

Abstract

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The Need For Root Cause Failure Analysis

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Introduction.

While the definition of “root cause” is often a topic of heated debate, especially when lawyers become involved, there should be no disagreement that root cause analysis is critically important to the ongoing success of a company engaged in the manufacture of electronics. Agreements between suppliers, manufacturers, distributors and retailers often contain warranties which shift the risk of product failure and customer returns “up stream” if a common product defect exists. Early detection of such defects yields numerous benefits, including continuous product improvement, as well as increased product reliability and performance. Conversely, delayed detection can cost a company enormous amounts of revenue, reputation, client satisfaction and, ultimately, market share.

What is Root Cause?

The root cause is the most basic causal factor or factors that, if corrected or removed, will prevent the recurrence of the situation.² The purpose of determining the root cause(s) is to fix the problem at its most basic source so that it does not occur again, even in other products, as opposed to merely fixing a failure symptom. Identifying root causes is the key to preventing similar occurrences in the future and improving the company’s products.

What is Root Cause Failure Analysis?

Root cause analysis is a methodology designed to help: (1) describe *what* happened during a particular occurrence; (2) determine *how* it happened; and (3) understand *why* it happened. What differentiates root cause analysis from, for example, trouble shooting, are its long and wide-ranging goals. Whereas troubleshooting emphasizes the elimination of a symptom or particular problem in a single unit or product, root cause analysis seeks to determine why a particular event or failure took place so as to correct the problem from ever occurring again in that or any other product. In this way, root cause analysis is a tool that can be used to constantly improve all aspects of product development and production.