Das, S. K., and Tuttle, T. C. (1987) "Measuring and improving white collar productivity: A NASA case study," in D. J. Sumanth (Ed.), Productivity management frontiers - 1, Elsevier.

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8-Step Planning Process - A systematic, participative process for developing goals, strategies and tactics for a performance improvement effort. The process is executed by top and middle level managers.

For more information, see

DoD Guide. (1987). Draft of quality & productivity management: Best practices for U.S. defense contractors, Virginia Productivity Center, Blacksburg, VA.

Management Systems Analysis - A tool designed to improve the clarity of understanding about the system being managed. It is a 5-step process that identifies improvement interventions and helps design suitable measurement systems.

For more information, see

DoD Guide. (1987). Draft of quality & productivity management: Best practices for U.S. defense contractors, Virginia Productivity Center, Blacksburg, VA.

Productivity by Objectives - A systematic process for involving everyone in a comprehensive plan to achieve selected goals and objectives. This process involves a hierarchical system with councils, teams, and coordinators.

For more information, see

Riggs, J. L. and Felix, G. H. (1983). Productivity by objectives. Englewood Cliffs: Prentice-Hall.

Management by Objectives - An approach which stresses mutual goal setting by managers and subordinates, clarity and specificity in the statement of goals, and frequent feedback concerning progress toward goals. Goals should be couched in terms of specific measurable outcomes (such as units produced, product quality). Goals should be realistic and attainable.

For more information, see

Carroll, S. J. Jr., & Tosi, H. L. Jr. (1973) Management by objectives: Applications and research. New York: Macmillan.

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM. pp. 258 - 288.

Measurement/Process Analysis

Some tools which can be utilized to analyze performance data and/or analyze work processes are described below.

Root Cause Analysis - A root cause is the bottom line of a problem. Often, problems present themselves only as symptoms. Symptoms do not explain problems, they point to them. A root cause is the reason for the problem or symptom. Root cause analysis, then, is a method used to identify potential root causes of problems, narrow those down to the most significant causes, and analyze them using the following tools.

(1) Fishbone Diagrams - a diagram that depicts the characteristics of a problem or process and the factors or root causes which contribute to them. To construct a fishbone diagram:

(1) Define problem clearly and objectively.

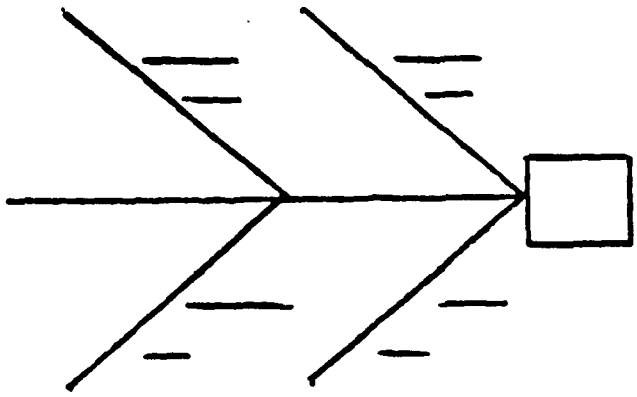
(2) Write problem statement in box at right of diagram.

(3) Define major categories of possible causes (use generic branches).

(4) Brainstorm possible and specific causes and list them under appropriate category.

(5) Vote to identify the likely root causes.

(6) Gather data to construct a Pareto chart to verify most likely cause.



For more information about fishbone diagrams and problem analysis, see

Crocker, O., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications. pp. 106 - 126.

Walton, M. (1986). The Deming management method. New York: Putnam Publishing Group. pp. 99 - 101.

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(2) Pareto charts - are used to classify problems or causes by priority. It helps highlight the vital few as opposed to the trivial many. It also helps to identify which cause or problem is the most significant. To construct a Pareto chart:

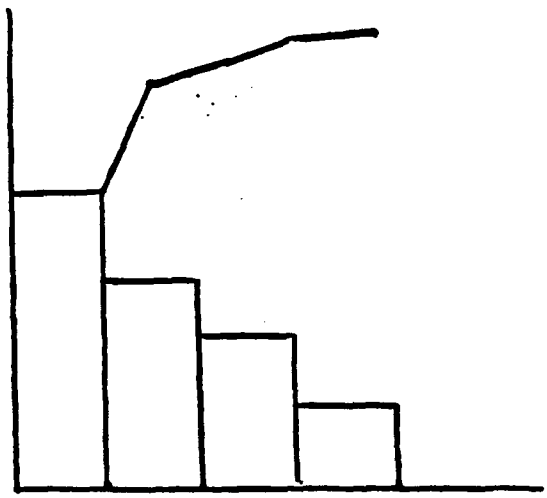
(1) Select a problem you want to analyze.

(2) Determine the categories of the problem and collect the data you want to display.

(3) Note the categories on the horizontal axis in descending order of value.

(4) Determine measurement scale (cost, frequency, etc) and note it on left vertical axis.

(5) Draw a cumulative line from left to right which shows the cumulative % of the categories.



For more information about Pareto charts and other graphs, see

Crocker, O., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications. pp. 143 - 164.

Walton, M. (1986). The Deming management method. New York: Putnam Publishing Group. pp. 105 - 107.

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(3) Statistical Process Control - is a disciplined way of identifying and solving problems in order to improve performance. It involves use of fishbone diagrams to identify causes and effects of problems. Data is then collected and organized in various ways (graphs, fishbone diagrams, Pareto charts, and/or histograms) to further examine problems. The data may be tracked over time (control charts) to determine variation in the process. The process is then changed in some way and new data is collected and analyzed to determine whether the process has been improved.

Control charts are constructed as follows.

(1) Put what you're going to measure on vertical axis.

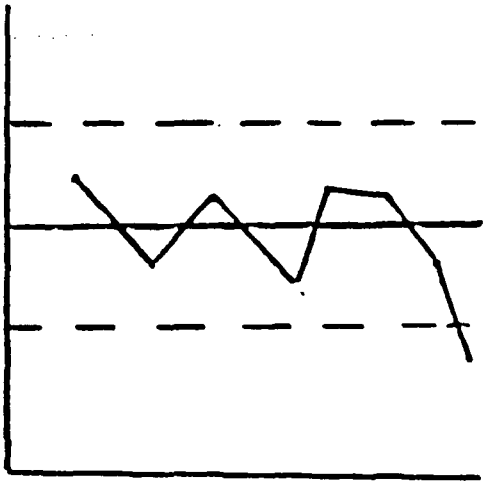
(2) Choose a time interval for taking measurements and put this on horizontal axis.

(3) Collect data and plot results.

(4) Calculate control limits by finding mean and standard deviation of data and calculating 3 standard deviations above and 3 below the mean.

(5) Draw the control limits and mean on graph.

(6) Results which fall outside the control limits indicate where improvement is needed and should be investigated.



For more information, see

Walton, M. (1986). The Deming management method. New York: Putnam Publishing Group. pp. 113 - 118.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill. pp. 345 - 463.

Crocker, O., Chiu, J. S. L., & Charney, C. (1984). Quality circles: A guide to participation and productivity. New York: Facts on File Publications. pp. 165 - 174.

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(4) Office Space Planning and Design - The design of office and work space can have an influence on the work being accomplished through effects on communication patterns, availability of appropriate equipment, illumination levels and noise levels. For example, open space office plans are enjoying increased popularity although the reviews on their effects are mixed. Advocates stress that the absence of walls and barriers facilitate the sharing of information and the development of social relationships among employees. Critics point out that individuals are better able to identify their task, equipment, and available technology in conventional offices. The nature of the work to be accomplished should play a strong role in determination of office space.

For more information, see

Steele, F. I. (1973). Physical settings and organization development. Reading, MA: Addison-Wesley.

Brookes, M. J. & Kaplan, A. (1972). The office environment: Space planning and effective behavior. Human Factors, 14, pp. 373 - 391.

Prince, J. S. (1980). Environments that work for people. Administrative Management, 60, pp. 36 - 42.

(5) Design of Experiments - an approach using several tools developed by D. Shainin that seeks to reduce variation (similar to purpose of control charts). Some of the tools include multi-vari charts, a components search, and scatter plots. These tools are relatively simple to use and do not require prior statistical knowledge.

For more information, see

Bhote, K. R. (1988). DOE: The high road to quality. Management Review, January, pp. 27 - 33.

(6) Multi-Criteria Performance Measurement Technique - This approach is used to measure the performance of a group and is particularly useful for white collar groups.

For more information, see

Felix, G. H. and Riggs, J. L. (1983) Productivity measurement by objectives. National Productivity Review, Autumn.

(continued on next page)

(7) Normative Performance Measurement Technique - incorporates structured group processes so that work groups can design measurement systems suited for their own needs. This approach considers behavioral consequences of measurement to foster acceptance of measurement effort.

For more information, see

Sink, D. S. (1985). Productivity management: Planning, measurement and evaluation. New York: John Wiley.

(8) Common Staffing Study - is an approach to indirect labor measurement developed by IBM. Measures are developed using input:output activity indicators for each major work group. The major purposes are to highlight areas for improvement, provide a measure of indirect productivity improvement, and provide a relative measure of indirect productivity across locations.

For more information, see

Conway, D. L. (1983) Common staffing system. In R. H. Lehrer (Ed.), White collar productivity. New York: McGraw-Hill.

(9) Statistical Performance Control - is based on the same principles used in statistical process control. The difference is that this technique relates these principles to the measurement of the "typical" 8 performance criteria (identified in (1) Definition in the Processes section page 47). This technique defines a management process for controlling the variance and shifting mean performance levels for each of the 8 criteria.

For more information, see

Sink, D. S. (1985). The essentials of performance and productivity management. Blacksburg, VA: LINPRIM, Inc.

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(10) TOPS - was developed for use in white collar settings. Three 1-page reports are utilized to provide information concerning focus, feedback, and management for each individual's performance. The results are designed to provide management and staff with visibility to target areas in need of improvement.

For more information, see

Khadem, R. & Lorber, R. (1986). One page management. New York: William and Morrow.

(11) Functional Administrative Control Technique - is a tool designed to improve performance through a process combining time management and value engineering. The process involves breaking down activities into functions and establishing action teams to target and solve problems in each function.

For more information, see

Higgins, B. K. (1984). Quantifying white-collar functions. National Productivity Review, Summer.

(12) Process Flow Analysis - is a technique for identification and analysis of key processes. The technique identifies areas and methods of possible improvement. It is particularly useful for roadblock removal.

For more information, see

Sink, D. S., Das, S. K., and Tuttle, T. C. (1987). "Measuring and improving white collar productivity: A NASA case study," in D. J. Sumanth (Ed.), Productivity management frontiers - 1, Elsevier.

Awareness/Communication

For any process to be effective, the people throughout the organization must know about it and understand it. Special publicity efforts may be necessary when a process is first established. There should be a regular mechanism for keeping people informed about progress. Some possibilities include:

Use newsletters or bulletin boards to publicize the successful results and information about the people who made those results possible.

Keep informed about what programs and processes are effective in other organizations.

Establish a quality and productivity library.

Arrange workshops.

For more information, see

Crosby, P. B. (1980). Quality is free. New York: McGraw-Hill.

Crosby, P. B. (1984). Quality without tears. New York: New American Library.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 65 - 91.

Organizational Development

Some tools used in organizational development are discussed below.

(1) Force Field Analysis - A technique involving the identification of forces "for" and "against" a certain course of action. The nominal group technique could be used in conjunction with force field analysis. The group might prioritize the forces for and against by assessing their magnitude and probability of occurrence. The group might then develop an action plan to minimize the forces against and maximize the forces for.

For more information about how to construct a "pro and con" chart, see

Tarkenton, F. (1986). How to motivate people. New York: Harper & Row. pp. 196 - 200.

(2) Team Building - is a process of developing and maintaining a group of people who are working toward a common goal. Team building usually focuses on one or more of the following objectives: (1) clarifying role expectations and obligations of team members; (2) improving superior-subordinate or peer relationships; (3) improving problem-solving, decision making, resource utilization, or planning activities; (4) reducing conflict; and (5) improving organizational climate.

For more information, see

Dyer, W. G. (1977). Team building: Issues and alternatives. Reading, MA: Addison-Wesley.

(3) Transactional Analysis - is a process that helps people change to be more effective on the job and can also help organizations to change. The process involves several exercises that help identify organizational scripts and games that people may be playing. The results help point the way toward change.

A good description of these various exercises can be found in

Jongeward, D. (1978). Everybody wins: Transactional analysis applied to organizations. Reading, MA: Addison-Wesley.

For information regarding transactional analysis training programs for organizations, write:

Transactional Analysis Management Institute, Inc.
724 Ironbark Court
Orinda, CA 94563

Work Flow/Delays

Your scores indicate that work delays and/or work flow may be a problem for your organization. An analysis of work methods and processes may be appropriate in order to pinpoint common causes for delays. One potential cause may be that members of 1 work unit are waiting for materials or information from another work unit before they can proceed. Another potential cause could be that equipment is frequently "down" for repair. You may wish to consider the following:

Assign people (or ask for volunteers) to quality teams. The teams may or may not be cross-functional. See pages 59 - 60 for definitions of these teams.

The teams might use root cause analysis (page 72) to identify potential causes for delays.

The teams might then identify potential solutions, implement the solutions, and track data to determine whether the situation is improving.

Waste

Your scores indicate that there may be more wastage of materials and supplies than is desirable for your organization. An analysis of work methods and work processes may be appropriate to determine causes of excessive waste. Perhaps there is an easier method for identifying salvageable materials for recycling. You may wish to consider the following:

Assign people (or ask for volunteers) to quality teams. The teams may or may not be cross-functional. See pages 59 - 60 for definitions of these teams.

The teams might use root cause analysis (page 72) to identify potential causes of waste.

The teams might then identify potential solutions, implement the solutions, and track data to determine whether the situation is improving.

Tools/Equipment

Your scores indicate that your tools and equipment are frequently in need of repair. One cause may be that they are old or subject to an overload and need replacement. Another cause may be neglect which may or may not be inadvertent. Some possible actions include:

Review age and status of equipment. Integrate a reasonable schedule for replacing outdated/old equipment into your business plan.

If age or workload is not the problem, assign people (or ask for volunteers) to quality teams (pages 59 - 60).

The teams might use root cause analysis (page 72) to identify potential causes of repair time.

The teams might then identify potential solutions, implement the solutions, and track data to determine whether the situation is improving.

Staffing

In the face of budget constraints, there is probably not much that can be done about understaffing. However, in the spirit of "making the most with what you've got", analyzing work methods and processes may offer some insights for re-organization of work which would then impact upon workload.

Some tools and techniques for process analysis are described on pages 72 - 77.

High turnover can occur for a wide variety of reasons. Lack of opportunity for advancement, too little work to do, too much work to do, repetitive work, working conditions, etc. Some possible actions include:

Ask members about why people are short-lived. You may be surprised at the answers.

Use surveys, or ask people informally.

Depending upon the reasons, there may be some things that can be done to improve the situation.

Facilities

Budget constraints may prohibit extensive re-modeling of facilities. However, certain problems, such as inadequate lighting, or excessive noise levels may be hindering quality work.

Regularly review and update a realistic schedule for up-dating facilities.

Assign a team to prioritize needed improvements. See pages 59 - 60 for definitions of teams.

For more information, see

Steele, F. I. (1973). Physical settings and organization development. Reading, MA: Addison-Wesley.

Brookes, M. J. & Kaplan, A. (1972). The office environment: Space planning and effective behavior. Human Factors, 14, pp. 373 - 391.

Prince, J. S. (1980). Environments that work for people. Administrative Management, 60, pp. 36 - 42.

Training

All of the tools and techniques described in this guide will have a very limited effect if organizational members are not properly trained. There are really two aspects to training: training to accomplish job tasks, and training in the use of some of the tools and techniques described in the guide. Both aspects are important.

Make sure organizational members have had the training they need to accomplish their work.

Provide training in quality and productivity tools and techniques for managers at all levels.

If qualified personnel for this type of training do not exist in your organization, you may need to hire outside help.

Supplies/Parts

Your scores indicate that your organization may be experiencing difficulty with accounting for its supplies and/or the quality of the supplies and materials used to accomplish work.

Establish a performance action team to investigate problem (pages 59 - 60).

The teams might use root cause analysis (page 72) to identify potential causes of the identified problems.

The teams might then identify potential solutions, implement the solutions, and track data to determine whether the situation is improving.

Consider inviting your supplier(s) to join the teams.

Organization/Group Structure

Your scores indicate that people often have to shift work priorities and/or re-do job tasks in order to get the job done. Sometimes shifting work priorities is inevitable due to the nature of the jobs. Often, re-structuring the group can alleviate some of the problems.

Give people responsibility to make decisions and be flexible.

Check on information flow - especially between work units and organizations.

Use task teams or project teams when appropriate.

Assign a quality team to investigate problem (pages 59 - 60).

For more information about group re-structuring, see

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM. pp. 175 - 204.

Quality

Your scores indicate that one or more of your customers are not satisfied with the quality of work they receive. Many of the tools and techniques that have been described on pages 42 - 90 can be applied to improve this outcome. Some ideas include:

Find out what your customers think. Ask them about ways to improve.

Call them.

Survey customers.

Establish cross-functional action teams and invite customers to participate (page 60).

Ask the employees that have contact with your customers.

Once you know what your customers think, look for ways to make sure you can "deliver".

Analyze work methods using process analysis (pages 72 - 77).

Define goals, objectives and performance indicators for improving quality (pages 47 - 51).

Reward people for achieving goals and objectives.

Periodically evaluate your results.

Quantity

Your scores indicate that one or more of your customers may be displeased with the quantity or timeliness of work being produced. You may need to investigate ways to speed up work processes or deadlines without adversely affecting the quality of work.

Some delays may be caused by waiting for information, supplies, etc. from other work units or organizations with whom you interface. Should this be the case, invite members from those work units and/or organizations to participate in cross-functional teams (page 60). There may be ways to increase the speed with which you obtain your "inputs", thereby increasing your speed in delivering "outputs".

Analyze work methods using process analysis (pages 72 - 77).

Define goals, objectives and performance indicators for improving delivery time (pages 47 - 51).

Reward people for achieving goals and objectives.

Periodically evaluate your results.

Reliability

Your scores indicate that one or more of your organization's customers find errors in what they receive or that the work is inconsistent. This outcome is closely associated with the quality of work produced, since work that is inconsistent or contains errors is obviously not of high quality.

The actions/suggestions presented on page 88 are pertinent here.

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.76	0.46	4.39	5.12
Vision for the Future	4.53	0.28	4.29	4.78
Innovation	4.22	0.00	4.22	4.22
Quality Policy/Philosophy	4.49	0.71	3.86	5.11
Value Systems/Ethics	4.89	0.36	4.48	5.30
Strategic Focus	4.61	0.50	4.39	4.82
Top Management Involvement	5.03	0.25	4.78	5.28
Visible Commitment to Goals	4.85	0.14	4.70	5.01
Role in Quality Improvement Process	4.63	0.19	4.42	4.84
Concern for Improvement	4.17	0.28	3.78	4.55
System/Structure for Quality Improvement	4.06	0.17	3.82	4.29
Leadership and Management	4.64	0.42	4.42	4.86
Awareness of Productivity/Quality Issues	3.44	0.22	3.14	3.75
Attitudes/Morale	4.86	0.44	4.43	5.29
Cooperation	4.78	0.14	4.64	4.91
Involvement	4.89	0.00	4.89	4.89
Perceptions of Work Environment	4.33	0.47	3.80	4.87
Social Interactions	5.11	0.11	4.96	5.27
Task Characteristics	4.42	0.16	4.28	4.57
Consequential Constraints	4.24	0.63	3.77	4.70
Work Force	4.49	0.56	4.28	4.70
Customer Orientation	4.33	0.22	4.03	4.64
Customer Orientation	4.33	0.22	4.03	4.64
Communications	4.69	0.29	4.41	4.98
Communications	4.69	0.29	4.41	4.98
Climate	**4.56**	**0.51**	**4.44**	**4.68**

Number of Questionnaires: 9 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.89	0.34	4.62	5.16
Vision for the Future	4.30	0.19	4.13	4.47
Innovation	3.77	0.14	3.58	3.96
Quality Policy/Philosophy	4.62	0.52	4.16	5.08
Value Systems/Ethics	4.97	0.21	4.73	5.21
Strategic Focus	4.59	0.49	4.38	4.80
Top Management Involvement	4.82	0.34	4.48	5.16
Visible Commitment to Goals	5.05	0.04	5.00	5.09
Role in Quality Improvement Process	4.52	0.11	4.39	4.64
Concern for Improvement	4.55	0.00	4.55	4.55
System/Structure for Quality Improvement	4.45	0.27	4.08	4.83
Leadership and Management	4.71	0.31	4.55	4.87
Awareness of Productivity/Quality Issues	4.18	0.14	3.99	4.37
Attitudes/Morale	4.69	0.18	4.51	4.87
Cooperation	4.82	0.06	4.76	4.87
Involvement	4.64	0.05	4.57	4.70
Perceptions of Work Environment	4.09	0.71	3.29	4.89
Social Interactions	5.32	0.05	5.26	5.38
Task Characteristics	4.06	0.45	3.67	4.45
Consequential Constraints	4.13	0.28	3.92	4.34
Work Force	4.41	0.51	4.22	4.59
Customer Orientation	5.07	0.07	4.97	5.16
Customer Orientation	5.07	0.07	4.97	5.16
Communications	4.41	0.21	4.21	4.61
Communications	4.41	0.21	4.21	4.61
Climate	**4.54**	**0.47**	**4.43**	**4.65**

Number of Questionnaires: 22 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories / Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.87	0.37	4.57	5.17
Vision for the Future	4.52	0.21	4.34	4.70
Innovation	4.40	0.00	4.40	4.40
Quality Policy/Philosophy	4.75	0.58	4.24	5.25
Value Systems/Ethics	4.84	0.06	4.77	4.92
Strategic Focus	4.71	0.40	4.54	4.88
Top Management Involvement	4.85	0.35	4.50	5.20
Visible Commitment to Goals	5.00	0.05	4.94	5.06
Role in Quality Improvement Process	4.98	0.14	4.82	5.13
Concern for Improvement	5.00	0.07	4.91	5.09
System/Structure for Quality Improvement	4.77	0.10	4.63	4.91
Leadership and Management	4.92	0.22	4.80	5.04
Awareness of Productivity/Quality Issues	4.47	0.40	3.91	5.02
Attitudes/Morale	4.83	0.25	4.59	5.08
Cooperation	4.75	0.12	4.63	4.87
Involvement	5.03	0.10	4.89	5.17
Perceptions of Work Environment	4.49	0.63	3.78	5.20
Social Interactions	4.83	0.03	4.79	4.88
Task Characteristics	4.52	0.15	4.39	4.65
Consequential Constraints	4.85	0.29	4.63	5.06
Work Force	4.72	0.34	4.60	4.85
Customer Orientation	5.33	0.07	5.24	5.43
Customer Orientation	5.33	0.07	5.24	5.43
Communications	4.75	0.33	4.43	5.07
Communications	4.75	0.33	4.43	5.07
Climate	**4.78**	**0.36**	**4.69**	**4.86**

Number of Questionnaires: 15

As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.91	0.46	4.54	5.28
Vision for the Future	4.59	0.23	4.38	4.79
Innovation	4.21	0.21	3.92	4.50
Quality Policy/Philosophy	4.80	0.51	4.36	5.24
Value Systems/Ethics	4.84	0.15	4.67	5.02
Strategic Focus	4.73	0.43	4.55	4.92
Top Management Involvement	4.82	0.32	4.50	5.13
Visible Commitment to Goals	4.98	0.22	4.74	5.23
Role in Quality Improvement Process	4.74	0.09	4.64	4.83
Concern for Improvement	4.66	0.24	4.33	4.99
System/Structure for Quality Improvement	4.45	0.34	3.97	4.92
Leadership and Management	4.76	0.30	4.60	4.92
Awareness of Productivity/Quality Issues	4.61	0.18	4.35	4.86
Attitudes/Morale	4.97	0.22	4.76	5.19
Cooperation	4.87	0.09	4.78	4.96
Involvement	4.68	0.16	4.47	4.90
Perceptions of Work Environment	4.44	0.61	3.75	5.13
Social Interactions	5.16	0.11	5.01	5.30
Task Characteristics	3.97	0.39	3.62	4.31
Consequential Constraints	4.26	0.31	4.03	4.49
Work Force	4.53	0.50	4.35	4.71
Customer Orientation	5.32	0.00	5.32	5.32
Customer Orientation	5.32	0.00	5.32	5.32
Communications	4.59	0.07	4.53	4.66
Communications	4.59	0.07	4.53	4.66
Climate	**4.66**	**0.45**	**4.56**	**4.77**

Number of Questionnaires: 19 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.67	0.31	4.42	4.92
Vision for the Future	3.81	0.20	3.63	3.99
Innovation	3.66	0.03	3.62	3.69
Quality Policy/Philosophy	4.39	0.62	3.84	4.94
Value Systems/Ethics	4.56	0.18	4.36	4.76
Strategic Focus	4.29	0.53	4.06	4.51
Top Management Involvement	4.21	0.37	3.85	4.57
Visible Commitment to Goals	4.30	0.02	4.27	4.33
Role in Quality Improvement Process	4.16	0.20	3.94	4.38
Concern for Improvement	4.26	0.16	4.04	4.48
System/Structure for Quality Improvement	3.84	0.16	3.62	4.06
Leadership and Management	4.17	0.27	4.03	4.32
Awareness of Productivity/Quality Issues	3.82	0.18	3.56	4.07
Attitudes/Morale	4.36	0.29	4.07	4.64
Cooperation	4.28	0.15	4.13	4.42
Involvement	4.16	0.00	4.16	4.16
Perceptions of Work Environment	3.98	0.48	3.44	4.52
Social Interactions	4.95	0.00	4.95	4.95
Task Characteristics	3.88	0.23	3.68	4.09
Consequential Constraints	3.47	0.30	3.25	3.69
Work Force	4.00	0.48	3.83	4.18
Customer Orientation	4.79	0.05	4.72	4.86
Customer Orientation	4.79	0.05	4.72	4.86
Communications	3.76	0.25	3.52	4.01
Communications	3.76	0.25	3.52	4.01
Climate	**4.13**	**0.48**	**4.02**	**4.24**

Number of Questionnaires: 19 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.67	0.44	4.31	5.02
Vision for the Future	4.41	0.35	4.11	4.72
Innovation	4.66	0.03	4.61	4.70
Quality Policy/Philosophy	4.85	0.37	4.52	5.18
Value Systems/Ethics	4.71	0.11	4.59	4.83
Strategic Focus	4.65	0.38	4.49	4.82
Top Management Involvement	4.69	0.20	4.49	4.89
Visible Commitment to Goals	4.77	0.06	4.70	4.84
Role in Quality Improvement Process	4.79	0.08	4.70	4.88
Concern for Improvement	4.84	0.03	4.80	4.89
System/Structure for Quality Improvement	4.47	0.03	4.43	4.51
Leadership and Management	4.72	0.16	4.63	4.81
Awareness of Productivity/Quality Issues	4.28	0.16	4.06	4.50
Attitudes/Morale	4.61	0.23	4.39	4.83
Cooperation	4.58	0.05	4.53	4.63
Involvement	4.78	0.03	4.74	4.82
Perceptions of Work Environment	4.67	0.19	4.45	4.89
Social Interactions	4.78	0.09	4.65	4.91
Task Characteristics	4.35	0.40	4.00	4.70
Consequential Constraints	4.00	0.44	3.67	4.33
Work Force	4.42	0.41	4.27	4.57
Customer Orientation	5.16	0.09	5.03	5.29
Customer Orientation	5.16	0.09	5.03	5.29
Communications	4.33	0.22	4.11	4.55
Communications	4.33	0.22	4.11	4.55
Climate	**4.57**	**0.39**	**4.48**	**4.66**

Number of Questionnaires: 16 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.95	0.47	4.57	5.32
Vision for the Future	4.56	0.19	4.39	4.73
Innovation	4.34	0.13	4.16	4.52
Quality Policy/Philosophy	4.92	0.53	4.45	5.38
Value Systems/Ethics	4.98	0.07	4.91	5.06
Strategic Focus	4.79	0.44	4.61	4.98
Top Management Involvement	4.87	0.38	4.50	5.24
Visible Commitment to Goals	5.05	0.15	4.88	5.23
Role in Quality Improvement Process	4.89	0.17	4.70	5.09
Concern for Improvement	4.74	0.05	4.66	4.81
System/Structure for Quality Improvement	4.66	0.13	4.48	4.84
Leadership and Management	4.86	0.27	4.72	5.01
Awareness of Productivity/Quality Issues	4.68	0.26	4.32	5.05
Attitudes/Morale	4.99	0.15	4.84	5.13
Cooperation	4.64	0.14	4.51	4.78
Involvement	4.74	0.11	4.59	4.88
Perceptions of Work Environment	4.46	0.66	3.71	5.20
Social Interactions	5.03	0.08	4.92	5.14
Task Characteristics	3.94	0.40	3.58	4.29
Consequential Constraints	4.12	0.50	3.75	4.49
Work Force	4.46	0.54	4.26	4.66
Customer Orientation	5.13	0.08	5.02	5.24
Customer Orientation	5.13	0.08	5.02	5.24
Communications	4.13	0.26	3.87	4.39
Communications	4.13	0.26	3.87	4.39
Climate	**4.64**	**0.50**	**4.52**	**4.76**

Number of Questionnaires: 19 As of: 04/12/91

Consolidated Climate Scores

If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.00	0.25	3.80	4.20
Vision for the Future	3.76	0.41	3.41	4.12
Innovation	3.55	0.27	3.17	3.92
Quality Policy/Philosophy	4.35	0.89	3.56	5.13
Value Systems/Ethics	3.94	0.31	3.59	4.29
Strategic Focus	3.97	0.57	3.73	4.22
Top Management Involvement	4.02	0.43	3.60	4.45
Visible Commitment to Goals	4.09	0.45	3.58	4.60
Role in Quality Improvement Process	3.70	0.28	3.38	4.01
Concern for Improvement	3.82	0.00	3.82	3.82
System/Structure for Quality Improvement	3.64	0.09	3.51	3.76
Leadership and Management	3.88	0.38	3.68	4.08
Awareness of Productivity/Quality Issues	3.55	0.18	3.29	3.80
Attitudes/Morale	3.68	0.24	3.44	3.92
Cooperation	3.52	0.30	3.23	3.81
Involvement	3.77	0.05	3.71	3.84
Perceptions of Work Environment	4.00	0.22	3.75	4.25
Social Interactions	4.09	0.00	4.09	4.09
Task Characteristics	4.31	0.35	4.00	4.62
Consequential Constraints	3.27	0.33	3.03	3.52
Work Force	3.73	0.46	3.56	3.89
Customer Orientation	4.59	0.05	4.53	4.65
Customer Orientation	4.59	0.05	4.53	4.65
Communications	3.80	0.28	3.52	4.07
Communications	3.80	0.28	3.52	4.07
Climate	**3.86**	**0.50**	**3.74**	**3.98**

Number of Questionnaires: 11 As of: 04/12/91

Consolidated Climate Scores

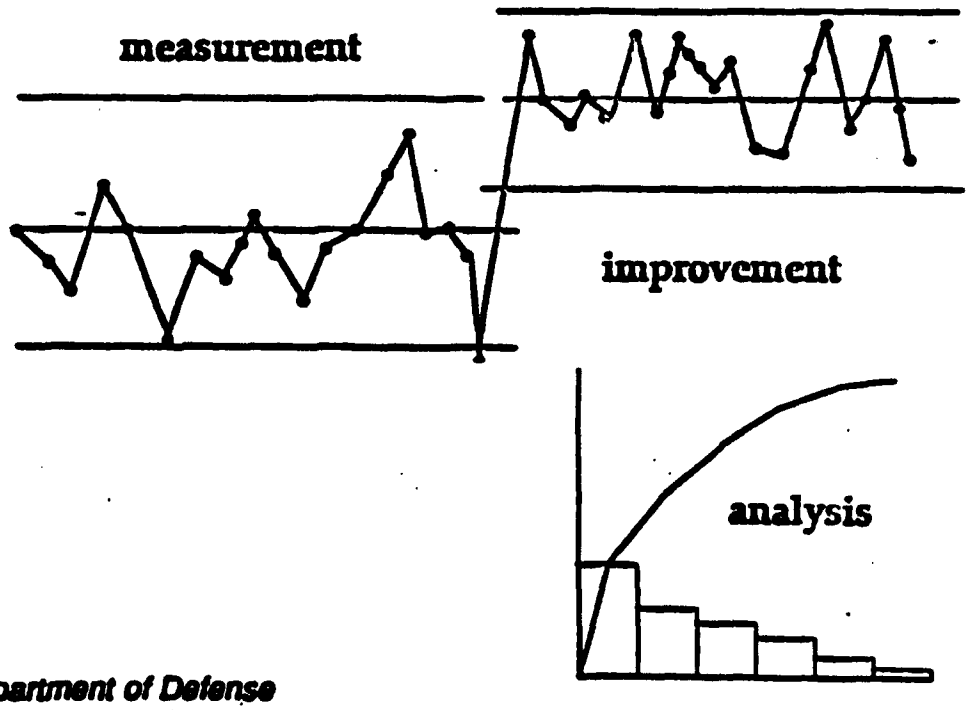
If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the second disk (Climate 2).

Area Categories Subcategories	Mean	Standard Deviation	95% Confidence Interval	
Awareness of Strategic Challenge	4.80	0.43	4.46	5.15
Vision for the Future	4.14	0.41	3.79	4.50
Innovation	3.76	0.18	3.52	4.01
Quality Policy/Philosophy	4.72	0.62	4.18	5.26
Value Systems/Ethics	4.49	0.14	4.33	4.65
Strategic Focus	4.48	0.56	4.24	4.72
Top Management Involvement	4.46	0.45	4.02	4.90
Visible Commitment to Goals	4.67	0.15	4.50	4.83
Role in Quality Improvement Process	3.90	0.24	3.63	4.17
Concern for Improvement	3.88	0.18	3.64	4.13
System/Structure for Quality Improvement	3.97	0.15	3.77	4.17
Leadership and Management	4.23	0.43	4.00	4.46
Awareness of Productivity/Quality Issues	3.79	0.15	3.59	4.00
Attitudes/Morale	4.06	0.27	3.80	4.32
Cooperation	4.16	0.25	3.92	4.41
Involvement	3.91	0.09	3.79	4.03
Perceptions of Work Environment	3.84	0.52	3.26	4.43
Social Interactions	4.09	0.03	4.05	4.13
Task Characteristics	4.00	0.24	3.79	4.21
Consequential Constraints	3.39	0.18	3.25	3.52
Work Force	3.85	0.38	3.71	3.99
Customer Orientation	5.03	0.32	4.58	5.48
Customer Orientation	5.03	0.32	4.58	5.48
Communications	3.78	0.24	3.54	4.02
Communications	3.78	0.24	3.54	4.02
Climate	4.15	0.55	4.02	4.27

Number of Questionnaires: 17 As of: 04/12/91

QUALITY AND PRODUCTIVITY SELF-ASSESSMENT GUIDE FOR DEFENSE ORGANIZATIONS

CLIMATE GUIDE - REFERENCE
INCLUDES: SCORING, ACTIONS AND SUGGESTIONS



Department of Defense
Washington, DC.

CLIMATE SCORES

Copy the result for each category to the spaces below. If any score is lower than or equal to 3.50, it means that some practices typically considered helpful for quality and/or productivity may be absent in your organization. You may want to review the actions/suggestions on the page listed next to your score.

Category	Your Score	Page
Awareness of Strategic Challenge	_____	21
Vision for the Future	_____	22
Innovation	_____	23
Quality Policy/Philosophy	_____	24
Value Systems/Ethics	_____	25
Top Management Involvement	_____	27
Visible Commitment to Goals	_____	28
Role in Quality Improvement Process	_____	29
Concern for Improvement	_____	30
System/Structure for Quality Improvement	_____	31
Awareness of Productivity/Quality Issues	_____	32
Attitudes/Morale	_____	33
Cooperation	_____	34
Involvement	_____	35
Perceptions of Work Environment	_____	36
Social Interactions	_____	37
Task Characteristics	_____	38
Consequential Constraints	_____	39
Customer Orientation	_____	40
Communications	_____	41

Awareness of Strategic Challenge

Most advocates of quality and productivity improvement processes cite the deterioration of the U.S. competitive position with respect to the quality of its products and services. They point out that companies must be aware of their competition and changing economic conditions in order to thrive in the future. A public parallel is obvious here. In the face of increasing budget pressures and in order to remain a viable institution that is respected for its contribution to national defense and well-being, everyone in the organization needs to be aware of its mission and the challenges involved in accomplishing it. Your scores indicate that you may have some doubt about this. Some possible actions include:

Publicize your organization's mission and its importance. Use newsletters, bulletin boards, posters.

Have supervisors discuss how jobs are tied to mission accomplishment with their subordinates.

Find out what the people you serve think about your services/products.

Publicize the fact that "when quality goes up, costs go down".

For more information about a quality revolution in the public sector and about the relationship between quality improvement and cost reduction, see

Peters, T. (1987). Thriving on chaos. New York: Alfred A. Knopf. pp. 65 - 87.

Juran, J. M. (1989). Juran on leadership for quality. New York: The Free Press. pp. 40 - 41.

Software for use on personal computers that provides a means to gather data about what your customers think.

Quality Map
Pacesetter Software
P.O. Box 5270
Princeton, NJ 08543-5270
(609) 737-8351

Vision for the Future

All companies utilize business or strategic plans which begin with determining direction. The direction to be pursued is dependent upon answers to such questions as "What is the purpose of this organization?". "What does this organization have to do in the future to remain competitive?".

Since the competition is always improving (for example, Defense organizations in other countries), an organization's vision for the future needs to focus on continuous improvement of its services and/or products.

Continuous improvement, according to Deming and others, is a process of continually improving the design of products, the delivery of service, and all aspects of the way work is carried out. Continuous improvement requires planning, doing the work, evaluating the results, and modifying the way work is accomplished based on those evaluations. Continuous improvement requires a high degree of "people" involvement at all levels and a constant stream of innovative ideas.

Incorporate a statement of the organization's vision in a strategic or business plan.

Appoint a quality performance team to stay abreast of technological advances and make recommendations.

Encourage organizational members to think about ways to improve work methods.

Begin to collect data about the way work is accomplished.

For more information on business planning, see

Bryson, J. M. (1988). Strategic planning for public and nonprofit organizations. San Francisco: Jossey-Bass.

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM. pp. 1 - 13.

Quality performance teams are described on pages 59 -60.

Methods for analyzing work processes are described on pages 72 - 77.

For more information about continuous improvement, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group.

White, B. J. (1988). Accelerating quality improvement. In L. Schein and M. A. Berman (Eds.), Total quality performance (pp. 2-7). New York: The Conference Board, Inc.

Innovation

How many things are being done in your organization just because "this is the way that it's always been done"? Many times there are good reasons for the tried and true approach. However, there are likely to be more than a few instances where a fresh approach can be a better approach. The best source of ideas about these new approaches are the people involved. Here are some ideas about tapping into this source.

Make sure people are not afraid to try something new. Don't punish creativity but rather encourage calculated risk taking.

Publicize success stories and give credit to the initiators.

Institute a suggestion system - attach a bonus for the best suggestion.

Allow more freedom for people to guide their own work.

Introduce formal mechanisms for the implementation of new ideas.

For more information about how managers and organizations can stimulate creativity and innovation, see

Drucker, P. F. Innovation and entrepreneurship. (1985). New York: Harper & Row.

Keil, J. M. (1985). The creative mystique: How to manage it, nurture it, and make it pay. New York: John Wiley.

Timpe, A. D. (1987). Creativity: The art and science of business management. New York: Kend Publishing.

Kanter, R. M. (1983). The change masters. New York: Simon & Schuster.

Tushman, M. & Moore, W. (1982). Readings in the management of innovation. New York: Pitman.

Quality Policy/Philosophy

Simply telling organizational members to "think quality" will have little effect. In order to be effective, everyone in the organization needs to be aware of and committed to a quality policy or philosophy. Your scores indicate that organizational members may not be aware of the need for improvement and the benefits that follow from improvement. Some actions include:

Adopt a quality philosophy/policy.

Write it down and publicize it.

Provide training so that people can implement it.

Get people involved in "making it happen".

Implement Total Quality Management.

For more information, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley.

Crosby, P. B. (1980). Quality is free. New York: McGraw-Hill.

Walton, M. (1986). The Deming management method. New York: Putnam Publishing Group.

Juran, J. M. (1989). Juran on leadership for quality. New York: The Free Press.

Deming, W. E. (1986). Out of the crisis. Cambridge, Mass: Massachusetts Institute of Technology.

Value Systems/Ethics

Value Systems

Every organization promotes a set of values that guide people in their work. This can be done consciously, as in cases where specific values are promoted in policy statements, or unconsciously, by values conveyed through the actions and examples of top leaders. In either case, your responses indicate that people in your organization may be receiving a message which is inconsistent with quality and productivity improvement. Some possible actions include:

Make values you wish to promote explicit - incorporate them in a quality policy.

Demonstrate the values in every way possible - make sure words and actions of top management are consistent with the values.

For more information, see

Peters, T. J. & Waterman, R. H. (1982). In search of excellence. New York: Harper & Row.

Ethics

Honesty and integrity can provide a cornerstone to the quality and productivity improvement process. Quality, flexibility, and innovation require wholesale involvement by organizational members and a willingness to work together which rely on trust. Some ways to promote this attitude follow.

Make only those commitments you can live up to.

Put ethics policy in writing - try to keep gray areas to a minimum.

Demand total integrity - both inside and outside the organization.

For more information about how to set up an ethics program, contact

Ethics Resource Center
1025 Connecticut Ave. NW
Washington, D.C. 20036

(continued on next page)

Value Systems/Ethics Continued

A series of 4 videos and discussion workbooks is available from

Bureau of Business Practices
24 Rope Ferry Road
Waterford, CT 06386
(800) 243-0876 x326

The videos and discussions seek to clarify the "gray" situations involved in ethical decision making.

Also, see

Peters, T. (1987). Thriving on chaos. New York: Alfred A. Knopf. pp. 518 - 526.

Peters, T. & Austin, N. (1985). A passion for excellence. New York: Random House.

Top Management Involvement

A successful quality and/or productivity improvement initiative needs the active participation of top management. Top management involvement sends a clear, positive message throughout the organization. Some possible actions include:

Hold regular meetings to review progress.

Ask organizational members for their ideas about how to improve.

Follow up on suggestions from organizational members.

Attempt to find out why the organization may not be meeting a particular goal/objective.

For more information, see

Hale, R. L., Hoelscher, D. R., & Kowal, R. E. (1987). Quest for quality. Minneapolis: Tennant Company.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 1 - 15.

Peters, T. & Austin, N. (1985). A passion for excellence. New York: Random House.

Bennis, W. & Nanus, B. (1985). Leaders. New York: Harper & Row.

Visible Commitment to Goals

Leader commitment is a prerequisite for quality and productivity improvement. Unless leaders' commitment is visible and real, those involved in the performance efforts do not see the change as important. A leader's day-to-day behavior is an important clue to others as to what value performance improvement has to that person. Some possible actions include:

Practice what is preached. Set examples of quality and productivity improvement at top levels.

Regularly review organization's progress toward meeting goals/objectives.

Find out why goals have not been reached.

Pick a few important areas and demonstrate your commitment through visible personal involvement (e.g. personal phone calls to customers).

For more information, see

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 85 - 108.

Ishikawa, K. (1985). What is total quality control? Englewood Cliffs, NJ: Prentice-Hall. pp. 122 - 136.

Peters, T. & Austin, N. (1985). A passion for excellence. New York: Random House.

Role in Quality Improvement Process

People need to know that their supervisors have the capability, desire, and resources to help them solve problems and to provide advice on quality and productivity improvement. Some ways to promote this attitude include:

Make sure middle managers and supervisors,

follow up on problems brought to attention.

learn about quality and productivity tools and techniques.

serve as coaches for quality improvement projects.

For more information, see

Parson, M. J. (1986). An executive's coaching handbook. New York: Facts on File Publications.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill. pp. 147 - 230.

Juran, J. M. (1989). Juran on leadership for quality. New York: The Free Press. pp. 72 - 75.

Fournies, F. F. (1978). Coaching for improved work performance. New York: Van Nostrand Reinhold Co.

Concern for Improvement

The managers (at all levels) in an organization, by their words, actions, support, and choices, make it clear to organizational members what is important. For everyone in the organization to become committed to quality and/or productivity improvement, it must be clear that the managers are so committed. Some ways to send this message include:

Listen to organizational members.

Emphasize quality and productivity improvement at all levels of the organization.

Hold regular meetings attended by representatives from all levels of the organization to discuss progress/barriers to improvement.

Recognize and publicize success stories.

Establish an Executive Council for Total Quality Management implementation.

For more information about listening and demonstrating concern, see

Murphy, K. J. (1987). Effective listening. New York: Bantam Books.

Atwater, E. (1981). I hear you. New Jersey: Prentice-Hall.

For more information about executive councils and teams, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley.

System/Structure for Quality Improvement

Sometimes the barriers to quality improvement exist in the structure or system. It may be beneficial to examine the system as it supports/inhibits quality improvement. While much of the structure/system cannot be changed, it is likely that there are some areas where change is possible. Some actions include:

Construct flow charts depicting inputs, outputs, customers, and interfaces with other organizations. These can be constructed for various levels of the organization. Attempt to identify likely quality improvement areas.

Implement quality teams.

Ask the people involved for ideas about changing the structure/system.

Track improvement progress after a change has been made.

For more information about "organizing for quality" and quality team structure, see pages 59 - 60 and also,

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM. pp. 175 - 204.

Feigenbaum, A. V. (1983). Total quality control (3rd ed.). New York: McGraw-Hill. pp. 147 - 199.

For information about constructing flow charts, see

Walton, M. (1986). The Deming management method. New York: The Putnam Publishing Group. pp. 102 - 103.

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 123 - 127.

Awareness of Quality/Productivity Issues

Organizational members need to be aware of the importance of a quality and/or productivity improvement process. In order to promote awareness some actions include:

If a quality and/or productivity improvement process is already in place, publicize it. Use newsletters, bulletin boards, etc.

Write down the organization's quality and/or productivity improvement policy - and then make sure everyone sees it.

For more information, see

Stankard, M. F. (1986). Productivity by choice. New York: John Wiley. pp. 65 - 91.

Waddell, W. C. (1981). Overcoming Murphy's law. New York: AMACOM. pp. 205 - 236.

Attitudes/Morale

People are the most basic quality and productivity factor in any organization. The attitudes and morale of the work force are important determinants of quality and productivity improvement. Motivation underlies every person's performance. Motivation is affected by quality of leadership, job fulfillment, personal recognition, and the overall support present in the working environment. Here are some things to consider to improve morale.

Resolve complaints.

Assign jobs in an equitable manner.

Recognize top performance.

Make sure appropriate training is available for advancement.

For more information, see

Tarkenton, F. (1986). How to motivate people. New York: Harper & Row.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 15 - 33.

Cooperation

Your scores in this category seem to suggest that a spirit of cooperation and teamwork may not exist in all areas of the organization. One reason (and there are others) could be that people are not rewarded for working together to accomplish a team effort. When individuals are rewarded only for their own accomplishments, team efforts can suffer. Some actions include:

Reward team accomplishments - utilize recognition, increased responsibilities, some time off.

Set aside a few hours every few months for team members to sit down together to discuss how they are working together or any problems they may be having.

Encourage teams to develop group identities (a logo, team name). Locate members in the same area if possible.

Establish cross-functional quality teams.

Cross-functional quality teams are discussed on page 60.

Team building is discussed on page 79. For more information about team building, see

Dyer, W. G. (1977). Team building: Issues and alternatives. Reading, MA: Addison-Wesley.

Involvement

People want to have their ideas and opinions given careful consideration. When initiating a quality and/or productivity improvement process, everyone should be involved since peoples' support and commitment are necessary for success. Some ideas to get people involved follow.

Use a team approach to clarify mission, define performance measures, set goals etc.

If a total team approach is not appropriate, allow work group members to "vote" and to suggest alternative performance measures, goals, etc.

Information about mission definition, performance measures, goals, etc. is presented on pages 47 - 50. For more information about teams and team involvement, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 19 - 32 and 51 - 75.

For more information about getting people involved, see

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 109 - 134.

Hale, R. L., Hoelscher, D. R., & Kowal, R. E. (1987). Quest for quality. Minneapolis: Tennant Company.

Tarkenton, F. (1986). How to motivate people. New York: Harper & Row. pp. 62 - 77.

Perceptions of Work Environment

Your scores indicate that peoples' perceptions of their work environments may be inconsistent with a quality or productivity emphasis. People must perceive that there are enough of the appropriate personnel to get the job done and that their work goals or standards are fair. Some actions include:

Re-examine work loads and re-assign people if necessary.

Allow organizational members to participate in setting work goals/standards. If participation is not possible, perhaps voting among a set of alternatives could be utilized.

For more information, see

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 19 - 32.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 15 - 33.

Social Interactions

Social interactions may not appear to be related to quality or productivity improvement at first glance. However, in most organizations people need to work together for a common goal to accomplish their work successfully. It is certainly easier and more enjoyable to work together in a friendly atmosphere and most likely, more productive as well. In order to promote a friendly work environment you may wish to:

Encourage after-work recreational activities.

Encourage fair treatment of all organizational members.
- Make sure work is assigned equitably.
- Ensure that work goals/standards are reasonable.
- Discourage favoritism.

For more information, see

McGregor, D. (1960). The human side of enterprise. New York: McGraw-Hill.

Task Characteristics

Sometimes barriers to quality and productivity improvement can be found in the tasks themselves. People need the appropriate supplies, equipment, information and/or time to accomplish their work. Work delays can often be attributed to one or more of these barriers. Your scores indicate that one or more of these barriers may exist. Some actions include:

Find out why there is never enough time to complete a certain job(s).

- Equipment may be outdated.
- Equipment may be unknowingly abused and so needs frequent repair.
- Timely information may be a problem.

Take steps to correct these situations.

- Assign a performance action team to work the problems.
- An outside organization may be required to perform a job analysis.

Performance action teams are described on pages 59 - 60.

For more information about how task characteristics can impact work effectiveness, see

Schoorman, F. D. & Schneider, B. (1986). Grappling with work facilitation. In F. D. Schoorman and B. Schneider (Eds.), Facilitating work effectiveness. New York: Lexington Books.

Consequential Constraints

People are influenced by the consequences of their actions. When establishing goals and improvement plans, consider the informal and formal rewards that are in place. Besides money, people work for things like achievement, influence, advancement, job satisfaction, autonomy, and recognition. Here are some ideas.

Make sure promotions are tied to performance.

Encourage supervisors to give credit to their top performers.

Recognize top performance.
- picture in newsletter
- special job title
- note of thanks
- parking space
- special badge/insignia
- special privileges.
- prizes, trophies, certificates

Compensate top performers in some way.
- perhaps an afternoon off
- incentive awards
- gain sharing

Provide increased responsibility/work restructuring.

For more information, see

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 109 - 134.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 77 - 100.

Tarkenton, F. (1986). How to motivate people. New York: Harper & Row.

Customer Orientation

Your scores indicate that you doubt that people in the organization are "customer" oriented. Keeping in mind that there are internal as well as possible external customers, the encouragement of a customer orientation can lead to some real gains in quality and productivity.

Promote an awareness of internal and external customers who deserve and demand our best efforts.

Ask "customers" about ways to improve.

- Call them.
- Establish cross-functional action teams and invite customers to participate.
- Survey customers.
- Ask your front-line service providers.

Tie good performance to rewards such as recognition.

Make sure all organizational members are treated as they are expected to treat their "customers".

For more information, see

Davidow, W. H. & Uttal, B. (1989). Total customer service: The ultimate weapon. New York: Harper & Row. pp. 47 - 84.

Townsend, P. L. & Gebhardt, J. E. (1986). Commit to quality. New York: John Wiley. pp. 19 - 32.

Desatnick, R. L. (1987). Managing to keep the customer. San Francisco, CA: Jossey-Bass. pp. 15 - 40.

Communications

Your scores indicate that organizational members may not be getting the information they need to do their jobs. Some actions include:

Open channels of communication between work units/ organizations.

Have representatives hold monthly meetings to exchange information.

Establish "regular" correspondence that contains the needed information.

Automate if possible. The information may already be available through another source, for example via computer printouts used for other purposes. Have copies of the relevant portions sent to additional locations.

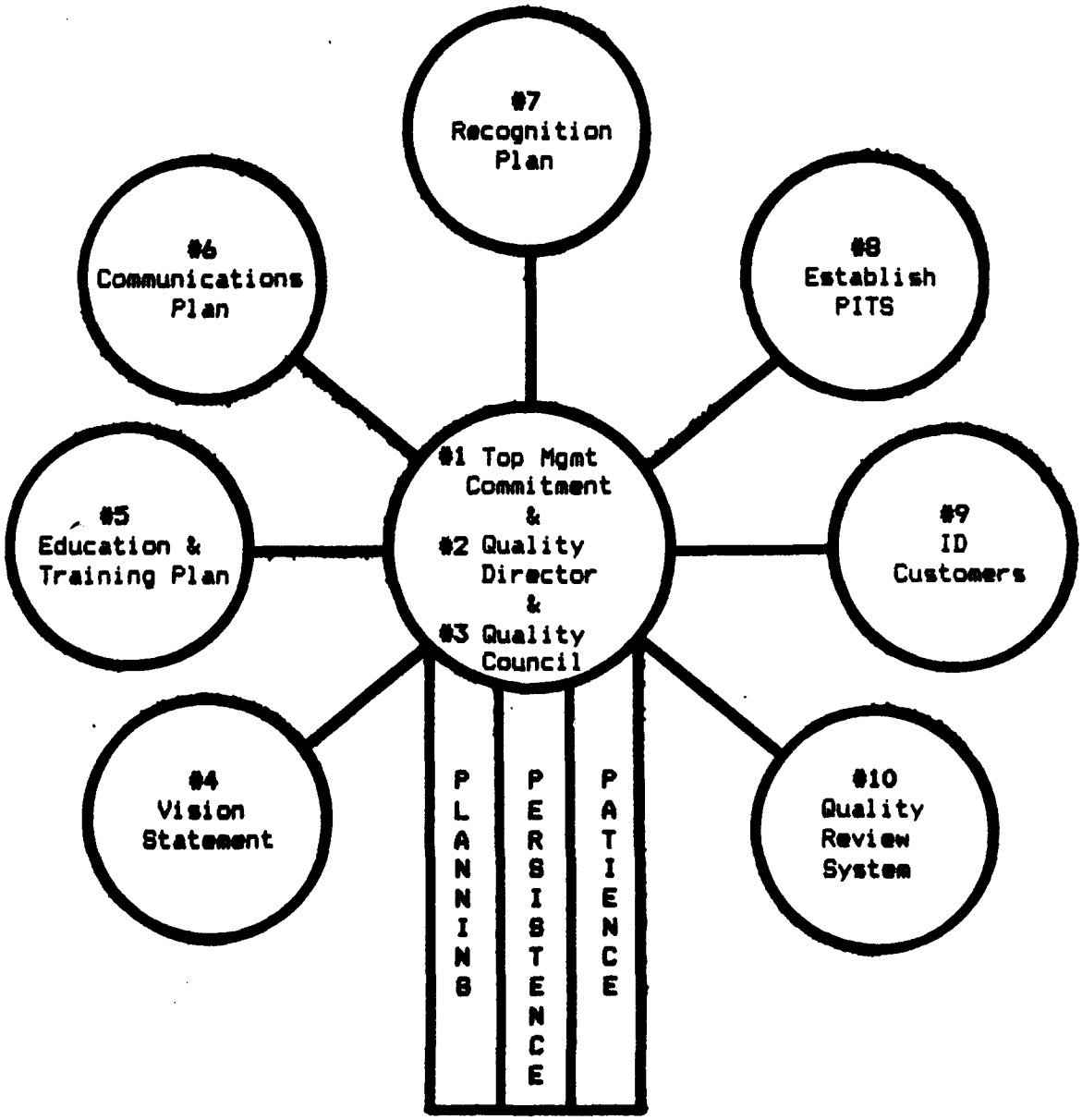
For more information, see

Rosenblatt, S. B., Cheatham, T. R., & Watt, J. T. (1982). Communication in business. (2nd ed.). New Jersey: Prentice-Hall.

Peters, T. (1987). Thriving on chaos. New York: Alfred A. Knopf. pp. 504 - 511.

TQM STRUCTURAL COMPONENTS MODEL
(10-Step Plan)

Step 1: Develop Top Management Commitment
Step 2: Select a Quality Director
Step 3: Establish a Quality Council
Step 4: Create a Vision Statement
Step 5: Develop Education and Training Plan
Step 6: Develop a Communications Plan
Step 7: Develop a Recognition Plan
Step 8: Establish Process Improvement Teams
Step 9: Identify Customers and Their Requirements
Step 10: Develop a Quality Review System

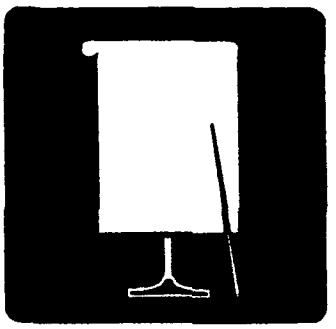


Federal Supply Schedule

Office of Personnel Management

Basic Edition

October 11, 1990



Total Quality Management Implementation Services

Consulting Services, Formal Training, Training Aids and Materials for Agency Training Purposes

Industrial Group **874**

Industrial Class **8742**

Multiple Award

For the period
October 1, 1990
through
April 17, 1993

HOW TO GET ASSISTANCE

CONTACTS

Contracting Officer
OPM Office of Procurement Services
Contracting Services Division
PO Box 606
Washington, DC 20044
(202) 606-2240

For Additional Copies of Schedules
General Services Administration
Centralized Mailing List Service (7CAFL)
4900 Hemphill St
Warehouse 4, Dock 1
PO Box 6477
Fort Worth, TX 76115
(COM)FTS: (817) 334-5215

For General Information
Federal Quality Institute
PO Box 99
Washington, DC 20044-0099
(COM)FTS: (202) 376-3747

INTRODUCTION

The federal government opened the Federal Quality Institute (FQI) in June 1988, for the purpose of introducing top executives in government to Total Quality Management (TQM) concepts and benefits. The Federal Quality Institute is intended to stimulate quality awareness among government leaders and educate them about what is required to achieve an organizational culture that emphasizes excellence, continuous improvement, strong customer service and "doing the right thing right the first time." If, as a result of their TQM awareness training at FQI, the top leaders of an agency make a commitment to implement TQM throughout their organizations, the Federal Quality Institute will make available to them a roster of contractors to be selected. The contractor will provide assistance to agencies in implementing the TQM process.

NOTE

The solicitation and resulting contracts of this federal supply schedule have been synopsized as required in the *Commerce Business Daily* and satisfy the requirements of the Competition in Contracting Act (PL 98 369) and FAR Part 5, Publicizing Contract Actions.

Federal agencies that use this schedule should notify the Federal Quality Institute (FQI) of the vendor(s) used when the procurement(s) occurs. Upon completion of the service, delivery of the product or otherwise fulfillment of the request, the procuring agency should file a summary evaluation of the vendor's performance with the FQI. The FQI will also try to facilitate and enhance the dealings between the FSS vendors and agency users.

GENERAL INFORMATION

GEOGRAPHIC COVERAGE

All federal agencies worldwide and the District of Columbia.

INCORPORATION OF FORMS

Federal Supply Schedules incorporate the following form(s) containing provisions and/or contract clauses by reference, with the same force and effect as if they were included in full text. Upon request, the contracting officer will make the forms available. Questions concerning the forms should be directed to the contracting officer.

GSA FORM 3502, Solicitation Provisions–Negotiated
GSA FORM 3504, GSA Service Contract Clauses

Clauses Incorporated by Reference

The following references provide practical instructions for using the federal supply schedules:

GSA Supply Catalog;

Federal Property Management Regulations 101–26.4 (Purchase of Items from Federal Supply Schedule Contracts); and

Federal Acquisition Regulations 8.4 (Ordering from Federal Supply Schedules).

MANDATORY USERS

USDA Forest Service is designated the only mandatory user of this contract. However, TQM services and/or deliverables under this contract shall be made available to all other federal agencies.

NONMANDATORY SCHEDULE USERS

The following activities are authorized to use this contract and resultant schedule on a nonmandatory basis: (1) all federal agencies in addition to the USDA Forest Service, which is required to use the resultant schedule as the mandatory source of supply (including nonappropriated fund activities as prescribed in FPMR 101-26.000), (2) government contractors authorized in writing by a federal agency pursuant to 48 CFR 51.1, (3) mixed ownership government corporations (as defined in the Government Corporation Control Act) and (4) the government of the District of Columbia. Contractors are encouraged to honor orders from these activities. If the contractor is unwilling to accept an order, the contractor shall return it by mailing or delivering it to the ordering office within 7 workdays after receipt. Failure to return an order shall constitute acceptance whereupon all provisions of the contract shall apply to such order. Overseas activities may place orders directly with schedule contractors for delivery to a CONUS port or consolidation point.

NOTE: Questions regarding activities authorized to use this schedule should be directed to the contracting officer.

ORDERING INFORMATION

Placement of Orders

Offerors are advised that delivery orders under resulting contracts may be issued by either the using federal agencies or OPM. Normally, deliveries will be made directly to the using agency. Payment will be made by the office indicated on the delivery order.

Order Acknowledgement

Contractors shall acknowledge only those orders which state "Order Acknowledgement Required." These orders shall be acknowledged within 5 days after receipt. Such acknowledgement shall be sent to the activity placing the order and contain information pertinent to the order, including the anticipated delivery date.

Requirements

(a) This is a requirements contract for the supplies or services specified, effective for the period stated in the schedule. The quantities of supplies or services specified in the schedule are estimates only and are not purchased by this contract. Except as this contract may otherwise provide, if the government's requirements do not result in orders in the quantities described as "estimated" or "maximum" in the schedule, that fact shall not constitute the basis for an equitable price adjustment.

(b) Delivery or performance shall be made only as indicated in this schedule. The contractor shall furnish to the government all supplies or services specified in the schedule. The government may issue orders requiring delivery to multiple destinations or performance at multiple locations.

(c) Except as this contract otherwise provides, the government shall order from the contractor all the supplies or services specified in the schedule that are required to be purchased by the government activity or activities specified in the schedule.

(d) The government is not required to purchase from the contractor requirements in excess of any limit on total orders under this contract.

(e) If the government urgently requires delivery of any quantity of an item before the earliest date that delivery may be specified under this contract, and if the contractor will not accept an order providing for the accelerated delivery, the government may acquire the urgently required goods of services from another source.

(f) Any order issued during the effective period of this contract and not completed within that period shall be completed by the contractor within the time specified in the order. The contract shall govern the contractor's and government's rights and obligations with respect to that order to the same extent as if the order were completed during the contract's effective period; provided, that the contractor shall not be required to make any deliveries under this contract after 30 days following contract expiration.

State and Local Taxes

Notwithstanding the provisions of the clause entitled "Federal, State, and Local Taxes" (see FAR 29.401-1), the contract price excludes all state and local taxes levied on or measured by the contract or sales price of the services or completed supplies furnished under this contract. Taxes excluded from the contract price pursuant to the preceding sentence shall be separately stated on the contractor's invoices and the government agrees either to pay to the contractor amounts covering such taxes or to provide evidence necessary to sustain an exemption therefrom.

Minimum Order

(a) The minimum dollar value of orders to be issued under restricting contracts is $200.00. Contractors are obligated to accept all orders for delivery to one destination which equal or exceed this amount, subject to any maximum order limitation.

(b) Notwithstanding the above, it is optional on the government to place orders below $200 with the schedule contractor. However, the contractor is obligated to accept any order between the minimum and maximum order limitation.

Maximum Order

The maximum order limitation will be negotiated individually for each delivery order. The limits will be established based on the concessions granted by the contractor. The total dollar value of any order placed under this contract shall not exceed $600,000.

Urgent Requirements

When the federal supply schedule contract delivery period does not meet the bona fide urgent delivery requirements of an ordering agency, use of the federal supply schedule is not mandatory. However, agencies shall, if time permits, contact the contractor for the purpose of obtaining accelerated delivery in the case of urgent requirements. The contractor shall reply to the inquiry within 3 workdays after receipt. (Telephonic replies shall be confirmed by the contractor in writing.) If the contractor offers an accelerated delivery time acceptable to the ordering agency, any order(s) placed pursuant to this offer shall be delivered within this shorter delivery time and in accordance with all other terms and conditions of the contract.

Procurement of Similar Articles or Services

When an agency required to use this federal supply schedule as a mandatory source determines that an article or service contained in the schedule will not serve the functional end-use purpose required by the agency, procurement of a similar article or service having the same general characteristics of the schedule article or service is authorized, provided that a prior written waiver of the requirement for using the schedule is obtained from:

Chief
Acquisition Division
Office of Personnel Management
1900 E St NW
Washington, DC 20415

Blanket Purchase Agreements (BPAs)

The contractor has agreed to enter into Blanket Purchase Agreements with ordering activities provided that:

(a) Only items covered by the contract are ordered under such agreements;

(b) The period of time covered by such agreements must not exceed the fiscal year unless the ordering activity has authority to obligate funds in excess of the period;

(c) Orders placed under such agreements must be issued in accordance with all applicable regulations and the terms and conditions of the contract.

NOTE: The maximum order limitation of the contract applies solely to individual orders placed against the blanket purchase arrangement and has no bearing on the cumulative or total value of these orders; and

(d) BPAs may be negotiated to achieve the highest discount price (lowest net price) based on the estimated total purchase which would be achieved by the cumulative total of orders placed under the contract. In the event the cumulative total of orders placed does not reach the quantity level at which the BPA was established, the contractor may invoice at the price at the applicable quantity level.

DELIVERY INFORMATION

Time of Delivery

The government desires that work on task orders be initiated within 5 days after receipt of order, or a longer period of time if jointly agreed to by the contractor and the government, and that performance and delivery of receivables be in accordance with the schedule established by the agency contracting officer.

CONTRACTOR PERFORMANCE

Warranty of Services

(a) Definitions. "Acceptance," as used in this clause, means the act of an authorized representative of the government by which the government assumes for itself, or as an agent of another, ownership of existing and identified supplies, or approves specific services, as partial or complete performance of the contract. "Correction," as used in this clause, means the elimination of a defect.

(b) Notwithstanding inspection and acceptance by the government or any provision concerning the conclusiveness thereof, the contractor warrants that all services performed under this contract will, at the time of acceptance, be free from defects in workmanship and conform to the requirements of this contract. The contracting officer shall give written notice of any defect or nonconformance to the contractor within 30 days from the date of acceptance by the government. This notice shall state either (1) that the contractor shall correct or re-perform any defective or nonconforming services or (2) that the government does not require correction or re-performance.

(c) If the contractor is required to correct or re-perform, it shall be at no cost to the government, and any services corrected or re-performed by the contractor shall be subject to this clause to the same extent as work initially performed. If the contractor fails or refuses to correct or re-perform, the contracting officer may, by contract or otherwise, correct or replace with similar services and charge to the contractor the cost occasioned to the government thereby, or make an equitable adjustment in the contract price.

(d) If the government does not require correction or re-performance, the contracting officer shall make an equitable adjustment in the contract price.

Security Clearance Requirements

Financial responsibility for obtaining security clearances, when required on individual task orders, will be mutually agreed upon by the contractor and the agency requiring the security clearance.

Scope of Work

Support to be provided by the government.

The contractor shall have access within reasonable limits to:

(a) Government publications; archival materials; videotape, film, photo, and graphic art repositories; and governmental employees as are necessary and appropriate to satisfy the contractor's information requirements in completing project work.

(b) Managers and employees within agencies where work is being performed, that are essential to carrying out contractual obligations; one or more subject-matter experts to advise and assist the contractor with respect to technical aspects or operating systems selected for training or quality and productivity improvement; physical support for carrying out work, such as room space, utilities services drawn from existing sources, currently available instructional equipment such as computer terminals and audiovisual display devices when such use does not conflict with the controlling organization's operational schedule.

(c) Technical reference material not subject to Privacy Act restrictions.

Inspection and Acceptance

Inspection and acceptance of all services ordered under this contract will be made at destination by the ordering agency or an authorized government representative.

PAYMENT INFORMATION

Payments

(a) Timely payment by the government is essential to avoid loss of prompt payment discounts and the imposition of a financing burden on the contractor. FAR Clause 52.232-1 provides that the government has an obligation to pay contractors promptly. Accordingly, nothing must limit or restrict agencies placing orders under this federal supply schedule from paying contractors promptly in accordance with their own internal regulations and applicable laws; e.g., when specifically authorized by agency regulations or procedures, payment may be made upon receipt of evidence of delivery to port of embarkation; upon receipt of evidence of shipment in accordance with Comptroller General Decision B-158487, dated April 4, 1966; on the basis of an invoice and a certificate of conformance; or, in accordance with a fast-pay procedure such as that provided in FAR 13.3. In the absence of applicable internal regulations covering payment by an ordering agency, payment must be made in accordance with the contract terms.

(b) When prices cover delivery to destination, the government assumes title upon delivery and acceptance at destination, and payment should be made upon the contractor's submission of proper invoices or vouchers. When the delivery order specifies delivery to a port within the U.S.A. and the contract provides only for the delivery to destination within the contiguous United States, payment should be made promptly upon receipt of evidence of delivery to port notwithstanding the fact that the ultimate destination of the supplies may be abroad, provided earlier payment is not otherwise authorized in accordance with (a) above.

(c) When supplies are purchased f.o.b. shipping point/origin, the government assumes title upon acceptance by the common carrier, and payment should be made upon the contractor's submission of proper invoices and proof of shipment without regard as to whether supplies have reached their ultimate destination. If the contractor is prepaying for the freight to destination, payment for the material, excluding freight charges should not be delayed pending receipt of proof of the exact amount for the freight charges. Payment for the actual freight charges should be made upon receipt of acceptable proof of the amount; eg, carrier's freight bill. Such payment may be made at the time; or it may be made subsequently, notwithstanding the fact that payment for the material (less freight charges) may have been made earlier.

Default

Orders under Federal Supply Schedule contracts—In addition to the Default article of GSA Form 3507, the following must apply to federal supply schedule contracts and property rehabilitation contracts:

(a) When the contracting officer has terminated the right of a contractor to proceed with all further deliveries, thereafter government agencies and activities required to use the contract as a mandatory source of supply, may purchase in accordance with prescribed procedures the articles or services covered by the termination without furnishing the defaulting contractor orders therefore, and any excess cost over the original contract price must be charged to the defaulting contractor and his sureties (if any), provided, that the default resulting in the termination was not excusable under subparagraph (c) of the Default article 11 of the General Provisions. This subparagraph must also apply to each order accepted by the contractor from an activity not required to use the contracts as a mandatory source of supply but permitted under the contract to place orders subject to acceptance by the contractor.

(b) Any ordering office may, in respect to any one or more delivery orders placed by it under the contract, exercise the same right of termination, acceptance of inferior articles or services, and assessment of excess costs as might the contracting officer, except that when failure to deliver articles or services is alleged by the contractor to be excusable, the determination of whether the failure is excusable must be made only by the contracting officer, to whom such allegation must be referred by the ordering office and from whose determination appeal may be taken as provided in the clause of this contract entitled "Disputes."

Method of Payment

(a) Payment Options. Payments under this schedule will be made either by check or by wire transfer through the Treasury Financial Communications System at the option of the government.

(b) Information Requirements to Accomplish Payment by Wire Transfer. The contractor shall include the following information on, or as an attachment to each invoice showing an amount due of $25,000 or more (exclusive of discounts for early payment), except as provided in paragraph (c) of this clause (OMB Control Number 1510–0050).

(1) Name, address, and telegraphic abbreviation of the receiving financial institution.

(2) Receiving financial institution's 9 digit American Bankers Association (ABA) identifying number for routing transfer of funds. (Provide this number only if the receiving financial institution as access to the Federal Reserve Communication System.)

Payment Due Date

(a) Payments under this contract will be due on the 30th calendar day after the date the later of:

(1) The date of actual receipt of a proper invoice in the office designated to receive the invoice, or

(2) The date the supplies are accepted by the government.

(b) For the purpose of determining the due date for payment and for no other purpose, acceptance will be deemed to occur on the 30th calendar day after the date of delivery of the supplies in accordance with the terms of the contract unless otherwise specified in the individual purchase order.

(c) If the supplies are rejected for failure to conform to the technical requirements of the contract, or for damage in transit or otherwise, the provisions in paragraph (b) of this clause will apply to the new delivery of replacement supplies.

(d) The date of the check issued in payment or the date of payment by wire transfer through the Treasury Financial Communications System shall be considered to be the date payment is made.

(e) The designated government payment office for this contract/purchase order is: see Block 25 of SF23.

(f) The vendor's remittance or check mailing address, if different from the business address is:

Imprest Funds

The contractor agrees to accept cash payment for purchases made under the terms of the contract in conformance with Federal Acquisition Regulation (FAR) 13.404.

SERVICES

Commodity Listing Information
(1) special item numbers, (2) descriptions and (3) awarded contractors. (See "Contractors" for complete contractor names, addresses, telephone numbers, contract numbers and contract effective dates.)

Consulting Services, Conducted Formal Training, Training Aids and Materials for Agency Training Purposes

822-1
Implementation Consulting Services
The approach and strategies that would be used to enable:

Senior Management to:
Understand the TQM process and its impact on organizational goals and management systems.
Make a long-term commitment to improvement process.
Identify actions management must take in both the short term and long term to attain TQM goals.

Middle Management to:
Understand TQM concepts and their role in the TQM process.
Build the necessary management team structure to implement improvements.
Plan continuous improvement in both processes and service.
Use TQM skills and techniques to improve management systems and measure progress.

The Work Force (includes first-line supervisors) to:
Understand TQM fundamentals and their role in quality improvement.
Acquire the knowledge and skills of systematic problem solving.
Function effectively in various types of quality improvement teams.

Advanced Technology Inc
American Productivity and Quality Center
American Supplier Institute
Booz-Allen & Hamilton
Caccia-Gabusi Partnership
Coopers & Lybrand
Corning Quality Systems
Paul W DeBaylo Consulting
Ernst & Young
IIT Research Institute
The Leads Corp
Management Analysis Co
Maryland Center for Quality and Productivity
McManis Associates Inc
Organizational Dynamics Inc
Perry Johnson Inc
Philip Crosby Associates Inc
Process Management Institute
The Quality Network
Rochester Institute of Technology

822-2
Implementation Training Services
Includes standard course(s) (off-the-shelf/already established), specially designed course(s) (tailored to agency needs), and instructor course(s) (training agency trainers). Courses include all materials to be provided to trainees.

Advanced Technology Inc
American Productivity and Quality Center
American Supplier Institute
Booz-Allen & Hamilton
Caccia-Gabusi Partnership
Coopers & Lybrand
Corning Quality Systems
Paul W DeBaylo Consulting
Delaware County Community College
Ernst & Young
Goal/QPC
IIT Research Institute
Juran Institute
The Leads Corp
Maryland Center for Quality and Productivity
McManis Associates Inc
Organizational Dynamics Inc
Perry Johnson Inc
Philip Crosby Associates Inc
Process Management Institute
The Quality Network
Rochester Institute of Technology
VPC Virginia Polytechnic Institute

822-3
Deliverables
Off-the-shelf and/or prepared specially for the government's use. Includes generic training packages or materials tailored to the agency's special needs, such as, but not limited to: slides, videotapes, overhead transparencies or other art work to be used for training purposes; reports of analyses documenting any proposed developmental, consultative or implementation efforts. Agencies may also order other services as offered by the contractors when covered by the schedule contract.

Advanced Technology Inc
American Supplier Institute
Booz-Allen & Hamilton
Caccia-Gabusi Partnership
Coopers & Lybrand
Corning Quality Systems
Goal/QPC
IIT Research Institute
Juran Institute
The Leads Corp
Maryland Center for Quality and Productivity
McManis Associates Inc
Organizational Dynamics Inc
Perry Johnson Inc
Philip Crosby Associates Inc
Process Management Institute
The Quality Network
Rochester Institute of Technology
VPC Virginia Polytechnic Institute

CONTRACTORS

AWARD INFORMATION

Contractor
Contractor's name, address, telephone number, effective date of contract awarded and the contract number.

Business Size and Minority Business Enterprises Indicators
"s" for small business, "o" for other than small business, "w" for woman-owned business, "a" for minority business enterprises and "b" for other than minority business enterprises.

Minimum Order
Contractors must accept orders for each destination based on delivered prices for the minimum order amount shown below.

o/b OPM-90-00696 1 Oct 90
Advanced Technology Inc
2121 Crystal Dr
Ste 200
Arlington, VA 22202
(703) 769-3000
Contact: Ms Carol Ann Duffell
Minimum Order: $200

s/l/b OPM-90-01704 1 Oct 90
American Productivity and Quality Center
123 N Post Oak Ln
Houston, TX 77024
(713) 681-4020
Contact: Ms Jackie Comola
Minimum Order: $200

o/b OPM-89-2873 1 Oct 90
American Supplier Institute
15041 Commerce Dr
Dearborn, MI 48120
(313) 336-8877
Contact: Ms [illegible] Love
Minimum Order: $200

o/b OPM-90-01706 1 Oct 90
Booz-Allen & Hamilton
4330 East West Hwy
Bethesda, MD 20814-4455
(301) 907-4070
Contact: Ms Joyce Doria
Minimum Order: $200

s/b OPM-90-00695 1 Oct 90
Cecola-Gabusi Partnership
1111 14th St NW
Ste 1001
Washington, DC 20005
(202) 440-0063
Contact: Mr John Gabusi
Minimum Order: $200

o/b OPM-89-2884 1 Oct 90
Coopers & Lybrand
1625 Wilson Blvd
Ste 800
Arlington, VA 22209
(703) 875-2102
Contact: Mr Ian Littman
Minimum Order: $200

o/b OPM-90-01914 1 Oct 90
Corning Quality Systems
Corning Inc
MP-QX-00-1
Corning, NY 14831
(607) 974-7018
Contact: Mr Donald Hopkins
Minimum Order: $200

o/b OPM-89-2855 1 Oct 90
Philip Crosby Associates Inc
PO Box 2369
Winter Park, FL 32790-2369
(407) 645-1733
Contact: Mr Leigh Whitney
Minimum Order: $200

s/b OPM-90-01702 1 Oct 90
Paul W DeBaylo Consulting Services
9 Briarwood Dr
Princeton Jt, NJ 08550
(609) 275-9538
Contact: Mr Paul W DeBaylo
Minimum Order: $200

o/b OPM-90-00694 1 Oct 90
Delaware County Community College
Rt 252 and Media Line Rd
Media, PA 19063
(215) 359-5131
Contact: Ms Joan Chance
Minimum Order: $200

o/b OPM-90-01707 1 Oct 90
Ernst & Young
1225 Connecticut Ave NW
Washington, DC 20036
(202) 862-6369
Contact: Ms Renee Jakubiak
Minimum Order: $200

s/b OPM-89-2871 1 Oct 90
Goal/QPC
13 Branch St
Methuen, MA 01844
(508) 685-3900
Contact: Mr Robert King
Minimum Order: $200

o/b OPM-89-2883 1 Oct 90
IIT Research Institute
Beeches Technical Campus
Route 26N
Rome, NY 13440
(315) 337-0900
Contact: Mr Steve Flint
Minimum Order: $200

s/b OPM-89-2870 1 Oct 90
Perry Johnson Inc
3000 Town Center
Ste 2860
Southfield, MI 48075
(313) 356-4410
Contact: Ms Marcia S Johnson
Minimum Order: $200

o/b OPM-89-2872 1 Oct 90
Juran Institute Inc
PO Box 811
Wilton, CT 06897-4469
(203) 834-1700
Contact: Mr John Early
Minimum Order: $200

s/b OPM-90-00697 1 Oct 90
The Leads Corp
206 W Sybelia Ave
Maitland, FL 32751
(407) 740-5444
Contact: Mr Robert M Langham, Jr
Minimum Order: $200

o/b OPM-89-2881 1 Oct 90
Management Analysis Co
3715 Northside Pky
400 Northcreek
Ste 600
Atlanta, GA 30327
(404) 266-9800
Contact: Mr Warren Nickell
Minimum Order: $200

o/b OPM-90-01708 1 Oct 90
Maryland Center for Quality and Productivity
University of Maryland College Park
College Park, MD 20742-7215
(301) 454-6698
Contact: Ms Leslie Wiley
Minimum Order: $200

o/b OPM-89-2869 1 Oct 90
McManis Associates Inc
2000 K St NW
Ste 300
Washington, DC 20006
(202) 466-7690
Contact: Mr Lan Schossler
Minimum Order: $200

o/b OPM-89-2882 1 Oct 90
Organizational Dynamics Inc
25 Mall Rd
Burlington, MA 01803
Contact: FQI Contract Manager
(800) 634-4636
In the Washington, DC Metro Area,
Contact: Mr Kevin O'Sullivan
(202) 463-1933
Minimum Order: $200

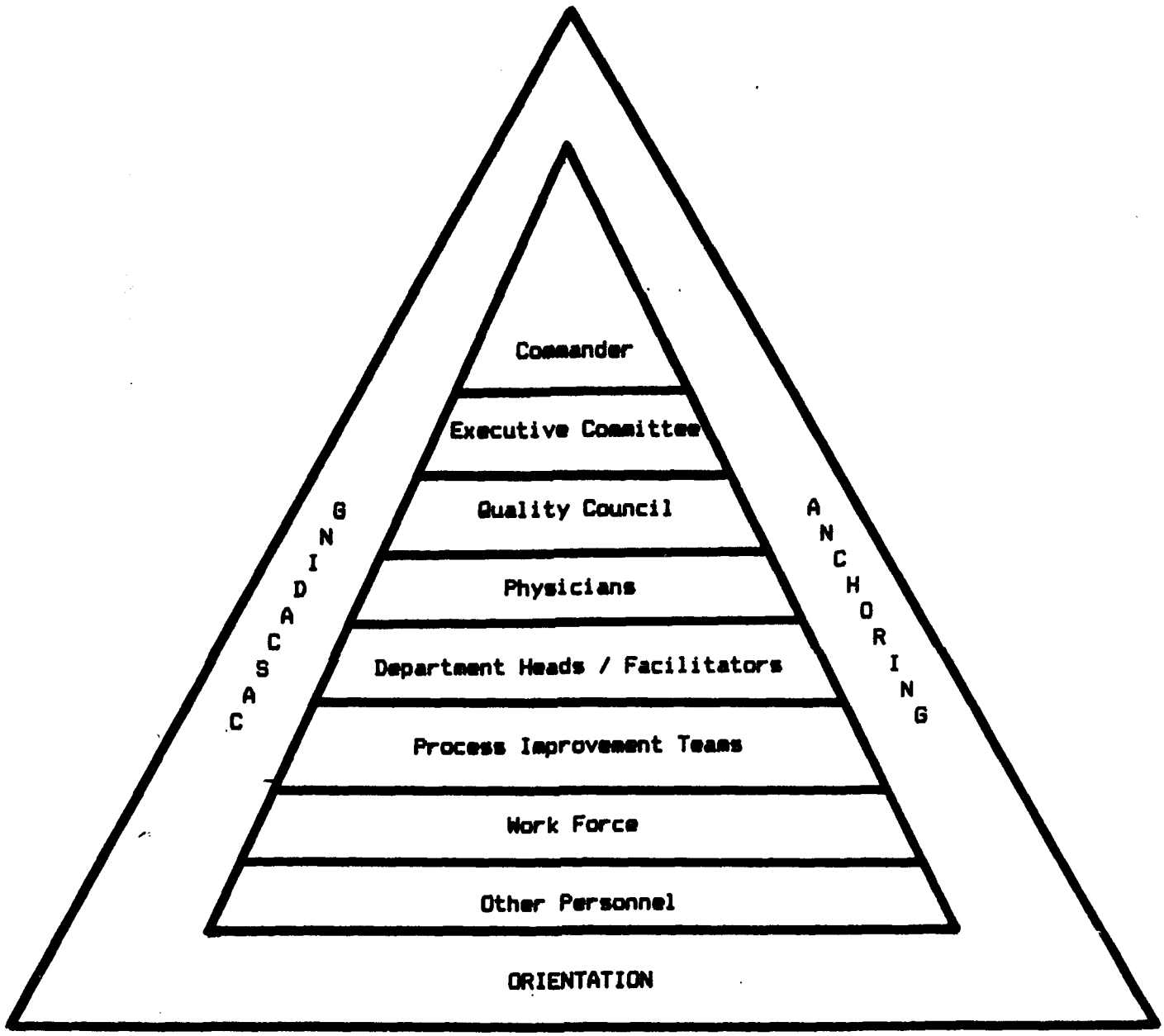
s/b OPM-89-2885 1 Oct 90
Process Management Institute Inc
7801 E Bush Lake Rd
Ste 360
Bloomington, MN 55435-3830
(612) 893-0313
Contact: Mr John Kirkpatrick
Minimum Order: $200

s/b OPM-90-01703 1 Oct 90
The Quality Network
11 Highland Pl
Rye, NY 10580-1709
(716) 248-5712
Contact: Mr Irving DeToro
Minimum Order: $200

o/b OPM-90-01701 1 Oct 90
Rochester Institute of Technology
One Lomb Memorial Dr
Rochester, NY 14623
(716) 475-5528
Contact: Ms Barbara Cutrona
Minimum Order: $200

o/b OPM-90-01915 1 Oct 90
VPC Virginia Polytechnic Institute and State University Office of Sponsored Programs
301 Burruss Hall
Blacksburg, VA 24061
(703) 231-5283
Contact: Mr Paul Sibert
Minimum Order: $200

TQM TRAINING PYRAMID



Note: "Other Personnel" includes volunteers, residents/students, contract personnel, Individual Mobilization Augmentees, Air Force Reserves, and Air National Guard personnel