

Maintenance Success Depends on Three Elements of Productivity

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Too often, we see maintenance managers and supervisors trying to improve maintenance by focusing on a narrow solution to a bigger problem. They may be focusing on only one of the three productivity elements: people, equipment, and work processes. Here are some familiar examples:

- It is often assumed that if we train people in a critical skill or if new people with the "right skill sets" are hired or brought in under a maintenance contract, we will improve the way we do maintenance. Widespread training shows only narrow improvements. Or hidden costs associated with new people will override the return.
- Many facilities and plants have spent hundreds, if not thousands, of hours developing new preventive maintenance (PM) programs and procedures hoping they will lead to improved equipment performance and reliability. Or they have implemented a computerized maintenance management system (CMMS) to manage work orders, parts usage, maintenance labor hours, etc. While the intentions are admirable, unfortunately the results are not always what they hoped for.
- Efforts are often undertaken to upgrade major equipment components to new ones that last longer and require little or no maintenance but are most likely more expensive. Time and expense are dedicated to an equipment improvement that does not get the promised results.

One of our clients encountered a considerable maintenance problem with a large centrifugal pump. Impellers, vanes, and sometimes shafts would break during normal operations. Maintenance leadership first focused on ensuring mechanics were properly installing and maintaining the pump. With no real improvements, they then focused on training operators about proper pump operation. That led to no change either. Then an operator discovered the pump was being started with the discharge valve closed. They realized that when the old manual operations procedures were automated the year before, they had introduced a programming error into the startup sequence: The valve should have been throttled open when the pump was started. They eventually solved the problem, but look at the lengthy back-door approach.

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Now, let's look at improving maintenance by focusing on all three elements of productivity: people, work processes, and equipment. Here are seven steps for using these three elements to improve maintenance efficiency and effectiveness (efficiency: doing things right, effectiveness: doing the right things).

1. Do not just do something in the hopes that it will improve maintenance. Focus on results—some specific improvement target such as better equipment performance or reduced planned and unplanned downtime on critical equipment. Focus on the equipment element of productivity.
2. Identify the people who make decisions, develop plans and schedules, manage the work, buy the parts and supplies used, maintain the equipment information, develop procedures, or actually perform the work on or for the targeted equipment. Focus on the people element of productivity.
3. Gather all the procedures, work methods, guidelines, and documentation used to operate and maintain the equipment. Focus on the work process element of productivity.
4. Determine what the equipment is telling you about its performance problems. Look at the data: availability, performance efficiency, and rates of quality. Look at maintenance hours, parts and supply costs, etc. Look for equipment root causes.
5. Begin looking for inconsistencies across the three elements of productivity. Do the people truly have the right skill sets to address the equipment problems? Are they working in concert with each other? Look for people root causes.
6. Do the people use the right work processes? Are they documented? How much trial-and-error methods are used? Does everybody do things the best way possible? Or do they do things their own (not always the best) way? Do some of the procedures have errors in them? Look for work process root causes.
7. Address only one problem at a time. Consider improving all three elements simultaneously. Apply the changes, and measure the results. You should see an improvement; it may be small or it may be huge.

Focus on results—tangible and sustainable results—by focusing on all three elements of productivity simultaneously to quickly improve your maintenance efficiency and effectiveness in a sustainable manner. **MT**