

The hidden value of maintenance

Creating a better, safer and more efficient maintenance workforce.

- \$50,000 in fire damage because oil in a transformer hadn't been checked.
- \$100,000 loss caused by failure of a main switchgear because no one ever cleaned it.
- A plant shuts down for 12 days because of dust.
- \$60 million in losses caused by improper use of an old extension cord.¹

If these types of maintenance failures can happen when the economy is healthy and maintenance budgets are at all time highs, what will happen in a slower economy when budgets are cut?

Business losses due to downtime alone are estimated to be nearly \$50 billion per year worldwide. Studies show that 60% to 70% of that downtime is caused by human error.

It doesn't make sense. With these types of statistics, why do so many businesses and other organizations underestimate the value of maintenance and slash those budgets first?

The answer is because the work they do is invisible unless there is a mistake.

The value of maintenance is hidden when done right. But if one small step is forgotten or one tiny error is made, suddenly the entire plant notices and blames the maintenance staff for the failure. But more often than not, it is not their failure at all, but a failure of the organization to support them in their critical jobs.

This report is designed to help people better understand the value of the maintenance worker, the role training plays in his or her success, and how an organization can turn maintenance and training budgets from being "necessary evils" into practical ways of saving money, improving efficiencies and adding to the bottom line.

Top eight mistakes in maintenance with tight budgets

1. **Change for the sake of change** — When times are tough, people have a tendency to try and over-control the situation, often making it much worse. As a result, they make changes in hopes of improving a situation, but without really knowing that maybe what they are already doing is already the best thing. The changes they make often come with much more work for everyone that doesn't produce much, but only gives them a sense of being able to say "we tried everything". So don't over react. If you had a maintenance strategy or processes you believed in when times were good, then how much more important is it to stay the course on that strategy when times are bad?

2. **Not focusing on the fundamentals** — Working on new projects means something else won't get done. Make sure the basics are covered and the fundamentals of keeping your plant up and running are not neglected.

3. **Cuts in the training budget** — You might make some short-term gains on a budget issue, but the cost will only show up somewhere else, and in much bigger numbers. “Turning-them-loose-training” (learning from your mistakes), “follow Old Joe training” (learning bad habits from others), and “Band-Aid-training” (sitting a worker in front of a boring video or webcast), while sometimes are good supplements, are poor substitutes for professional training from a live human being. The costs for taking these shortcuts will eventually surface.

“The value of maintenance is hidden when done right.”

4. **Communication neglect** — People tend to keep their heads low when they are stressed. This causes poorer communication across all lines at a time when it is more important than ever to have clear and consistent communication to pull your company through.

5. **Employee neglect** — If management is stressed, you can bet the employees are too. Forgetting to remind people of the good job they have done or acknowledging their accomplishments will only make the situation worse. Improve their morale by letting them know you appreciate their work.

6. **Putting off small repairs** — The stories are endless about companies who “hold off” on minor repairs during a budget crisis so that they can concentrate the bigger issues, only to have their neglected small repair become the bigger issue.

7. **Switching vendors to save a buck** — If the lowest-priced vendor wasn’t good for your company before, what makes you think they will be good for your company now? Trying to save money on a \$1,000 component might sound like a good idea until you have to face a shutdown for days or weeks at a time because it hasn’t been delivered. Stick with what has kept you up and running.

8. **Laying off the wrong people for the wrong reason** — Don’t create a worse problem down the road. Maybe laying off the young novice to keep “Old Joe” around sounds like a good decision, but not if Old Joe decides to retire in the next year and leaves you high and dry. Likewise, laying off Old Joe because he makes the most money might help your short-term budget, but if he really can “do it all,” you probably need to figure out a way to keep him around. Be careful to analyze your needs and company policies before making a quick decision. Knowing your employees on a more personal level can help to clarify these decisions as well.

Negative effects of downtime

The true cost of downtime is ten times what is used in cost justification reports.² This is due to the fact that downtime eventually weaves its negative effects throughout everything a company does. Consider the effect downtime has on the wear and tear of other properly operating equipment, the stress it causes workers and management, the impact it has on employee morale, the product quality issues that may arise, complaints by customers, and the time and money lost because of all these extra circumstances. Downtime at your facility even directly affects your local and national economy.

Determining the true cost of downtime

There are a variety of methods and calculators for determining downtime. In general, however, you need to calculate:

1. How many employee hours are lost to unproductivity while the system is down, and then convert those lost hours into dollars
2. How many hours maintenance and other personnel spend repairing and getting the system back up and running, and convert those lost hours into dollars
3. How many hours the facility or unproductive machinery is burning up energy and resources, and convert those lost hours into dollars
4. How many hours management and administrative employees spend researching replacement parts, expediting orders or doing other "rush" related work, and convert those lost hours into dollars
5. How many hours customer service or sales personnel will spend explaining the downtime to customers and the effect it will have on them, and convert those hours into dollars
6. How many sales are lost due to the downtime, and convert those lost sales into dollars
7. How many customers are lost due to the downtime, and convert the future value of those customers to dollars.
8. Add all these figures up and add 10 to 20% to account for the less visible or intangible damages associated with downtime like lower employee morale, stress related unproductivity, negative publicity, etc. and you arrive at a minimum cost of downtime.

Avoiding downtime

Clearly, the "best defense," as the say, is a "good offense". This means being "proactive", and not "reactive," in your maintenance responsibilities. Running a plant on a proactive maintenance basis makes your work much more efficient, productive, profitable and your life less stressful. This is because being proactive is the only way to reduce and eliminate downtime.

How to tell if your crew has a "reactive" or "proactive" mindset

Changing from a "reactive" to a "proactive" mindset is said to reduce maintenance costs by as much as 20% and increase productivity as much as 15%. Those are huge savings for any company or organization. Ricky Smith, a CMRP and a contributing author for PlantServices.com, provides guidelines for determining whether maintenance is being conducted with a reactive or proactive mindset. Mr. Smith says that you know you are in a reactive mode when:

1. Your PM labor hours stay the same (or increase) and emergency labor hours trend upward
2. PM work orders lack specifications, procedures and other data
3. Yesterday's maintenance problems and reliability issues consume 90% of daily maintenance meetings
4. The maintenance supervisor is a hero one day, a "nogoodnik" the next
5. The maintenance supervisor must work late at least twice a week
6. Maintenance crews don't know what equipment they'll be working on tomorrow
7. The maintenance supervisor routinely expedites parts for emergency work
8. Equipment reliability issues prevent the plant from operating at targeted capacity

In short, being reactive means performing preventive maintenance on equipment that continues to fail, or worse yet, not knowing what preventive maintenance to do at all. Quick fixes are repeatedly implemented, Band-Aids are put in place, but these solutions really never

“fix” anything. Knowing the real reasons why equipment fails, and how to prevent it from failing in the future, is the first step in changing from a reactive to a proactive mindset.

1. Examples taken from NFPA 70B, Recommended Practice on Electrical Equipment Maintenance
2. Downtime Central Business Industrial Network