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Is your company guilty of continually creating new improvement initiatives every few years or, even worse, what we sometimes hear as the next management flavor of the month?

There are some very good reasons why this happens:

1. Due to growing healthy appetites for better and more, the expectations of consumers (that's us) for products and services continue to rise.

2. The suppliers of these products and services continue to try to differentiate themselves, in competing for our demands, by coming up with not only more products and services, but also different and new ones.

3. All things being equal, we will always prefer to purchase the lower priced product or service.

4. While this market frenzy continues, the regulators of the world will make sure that growth in materialism does not compromise the sustainability of the earth and its people. This will be accomplished by increasing environmental and safety requirements of the providers of goods and services.

As long as these factors continue to hold true, the companies where we work will always be looking for ways to improve output, quality, cost, safety, and the environment. Hence the never-ending flow of improvement initiatives which deal with the common idea of defect elimination. Defects are like bugs eating away at the value an organization is trying to create. Unquestionably, these historical improvement initiatives have been successful in achieving some degree of result, within certain time periods.

Unfortunately, these common initiatives all have adopted a top-down rather than bottom-up approach to improvement. A top-down approach is reactive, in that it assumes the existence of a problem that requires a solution.

A bottom-up approach makes no assumptions; it proactively identifies all potential defects before they occur and ensures corrective steps are taken.

This latter approach has been articulated best by Winston Ledet, the visionary behind "The Manufacturing Game."

His research uncovered a case where an asset that generated 6500 repair work orders in a year had 20,000 underlying equipment defects, culminating in 10 substantial business losses and one major catastrophic incident.

We can conclude that in order to avoid major incidents at the top, defects at the bottom must be eliminated. Any defects at the bottom that go unchecked could become a more severe problem at the top, with greater ramifications. In fact, in order to reduce the incident rate by 50 percent at the top, 10,000 defects must be eliminated from the bottom.

Most organizations that adopt a top-down approach to improvement initiatives can, at best, target only a few hundred defects. These organizations, by nature, continue to be vulnerable and hence continue to experience major incidents and business losses.

Ledet's findings support other research that relates to failure modes. Having been involved in reliability improvement for 20 years now, I have found that for every $1 million in equipment value there are at least 100 failure modes. Similarly, for every $100 million in equipment value, there are as many as 10,000 equipment conditions that need to be monitored regularly to avoid the business consequences associated with potential failures.

Many improvement initiatives stall because of the requirement to manage this data-intensive process. Most organizations have not put in place the competencies and the reliability information systems required to manage the condition data and to thereby avoid the many potential failures.

A Canadian brewery has been successful in implementing both reliability practices and technology to collect, analyze, and respond to condition data. This company educated its employees with a broad range of practices. As a result, the company made a sustained shift to a reliability focus within maintenance. Additionally, it provided plant floor employees with the technology to perform failure mode identification and conduct equipment condition inspections. This combination has allowed the company to reduce downtime by 50 percent and increase throughput by 10 percent, saving millions of dollars a year.

By continuing to look at problems from the top-down, and only dealing with them after they occur, organizations and their employees will forever experience an ongoing series of recycled improvement programs.

However, when approached from the bottom up, reliability improvement can be very effective in both achieving results and sustaining the improvement momentum. **MT**

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