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case study

Aviation Manufacturing Company Used Root Cause Analysis to Improve Quality in the Supply Chain

This work was performed by the Sologic® team when it was known as Apollo Associated Services, LLC.

Overview

A commercial aviation manufacturer identified the need to improve the timeliness and quality of their root cause corrective action process.

The Aviation Manufacturing Company utilized Root Cause Analysis to:

- Eliminate costly quality escape problems
- Bring their corrective action system under control
- Improve relationships and communication with key suppliers
- Gain quick and confident approval from regulators

Challenge

The manufacturer decided to overhaul its existing corrective action system to improve customer satisfaction by implementing effective corrective actions in a timely manner. Prior to the overhaul, the company had a

significant number of open corrective actions and did not use a standardized root cause analysis (RCA) process throughout the supply chain. Many of the corrective actions involved re-training or reinforcing.

Solution

The Corrective Action Process team within the Quality organization evaluated and benchmarked seven different RCA methods, including their legacy RCA method, and rated each in terms of usability, effectiveness, software, cost and training quality. The company chose the RCA method and services provided by the Sologic team - replacing their existing method - both internally and within their supply chain.

The company provided RCA training to approximately 500 employees from quality, supply chain, engineering and manufacturing. They then prioritized their most important suppliers (~40% of their total supplier list) and mandated that these suppliers utilize the same RCA on all significant quality issues.

The Sologic team coordinated and managed the supplier training effort by hosting approximately 20 open seminars for the highest priority suppliers throughout North America, Asia and Europe. Within 10 months of launching the RCA program, over 400 priority supplier personnel were trained. (Each priority supplier was required to have at least one person trained and responsible for providing RCAs on quality escapes.)

The company purchased an unlimited enterprise, web-based version of our cause and effect charting software that was used internally, and with suppliers, as part of the broader corrective action management system.

Results

Approximately one year after the RCA rollout to the supplier base began, the number of open corrective actions had seen a ten-fold reduction. The quality of the RCAs for each corrective action improved significantly, resulting in the customers and the manufacturer agreeing to move forward with effective error-proof solution implementation far more quickly.

Many of the suppliers who received the original training have since launched RCA in their own operations, expanding into other areas of their organizations besides manufacturing. (Six years later, the Sologic team continues to provide private, on-site RCA training and software to many of the companies that were initially introduced as part of the supply chain rollout.)

After RCA was implemented, time spent with customers reviewing each corrective action was reduced from an average of two hours per corrective action to approximately 20 minutes per corrective action because the customers' confidence in the solutions improved dramatically. The cause and effect charts drilled much deeper into the cause and effect relationships exposing the underlying technical, system, and human causes - avoiding narratives loaded with personal opinion, biases and agendas. The cause and effect charts help make communication and problem understanding simpler and faster by creating a "visual dialogue" of the problem. Accordingly, customers could see exactly which causes the company was going to attack, and why the solutions would work.

Benefits

Business benefits of institutionalizing Sologic RCA:

- A systematic approach that more successfully identified root causes and solutions that prevented problem recurrence.
- The time needed to process and close corrective actions was dramatically reduced. By creating a "picture" of the problem, the cause and effect charts provided a clear, concise way to organize and communicate how multiple causes - originating from different sources and locations - were coming together to create the problem. This facilitated thorough understanding of problems far more quickly and effectively than narratives and storytelling.
- Greatly reduced customer pressure. Customers asked far fewer questions in the corrective action reviews because they came to understand and agree with the proposed solutions.
- Use of cause and effect charting software streamlined time spent on the RCAs and identified previously unknown causes. Cause and effect charts were supported with evidence, largely eliminating guessing, finger-pointing or arguing.
- By utilizing a uniform approach across many different suppliers, company personnel achieved more consistent results across a large, world-wide supplier base.

Sologic

The Sologic team has provided root cause analysis (RCA) training, consulting, software and investigation solutions since 1987, formerly under the name Apollo Associated Services, LLC. Sologic helps organizations attain and maintain leading positions in a competitive global market by achieving measurable results, including: cost reduction, throughput gains, time savings, quality improvement, injury reduction, improved regulatory compliance and reduction or elimination of day-to-day problems.

Sologic RCA is a five-step method that includes managing information, defining the problem, analyzing cause and effect relationships using Causelink™ cause and effect charting software, identifying and implementing solutions, and reporting findings.

For more information, go to www.sologic.com.



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