

Designing for Maintenance:

Anil Mital, ... Aashi Mital, in Product Development (Second Edition), 2014

8.5.8 Priority criteria for design evaluation

Once maintainability scores for each maintenance task have been developed, the next step is to evaluate design attributes associated with each task. As we have seen countless times before, the efficiency of a maintenance task is a direct function of the component's design parameters. However, when faced with the challenging situation of choosing among different tasks for design modification, how does one go about setting priorities?

This section addresses exactly this tricky situation by developing a sequence of actions aimed at choosing priorities intelligently. Focusing on the most important components for design modification results in savings of time, effort, and money.

Design choice is primarily a function of functional importance and maintenance frequency:



Functional importance: Generally speaking, the more important a component is to the functioning of the product or equipment, the more vital it is. Therefore, it is of paramount importance to maintain it in working condition all the time. A case in point is that of an automobile engine or a television CRT.



Maintenance frequency: Maintenance frequency refers to the number of times a particular component needs to be maintained during a specific period of time. The greater the maintenance frequency, the higher is the probability that the component in question will need to be accessed, cleaned, lifted, and adjusted to repair it or restore it to working condition.

Based on a consideration of these factors, a series of objective scores is developed that establish the overall importance of individual components. Once this scoring matrix is developed, the method can be fully implemented in practice. The sequence of operations for using the method is depicted.

Quality management systems are really just about one thing: quality. But assuring quality in your products and services has a nice ripple effect of increasing customer satisfaction and keeping them coming back for more. With a well-designed quality management system, your company can identify problems and help improve output quality to better meet the needs of its customers.

Goals and Objectives

The goals and objectives a company defines for a quality management system are like any other goals: they have to be clear, achievable and measurable. A clear goal is one that addresses a specific objective from the company's strategic plan. For example, if the company's goal is to

secure an ISO 9001 (ASQ/ANSI/ISO 9001:2015) accreditation, then the goal should set out all the steps that are needed to achieve the criteria for this certification.

As part of the quality management process, employees need to be given clear instruction on what they must consistently meet or exceed the quality standard. Ideally, every task should have measurable performance indicators so the company can measure how much progress that are making and quickly see when certain objectives have been fulfilled.

Improving the Quality of Products and Services

One of the key goals of any quality management system is to improve quality of products or services your company provides. Quality in such a system has three components: **high accuracy, compliance with applicable standards, and high customer satisfaction.**

The objective of the system is to measure each component and achieve improvements. Product testing can measure accuracy and compliance with standards while functional testing can show whether the products meet customer expectations. Test scores yield information about problems and indicate areas where there is room for improvement.

Influencing Organizational Culture

The culture of the organization plays a key role in quality management systems: if a commitment to quality does not come from the top, then why should employees care about raising standards? You can generally recognize a quality-based company by the following aspects of its culture:

- People are receptive to changes
- People willing to listen, understand, and get involved in process improvement
- Perseverance is rewarded, as it may be some months or years before the results of a QM initiative appear)

When there are problems with quality, employees are ready to take responsibility for possible mistakes and focus on avoiding them in the future.

Focusing on Training Needs

Quality management systems detail the skills, training and qualifications that are prerequisites for carrying out specific tasks. When problems arise despite the skill of employees, additional training may be required. When employees don't achieve the company's quality goals, the test results often indicate the sources of problems and the kind of training that will improve performance. If a company can measure the quality of its products and cultivate a quality-centered culture, employees are motivated to take the appropriate training so they can achieve the company's quality goals and objectives.

