Answers to questions facing today's reliability & maintenance professionals

Make Root-Cause Analysis Thrive

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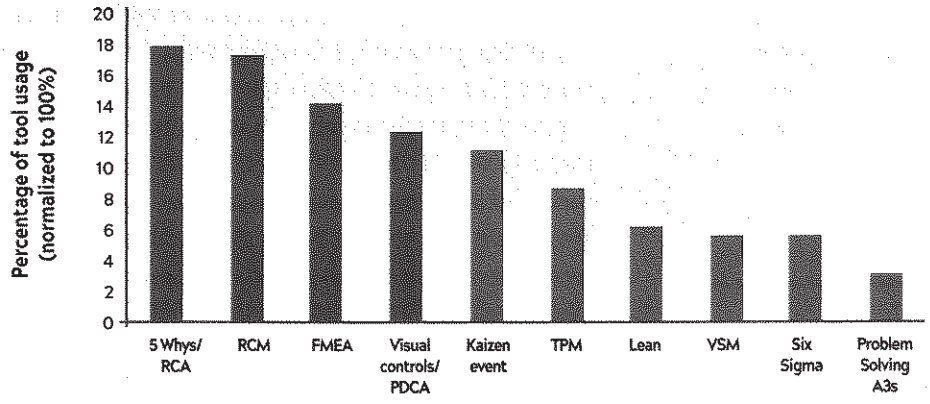
Q Why is root-cause analysis so poorly utilized?

A If you work in any type of competitive business, you already know the importance of root-cause analysis (RCA). How well you are performing it is another issue. It's equally important in all types of companies and government agencies. The same is true for all types of departments (manufacturing, financial, purchasing, medical, research, maintenance). RCA has no organizational boundaries.

I've often stated that the key to attaining and sustaining top-quartile performance is highly active, small-team continuous improvement. The best facilities have a common practical problem-solving process/form that everyone (from plant manager to plant floor) uses. In simplest terms, it's a methodology to get all employees involved in resolving issues using common terminology and techniques.

High-Impact Tools That Cut R&M Costs



Graph shows tools and percentage of use, resulting in high or very-high impact on continuous improvement, by companies that are experiencing significant reliability and maintenance savings.

The ASQ (American Society for Quality, Milwaukee, asq.org) uses this definition: "A root cause is a factor that caused a nonconformance and should be permanently eliminated through process improvement. Root-cause analysis is a collective term that describes a wide range of approaches, tools, and techniques used to uncover causes of problems."

My definition of RCA is "a methodology used to determine the causal factor of a problem to enable eliminating or mitigating it sufficiently (restore business/production requirements)." Anyone doing lean manufacturing should already be eliminating the six big losses to improve OEE (overall equipment effectiveness) and using some form of PDCA (plan-do-check-act).

RCA comes in many forms, so learn how to use the appropriate tools/techniques to fit the complexity of your problem. Often, it's good to use a combination of them. Typical RCA methodologies include 5 Whys, Fishbone Diagram, Pareto Chart, Correlation Chart, Logic Tree, Fault Tree, Sequence of Events Chart, and many more.

So, why is it that not more than 5% to 10% of companies have a thriving RCA process? The most-common reason is not enough time or resources to support it. Some of the other reasons for lack of a thriving RCA are:

- don't have good data
- focus on fault of an individual, instead of being process focused
- poor or no implementation of findings
- complex problems have multiple contributors and focus is difficult

A thriving root-cause-analysis effort will help you make significant strides toward top-quartile performance.

- efforts stop at a point of mutual convenience (it's good enough and we all have other things to do)
- lack of training on enough methodologies (or poor facilitation)
- poor execution (going too fast and missing important factors)
- not understanding the latent (hidden, underlying) conditions that contribute to much of the issue
- no follow-up to verify that the solution is sustained.

As part of a study I did with 150 companies on reliability and maintainability best practices and metrics, RCA was pinpointed as the main reason for attaining reliability and maintenance savings. With so much to gain, why isn't it being done by all? Some of these tools are an integral part of the larger efforts of Lean and TPM (Total Productive Maintenance), but it was RCA that they recognized as making the improvements.

In the August 2018 "On the Floor" column (p. 34), I mentioned that, "Doing the same thing over and over again and expecting different results is the definition of insanity," (author unknown, although Einstein often gets credit for this quote). With maintenance needs being so unpredictable, and 75% of North America not doing enough predictive/condition-based monitoring (you can't fix what you don't find), you are just fixing the same stuff over and over again, at different times. I call that "maintenance insanity" unless you have an RCA process to improve on it. **EP**

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