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Reliability Concepts – Precision Based Reliability

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In my many years of experience and throughout my travels I have done quite a bit of teaching and consulting on various Reliability related topics. Often I feel like the proverbial evangelist at a revival meeting. After all, the audience already knows the message - the true path to their salvation - the problem is in acting upon this knowledge and doing what is right, instead of pursuing what seems to be the easiest path to immediate gratification. Let's just fix the equipment instead of analyzing the reason why it failed for example. Like anything else worth doing, obtaining true Reliability takes a concerted effort. We all recognize that the potential rewards are tremendous. We are also acutely aware that there is a certain amount of pain and suffering that must be endured if we are to obtain what we so desperately desire. So let's dispense with the passing of the collection plate and get right to the message.

Many organizations have realized that enhancing reliability is not only necessary for their continued growth, but also mandatory for their survival. In their efforts to achieve the desired state, many programs have been put into place to substantially improve safety, limit environmental excursions, improve precision operations and produce higher quality products at reduced costs. Often these programs have proved to be time consuming and require expensive fixes that sometimes just don't seem to work. What is required is a new way of thinking; establishing a mindset that permits zero defects. For example, when the zero defect quality programs of the 70's and 80's were put into place their efforts resulted in substantially improved quality and contributed to the American economic boom of the 90's. Adopting a mindset that has no allowance for failure of any type is merely a call for higher precision. This simply means having the ability to perform a task so well that it does not have to be repeated.

So how can we achieve a failure free environment? The answer is really quite simple. All that is required is the strategic use of our experience, talents and technologies to continuously improve our facilities. But first it is important to understand that failures must not be confined to equipment problems. To be truly effective in our continuous improvement efforts failures must also include process deviations and administrative constraints as well. In addition, when failures are encountered we must not just fix the immediate cause of the problem, but study them in order to ascertain the underlying root causes of the failure. This information, once uncovered, can then be used to further improve the precision of our operations.

A giant step in enhancing reliability is the identification of which failures to analyze for continuous improvement. What most people don't understand is that small; seemingly inconsequential problems are typically the ones that are actually costing our organizations the most money. These problems are often accepted as part of the job or routine. However, when taken in the aggregate they represent big losers to the bottom line. What blinds us to their value is our inability to weight the frequency in which they occur. To uncover these hidden opportunities what is required is some form of Failure Modes and Effects Analysis (FMEA) that not only clearly defines what a failure is, but what modes of failure are occurring. The elimination of these chronic issues tends to result in exponential increases to the profit margin.

Paradigms permeate every level of an organization and can be either productive or restraining depending upon the context of their application. In fact, paradigms form the framework from which we interpret our reality. Because mind-sets are not outwardly visible at first glance they must be sought out using innovative techniques to uncover their existence. This is an extremely difficult task for organizational members who share their company's way of thinking. For example, when we achieve success we often assume that the thinking that lead to our prosperity can be applied to other similar problems and situations as they arise. In this situation the

problem is identifying that this is a paradigm and determining if it is productive or restraining. The best formula for success is to incorporate precision on one end, and failure analysis of the task we perform on the other. With this approach, existing restraining paradigms will soon stand out and be much easier to recognize. Sometimes it takes a trained outsider who is free of the organization's bias to recognize subtleties that can lead to the identification of paradigms. In any case, for a business to survive and be successful, the recognition and elimination of restraining paradigms, as well as the implementation of productive paradigms, must be as fast paced as our high-tech society demands.

There is a simple formula for guaranteeing success within any organization; i.e., study the flow of knowledge in your company and make sure that those who have it share it with those who need it, and that those who need it use it. This means that working people best serve their company objectives when the culture provides needed information and mentors its use. It is inevitable that the concept of mentoring/training will open areas of discontent. In fact, if they don't it is a good indication that they are not doing their job. After all, discontent is bred by culture change until new paradigms are frozen in.

The introduction of reliability concepts into any organization will provide a windfall of unexpected gains. To achieve them a new method of thinking about problems is required. Each individual must come to appreciate the opportunities inherent in the application of these concepts. It will be up to you and your management to put in place the support systems needed to achieve the desired results, and secure the future by assuring its endurance through cultural change.

Well I've done enough preaching and like any good sermon the services are not over until the benediction. I humbly suggest that the only prayer any organization may have in today's demanding business environment rest in the topics discussed in this paper. Reliability is not just a word, but a state of mind. For Reliability to thrive in any organization we must change our way of thinking to remove the business as usual attitude that is so prevalent. A proactive approach to Reliability must be developed and implemented. Reliability efforts need to be accepted as the new routine not the exception to the norm. They must be embraced, practiced and nurtured if organizations are to continue to prosper and in some cases survive!

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