

Ways to Reduce Unplanned Downtime

Cost of Downtime

When machinery breaks down, unplanned downtime is often more costly than business owners realize. It can easily total to tens of thousands of dollars per hour. There are many factors involved when calculating the cost of downtime:

- **Equipment Costs:** Money is invested to replace or repair the failed equipment. This also includes spare parts inventory.
- **Labor costs:** This is the added cost of a repair technician paired with the cost of employees whose work has been delayed due to the bottleneck in production.
- **Indirect Labor Costs:** Supervisors and managers must take time away from their own productivity to address the equipment failure.
- **Opportunity Cost:** Lost production time means fewer total goods available to sell. This equals a lower gross margin.
- **Customer Satisfaction:** Downtime can reduce a company's quality performance and its ability to fill orders in a timely manner. This can lead to negative word of mouth and lost customers.

Selecting Proper Equipment

Luckily, there are many effective ways to reduce unplanned downtime and maintain effective operations. First, a company must select the appropriate equipment for their operational needs. Many companies make the mistake of purchasing improper or



incorrectly sized equipment because they are trying to save money of the upfront cost. For example, business owners are often tempted to buy a smaller Graco pump rather than the pump that is correctly sized to meet their operational needs. While this may seem like a great way to save money, it can end up costing a lot more. Smaller pumps have smaller cycles, and they are inefficient for large operations. Improper use and sizing of equipment results in frequent problems and increased need for repair. In the end, the lower cost upfront is a lot more trouble than it's worth.

Rather than looking purely at the upfront cost, try to determine the Total Cost of ownership (TCO). This way, your analysis will include direct and indirect costs across the product's lifespan, and an accurate cost analysis can be made.

Estimate Overall Equipment Efficiency

In addition to calculating the TCO, this equation can help assess whether equipment is working at the desired level of efficiency. It can help target whether problems are from downtime, speed, or quality produced.

$$OEE = A \times P \times Q$$

A = Availability; the actual uptime divided by the scheduled

production time. This estimates the Down Time Loss.

P = Performance; the percentage of time that the equipment is performing at the ideal speed for production. This estimates the Speed Loss.

Q = Quality; the percentage of total output that passes quality inspections. This estimates Quality Loss.

Assess Your Maintenance Procedures

Secondly, a company must assess the effectiveness of their current maintenance procedures. Most companies tend to handle maintenance from a reactive or "firefighting" standpoint. This means that they tend to fix equipment after it is already broken. Unfortunately, this can result in crisis situations that could have been avoided by more frequent checkups and equipment servicing. These crises result in unplanned downtime and the added cost of repairing equipment as a rush job.

The next step up from reactive maintenance is shifting to a preventative standpoint by replacing and repairing equipment at fixed intervals. Regular cleaning, inspecting, lubricating, and adjusting can expand the equipment's life and ensure that problems are caught in a timely manner. The problem with preventative maintenance, however, is that these routine

measures are often a waste of time and money because they do not meet the exact need and timing of the equipment's condition. This means that preventative repairs are effective only a percentage of the time that they are used, and the rest of the time they are just an expense

Shift to Predictive Maintenance

Rather than “firefight” or prevent maintenance needs, a more efficient approach to maintenance is to take a predictive standpoint. This would involve a shift away from routine check-ups and towards flexible repair schedules based on educated predictions of the equipment's future state. Of course, some companies find it ideal to seek a healthy balance between preventative and predictive procedures. That way, the company can continue to routinely service the areas that require extra attention but also predict larger, overarching issues. There are many benefits to adding predictive elements to the system:

- **Minimize Downtime:** Flexible prediction of problems before they occur means that production is rarely impacted in a negative way.
- **Avoid Unnecessary Repairs:** Equipment will be serviced exactly when needed, not after it breaks down or when it is still perfectly fine.
- **Optimize Performance:** Machines will consistently function at the optimal level because imperfections will be noticed and resolved right away.

- **Reduce Extra Costs:** There are many costs associated with inefficient repairs such as spare parts inventories, energy efficiency, and depreciation. Keeping up with the condition of valuable equipment can eliminate this.

Tools

There are many ways to implement the process of preventative maintenance, and each company must select a plan that is right for them. These are a few of the most common methods:

- **Vibration Analysis:** Through periodic recording, this can locate bearing defects, misalignment, and imbalance.
- **Ultrasound:** This can detect air leaks in pneumatic pumps as well as cavitation in hydraulic pumps.
- **Thermography:** Locate overheating electrical components

Summary

A business cannot maintain cost efficient operations unless it takes the necessary measures to avoid unplanned downtime. These measures include selecting the proper equipment for operational needs and exercising strategic maintenance practices.

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