Root Cause Analysis: The Justification Game

How often are good ideas turned away because we cannot seem to justify their returns with hard dollars? More often than not, it is not because they do not provide the expected quantum returns, but that we do not know how to properly communicate what the returns are. In this article we will review and discuss the barriers to selling not only the concept of Root Cause Analysis (RCA) but also the recommendations generated as a result of these analyses.

DEFINING ROOT CAUSE ANALYSIS
Justification! While it may be defined

By Robert J. Latino, CEO, Reliability Center, Inc.
differently by different people, we find ourselves faced with its ramifications every day. In our work lives we are constantly justifying our worth to the corporation in an effort to succeed and prosper (especially when the next “reorganization” is announced). At home we rationalize why it would be cheaper to purchase a new car versus continue to repair the existing one over and over again. This game is nothing new to us. The difference between those who are successful at justification and those who are not, is merely the ability to sell.

We find ourselves in this position when trying to sell the concept of Root Cause Analysis (RCA) as well. Many of our clients spend millions of dollars on fancy new high tech equipment because the old ones always failed. Many spend millions of dollars on improved methods of repairing equipment and better predictive tools. However, looking at why all this money is spent, we find that it is to compensate for the failure of existing equipment to perform as we expect it to.

**MAKING BETTER PREDICTIONS WITH BETTER DATA**

Does buying new equipment ensure that it will not fail due to the same reasons the old equipment did? Does improving our Mean Time Between Failure (MTBF) and Mean Time to Restore (MTTR) ensure that failure will not occur? No it will not. It only means that we will predict it earlier, and then fix it faster. So how do people justify the expenditure of such investments, when the returns are questionable? Salesmanship!

We find that money seems to be available and justifiable when we buy tangible things such as a new piece of operating equipment or an infrared imaging unit. When we purchase such items we can actually see what we purchased. What about the intangibles that can save us money? Failures do not just happen; they are a result of a series of cause and effect relationships stemming from the involvement of the human being.

**UNDERSTANDING THE HUMAN ELEMENT**

Do bearings just fail (other than when they reach their design life, which is rare)? Oftentimes we find that the human involvement with the decisions about the type of bearing in a specific service, the frequency of lubrication, the type of lubricant, the method of installation are incorrect. The fix in these circumstances require that we correct the flawed decision making systems of our personnel. This means that we would have to update our outdated installation procedures, implement a system of proper lubrication and educate our designers about installing the proper
bearings in a particular operating environment.

Are these fixes capital expenditures? Absolutely not! Are they tangible? Absolutely not! These are referred to as “soft side” issues because they deal with the human being and improving their decision-making skills, which directly affect our operations. Then why in an environment when money tightens up, are training dollars the first to be hacked? Because training dollars are deemed expendable and intangible.

When we review the string of logic just described, we find that errors of omission and commission are what lead to physical failures occurring. Yet we tend to justify spending the available money only on the physical end and not the people end. This has serious implications in that merely replacing parts does not make the failure go away, it merely predetermines the MTBF. If we are lubricating rotating equipment properly, it does not matter how often or what type of bearing we put back on, it will fail again due to the systems environment it is exposed to.

A LOOK AHEAD

In next month’s conclusion, we’ll explore how to justify conducting a RCA, along with addressing specific objections that many operators and managers use to rationalize putting off root cause analysis. When one takes a closer look at how equipment is used and how its MTBF creates a ripple effect throughout the organization, it becomes clear that RCA is not a luxury, but a necessity.

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Part 2 of 2

By Robert J. Latino, Reliability Center, Inc.

In last month’s introductory article, we discussed some of the barriers to selling not only the concept of Root Cause Analysis (RCA) but also the recommendations generated as a result of these analyses. We also laid the framework for making better predictions by generating and accessing better data—namely predicting our Mean Time between Failure (MTBF) and Mean Time to Restore (MTTR) earlier and, therefore, implementing a fix faster.

Given this background, let’s explore how we can now justify conducting a RCA and implementing the recommendations as a result of the analysis. By and far, conducting a true RCA is viewed as luxury not a necessity. Think about the objections we hear when we offer the idea of gathering RCA teams. What follows is a list of common objections to RCA accompanied by rational justifications that any manager can employ.

**OBJECTION: WE DO NOT HAVE TIME TO DO RCA**

We do not have time to do RCA because we are so busy firefighting that we do not have time to analyze why the fires are occurring in the first place or how to prevent their recurrence. If this paradigm is permitted to exist, then the conclusion is that the best we can do is sharpen our response time and accept that the fires are a cost of doing business. How much money is being accepted as the cost of doing business? Hint, how much is your maintenance budget worth?

**OBJECTION: WE DO NOT HAVE THE MONEY TO BACK A RCA EFFORT**

Maintenance budgets are primarily developed to respond to failures that are expected to occur. Man-hours and materials are assigned and budgeted. Therefore, if it is in the budget, it is not a failure because we have compensated for it. It is a cost of doing business. This does not have...
to be the case. Just as with safety, we should have a zero tolerance policy with failure. We should question why the things in the budget are acceptable and look at how to eliminate failure.

Secondly, when failures occur that are compensated for in the budget, they oftentimes affect production hours in terms of downtime. The cost of a failure should be measured by the man-hour dollars + material dollars + the lost production dollars. This is a true measure of how much is lost, and subsequently, how much is to be gained. Just because a $50 bearing fails, does not mean that it did not cause $50,000 in lost production.

OBJECTION: WE DO NOT HAVE THE RESOURCES TO CONDUCT RCA

However, it does seem that we always have the resources to fix the problems that occur daily. If we were to support a RCA effort, the reactive work would decrease over time, as many problems would not exist anymore. This would free up the time of the people that we have as reactors, and better utilize them in proactive activities such as RCA, predictive maintenance, etc.

OBJECTION: IMPROVEMENT WORK CAN WAIT UNTIL RESOURCES ARE AVAILABLE

If this is the prevailing attitude, pack up your RCA bags because these resources will never be made available. This is where management support is a must. We must make accommodations in our work order systems to effectively implement RCA recommendations through assigning them a higher priority. If this is not done, then they are “back burner” items and will likely never get done. This will have resulted in a lot of work on behalf of the RCA team and a lot of cost in their wages while they were on these teams. The larger impact will be on the morale of the team, as they put their best effort forward and no one listened. This is where the program-of-the-month paradigm originates.

THE VALUE OF THE INTANGIBLES

In the world of RCA, we must learn the value of the intangibles and their effect on the tangible world. This all revolves around the dollar and all aspects of the organizational system are interdependent to optimize profits. Here is a list of such intangibles:

- **Lost profit opportunities**—the cost of a lost downtime hour on the spot market at that time.

- **World class analytical skills**—investing in our people’s skills makes them better decision makers and problem solvers. This allows them to do things once and do them right. How much does it cost to replicate the same activity over and over again?

- **Teamwork**—when people work on RCA teams, they gain an appreciation for how other departments perceive given situations. When this occurs, it affects future decision making because they tend to take into consideration why people do what they do. This empathy results in a more synergistic operation and a more educated workforce.

- **Morale**—research shows that failure rates tend to be higher in organizations that have poor morale. Why? Because when our workforce feels alienated their focus is distracted with the emotional baggage they carry. This distraction causes errors in decision making which lead to physical failures. By allowing the workforce to demonstrate their knowledge of how the process works and to solve problems utilizing their experience, their morale is improved along with their ownership over their work. How much is this worth to the organization?

These are just a few of the intangible benefits of conducting RCA. Although the returns from the tangibles alone are self-justifying, imagine if we were able to focus the creativity of the workforce towards the betterment of the organization. Remember, we cannot do what we cannot imagine!

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