



TenStep Supplemental Paper

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Constant Improvement in Software Development

Total Quality Management (TQM) is a blanket term that encompasses a wide range of concepts and ideas. The focus of this article is its application in the realm of software development. Problem-solving is a very important part of software development and the methodology involved in TQM is very similar to what software professionals do on a daily basis.

When implementing TQM, organizations often make the mistake of making continuous improvement a formal, time consuming, and people intensive project. Most companies overlook the fact that part of making improvement continuous is making it employee-friendly, giving employees the freedom to perform improvement tasks when deemed necessary. This is especially true in software development, where many professionals appreciate their creative freedom and can rebel against overbearing or intrusive processes.

If your software development continuous improvement process is going to be effective and successful, it should comprise of the following steps. These form the basis for the TQM model as well.

1. Address the problem areas
2. Detect the cause
3. Resolve the problem
4. Follow-up to ensure the problem has ended

Let's analyze each step in some detail.

Address the Problem Areas

Identifying areas to improve is relatively easy, since aids exist in the form of trouble reports, customer complaints, and employee ideas. Another way to detect areas of these "opportunities" is to use the knowledge that piles up throughout the software life cycle, including data coming from defect analyses and post project evaluations.

Once these areas have been identified, the next focus must be on describing the problem / issue thoroughly. This analysis should include the benefit associated with resolving the problem or bring about an improvement. The analysis should also include the costs of letting the problem go unresolved.

Detect the Cause

Identifying the root of the problem is the key to finding a permanent solution. Unfortunately, organizations often resolve symptoms but ignore the causes. These types of improvements do not last long.

The root cause can be detected by a number of techniques, including:



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- Process flow analysis
- Requirement reviews
- Cause/effect charts
- Measurements and assessments

Resolve the Problem

This stage involves analysis and research. If there is more than one potential solution, you need to determine the impact on time, cost, quality, customers, suppliers, and schedules. The resolution stage usually involves decisive decision-making about each problem and potential resolution.

Follow-up to Ensure the Problem has Ended

This stage completes the cycle of process change. Here, you must follow-up and monitor the environment to ensure that the problem has, in fact, been resolved. If the problem has not been resolved, additional corrective action must be taken based on what you know today.

Summary

If TQM is to benefit software development, then it needs to be applied in a process approach and not just on individual problems. Make process improvement a part of the daily task list. TQM requires openness to figuring out how to tackle problems and bring about process improvement so that individual performance becomes more efficient, more effective, and above all meets organization standards. This helps organizations do more with less.