

8 April 2003

### What Guides Your Quality Decision Making?

Discussing quality has become very trendy. Every company claims that quality is central to its operations, and many have well-phrased quality policies. Others prominently display the fact that they are an ISO 9000 or TQM based company. The question is whether or not the claims match the reality. More importantly, what influences the everyday decisions made by the employees in the company?

Customer satisfaction is a noble goal. Nonetheless, it does not mean much to an inspector accepting or rejecting incoming material. He needs a measurable standard, such as a standard specification or a cost analysis, against which to compare and make a decision.

Design engineers form standard specifications for the various types of products and components. There is usually a certain amount of give and take when accepting or rejecting a material. For instance, a particular component may have a 4.0-inch specification. A quality inspector cannot expect all the components to have a perfect 4.0-inch dimension - there is always room for tolerances. The inspector will probably pass a component if its measurement is 3.99 inches or 4.01 inches. He may even relent if it is 3.98 or 4.03. After all, the deviation may not make any noticeable difference in performance. After a while, unfortunately, such compromises begin to seem normal, and quality consciousness gets lost. If the inspector starts to accept components that measure 3.95 or 4.05, you may start to get into trouble.

Another standard against which quality managers can compare and make a decision is cost. Taguchi Loss Function is a cost analysis technique based on the idea that the more a value varies from the standard, the more it will eventually cost the company. There can never be a perfect product. Taguchi Loss Function therefore suggests that the next best thing is to settle for the option that costs the least. Organizations can make decisions after conducting a cost analysis and understanding the implications. This concept is quite simple, but it is not always best for the company to base decisions on the lowest cost criteria.

#### Guiding Principles

Every decision is made by judgment, and every judgment is governed by a business strategy and organization principles the individual or the organization lives by. Some of the common principles that enable organizations to make quality decisions are listed below.

1. **Meeting customer requirements.** Accomplishing this through good quality should always be the primary purpose of any business. But then, how good is good enough? Both the explicit and implied requirements of the customer must be satisfied.
2. **Making a profit.** While meeting customer requirements is the primary purpose, every organization strives to earn a profit. Quality decisions should enhance rather than undermine the organization's profitability.

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3. **Get to the actual source of the problem.** Putting a bandage on a problem will not make it go away. It always helps to find the root cause, whether it is quality or any other issue.
4. **Make a provision for the consequences.** There can be situations where organizations have to make decisions that are contrary to quality. In such cases, organizations should make provisions to meet any possible consequence of the decision.
5. **Don't be soft on bad quality.** Letting poor quality go unchecked allows it to thrive. Quality is one area where silence is almost always perceived as approval.
6. **Work with esteem.** Excellence comes when people are proud of the work they do. Do not allow a decision to put down the work of a quality professional.
7. **Keep a record.** Nothing is more convincing than proof of the good and bad effects of decisions. Therefore, it helps for quality professionals to keep a record of such decisions and use the evidence to get the point across.

### **An example of quality-based decision making**

These are simple guidelines that companies should keep in mind when making any decision related to quality. Let's look at an example of a situation where these principles can come into play.

A new incoming raw material inspector inspects every component in a batch from a supplier and finds that 1% of the parts are not meeting an important specification. He is not sure about what has to be done and seeks the quality manager's guidance.

The question here is whether the parts that are failing should be accepted. Rejecting the part may prove more expensive to the company than just accepting the entire batch and then scrapping the few bad components. However, cost is not the only criteria here.

The fact that 100% inspection is being conducted implies that the quality of the component is crucial to the production. By accepting the part, the company may send a message to the supplier that it is all right to continue supplying similarly off-specification parts. Apart from this, the new inspector may base his future actions on the principles that the quality manager uses now. This provides another reason for the quality manager to reject the part, even though the immediate short-term costs are greater.

There is another perspective to this whole case. The receiving company is conducting 100% inspection. This takes up a lot of the quality inspector's time. Quality assurance and testing should be a part of the supplier's job. Hence, the supplier should actually be doing 100% quality testing at his end before dispatching the material. The receiving company then only needs to do a random sample inspection to ensure the quality of the part.

### **A second example of quality-based decision making**

For the first time, a quality inspector finds a batch in which almost half the samples inspected were out of specification. Therefore, he wants to reject the entire batch. The

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production manager, on the other hand, feels that the individual component's deviation from the specifications is minor and will not affect production. Because of pressure to meet the production schedule, he wants the batch to be accepted on immediately.

The issue here is whether the deviations are too small to affect the performance of the final product. Since this is the first time such a problem has been discovered, the quality manager needs assurance that deviations will not affect customer satisfaction. If the deviation does not affect the quality of the final deliverable and it does not affect customer satisfaction, then the acceptable deviation needs to be expanded. However, the quality inspector does not know that now. The company may need to experiment with the parts that are out tolerance to see what the consequences are. This would be an example of making a provision for the consequences of the decision. However, until the consequences are known, the batch must either be rejected, or else each part must be inspected so that only the acceptable parts are included in the production run. The supplier, in turn, must be given the feedback, accept back the returned parts, and tighten up their quality processes.

### **A third example of quality-based decision making**

In another case, a raw material inspector is frustrated that the material review board has overturned his decision to reject the last 5 consignments from a supplier. He meets with the quality manager and explains the situation.

One reason that the material review board has overturned the quality inspector's decision might be that the specifications have not been set correctly. Thus, though the inspector found the incoming material to be out of compliance, the material review board found it suitable.

Such a situation needs to be addressed for two reasons. First, the inspector is getting frustrated because his decision is not being valued. Consequently, he is losing his sense of esteem and pride in his job. Secondly, it is the job of the engineering team to provide a modified version of the component specification so that the quality inspector understands the new acceptable level of quality. On the other hand, if the specification is valid, then the quality issue must be taken back to the supplier to correct appropriately.

### **A fourth example of quality-based decision making**

A new product development project is underway. A cross-functional meeting is called that includes the quality manager. The marketing team wants to know if they should start the promotional activity. They will need at least 6 weeks of product promotion for a successful launch. If it is not initiated now, it will have to wait for a couple of months so that it will coincide with the next festival season. The design team is investigating a problem in the design, but they think that they can solve it within six weeks. However, the quality manager reviews the issue and does not think this is possible. The quality manager must make a decision.

The design team's response reveals that they have not reached the source of the problem and hence are not sure of when it will be solved. Not giving the go ahead to the marketing team will delay the launch by two months. However, the cost will be greater if

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the go-ahead is given now and the design team fails to solve the problem within the six-week timeframe. This could lead to customer dissatisfaction, and bad word of mouth could cause the new product to totally fail. Therefore, though it is difficult to take a stand, the quality manager should ask the marketing team to put their promotional campaign on hold.

### **A fifth example of quality-based decision making**

In another situation, a particular product has been launched successfully for a couple of weeks, and orders are pouring in. However, a certain flaw has been identified that will occur in about 15% of the products. The design team has identified the cause and is confident that it will be fixed in 8 weeks. The quality manager is asked to recommend a course of action.

This is a very tricky situation. Some of the customers who have already received the product will experience problems no matter what. Now the company has to be concerned with the customer orders currently in place. Stopping production until the problem is solved would mean delayed delivery. This could lead to the cancellation of orders and could also give customers a negative impression of the manufacturer. However, continuing production could mean that 15% of the customers will experience a problem in the products usage.

Since the design team has been able to identify the cause, it is easier to estimate the problems it will cause. Thus, it is possible to calculate the maximum cost burden on the company in the case of customer complaints. If management is confident that they can afford to bear the consequences of the flawed product being shipped, then the best decision would be to continue production while trying to speed up the rectification process.

### **Summary**

Organizations have to make different choices depending on the issues they face. There are really no straightforward answers, but the basic principles discussed in this paper can act as guidelines for organizations that are trying to maintain quality.