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IMPLEMENTING TOTAL QUALITY MANAGEMENT (TQM) III: FEEDBACK AND CONTINUOUS IMPROVEMENT

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This Special Report discusses the interpretation and use of Mission Effectiveness (ME) Charts in a Total Quality Management/Methodology for Generating Efficiency and Effectiveness Measures (TQM/MGEEM) system including their relationship to processes and Dr. Deming's 14 points. Also included are how to post results, how to track performance over time, and how to roll up indicators into overall effectiveness scores. This paper explains how to conduct a TQM/MGEEM feedback session including selecting members and establishing the agenda. It briefly discusses the role of teams in improving processes and identifies pitfalls to avoid in their use.

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PREFACE

The information reported here on Total Quality Management/ Methodology for Generating Efficiency and Effectiveness Measures (TQM/MGEEM) is part of the Armstrong Laboratory's program to provide tools and technologies to measure and enhance organizational quality and effectiveness. TQM/MGEEM is a significant breakthrough in quality measurement which provides a powerful set of new tools for improved leadership and management and a means of periodically soliciting worker input to identify barriers to performance. Chances for success of any organizational development (OD) effort are increased when knowledge about such barriers is more complete.

This the third in a series of four special reports designed to document TQM/MGEEM. The first is intended for leaders of organizations and describes their primary responsibilities and what is necessary to start a TQM/MGEEM effort. The second report provides TQM facilitators with a step by step guide to the measurement system development process that is an integral part of TQM/MGEEM. This report explains to leadership and facilitators how a TQM/MGEEM measurement system, in general, and how Mission Effectiveness Charts (ME Charts), in particular, are used to institute and cultivate a climate of continual improvement. Also included is how to conduct feedback meetings and how Process Improvement Teams (PITs) fit into the TQM/MGEEM picture. The fourth report, intended as a general reference work for both leadership and facilitators, provides additional details on numerous aspects of the TQM/MGEEM technology, TQM and measurement philosophy, and several of the techniques found in the TQM/MGEEM system.

The authors wish to thank Mr. Larry T. Looper and our other supervisors for their invaluable ombudsmanship in the numerous reviews of this and other projects. We would like to especially thank the scores of people at conferences, presentations and test sites that have provided valuable insight and feedback toward the continual improvement of both TQM/MGEEM and our presentation of it.

Implementing Total Quality Management (TQM) III:
Feedback and Continuous Improvement

Introduction

This special report is the third in a series dealing with Total Quality Management (TQM) and the Methodology for Generating Efficiency and Effectiveness Measures (TQM/MGEEM). It provides information for TQM facilitators and commanders that allows them to conduct TQM/MGEEM feedback sessions, identify critical processes and identify processes in need of improvement. It also serves as an introduction to the use of teams in TQM.

The first report in this series, subtitled "The Command Imperative," addresses the role of top management in implementing TQM (Weaver & Upton, 1992a). The second in this series, subtitled "A Facilitator's Guide," provides a step-by-step guide for use by facilitators in building a TQM/MGEEM measurement system (Weaver & Upton, 1992b). The fourth report is a general reference work providing more detailed explanations of TQM/MGEEM, how it relates to TQM philosophy and other topics (Weaver, Upton, & Frank, 1992).

It is assumed that the reader is familiar with the information found in the previous reports (Weaver & Upton, 1992a&b) before reading this report. TQM/MGEEM is documented for the private sector in a book by Weaver (1991) published by the American Society for Quality Control.

ME Charts

The focus of feedback sessions is the completed Mission Effectiveness (ME) Charts. These charts are developed by a Gold Team as the final step in the TQM/MGEEM measurement system development process (Weaver & Upton 1992b). ME Charts can serve as powerful tools to aid in process characterization and prioritization of process improvement initiatives and therefore deserve explanation and amplification.

ME Charts and Processes

The basis of each ME Chart is an indicator which, in turn, measures all, or part, of a Key Result Area (KRA). Each KRA is a measurable part of the target organization's mission statement. Since indicators are measured outputs of an organization, each ME Chart is a gauge of the current health of a particular process or family of processes in an organization.

Dr Deming's Points 3 and 5. A more complete explanation of how TQM/MGEEM relates to Dr Deming's 14 points can be found in Weaver, Upton, & Frank (1992), but a discussion of two of them is critical to the subject at hand. Dr Deming's third point (Deming,

1990) states "Understand that the purpose of inspection is improvement of processes and reduction of cost." His fifth point "Improve constantly and forever the system of production and service" flows naturally from the third. Since inspection and measurement are synonymous in point 3, these two points form the theoretical basis behind the TQM/MGEEM measurement system. While TQM/MGEEM measures with great comprehension and success, the purpose of the system is not to measure with hyperaccuracy, but to measure well enough to serve as a basis for improvement.

For commanders and managers trained in the traditional management paradigm of accounting and stress on measurement as a means of separating good from bad, this represents a major change of thinking. It cannot be emphasized too strongly that the measures in a TQM/MGEEM system are not important in and of themselves. They are important only as a basis for the improvement of processes. Therefore, use of the TQM/MGEEM measures to reward or punish units or individuals is a severe misuse of the measures and is definitely counter to TQM philosophy.

Interpreting ME Chart Slopes. The slopes of ME Charts show the impact of indicator changes on organizational performance. ME Charts with shallow slopes show that their indicators have little impact on organizational performance. On the other hand, ME Charts with steep slopes show indicators with great impact on overall organizational performance. Making small gains on the steep slope indicators provides more of a contribution to an organization's performance than relatively large gains on indicators where the slope is flatter. For example, in Figure 1 two ME Charts for a flying squadron are shown. The left is a critical indicator of

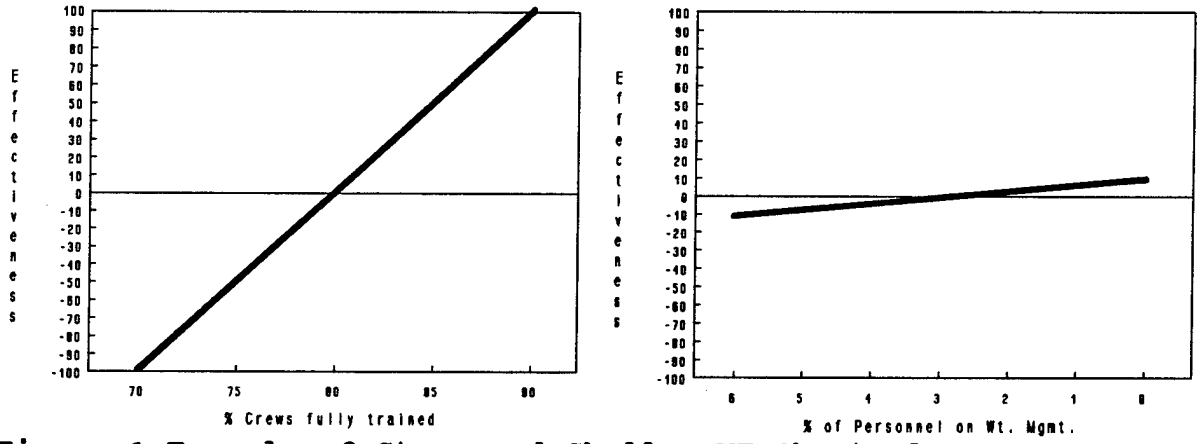

Figure 1 Example of Steep and Shallow ME Chart Slopes.

mission effectiveness (Percent of crews fully trained) and the right is a less important indicator of mission effectiveness (Percent of personnel on the weight management program). It is easy to see that a small change on the training indicator will make large differences in mission effectiveness while it will take

relatively large changes in the weight management indicator to make even a small impact.

Similar inferences can be drawn for different parts of the same slope for ME Charts with curves more complex than a straight line. For instance, the "computer up time" chart in Figure 2 has a very steep slope from 95% to 96%, but tapers to a very shallow slope about halfway through the feasible range of the indicator from 97% to 99%. If an organization was near the feasible worst on the steep part of a slope, leadership may find much greater improvement to mission performance with a movement on this indicator from 95% to 96% than they would if they were moving from 98% to 99%. The chart labeled "Training Efficiency" (Fig. 3) shows another variation. In this case, the indicator has an indifference zone instead of a single indifference point (as in the previous examples). If an organization were above or below this zone, that is above 10 or below 15, a small change on the indicator would result in large changes in organizational performance, but in the zone between 15 and 10, any change in the indicator would result in no effect on overall performance.

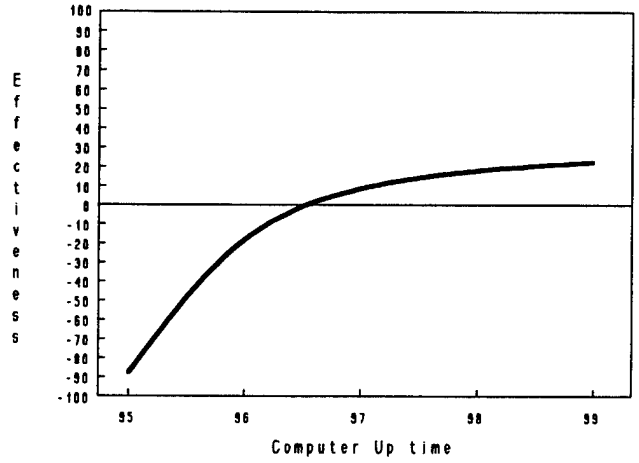

Figure 2 Example ME Chart with Mixed Slope.

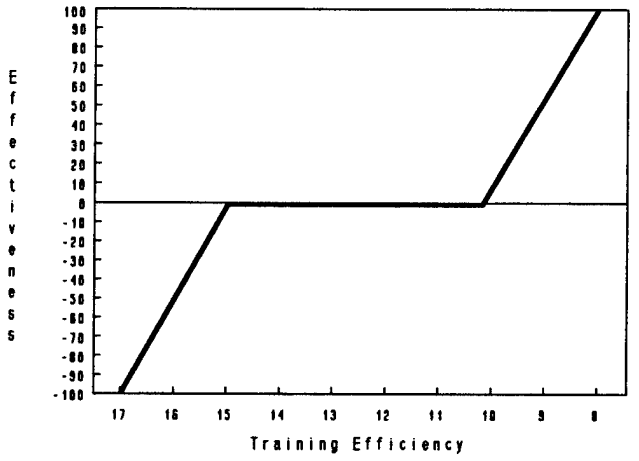

Figure 3 Example ME Chart with Indifference Zone.

Posting Results on ME Charts

As explained in Weaver & Upton (1992b), during the development of indicators by the Gold Team, a time period for meeting and discussing each indicator is specified. Usually these time periods, or measurement cycles, are one month in duration, but can be shorter or longer depending on the wishes of target organization personnel and the consensus reached by the Gold Team. For ease of managing the TQM/MGEEM system, we suggest, however, that these measurement cycles be standardized across the indicator set. At the end of the

first measurement cycle, an indicator measure is gathered and a number developed. This number is found on the horizontal axis of the indicators' ME Chart and a point is plotted on the ME Chart slope at that indicator value. This yields a Mission Effectiveness Point (MEP) value. An example is shown in Figure 4. A Communica-

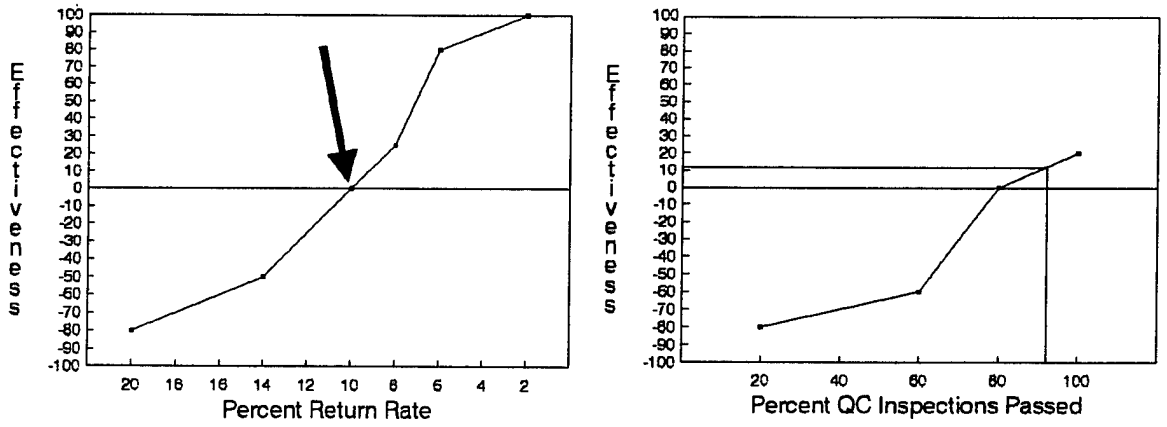

Figure 4 Posting Results on ME Charts.

tions/Navigation repair shop develops a KRA entitled "Provide Quality Repair Service." For this KRA, two indicators are developed, one called "Percent Return Rate" and another called "Percent QC Inspections Passed." (Whether these would be valuable indicators for another shop is problematic. This particular organization felt that these indicators would serve as the basis for improvement, the only test an indicator must pass.) During the first measurement cycle, a return rate of 10% was achieved while 92% of the QC inspections were passed. These two numbers would be displayed on their respective ME charts as shown in Figure 4. In Figure 4, the score for return rate is indicated with an arrow and the score for passed QC inspections is shown with intersecting vertical and horizontal lines (to better indicate the vertical score, and thereby the level of performance). There is no one right way to indicate positions on ME charts, these are but two examples. However, it is suggested that the presentation be consistent as a potential aid to interpretation. After the first cycle has passed, the organization may wish to display more than one value at a time. Methods for doing this follow.

Tracking Indicators Over Time

Most commanders and managers monitor indicators over time to discover trends that impact performance. This is easily accomplished by placing multiple data points on ME Charts, labeling each one with the time periods in question (Fig. 5). If several cycles of data have been accumulated, the ME chart may become confusing especially if a trend has been reversed. An alternative way to examine trends in ME chart data is to make a time-value or run

chart of the effectiveness point values of the indicator (Fig 6). This also allows easy interpretation and identification of trends over time. This chart is a simple line graph where the horizontal axis is marked off in time intervals corresponding with the time intervals of the indicator measurement period (months in this example). The horizontal axis is the same as the horizontal axis on an ME chart. Each month's value is then plotted on the graph and the points connected with a straight line. This is basically a run chart of ME chart values for the particular indicator (Brassard, 1988).

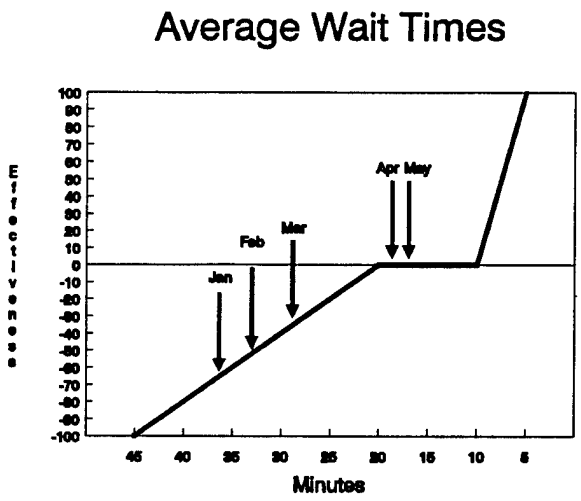

Figure 5 ME Chart With Labeled Data Points.

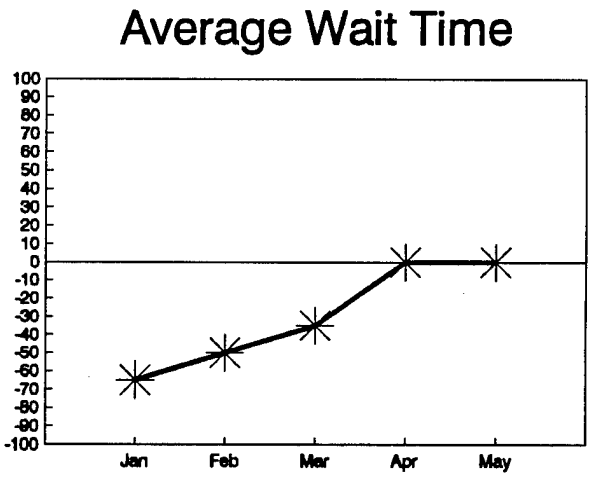

Figure 6 Run Chart of ME Points.

Rolling Up Indicators

Some organizations have expressed a desire to get an "overall" effectiveness score for the entire indicator set. An overall effectiveness score is one number that gives some indication of how well they are doing in a general sense. Since all the indictors have been scaled to the most important one, this can be accomplished by simply adding together the effectiveness point scores for each of the indicators. These numbers can then be either reported alone or via another line chart similar to the ME value chart discussed previously. In our experience, this is as much as most organizations usually want to do. However, if more complicated aggregation is desired, Weaver and Looper (1989) discuss this topic in greater depth.

Feedback Sessions

The considerable investment in time and manpower a TQM/MGEEM effort requires pays big dividends if continuing meetings of the feedback team are conducted. It is during these meetings that a commander or manager of a target organization is afforded the

opportunity to demonstrate TQM leadership. Here also is where customer expectations are tapped and supplier harmony is built. Here is where the critical processes in an organization speak, not only to leadership, but to the workers. This allows both groups to combine their efforts to produce continuous improvement. Let us look at how these beneficial results are achieved.

Feedback Team Members

Feedback Teams are chaired by the commander or manager of the target organization. His or her immediate subordinates sit on the team and, if possible, all the workers in the organization should be included. In a large organization representative workers are included with their membership rotating among the workers, providing an opportunity for all workers to provide their insights. A trained facilitator will be valuable for the first few cycles to guide the feedback team, but after that a facilitator will be a member only on an as-needed basis. (It should be noted that Ishikawa (1982) maintains that supervisors and managers should learn facilitation skills allowing the organizations leadership to be both chair and facilitator.) Although they should be kept out at first (during sanity checking discussed below), representative customers and suppliers are also valuable members of the Feedback Team, especially if they have an interest in a particular area discussed that reporting period. An example of this would be inviting people from operations (customer) and transportation (crew bus supplier) to a flying squadron's feedback session if they found that they were having trouble meeting a timeliness indicator on their Mission Effectiveness (ME) Chart for that time period.

Sanity Check Agenda

Feedback sessions come in two forms, "sanity checks" and regular feedback sessions. The early feedback sessions are often referred to as "sanity checks" and focus on reviewing the TQM/MGEEM system to check for glitches. Usually during the first feedback session, the organization will find that it has done better than its feasible best on some of the indicators and worse than the feasible worst on others. It is also often the case that after a "cooling down" period, the organization finds it useful to refine the wording of the mission statement or one or more of the KRAs. To accomplish this checking process, the following general agenda is suggested.

Review of Mission Statement. The first part of a sanity check session should be to review the mission statement. Since this statement should be the touchstone of everything that an organization does, this review serves to both focus the feedback team on their purpose and serves to allow for continual improvement of the statement itself to better reflect the mission of the organization. In a regular feedback session, the focus of this review is to refresh everyone's mind as to what the mission is. The review for

a sanity check is more detailed, however, as the focus is on the wording of the statement itself. It is not mandatory, or even desirable, for the mission statement to change every time the organization has a feedback session. Changes, particularly in the beginning, should be made as needed. The mission statement needs to be a living document (Gitlow & Gitlow, 1987), and this is where it is allowed to grow and adapt.

Review Customers and Suppliers. This helps to focus the feedback team's thoughts on the customer interfaces that determine quality and the supplier inputs that so greatly determine the organizations final quality. It is also an opportunity to alter the customer and supplier lists to reflect the changing needs and importance of various customers and the changing demands that the organization puts on its suppliers. These lists should be living documents and adaption and change are encouraged when necessary.

Review KRAs. A final focusing step in these first feedback sessions is to review the KRAs. This can be approached in two ways. One is to review all the KRAs before reviewing the indicators. The other is to use the KRAs as an outline for reviewing the indicators. This is an opportunity to focus and review. Probably the best strategy is to review all the KRAs first and look for KRAs that need to be altered, deleted or added, and then move into each KRA in turn, using the KRA as a focus for the review of the indicator(s) under it.

Review Indicators. Indicators and their attendant ME Charts, like all the other parts of the TQM/MGEEM system, should be reviewed for their usefulness and altered, deleted or added to as needed to make a better basis for improvement. Often in the first feedback session, as indicated previously, the organization will find that in plotting data it has misjudged the feasible range of the indicator and will need to rescale the indicator accordingly.

Feedback Session Agenda

Once an organization has sanity checked its TQM/MGEEM system, it will be ready to put it to use in continual improvement. This is accomplished in the second form of the feedback session. After the feedback team has had several meetings, representative customers and suppliers can be part of feedback team membership.

Focus. As mentioned before, review of the mission statement is the first activity of a feedback session. Here the review is not for correctness of wording, but so that all the members of the team know what this touchstone is and how their jobs relate to it. This review shouldn't take more than a few minutes. The facilitator may wish to ask for questions about the mission statement or its relationship to anyone's job. As part of this focusing process, a similar brief review of the customer and supplier list may be appropriate. It is during this focusing process that needs

to alter the customer or supplier list or the mission statement itself are identified. If such is the case, changes can either be made at that time or by reconvening the Blue Team at some later time. After this focusing review, each KRA in turn is discussed by reviewing the ME charts associated with them.

Review of ME Charts. The main thrust of this part of a feedback meeting is to identify processes most in need of improvement. This is done by reviewing the organization's ME Charts and identifying those that are important and in need of improvement. How does one decide that an indicator is important? The answer is that its ME slope is steep. These indicators are in an area where little gains in the indicator will net large gains in overall effectiveness. If these gains can be made with a minimum of effort, it can serve as valuable "low-hanging fruit" of improvement. How does one decide if an indicator is in need of improvement? There are a couple of ways. First, an indicator whose monthly scores show that its performance is chronically low, near the feasible worst for the organization is a good candidate for improvement. This indicates a chronic drain on the effectiveness of the organization's efforts to fulfill the mission, a situation in need of improvement. Additionally, an indicator that has begun to show a steady decline over the past several measurement periods is symptomatic of a process beginning to get sick. Although customers may not yet be screaming and although the process is still adding to the unit's effectiveness, a steady decline is the sign of an opportunity to fix the process before negative customer reactions make it mandatory. Figure 7 shows examples of some ME Charts that may indicate a need for process improvement.

Use of Feedback Sessions

The preceding describes the mechanics of the use of the ME chart, but does not address the purpose for the charts or the feedback sessions themselves. Basically, the feedback session's examination of the ME Charts serves the purpose of providing feedback to three traditionally separate groups: the organization's leadership, the organization's members and the organization's customers and suppliers. The feedback sessions bring these three groups together possibly for the first time in any of their experience.

Feedback to Leadership (Knowing there is a problem). The ME Charts provide leadership with a management information system that allows them to identify and ultimately correct problems. Regular review of the mission, customers and suppliers and evaluation of mission effectiveness through the ME charts allows leadership to rationally identify barriers to quality and begin the quality improvement process. Too often commanders in the past have relied on "feelings" or "squeaky wheels" to let them know how things were going in their organizations and often had large problems "spring" on them unaware. By continual review of the organization's mission

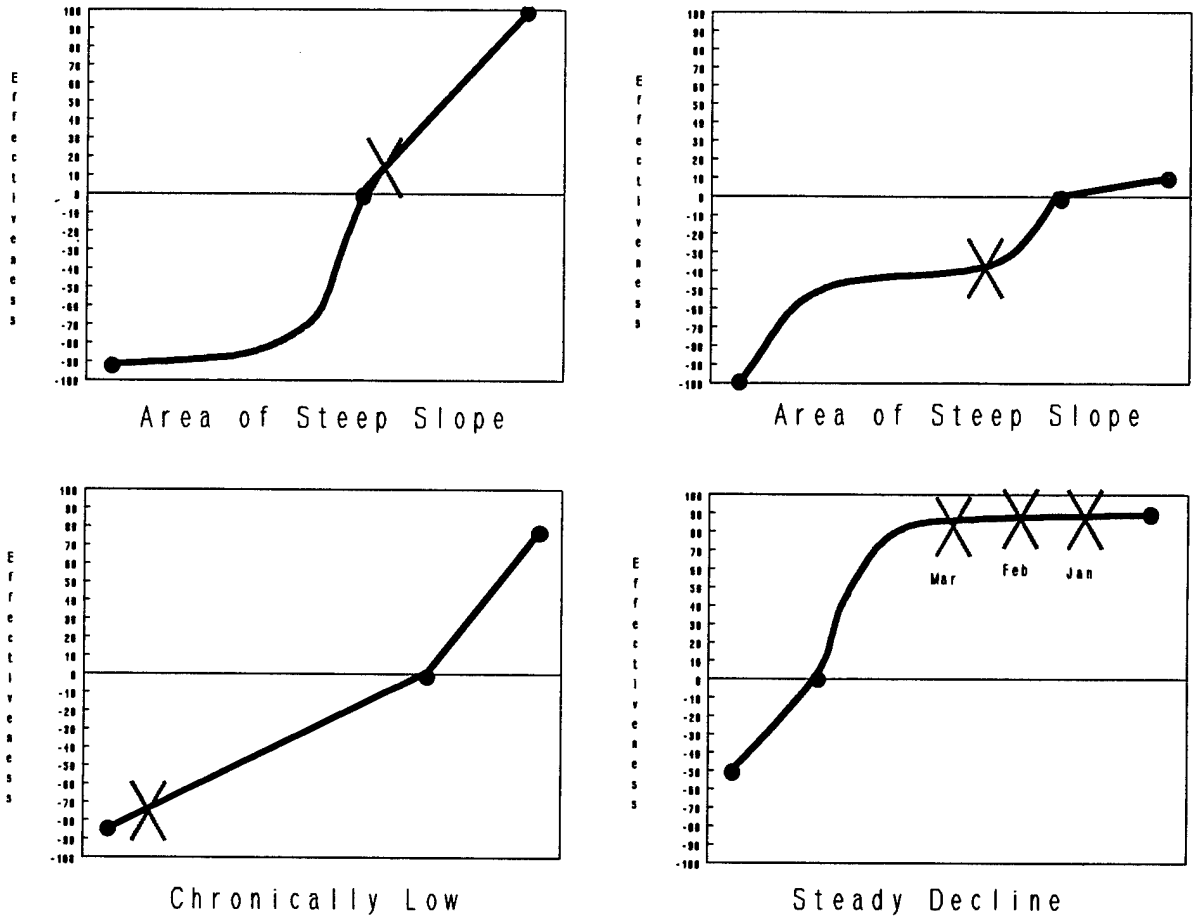

Figure 7 ME Charts Indicating That Intervention Is Needed.

and quality improvement, such unawareness will not be a problem and commanders will have more going for them than luck to keep their organizations on track. Care must be exercised by a commander or manager to keep this from becoming a fire-fighting exercise or a system for micromanagement. This is not the purpose of either TQM or a TQM/MGEEM system, and any use as such represents a misunderstanding of the undergirding principles and could gravely jeopardize the entire TQM program by reducing trust.

Feedback to Workers (To improve processes). The feedback sessions also provide feedback to workers by providing a forum where their valuable insights into the identification of barriers to process improvement can be solicited. Workers learn what is important by the periodic review of the mission, customers and suppliers and where the organization is in need of improvement. It can also help reinforce behavior that has resulted in process improvement. This communication between workers and management with information flowing down from management and potential solutions flowing up from the workers is a reversal of the traditional management style, but it is this reversal that makes TQM such a powerful tool for leadership and quality improvement.

Feedback to Customers and Suppliers. Finally, by including customers as part of the feedback team, the organization gains valuable insight into what true quality is, for quality is defined by the customers' needs and desires. Too often organizations assume that an internal "expert" or the regulations know what quality is and, much to their chagrin, learn otherwise when their customers scream for their abolishment or reorganization. By opening this dialogue with customers, an organization establishes a vital link in its chain of continual improvement.

Including suppliers is also an important part of the feedback session. It provides the organization with the opportunity to identify its needs to their suppliers, thereby increasing organization-supplier cooperation. This in turn increases the quality of the organization's inputs from those suppliers and thereby increases the final quality of the organization's output to the customer. This is where Dr Deming's Point #4, stressing the need for such relationships with suppliers, is implemented.

Teams In TQM

Teams of various sorts are an integral part of TQM. Unfortunately, some commanders and managers attempt to use teams in their TQM efforts without fully understanding what they are, what they are used for and, most importantly, what the relationship should be between the various teams and the commander. The following is not meant to be an exhaustive description of all the types and uses of teams in TQM, but simply a general explanation of three types of teams, two useful and the other a road to ruin.

What's in a Name?

The names for the various teams are almost too numerous to count; process improvement teams (PITs), process action teams (PATs), process improvement efforts (PIEs), process improvement groups (PIGs), Quality Circles, Tiger Teams, Blue Teams, etc.. The problem many people have with the plethora of names is that a PIT at one base, may have a completely different function at another base, but share the same name. A team with a certain function in one command may be called a PAT, but the same function in a different command is called a PIE. This causes a great deal of confusion due to people finding differences where they expect the same functions, or finding teams with the same function called by a different name. With minor procedural and reporting differences, TQM teams can be broken into three basic types--planning teams, improvement teams, and fire-fighting teams. The label given to any one of these teams does little to alter its basic function, and so each is discussed apart from any of the many names each has been called. In the final part of this section and in the appendix, PIT is used for the sake of convenience to indicate an improvement team.

Planning Teams

The purpose of a planning team is to plan a new process. This could cover a number of areas--how to bring a new weapons system on line, how to implement TQM, the building of a measurement system, planning a once-in-a-lifetime event of some sort. Basically, this kind of team uses various quality planning and consensus building techniques in an effort to plan quality into the system to begin with, instead of waiting for it to go on-line and then worrying about quality. This is an excellent way of getting a broad base of ideas to begin the work as well as a broad base of acceptance once the new process is put in place in the organization. The drawback of this type of team is that it cannot effectively stand alone. A planning team, by its nature, does not address the improvement of current processes and therefore only partially implements TQM philosophy. Improvement teams are needed to completely implement TQM philosophy on teams. Classic examples of this type of team are the Blue and Gold teams from the TQM/MGEEM, but other planning teams are possible. Dr. Juran's work suggests the existence of such teams when he talks about eliminating the "alligator hatchery" in some of his lectures (Juran, 1989).

Improvement Teams

The purpose of an improvement team is to complement the work of a planning team by continually examining and improving processes within an organization. These teams often will spawn other sub-teams of limited scope and duration in order to characterize and eliminate barriers to quality identified by the parent improvement team. In a TQM/MGEEM environment, this team is guided by the ME charts and mission measurement system developed by the Blue and Gold teams (Weaver & Upton, 1992b). The seven Quality Control (QC) tools and other tools and techniques are also very useful in their improvement efforts (Brassard, 1988). The improvement team should provide the organization with a rational method of identification of processes in need of improvement. This approach uses rational techniques to plan, implement and evaluate interventions in order to increase the organizations quality. Good examples of this type of team are the feedback teams of the TQM/MGEEM and the ideal of Dr. Juran's project teams (Juran, 1989).

Fire-Fighting Teams

A fire-fighting team is the name we use for a type of team that has little or no place in a true TQM effort but which, nonetheless, appears too often. The stated purpose of a fire-fighting team is the accomplishment of a specific improvement project. Too often the unstated purpose of the team is to either up the "body count" of "things we are doing to do TQM" (e.g. we must be doing TQM, we have 15 teams going right now.) or to rubber-stamp a pet idea of someone in management. Both of these, of course, are not valid reasons to institute a TQM team. Too often

this type of team panders to the "fire-fighting" mentality of old-style management instead of being the manifestation of a new culture of problem prevention and continual improvement. These teams also rarely, if ever, do anything to implement the TQM philosophy; they are thrown at problems with little view toward continual improvement and often only lip-service to the recommendations of the team itself. Often the only tools they use are the out dated "whose got an idea" of old-style management, completely ignoring the seven tools. No matter what such teams are named, they are a sure sign of lack of understanding by top leadership and, if not eliminated, can quickly destroy the credibility of a TQM effort.

Teams in TQM/MGEEM

How do these various types of teams fit into a TQM/MGEEM effort? As mentioned above, Fire-fighting teams don't and nothing further needs to be said of them. Planning teams are represented in several places: Blue and Gold teams of the transitional phases of TQM/MGEEM, as well as the Feedback teams (to some extent) and the Quality Councils of a more mature TQM/MGEEM organization. Improvement teams also have several representatives in a TQM/MGEEM organization. Again the Feedback teams and Quality Councils serve these purposes to a limited degree, but they also charter other teams (here called PITs) that focus specifically on questions that are either too complex to have readily definable areas of improvement, or to tackle improvement issues that are defined, but do not yield to ready solutions. Further discussion of how these teams fit together can be found in the Appendix.

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Appendix: The Structure of a TQM/MGEEM Organization

The structure of a TQM/MGEEM organization is as varied as the organizations undertaking the effort, but some generalizations are possible and potentially helpful to the leadership of an organization embarking on such an effort. Generally a TQM/MGEEM effort is divided into four phases: (1) Leadership Commitment, (2) Blue Teams, (3) Gold Teams and (4) Feedback and Continual Improvement. This appendix documents the general structures of various teams that are established at each of these phases and provides a brief overview of their various tasks and purposes.

Phase One: Leadership Commitment

This is the initial phase of a TQM/MGEEM implementation. At this time the senior leadership of the organization receives training in the philosophy and tools of TQM, including TQM/MGEEM. They then form a Quality Council to provide policy and resources for the TQM/MGEEM effort. This council often has subordinate councils linked to it to provide vertical communications through the chain of command (Fig 1). The members of the Quality Council also are responsible for training their subordinates in Quality Philosophy. Although they can be assisted in this effort by a Quality focal point of some sort (i.e. an Executive Officer for Quality), the leaders themselves should take an active part in the training both to build their own understanding of the material as well as demonstrate to their subordinates the importance of the effort. The most important part of policy is the implementation plan that is developed by the Quality Council. Resource allocation and program direction grow out of this essential document. It is important for senior leadership to count the cost of the effort early, especially in regard to providing facilitators that will have both time, training and talent to serve the essential role they will play. Further details on the role of leadership and the Quality Council can be found in Weaver & Upton (1992a).

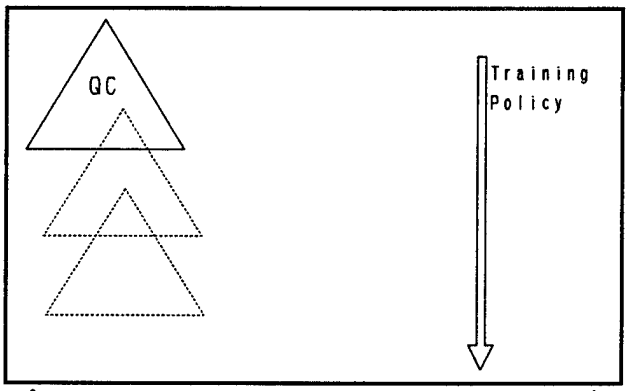

Figure A-1 Phase One: Leadership Commitment

Phase Two: Blue Teams

As training, policy and resources begin to flow down through the organization, the TQM/MGEEM implementation plan developed by the Quality Council will call for the establishment of Blue Teams at the lowest levels of the organization (Fig. 2). These Blue teams will meet to build the basis for a mission quality measurement system at their level. More information on Blue Teams can be

found in Weaver & Upton (1992b). Sometime during this or the next phase, the Quality Council may wish to embark on their first Process Improvement Team (PIT) efforts. It is suggested that the first efforts be limited in scope and number for several reasons. Since these are the first such efforts in the organization, numerous false starts and pitfalls will be encountered by the PIT members as well as those trying to manage their efforts. Until more experience is gained by everyone involved, it is best to concentrate on relatively discreet projects where the problems are easily defined and tensions among the team members limited. Care should also be taken that "PIT proliferation" not occur while understanding of the PIT's purpose and limitations is still in its infancy. The Quality Council should limit itself to no more than 6 such efforts in order to give themselves experience without having non-PIT teams mislabeled. This mislabeling can cause extensive damage to the credibility of a TQM effort and is a potential barrier to later PITs if not avoided at this stage.

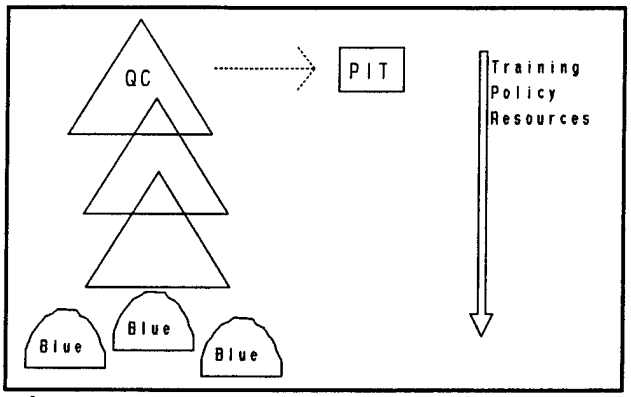

Figure A-2 Phase Two: Blue Teams

Phase Three: Gold Teams

After the Blue Teams have met and built the foundations for the mission quality measurement system, Gold Teams are formed to develop the indicators and Mission Effectiveness (ME) Charts that will be used by the subordinate organizations to track their mission quality (Fig. 3). More is said about Gold Teams in Weaver & Upton (1992b). ME Charts are discussed previously in this paper. Usually this is the latest that leadership can wait before needing to charter a few high-visibility PITs in order to "put their money where their mouth is" and prove their commitment to process improvement.

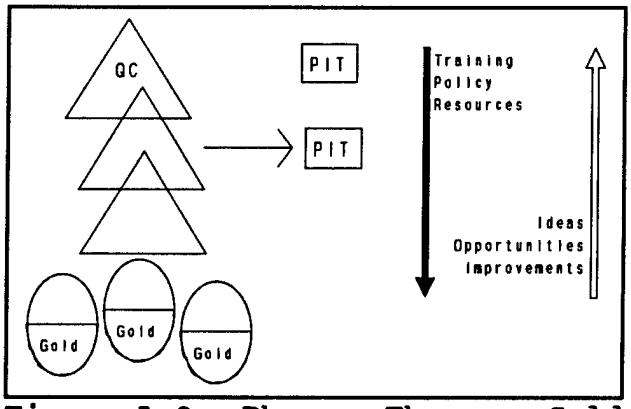

Figure A-3 Phase Three: Gold Teams

As this begins to occur, each leader will find themselves at a critical crossroads. The training has continued to cascade down through the organization sparking a brave individual to offer an opportunity for improvement to leadership (Fig. 3). These first suggestions are critical for they will be viewed by subordinates as

a litmus test of the true commitment of leadership to the ideals of TQM. If the suggestions are greeted in traditional fashion of "we can't do that" or "we've always done it this way" or even a flat "I'm the boss and I say no." They will see the TQM effort as lip-service only and will provide lip-service support as well, dooming the effort to be just another in a long line of failed organizational development efforts. Leadership should do everything possible to implement any suggestions that are advanced in as rapid a manner as possible and should think long and hard about potential rejections. If the suggestion is not possible or rational, a solid, detailed reason of the rational behind rejection should be advanced, and if at all possible, alternate solutions implemented instead.

Phase Four: Feedback and Continual Improvement

As the Gold Teams complete their work, they are replaced in the lower levels of the organization by Feedback Teams. These teams provide the forum for continual improvement and horizontal communication at the lowest levels of the organization (Fig. 4). At higher levels, Quality Councils concern themselves with optimizations that are not possible at lower organizational levels. Throughout the organization, opportunities for improvement are elevated to the appropriate level for action either by the leadership directly or through the agency of a PIT. Although initially in the feedback teams, simple communication will suffice to solve most concerns identified by the ME Charts. Later, however, the Feedback Teams may find it necessary to charter PITs of their own to examine concerns and/or plan and monitor improvements.

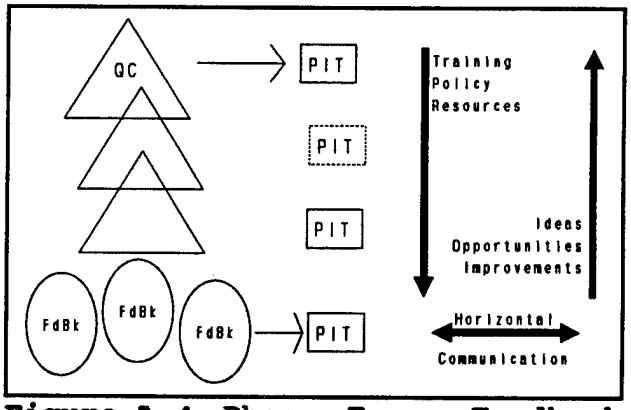

Figure A-4 Phase Four: Feedback and Continual Improvement

"More darn meetings"

A concern commonly voiced by people when they first begin to learn about TQM/MGEEM is all the additional meetings it seems to involve. Although there are some additional meetings, especially in the beginning, most of these activities should be taking the place of traditional, non-TQM activities, not becoming additional to them. For instance, the difference between a Quality Council meeting and a staff meeting at the same level should only be the difference in focus (from fire-fighting to continuous improvement). The way many organizations have addressed this is to make the Quality Council meeting take the place of one of the currently held staff meetings, or by adding it directly on to the beginning or end

of a currently held staff meetings. Similar steps can be taken with the Feedback Team meetings, although because of the addition of customers and suppliers, the beginning of a staff meeting with release of the guests after their portion is complete usually works best. The addition of the PIT meetings should rapidly result in enough time savings to more than justify the time invested in them. Blue and Gold teams, being transitional in nature, are an initial investment, not a continuing one. In short, saying "We don't have time for TQM" is an admission of ignorance of TQM, for if we have time to manage, we have time to manage in a quality manner.