

RIZING

ARE WE
THERE YET?



The words, “Are we there yet?” are among the most feared words parents can hear on a long trip with their offspring. What the kids are asking, in a simpler form, is, “Haven’t we been doing this long enough to have arrived?” As Engineer’s Digest celebrates its 25th Anniversary, we are a quarter of a century into our journey toward maintenance and engineering excellence, and it seems appropriate to ask the same question: Are we there yet?

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The Way it Was

Twenty-five years ago, what was the status of the maintenance and engineering functions?

In many companies, they were overhead functions, thought of as necessary evils. In the mid-'70s, it was difficult to determine if the maintenance and engineering functions were kept around as insurance or were really valuable parts of organizations.

Most organizations had traditional hierarchical structures. They were managed by command and control type managers who learned their management skills from the military. The tools used then were not nearly as technically advanced as those available today. In fact, there were few computer control systems, and PLCs were just being accepted into plants. There were few proactive maintenance techniques in use, although focused planning and scheduling were becoming common.

At that time, computerized maintenance management systems were unknown. There simply were no CMMSs. Any maintenance records that were kept were in file cabinets, and there was little, if any, analysis of the data in those cabinets. Data accuracy and integrity were not a priority.

The work force of 25 years ago had relatively good skills, since many of the craftspeople were trained in the military during World War II and the Korean War. However, cross training was not an option. Everyone specialized in his or her own craft.

Where Are We Now?

What is the situation today, 25 years into our trip?

In some companies, maintenance and engineering are seen as value added — or, perhaps better, as value adding — functions. However, in most companies, they are still viewed as reactive and an overhead expense.

Organizational structures have changed, moving from hierarchical structures to decentralized business units or, in some companies, functional teams. Unfortunately, many companies have lost their focus on their technical capabilities and have actually downsized much of the technical expertise out of their organizations.

Today's tools are, of course, more advanced, particularly in the area of predictive maintenance. Companies use predictive technologies to monitor and trend equipment conditions in order to make repair-or-replace decisions before failure. This approach, coupled with a reliability philosophy, has done much to increase equipment utilization and preparedness.

CMMSs have advanced from computerized file cabinets to useful tools for managing maintenance and reliability functions. Today, equipment data is tracked and trended with a focus on achieving lower life-cycle costs.

The general skill level of the work force, by contrast, has declined. The highly skilled craftspeople have retired, only to be replaced by those who have not received adequate training in apprenticeships. In fact, many apprenticeship programs have been discontinued or diluted. While technology has increased in the plants and facilities, a supporting focus on technical training has not developed. This situation represents a major detour on the journey to maintenance excellence.

What Lies Ahead?

What does the map show for the next part of our trip?

Organizational structures will be modified to fit the new understanding of maintenance and reliability. The focus must be on staffing with skilled personnel who can help ensure equipment and asset performance. The reduction of redundant organizational functions and the resultant high costs have to be replaced with a more centralized approach, using the maintenance and reliability functions as optimizers of equipment effectiveness.

The tools will continue to evolve, including the development of self-diagnostics and artificial intelligence for equipment troubleshooting and problem solving. The maintenance techniques of today — RCM, TPM, PDM, CMMS, etc. — will evolve into a holistic approach that integrates the required techniques to maximize equipment effectiveness and return on net assets (RONA).

CMMSs will continue to evolve into EAM (Enterprise Asset Management) systems. The features will include real time monitoring and on-line diagnostics for immediate answers to developing problems. These advances, too, will help organizations optimize their returns on their assets.

Successful organizations will re-focus the skills of their work forces to include a detailed understanding of the operating dynamics of the equipment. Where this happens, the meaning of "craft" will be returned to maintenance, as each individual craftsman becomes a maintenance professional. As technologies develop and are implemented in plants, the skills needed to maintain the technology as well as the equipment will become increasingly important.

So, are we there yet? Well, we are on our way; but we are not there yet. The trip has been interesting so far and promises to be even more interesting and challenging during the next 25 years.

