

JUDGING THE QUALITY OF AN ORGANIZATION BY DIRECT OBSERVATION

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INTRODUCTION

As W. Edwards Deming has said, "We are in a new economic age. We can no longer live with commonly accepted levels of delays, mistakes, defective materials and defective workmanship." As international competition has increased, more and more managers have become aware that low quality has been exceedingly costly. Many companies have heeded Dr. Deming's point and have begun to pay close attention to Quality.

They admonish their purchasing agents to "buy on quality" and are apt to provoke a response, "How do we do it?"

When major purchasers such as Ford and General Motors announce that they intend to reduce the number of suppliers by perhaps a factor of ten and to retain only the "high quality producers" this sends an unmistakable signal to the presidents of many companies that they must learn to improve the quality of what they do or they will go out of business. The initial reaction of a company president is, "What are they looking for? What do they expect?"

Therefore both the manager of an enterprise and its customers have strong interest in being able to judge the quality of the performance of an organization; the former in order to decide what to do about it and the latter to decide which companies should be retained as suppliers.

There is a tendency in some quarters to look for some method of "scoring" or giving a numerical rating to companies and activities within companies. We do not advocate such a system for a number of reasons.

1. Quality is not a single one dimensional attribute of an operation. It has many different dimensions. A number will not capture anything meaningful about the quality of the activities.
2. The most important attributes of a quality operation are not quantifiable. A numerical scale is misleading. It is an invitation to gamesmanship.
3. The use of a numerical scale reduces the question to the abilities of a third grade drop-out. It requires only the ability to tell which of two numbers is the larger.
4. Numerical measures do not tell what the prospects are for **continued** improvement over time. The ability to predict the progress of a company, not just to provide a snapshot of where it is now, is very important in a time when there are not many high quality operations around and the buyer must bet on the ability to improve.

5. Numerical measures give the **appearance** of scientific objectivity. Lord Kelvin has said that unless you can reduce your measurements to numbers, you do not even have the beginnings of a science. He was right. The problem is that we are not dealing with a *science*. We are dealing with the *art* of management.

The admonition not to attempt to assign an overall numerical score to the quality efforts of a company should not be interpreted as suggesting that measurements are not valuable. There are many things to observe and measure, such as frequency of flaws, rate of response, variability of performance, etc., especially the variations of these quantities over time. They provide valuable indicators of the trends of a company's performance. There is much information to be gleaned from their run charts. What we argue here is that there is no value in lumping these numbers together to provide an aggregate score. The net result of the aggregation is to lose information, to lose understanding of what needs to be done and to invite people to start playing numbers games. When you work **with** an organization for the purpose of improving things for your mutual benefit, you will find that overall scores are of no use at all. They divert your attention from what you need to do.

WHAT TO OBSERVE

Observations of the quality performance of an enterprise may be divided into several categories:

1. The things you can **see** as you walk throughout the areas where work is being done.
2. The things you can **hear** as you talk with the people who are actually working (whether on the factory floor or in the office).
3. The **attitudes** displayed by supervisors and managers as you discuss with them the opportunities for improvement.
4. The **topics of discussion** which occupy people's time when they are in meetings.
5. The **expectations** of the work force, from the top to the bottom of the company, concerning what they think they are able to do.
6. The **priorities** they assign to their customer's desires in deciding what they should do next.
7. The **goals** of the enterprise, as given by the top management and how these goals are interpreted at various levels in the company.

THINGS TO SEE WHILE WALKING AROUND

Many books tell us to "Manage by Walking Around " (MBWA). But when carrying out MBWA what are you supposed to do? If you just meddle in the business, you will be a menace. I once had a boss who was an absolute menace at the place of work and everyone was glad when he went back to his office. MBWA is a misleading concept. The purpose of walking around is to obtain information you cannot get in your office. It is a part of managing, essential, but by no means the activity by which you should manage. (It would make just as much sense to speak of MBIG, "Management by Information Gathering", for that is what

MBWA is, or should be, all about. It also means making management and its concerns visible, but that is a side effect.)

HOUSEKEEPING. Too few managers seem to understand the close connection between good housekeeping and quality. When the objective of the company is to reduce the error rate to one or two per million, it is impossible to achieve this goal by monitoring the output. After-the-fact inspection simply cannot work. Everyone's efforts must be directed towards *prevention of error*. Flaws, goofs, mistakes must be caught before they occur. If the workplace is neat, orderly and clean it will be evident at once when something is awry. If the housekeeping is sloppy, no one will notice that a tool is misplaced, that dirt has crept into a delicate mechanism, that a new worker is not being careful. The key to turning out flawless work is *consistency* of effort. It is impossible to see if the work is being performed consistently if the workplace is disorderly.

The first thing you should observe on entering any area is the *state of the housekeeping*.

Are the floors clean?

Are there receptacles for trash? In use?

Are the walls and shelves clean? Do you see evidence of things that have not been repaired for a long time? If you pass through an area in the morning and notice cigarette butts against the wall, try to get back to the same area late in the afternoon to see if the cigarette is still there. This means that the people are not themselves concerned with cleanliness, but expect it is someone else's responsibility.

Do the workers clean their own areas? Do they rely upon special clean-up crews to do it for them? (If workers do not clean their own areas, is it because they think that such activities are *beneath their dignity*?)

SAFETY Close to good housekeeping in importance to quality is a concern for safety. Indeed, safety should be considered of equal importance. How well the workers and managers respect and abide by safety regulations is a good clue concerning how well *self disciplined* the entire organization is. An enterprise that does not follow good safety practices is likely to have important accidents that prevent their meeting their commitments. It is desirable, for many reasons, to reduce the number of suppliers for any item to a single supplier. It will be very dangerous to do so with a supplier who does not have a strict regard for safety.

Look at machinery to see if it is equipped with suitable interlocks and other safety features.

Are safety glasses required and used?

In noisy areas, do people wear suitable ear plugs?

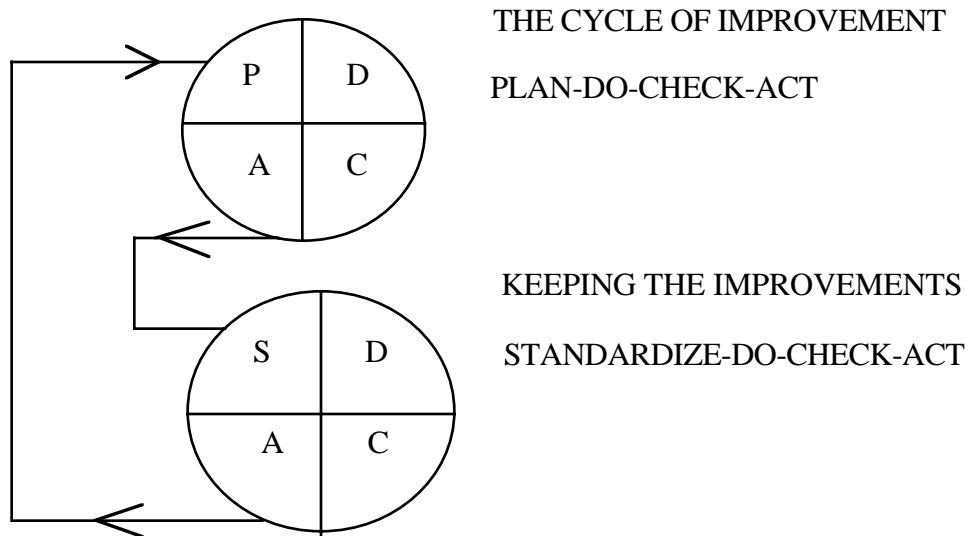
When you enter a dangerous area, do your host and the other people around you remind you of the safety precautions you should take? (Sometimes a host, in an attempt to be genial or to illustrate importance will say, "Oh, you do not have to wear these. We are just going to walk through". Such an attitude displays ignorance of the role of top management in setting an example. It tells you a great deal about the company training and attitudes.)

Are the workers themselves involved in studying the safety records and seeing what might be done to improve them? Are they involved in studying *why* people violate the rules and seeing what can be done to make it more attractive to obey them?

STANDARD PROCEDURES Once when asked what it took to move a company in the direction of quality, Dr. Deming replied: "A critical mass of people who understand and who are working consistently." The key word here is "consistently". Unless people are doing their work in a consistent, repeatable manner, it will be impossible to track down the sources of error. It will be impossible to introduce improved methods if the methods being used are randomly being changed; if people are not following any method at all.

A quality enterprise is one that performs *consistently*. Consistent performance is possible only when people follow *standard procedures*. Of course, not every action in an organization is repetitive. Engineers are supposed to produce different designs, not the same designs time after time. Their output is supposed to be original. However when the *processes* they follow are examined closely, it is found that what they do is perhaps 10% original and creative and 90% a collection of repetitive tasks.

Many people are now familiar with what the Japanese call the "Deming Cycle of Improvement." (Deming himself refers to it as the "Shewhart Cycle".) It would be better if people thought of this cycle as part of a larger cycle concerned with not only making improvements but keeping them when once made.



There are many who chafe at the idea of a standard procedure, particularly in an engineering or a sales organization where originality is prized. They fear it will inhibit creativity. This inhibition is likely to occur if the procedure is *imposed* from above. However, if the people doing the work design the standard procedures, and if they have a non-bureaucratic procedure for constantly improving their procedures, there is no reason to expect inhibitions on creativity. On the contrary, if all the routine activities flow smoothly, it is likely that creativity can be enhanced. If the routine work goes smoothly, people can concentrate on the creative work.

Wherever work is going on, you may observe:

Do standard procedures exist? Are they followed? Are they visible, i.e., are the procedures posted?

When were the procedures last revised? How? By whom?

Were the procedures generated by the people doing the work or were they developed by people who do not have to follow them and then imposed on the workers?

Do the people "own" the procedures? Do they know they "own" them? Did they have enough of a share in the establishment of the standard procedures that they felt comfortable with them, understood their importance and were looking for ways to improve them?

In an engineering operation you can observe:

Are drawings prepared, documented, filed, reproduced, checked and distributed according to a standard procedure?

Are reports, calculations, cost estimates, schedules and progress reports prepared in a standardized way, using standard procedures?

QUALITY MEASURES If the work is repetitive, look for control charts, run charts or other graphical presentation of quality information. The more people make use of and are guided by such information, the more likely it is that the information is prepared to be seen. If the charts are posted, use the charts as the basis for discussions with the people who should take action when the charts so indicate. Find out what the charts mean to *them*. If there are no charts, ask workers how they know if the output is of high quality.

Many facilities contain laboratories adjacent to the place where the work is done. These "quality control laboratories" usually make tests of the output of the production system. It is very instructive to ask the people in the laboratory why they make the observations they do, where the data goes, who looks at the numbers, what they mean, etc., etc. ("Well, Sir, the data are sent right away to the computer. Then if any one complains we can look into the record and show them it was all OK".)

At every opportunity, look for your own quality indicators. For example, if you visit a warehouse, look at the rows of cartons and make your estimate of what fraction of them appear to have been damaged or show dirt marks. This will give you a quick estimate of the damage done in shipping and handling. Are the cartons piled up neatly? Ask about the costs associated with damage in handling. It is an important source of waste.

If machines are used to coil flat materials, look at the edges of the coils. If they are not perfectly smooth, ask why? When material is coiled up, if there are fluctuations in the drive or feed systems, the edges of the coils will show a distinct non-uniformity. Compare different machines with one another. Ask questions about the evidence of non-uniformity and take notice of the spirit with which your questions are answered.

MANAGERIAL EXHORTATIONS A dead giveaway of managerial incompetence is the presence of signs, posters, exhortations on the walls for workers to do better, to be more careful, to produce more. The only exceptions are exhortations which have been put on the walls by the workers themselves, especially those which express pride of accomplishment.

Posters which encourage worker participation, freedom of expression, etc., are also helpful. One organization has a poster "Talk Back to the Boss" (but when I discussed matters with the management they were a bit touchy about workers who did this!). I considered it a sign of a management trying to do a better job, but still far back on the learning curve.

Be careful if you comment on some of these posters. Some managers have paid good money to establishments which sell them "motivational" posters and do not like to be told it is not only a foolish investment but it broadcasts their inadequate understanding of quality management.

INVENTORY: WORK IN PROCESS If there is an assembly or manufacturing operation, look for evidence of work being piled up. There are several situations to watch for:

- a) Every piece of equipment is working at top speed. This may not be a good sign! In any factory, some machines can go at a higher speed than others. Therefore, some machines must be idle, otherwise somebody is either turning out more than is needed or much work is expended on building inventory. Ask about machine utilization and if the answer is a set of statistics showing how each machine is being fully utilized all of the time, watch out. (See the book, "The Goal, Excellence in Manufacturing" by Eliyahu M. Goldratt and Jeff Cox, North River Press, Inc., 1984.)
- b) Work is piled up in front of one or two machines. Every other machine is being used to see that this machine always has some work to do. This may be a healthy sign.
- c) There is work stacked up at several machines, some of it obviously not having been worked on for some time.

Ask about how work in process is controlled, the amount of investment tied up in such work, and what steps are being taken to deal with it.

In general ask about inventory. The question is not so much how inventory is dealt with as whether the management takes a systems approach to inventory. How well does the management understand why inventory builds, what it costs and where to intervene in the system to control it?

WHAT YOU HEAR WHEN YOU TALK WITH PEOPLE

When you engage in MBWA or are on a guided tour of a facility, make it a practice to stop and talk with some of the workers. Your objective should be to discern how much they know about quality, whether they are involved in improvement, whether they feel that they are the company. In a high quality operation people feel "We are the company" and they proudly identify with the work and what they do.

SERVING CUSTOMERS Ask various people "Who is your customer?" If they don't consider the next person in line to be a customer, this tells you something about the philosophy under which the plant is managed. If they identify a customer, then ask "When did you last meet to discuss how to improve quality? What did you discuss? Do you meet at times other than when there is an emergency? Do you have a regularly scheduled set of meetings to find things

to improve?" Try to understand just how far the concept of serving customers has permeated the organization.

CONSTANT IMPROVEMENT Ask individual workers whether or not they have participated in improvement processes. If they say "Yes" ask them to describe the latest improvement they worked on, when it was and what happened. Ask them how many of their fellow workers participate in improvement and how they feel about it. How much trouble did they have selling their ideas and how much training did they have in problem solving, data taking, etc. If your guide is a representative of management, ask that the worker respond directly to you and, if possible, do not allow the management representative to "interpret" the answers for you.

WORKER ATTITUDES Ask workers what their goals are and what are the goals of the company. Ask if there is a statement of purpose for the company and ask their opinion of it. Ask how it influences them. Ask if they see increased productivity as a threat to their jobs. Ask about company policies regarding stability of employment. How do they regard these? Listen carefully to see if you detect a sense of loyalty to the company. Do they think the management is loyal to them?

MANAGERIAL ATTITUDES--SIGNPOSTS FOR THE FUTURE

How the management regards the company, its purpose and its prospects for the future is also a good indicator of potential for quality improvement. How they react to the need for constant improvement, how they see themselves in the process; these are important indicators of the potential to remain in business.

Probably the most important indicator of managerial attitude is the way managers attack problems. Do they try to get at the truth or do they try to fix blame? In a quality enterprise the objective will be to find out "what is wrong" not "who is wrong".

How managers respond to suggestions or inquiries about quality is also important. For example, if you ask about a defective product, is the response primarily aimed at pleasing you or at finding out about the difficulty and fixing it? (Once in a hotel I complained that the orange juice was sour. At each level of the coffee shop hierarchy at which I commented the response was the same: "We'll take it off your bill, Sir". I had to demand that they concern themselves with what to do about soured orange juice being served to patrons. I'll never willingly go there again.)

TRAINING OF THE WORKFORCE AND INVOLVEMENT IN IMPROVEMENT

An important area for discussion is the training of the workforce, including the managers. If you are seeking a supplier of quality, you should anticipate a long term relationship. Given the pace of technological change and the rising expectations for quality performance in the marketplace, it is important that you not become entangled with a company that does not have a policy of keeping its people up to date. You should ask about training of personnel and, in particular, training that will guarantee their continued involvement in the improvement process.

WHAT SHOULD YOU EXPECT?

Mike Vance, a popular lecturer, has defined four levels of competence:

UNCONSCIOUS INCOMPETENCE

In this state, a person neither knows nor knows that he or she knows not.

CONSCIOUS INCOMPETENCE

In this state a person knows he or she knows not.

CONSCIOUS COMPETENCE

In this state a person knows, but knows not how to act without guidance.

UNCONSCIOUS COMPETENCE

In this state a person knows and understands how to do so well that it never enters the person's mind that everyone doesn't understand as well.

I suggest that for every area of concern, you develop a table such as shown below, in which you list the kind of "typical response" you might expect from a manager who is at one of the four levels of competence. Your objective in visiting with the managers should be to assess at what level of competence the managers are operating. Unless they have reached the level of at least conscious competence, if you are the manager of the enterprise, you have a great deal of work to do. If you are a potential customer, you are well advised to look elsewhere.

RESPONSE TO THE QUESTION
"DO YOU HAVE A PROBLEM WITH FIRE SAFETY?"

LEVEL OF COMPETENCE	TYPICAL RESPONSE
UNCONSCIOUS INCOMPETENCE	Annoyance that you should ask. Of course things are all right. We have occasional problems no worse than others. Over the last three years we have not had more than a few fires and these were extinguished very quickly.
CONSCIOUS INCOMPETENCE	We probably should be doing more. It is on our list of things to look into. I've asked one of our people to engage a consultant to advise us.
CONSCIOUS COMPETENCE	We are working on it. We have regular meetings to discuss fire safety and we have appointed fire wardens.
UNCONSCIOUS COMPETENCE	We have rotating assignments of all workers to a review committee which checks for fire safety violations. They also review, on a regular basis, all reports of violations and propose improvements on both the regulations and the methods of checking on them. We have a run chart of the frequency with which violations have been found and we have analyzed them as to cause. Based on this analysis, we have made the following changes in our approach to fire safety. The data show that the number of safety violations has been decreasing and we think that we have reduced the probability of a fire to less than 5% of the national average. We hope to do better. Do you have any suggestions for improvement?

PREPARING YOURSELF AND YOUR HOST FOR A VISIT

Whether you are visiting a company or being visited, I know of no better way to prepare for the visit than to review Dr. Deming's 14 points for management. If you keep these points in mind and use them as starting points in your discussions, you will have a good agenda for discussions and are very likely to open up the important topics which distinguish the quality operation from the one destined for extinction. His 14 points cut right to the heart of the matter.

There is no need for you to keep your intentions secret. Indeed, you can tell your host or your visitor that you think Dr. Deming's points are a valid basis for discussion. The reaction to that suggestion is, itself, a commentary on the understanding of quality.