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ANTHONY M. BEAT
COL, USAF

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DO QUALITY PRINCIPLES APPLY TO COMBAT OPERATIONS?

by

Anthony M. Beat
Colonel, USAF

A RESEARCH REPORT SUBMITTED TO THE FACULTY

IN

FULFILLMENT OF THE CURRICULUM REQUIREMENT

Advisor: Colonel Charles W. Ashley

MAXWELL AIR FORCE BASE, ALABAMA

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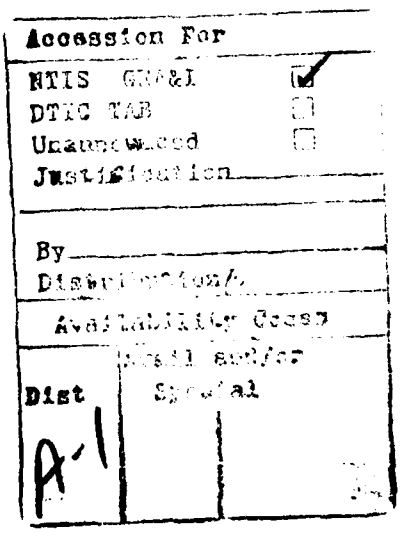

ABSTRACT

TITLE: Do Quality Principles Apply to Combat Operations?

AUTHOR: Anthony M. Beat, Colonel, USAF

The United States Department of Defense formally adopted the Total Quality Management approach in 1988. Since that time, the use of Total Quality Management has grown at an uneven rate with more extensive use in support and maintenance type organizations. One possible reason is the functions of these organizations more closely mirror civilian companies that have successfully implemented the approach. The concept of their functions as processes is more apparent, and customers are more easily identified.

In operational organizations, air crew members, infantrymen, and sailors often have difficulty identifying what they do as processes, and identifying who their customers are especially in combat operations. In fact, there is a common belief among "operators" that the Total Quality Management approach is not conducive or useful in combat operations.

However, in reviewing various military concepts, principles, and doctrine, one will find a correlation between them and the major quality principles of Total Quality Management. Examples from previous and current conflicts further exemplify this relationship.

BIOGRAPHICAL SKETCH

Colonel Anthony M. Beat (BS, Ohio State University) is a student at the Air War College (AWC), Maxwell AFB, Alabama. He is a command pilot with over 4,700 flying hours. He has served as a B-52 aircraft commander, instructor pilot, and chief evaluator pilot and as a B-1 aircraft commander, instructor pilot, and chief of training. Other assignments include HQ Strategic Air Command staff officer, commander of the 77th Bomb Squadron, deputy commander of the 28th Operations Group, and chief of the 28th Bomb Wing Quality Improvement Office. Colonel Beat is a distinguished graduate of Squadron Officer School and a graduate of Air Command and Staff College.

INTRODUCTION

The change to a total quality approach as a way of operating has continually spread across the United States (US) in recent years to include the Department of Defense. The genesis of the US's effort came from a wakeup call to many business leaders that they were rapidly losing market share and competitiveness to other countries. In the 30 years between 1960 and 1990, the US lost 40 percent of its market share to foreign competitors while Japan increased its foreign market by 500 percent. Today, Japan has the nine largest banks and two largest companies in the world as well as 50 of the world's 100 largest companies. Additionally US manufacturers, who formerly made 90 percent of the world's color TVs, now only make five percent. There are no US companies which now make VCRs, compact disc players, or single-lens reflex cameras. (1:19)

Naturally concerned, US business leaders traveled to Japan to learn their secrets and discovered that Japan did not have any new secrets! The Japanese were using principles and methods originated and once used in the US by companies such as General Electric, Hoover Corporation, and even the US government. Taught by US experts such as Dr. W. Edwards Deming, Dr. Joseph Juran, and Mr. Philip Crosby during US efforts to help rebuild Japan, the Japanese conscientiously applied these new ideas with obvious success. At the same time, these principles and methods fell into disuse in the US. (2:18-19, 3:7-9)

American businesses soon began to respond. Many initial efforts were by companies that were rapidly losing money and market share and concerned about their survival. After some remarkable successes, other more profitable companies adopted the approach looking for that extra edge in the fast-paced, competitive market. Companies such as Westinghouse, Xerox,

and Federal Express turned their companies into industry leaders using this new operating approach. (1:20)

Noting the number of growing successes in the civilian sector, the US government transformed its previous mix of productivity efforts to the total quality management approach by 1987. The Department of Defense (DOD) subsequently adopted the approach in 1988. Today, most military organizations are in some stage of implementing the approach under slightly varying forms and names: Total Quality Management (DOD), Quality Air Force (Air Force), Total Quality Leadership (Navy), and so on.

In each of the services, the use of the total quality approach has grown at an uneven rate with more extensive use in support and maintenance types of organizations. One possible reason is the functions of these organizations more closely mirror civilian companies that successfully implemented the approach. The concept of their functions as processes is more apparent, and customers are more easily identified. In operational type organizations, air crew members, infantrymen, and sailors often have difficulty identifying what they do as processes, and identifying who their customers are, especially in combat operations.

The purpose of this paper is to address that problem and show that the various major quality principles do apply to combat operations. The focus will be on applying the principles--not tools, techniques or detailed methods. Some previous implementation efforts provided less emphasis on the first part and quickly jumped into the second part. Better understanding of how and why the principles can apply in combat operations will hopefully provide greater success in the future.

To do this, this paper will first discuss the overall total quality approach in a more balanced perspective. The paper will then show how the major quality principles can apply to combat operations. Specifically, the quality principles that will be addressed are: providing a vision for the organization, empowerment, maintaining a process orientation, customer focus, measurement, and continuous improvement. One may be surprised to find these principles

closely relate to various military concepts, principles and doctrine. The term "total quality approach" will be used in this paper for two reasons. First, many organizations have adopted different names for their approach as stated previously, and this term represents the general nature of them without favoring a particular name. Secondly, the military, as well as a growing number of civilian organizations, recognizes leadership is critical to the approach and deemphasized the term "management" as in "total quality management." Additionally, the paper's approach is based on the assumption the reader has at least a basic understanding of the quality principles and the military concepts, principles, and doctrine discussed.

PUTTING THE TOTAL QUALITY APPROACH IN PERSPECTIVE

Prior to discussing how quality principles apply to combat operations, we must put the use of the total quality approach in proper perspective. Misperceptions and overemphasis of certain aspects have been counterproductive, and have led people to believe that a total quality approach does not apply in combat operations. This discussion will hopefully dispel many of those assumptions. The key point to remember is that the total quality approach should be applied in a common-sense, balanced approach.

First, what is a total quality approach? Simply, it is an operating approach that provides products or services that meet the needs of your customers by continually improving the way you operate and improving the products or services provided. This approach requires a leadership commitment and operating style that promotes trust, teamwork and continuous improvement. (4:31,5:I-1)

A review of the various literature on total quality approach will reveal few new ideas or concepts. Instead, the reader will find time-tested principles and concepts that have been successful in the past. However, those principles have often been taught and applied separately and sometimes not applied effectively. The quality approach, in effect, takes these

proven principles and concepts and integrates them into a comprehensive, complementary approach to operating. Some tools and procedures are also used aids. However, they are ***only tools*** and ***only serve as aids***. Too often, the tools and procedures are overemphasized to the point that people assume this is what quality is all about. (6:239) The primary emphasis must be put on leadership and the people. The total quality approach is not a detailed management system. It is an operating style that starts with the leader and permeates throughout the organization. It is about how people operate. (7:3) The tools and procedures should be used as appropriate based on the situation.

A common complaint by some people is that they are expected to form a team and use a lengthy, involved process to improve things, regardless of how big or small the problem. First, using a team and a structured approach to solving deep-rooted, chronic problems are useful. However, there are other situations where something less formal is appropriate. For a simple problem, use a simplified approach. However, you should look at the whole process the problem occurs in to ensure you have identified the real problem and not a symptom. Also, when a potential improvement is identified, ensure the improvement is not worse than the original problem for you or someone else. If a problem is complex and there is not enough time, work it later. If it needs to be fixed now, use what you can that is appropriate to the time available. (8:202) Simply, if you need to make a decision, make it! Use the method and approach appropriate for the situation. Additional discussion can be found in the next section.

Quality principles are also not a checklist that dictates how to operate, and they do not make decisions for you. You do! They are a guide just as military doctrine is a guide. You must still apply your experience, judgment, and skills in the way you operate and in your decisions.

If quality principles are applied in the manner described above, they can be useful in combat operations. The key is to apply them in the proper balance appropriate to the situation. When applied with the proper perspective, they can provide an extra edge that

everyone looks for in the fast-paced, competitive environment of combat operations. Let's examine that concept further.

QUALITY PRINCIPLES APPLIED TO COMBAT OPERATIONS

Vision

One of the first quality principles that applies in combat operations is that the leader must provide a vision of what the organization is striving to attain. If any organization is to operate effectively and to succeed, the leader must ensure the organization has and understands that vision. The vision provides the all important bridge from the present to the future. (9:90) To do this, the organization first determines what its mission is (its purpose or why it exists). After that, the organization's vision (what it wants to do or where it wants to go) is established. (4:163)

This guidance provides the organization's members at all levels with a common orientation. They can then make better decisions and focus their efforts towards a common goal. No matter how talented the people or how abundant the resources, an organization cannot succeed if it's headed in the wrong direction, or if its people are headed in different directions. (10:35)

Establishing and understanding the leader's visi ,n is every bit as important in combat . This applies starting at the top with national objectives and strategy and cascading down through the theater commander, component commander, and to the lowest levels of the platoon or flight. Anyone who has studied history or doctrine will recognize that this is not new.

At the national level, establishing the national policy objectives is the first step in any war or conflict. As Clausewitz states, "War is merely the continuation of policy by other means." and that "The political objective--the original motive for war--will thus determine both the military objectives to be reached and the amount of effort it requires." (11:81-87)

Some of the problems during the Vietnam War stemmed from the fact that United States' political objectives were not clear during the war. The United States had 22 separate rationales for its involvement in Vietnam between 1949 and 1967 while North Vietnam had one clear one. (12:98) Additionally, President Johnson and his advisors never defined a clear military objective for the use of airpower, and the objectives the air chiefs defined did not always mesh with the President's changing political goals. (13:209) As a result, military strategy and national strategy did not mesh partly due to being unclear as to what the "vision" was. If the United States had applied this quality principle better, fewer problems might have arisen.

The principle of vision is equally important at the theater level. In the services' doctrine manuals, the term "intent" is used. The joint task force commander establishes overall guidance which outlines broad concepts designed to achieve strategic objectives. This guidance provides the basis for all other planning. (14:45-47) The component commanders then develop their guidance. AFM 1-1, Basic Aerospace Doctrine of the United States Air Force, states, "In concert with the joint commander, each component commander develops his vision (component commander's intent) of the best way in which his particular expertise and forces can be brought to bear on the combatant commander's mission." (15:3) AFM 1-1 also states, "Airpower is most effective when it is focused in purpose and not needlessly dispersed." (15:8) Doctrine manuals for the Army (FM 100-5) and Marine Corps (FMFM 1) have similar references applicable for their services.

Moving down to the tactical level, the tip of the sword in combat, vision or the commander's intent is just as critical. Being a long way and several levels from the top, these forces can easily lose the focus of their efforts without a clearly stated vision or commander's intent that flows logically from the top. In combat, events may not always go as planned, assumptions may prove to be wrong, and assigned tasks may not be appropriate. Knowing the purpose of the unit mission helps subordinates decide what new tasks would be more

appropriate and helps them coordinate their unit's actions with those of others. This leads to better execution and economy of effort toward the common goal. It provides a frame of reference for subordinates to solve unanticipated problems that are best resolved at their level. (16:249) In reference to subordinate commanders, the Army doctrine manual, FM 100-5, Operations, states:

> He and his organization must know the intent of his commander two levels above, understand the concept of operations and intent of the immediate commander, and know the reponsibilities of flanking and supporting units. Then, the unit commander can fight his unit confidently. He can anticipate events and act freely and boldly to accomplish his mission with minimum guidance, particularly when he cannot communicate with his commander. (17:2-15)

In addition to combat, an effective vision is also important in preparation for combat. An example of this is the 28th Bomb Wing at Ellsworth Air Force Base, SD. When the wing's mission changed from a nuclear role to a conventional role with its B-1 bombers, they needed to reorient themselves to the new mission. As part of the transition, the wing developed a new mission statement to provide the proper focus: "First to the fight, with decisive combat air power that achieves the aims of the combatant commander's campaign." They then developed new goals based on that mission.

This new vision helped focus the wing's transition to the new role. The people in the wing understood the previous role of generating the bombers for a nuclear mission and maintaining them on alert status at home station no longer applied. Under their new role, the wing could be tasked for rapid generation of the bombers and launched to be one of the first sorties into a conflict anywhere in the world as a delaying action while other forces were deployed. The bombers could also be deployed to operate from a forward operating base during the conflict. Everyone across the wing had a focus for their new training requirements. Members understood the reason for increased mobility requirements, chemical warfare training, and practice deployments to bare base locations. This focus provided the why and the perspective

needed for literally hundreds of decisions and changes necessary in the way the wing did business.

As can be seen, the quality principle of the leader providing a vision for the organization is vital in combat. By giving overall guidance and focus to the organization, subordinates can then make smart decisions and focus their efforts towards the common goal. The importance of an organization's vision becomes even greater as you provide greater empowerment to subordinates to make decisions which is the next quality principle to be discussed.

Empowerment

The term "empowerment" has become a trendy buzzword that has been overused. It is defined in the book Beyond Quality as "...giving employees the authority and information they need to make wise decisions and solve problems." In other words, empowerment is moving decision making authority down to the lowest level appropriate where individuals have the knowledge, are in a position to have first-hand information, and can make timely decisions. Good leaders recognize that empowerment doesn't substitute for leadership or diminish their authority. Instead, there is an even greater need for leaders who can set goals and define a vision of where the organization should be going. (18:158)

Just as companies have realized the need for this quality principle in today's fast-paced environment, the principle applies equally, if not more so, in combat. During combat, even the best strategy doesn't always work. Chance or any number of other unforeseen factors arise. Additionally, intelligence is not always accurate, and unexpected enemy reactions are encountered. Clausewitz states that these events are part of the friction of war. (11:119) As a result, success will depend heavily on the ability to adapt and make timely, informed decisions in this fluid, fast-paced environment.

This principle of empowerment was applied starting at the top during the 1991 Gulf War. The Gulf War Air Power Survey Summary Report stated, "From the outset, the civilian and

military leadership of the American high command declared its strong desire that direction of this war should rest in the hands of the theater commander in chief." (19:247) In contrast, the President and his advisors ran the Vietnam War from the White House with tight controls on many of the decisions. (13:85-87) While certainly not the only factor, these opposite approaches were significant factors in the military's effectiveness in these conflicts. There are also numerous other examples ranging from the Iran Hostage Rescue Attempt to the Invasion of Panama.

At a slightly lower level, examples of empowerment to allow rapid, effective decision-making by subordinates can be found even in World War II. General von Blumentritt, master of the German blitzkrieg, explained the blitzkrieg's success as "The entire operational and tactical leadership method hinged upon...*rapid*, concise assessment of the situations...*quick* decisions and *quick* execution, on the principle: each minute ahead of the enemy is an advantage."(emphasis in original) (20:17) With the mobility, speed, and capabilities of current combat forces, time has certainly become a driving factor in combat.

While all the services' doctrine manuals emphasize this principle, the Marine Corps' doctrine manual, FMFM 1-1, Warfighting, provides significant emphasis. An excellent example is:

> In order to generate the tempo of operations we desire and best cope with the uncertainty, disorder, and fluidity of combat, command must be decentralized. That is subordinate commanders must make decisions on their own initiative, based on their understanding of their senior's intent, rather than passing the information up the chain of command and waiting for the decision to be passed back down. Furthermore, a competent subordinate commander who is at the point of decision will naturally have a better appreciation for the true situation than a senior some distance removed. (21:62)

For subordinates to make effective decisions, they must have the proper skills and knowledge. Combat skills are learned through practice and use in combat training. We should train like we fight. Part of those combat skills should include empowering subordinates to make decisions. Again, the Marines take this seriously. They advocate that

training--like combat-- should be decentralized. The senior commander communicates the intent of the training, establishes the focus of effort, and influences the training by establishing goals and standards. However, he does not dictate how the training is to be done. That is accomplished by subordinate commanders. (21:47)

Process Orientation

The quality principle of process orientation is also necessary in combat operations. Some examples are campaign planning, strategic target selection, or planning a combined air strike. Each is a process of some form which was used in past conflicts and will likely be used in future ones.

So what is a process? It is a group of sequential, logically related tasks that use organizational resources to provide a product or service. (22:59) As various people accomplish each task, they naturally want to do the best job they can. The end result (product or service) will then hopefully be the best it can be. However, while each person or group tries to optimize their portion or task, they may hinder the success of others causing the end result to be less than optimum. Conversely, coordinating and working together with the overall process in mind ("big picture") provides better results and may help others do their individual parts better. Process orientation is keeping the "big picture" in mind instead of just looking at the lower, left-hand corner.

An air strike using combined forces provides a good example. The strike package has F-15s for air cover, F-4s with HARM missiles to destroy enemy surface-to-air missile sites and radars, EF-111s for jamming the threat sites' radars, and B-1s to bomb the target. Each set of aircraft accomplishes a task in the overall process of destroying the designated target which is the primary objective.

If the B-1s, carrying extra fuel, fly to the target at a higher airspeed than is fuel efficient for the rest of the accompanying strike package, they may arrive by themselves if the others have to turn back for lack of fuel. Likewise, if the package commander plans a route of flight

over numerous known threat areas, the F-4s may use all their HARM missiles prior to arriving at the target. By each group coordinating and making adjustments as necessary, the entire strike package provides a better final outcome (destruction of the primary target) and stay oriented on the whole process (the air strike to destroy the primary target).

Process orientation is also used in campaign planning and will be even more important in future conflicts. With increased speed, range, mobility, and lethality of forces, many objectives can now be achieved simultaneously. Precision weapons' increased lethality enables air power to strike many targets simultaneously versus massing all available aircraft to strike one target at a time as in World War II. (23:21) The ground forces' emphasis is now on maneuver warfare. They may bypass pockets of enemy strength to reach their primary objective as was the case in the Gulf War. These types of campaigns require a careful look at the whole process. Which objectives are prerequisites for others? Which ones are not? Those that have no prerequisites, can they be attained simultaneously? Can a particular pocket of enemy strength be bypassed or will it later affect your forces or plans?

Just like campaign planning, strategic target selection also requires a process orientation. In strategic target selection, the focus is on the enemy's centers of gravity and vulnerable points. By looking at the enemy's war production processes, key parts and chokepoints can be determined. Destroying these areas can be easier and quicker than destroying an entire war production capability.

An example of this is Germany's fuel production during World War II. The German oil industry became the priority target for allied bombers in May 1944. Within six months all stocks were practically depleted, severely affecting German capabilities. When the Germans launched their counteroffensive on December 16, 1944, they had insufficient fuel to support their operations and many Panzer units were lost when they ran out of gas. In February and March of 1945, the Germans massed 1,200 tanks on the Baranov bridgehead at the Vistula to stop the Russians. They were largely immobilized for lack of gasoline and subsequently

overrun by the advancing Soviet army. (24:23) Destroying their few key oil refineries accomplished the same result as destroying all their tank factories. Additionally, this technique was far superior to destroying their tanks one by one on the battlefield.

This same approach to strategic target selection was also used during the 1991 Gulf War and will play a role in future conflicts. As technology increases, production becomes increasingly specialized using specialized tools and materials made at only a few locations. This increases the number of vulnerable points, and often any one of them could shut down the industry. (25:1) Conversely, not all future adversaries may be highly industrialized which makes this option less effective. Maintaining a process orientation will help determine if this option is practical.

Virtually everything performed in combat is a process of some form. Maintaining a process orientation will help keep the "big picture" in mind and improve overall results. It may also lead to a better way to accomplish a particular process.

Customer Focus

As you maintain a process orientation to improve the overall results of a particular process, how do you know the results are improved? Improvement is relative to what is needed. Who decides that? The customer does.

Processes are performed to produce a product or service. That product or service is then used by someone. If not, then why perform the process? Eliminate it. That someone is your customer. A customer then is anyone who receives or uses what you produce, or help produce, and whose satisfaction depends on your actions. (2:28) Consequently, if you are risking lives and expending resources in combat, ensure the results of your efforts provide your customers what they need.

One example of customer focus can be seen in the Gulf War. One of President Bush's stated objectives of the war was "...immediate, unconditional, and complete withdrawal of

Iraqi forces from Kuwait." (19:27) Thus, Kuwait was a customer of the allied efforts during the war. As the Iraqi forces were retreating north, one of three major chokepoints was near Kuwait City with fleeing forces coming from the city. (19:113) The Iraqi forces were attacked outside the city but not in the city. The objective was achieved without destroying Kuwait City and producing Kuwaiti casualties. (19:115) The coalition forces kept the customer, Kuwait, in mind and thus produced a better quality service to the customer.

So who is the customer? It depends on the process. If you look at the process of the Gulf War, one of the customers was obviously Kuwait. There were also others. Another objective of the war was to "assure the security and stability of the Persian Gulf Region." (2:27) Thus, the other Persian Gulf countries were also customers as well as various oil consuming countries. You can probably determine several more. These customers were external customers. External customers are the customers who a product or service is for and are external to the process itself. However, you can also have internal customers.

Internal customers are found within the process itself. A simple example is a process that has five steps. Each step is performed by a different person who then passes their work to the person who does the next step. That next person the work is passed to is an internal customer in the overall process. An internal customer is then another person in a work process that comes after yours or who uses your output to do his or her job. An internal customer could also be a unit. One unit of an organization does its portion of a process and passes it along to another unit.

An example is the combined air strike described earlier. The package consisted of F-15, F-4, EF-111, and B-1 aircraft. In this situation, the external customer of the process is the air component commander and possibly the ground forces if the target is being destroyed to support their operations. The F-15 pilots' internal customers are the other members of the strike package. They perform their portion of the air strike process by gaining and maintaining air superiority so the others can accomplish their portion during the mission. That

is one of the reasons AFM 1-1 states "Aerospace control is an enabling means rather than an end in itself." (15:10)

In the air strike process discussed, each person or organization's effectiveness is determined in part by how well they support their internal customers so they could accomplish their own portion of the process. However, the ultimate focus is on the external customers of the overall process since the overall objective of the process is the primary objective. Thus, don't maximize support of your internal customers at the expense of the external ones. In each case, customer focus is used.

To help determine who the customer is, one needs to first look at the objective of the process involved. Then you can determine who that objective is obtained for. One place to look is the commander's intent or vision as mentioned earlier. President Bush's listed objectives provided the vision for the Gulf War. Based on those objectives, customers of the war effort could then be determined. One customer was stated explicitly; Kuwait.

Determining who your customer is during preparation for combat is equally important. Evaluating the unit's combat training in terms of the customer's needs will determine if the training is sufficient. The appropriate training regulations (which should be based on the customer's needs) provides the basic guidance, but look beyond that to what your wartime customer will need. Then provide that information to the people in the unit. This will help focus them on the correct training and why. It will also help in measuring the effectiveness of that training.

To determine who that wartime customer is, read your unit's designated operation capability statement (DOC statement) if you are in the Air Force or the Mission Essential Task List (METL) if you are in the Army. The Marines and Navy also have equivalent documents. These establish the required capabilities for the unit, and the operational plans the unit is tasked to support. They should lead you to who your likely wartime customers will be.

Again, one of the keys to effective results during combat operations is to focus on what the customer needs. If you are not meeting the customer's needs, then you are wasting lives and resources.

Measurement

Next to empowerment, the use of measurement is probably the next quality principle that people are most reluctant to use and accept. One reason for that is the common belief that "figures lie and liars figure." The problem is further compounded by those who carry the use of statistics to the extreme. They use statistics as the only factor in their decision making rather than as a tool to which considerable judgment and experience must be added to make smart, effective decisions. In a total quality approach, using measurement is important, but equally important is measuring the right things and using the right data in doing that. Using this quality approach in combat operations will help ensure good decisions are made.

Measurements are a valuable tool in understanding the current status of operations, progress attained toward meeting an objective, and how much more is required to the meet the objective. An example is making a trip in which you are unfamiliar with the route to the destination. The destination is your objective. Periodically along the way, you refer to your map. You check to see where you are (your status). This tells you whether you are progressing correctly or have made a wrong turn. It also tells you how far you still need to go.

When this concept is applied to an organization, measurement, in effect, helps provide the current location or status of the organization's operations. Are they progressing as planned or has the unit made a wrong turn? Measurement helps show how far the unit has traveled toward the objective, and equally important, helps show how far the unit still needs to go. Notice two things. First, the term "help" is used: measurement is only a tool. Secondly, measurement doesn't show you how to get to your destination or objective. You still decide that by developing your own route or strategy to get there. A military decision is not a

mathematical computation. Good decision making requires skill to recognize and analyze the essence of a situation and the ability to develop a practical solution. (21:69) You still make the decisions using your experience, skills, and judgment with measurement as another tool in doing so.

In all combat operations, objectives are established. They start at the top with national military objectives for the conflict and flow down through the theater commander's objectives, component commander's objectives, and all the way down to the unit level. Objectives are established for campaigns, strategic target selection, air strike missions, ground force operations, battles, and so on. If an organization has objectives, then it needs some way to know how it is doing in meeting those objectives. For example, are the right targets being selected to hit? Have the air strikes on the targets been effective?

The Army's doctrine manual, FM 100-5, states that control is a natural part of battle command, and that commanders must provide a means to monitor organizational effectiveness and identify deviations. (17:2-15) Along this same line of thinking, the Marine Corps' doctrine manual, FMFM 1, states that decisions should be based on awareness rather than mechanical habit. It states that you should act on an awareness of the essential factors that make each situation unique instead of from conditioned response. (21:69) To do these things, measurement can help.

This doesn't mean that we don't act unless we first have all the statistics and information. You try to reduce the unknowns in your decision making by gathering information, but you will never have complete information. That denies the unpredictable nature of war. You don't want to make rash decisions, but you also should not squander opportunities while trying to gain complete information. (21:6,69)

As a result, you can't hire a bunch of number crunchers with green eyeshades to decide what to measure, how much information is enough, and what to decide. You decide how much information you need and when to make the decision. Equally important is your

guidance on selecting the key, important things that need be measured, and which ones just contribute to information overload. Additionally, you need to decide if you are collecting the right data. Is tracking the body count (like the Vietnam War) important, or is how many forces the enemy has left important? Do you measure the amount of enemy supplies interdicted or the amount of supplies that still get through? Is the amount of supplies that get through meaningful unless you know how much the enemy needs to operate effectively?

An actual example of gathering the right data involves the Royal Air Force (RAF) during World War II. The RAF was losing a large number of their Lancaster bombers so they set up a program to measure the bomber's vulnerability to anti-aircraft artillery fire. They examined the bombers after they returned from several missions, and determined the aircraft were being hit over the entire fuselage with few hits in the wings. A plan was then developed to reinforce with armor the entire fuselage but not reinforce the wings. Then someone asked a question. Should they base their decision on the aircraft that had successfully returned or the aircraft that had actually been shot down? (4:137)

A current example of what to measure involves an Israeli military commander. This district commander has his people track information ranging from the number of soldiers and civilians killed and injured to how many demonstrations took place, rock throwers captured, and arms caches discovered as well as the location of the activity. Always short of men and resources, he uses this information to decide which problems are more severe and where to focus his forces and effort. (26:6)

From the above information, one can see that the quality principle of using measurement does apply to combat operations. In combat, objectives are established and measurement of progress towards those objectives are used. If this quality principle is not used, you risk measuring the wrong things and basing decisions on the wrong information. Even with good data, you must also use your experience, skills, and judgment in making effective decisions.

Continuous Improvement

As the various quality principles are applied, there is one other overarching quality principle that certainly applies to combat operations--continuous improvement. This involves continuously improving what you do and how you do it. This philosophy should be pervasive throughout the organization with new ideas not only welcomed, but encouraged. The vast potential for new ideas and improvement rests with the people who perform those processes.

The focus of improvements should not be limited to fixing problems but should also include improving the organization's product or service and the processes used to produce them. Can a process be simplified to make it easier, save time, or reduce unnecessary effort? Can it be modified to produce a better product? The idea is to work smarter, not harder.

Obviously, continually improving combat capability and effectiveness is important. One Israeli military unit observed that it consistently had a large number of weapons that couldn't fire. Using the quality improvement process, a small team was formed to work the issue. They found that 70 percent of the required repairs were to the rifle barrels. After looking at the processes of how the rifles were used and maintained, they found three causes: citizen-soldiers used their rifles to break open locks, training on cleaning the guns was not always clear, and there was not enough of the proper cleaning fluids. Changes were then made in the soldiers' training and in the maintaining of the rifles. After four months, there were only 68 faulty weapons saving 185,000 Shekels ($62,000) in repair costs. The changes were then adopted by the base's other paratrooper units which resulted in saving 1.5 million Shekels ($500,000). (26:6) The overall result was increased combat capability and savings in money for additional resources.

In combat, saving time or reacting faster than the enemy is important. The amount of time required to combat turn (rearm, refuel, and service) a fighter determines how many combat sorties that fighter can fly during battles. At Hill AFB, a team of maintainers looked at the process of combat turning their fighters and were able to reduce the required time 33 percent

(from 45 to 30 minutes). This shorter combat turn time translates into more combat sorties using the same resources. (7:14)

Another example involves combat search and rescue (CSAR). Difficulties experienced during the Gulf War coupled with lessons learned during subsequent joint exercises led the CSAR community to examine combat rescue. Air Rescue Service formed a process action team with representatives from across the services to improve rescue equipment, training, and tactics. Future downed air crew member will appreciate their improvements. (27:1-2)

Another part of the quality principle of continuous improvement is making improvements in a disciplined approach. While there are many guides available to do this, keep two aspects in mind. First, involve people who perform different portions of the process. Secondly, look at the entire process in which the problem is occurring. This ensures you identify the real problem, not a symptom of the problem, and that the solution doesn't improve one area but create problems elsewhere.

This raises the point that, in combat operations, you may not have time to put together a team to do this. At times, that is true. However, you may have to solve problems that you can not avoid. Then, you do what you have to do. If a decision is required immediately, make it. If you have 20 minutes to make a decision, take it. If you have a day, use it. Adapt the approach to the level of detail you have time for. Problems in combat require effective solutions. (28:4) Like any other skill, practicing and using the quality improvement process in peacetime will help you use it quickly and efficiently during combat operations.

Additionally, some ideas and improvements are simple and straight forward requiring minimum time and effort to implement. If the members of your unit feel that new ideas are encouraged, you will likely find there are many out there. Implement the ones you have time for. They don't have to be home runs. The idea is to be 1 percent better at 100 things rather 100 percent better at 1 thing. (29:24) After a while, it will all add up to significant improvement in combat capability.

CONCLUSION

The use of a total quality approach is spreading across the Department of Defense. This approach is based on various quality principles such as: providing a vision for the organization, empowerment, maintaining a process orientation, customer focus, and continuous improvement. A review of these principles in conjunction with military doctrine and combat operations will show these quality principles do apply to combat operations.

Providing a vision for the organization is the same as the vision and commander's intent discussed in the services' doctrine manuals. That vision provides overall guidance for subordinates' decision making in the fluid nature of combat and focuses their efforts toward common goals. The doctrine manuals also urge subordinates to seize the initiative and make timely decisions in order to gain advantage in the fast-paced environment of combat which translates to empowerment.

Whether planning campaigns, conducting air strikes, or fighting battles, experienced military members know the importance of keeping the "big picture" and ensuring all supporting actions flow together. This process orientation ensures all actions support the primary objective of those efforts. That objective was established to meet someone's needs. That someone is the customer. Knowing who that is and ensuring he receives optimum benefit from your efforts is maintaining a customer focus. Throughout all of this, fostering an organizational philosophy of continually improving the way you operate helps obtain that extra edge you seek in combat operations.

As with doctrine, these principles are only a guide. You must still apply your experience, judgment and skills in the way you operate and in your decisions. When used together, you may find that extra edge. In civilian companies, the objective is profit. You play for far higher stakes.

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