

WHITE PAPER

What is Preventative Maintenance and how does it minimise organisational loss



ABSTRACT

Organisational loss is something we all strive to keep to a minimum, combing through expense reports and budgets, but an area that can often be overlooked is the losses we incur on ourselves through poorly maintained equipment. A high quality asset only remains so if it's looked after properly if not you experience breakdowns, downtime, production declines, service declines, costly reactive maintenance for parts and labour and the list goes on.

This white paper looks at preventative maintenance, what it is, how and when it works and how it helps organisations minimise their losses, be that financial or environmental or declines in safety.

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¹INTRODUCTION

"THE TIME TO REPAIR THE ROOF IS WHEN THE SUN IS SHINNING"

John F Kennedy spoke these wise words, overall the sentiment is so logical but is often over looked. We need to fix problems whilst we are capable of doing so. Not to put off an issue until its wreaking havoc on our lives.

In today's economy billions of dollars are spent on manufacturing equipment, transport vehicles, healthcare equipment and local infrastructure and so on. But how often is this equipment only given attention when it causes a problem or has an issue? When the truck stops working, the manufacturing machine fails, production stops or the electricity power centre goes down for an entire South Australian city. It's a scary thought to consider, the likelihood that organisations only stop to consider the damage once the damage is done. ² UNDERSTANDING YOUR RISKS

Research suggests that organisations are becoming complacent with their asset investments and taking a blasé approach that's wasting money time and resources. Prior studies show that up to 80% of industrial facilities are unable to quantify the cost of failure and downtime, whilst a significant portion of companies are underestimating their total cost of downtime by a factor $200 - 300\%^{1}$

WHAT TO ASK YOURSELF



WHAT WILL HAPPEN IF THIS PIECE OF EQUIPMENT FAILS?



WILL THE STAFF BE SAFE IF THERE IS AN UNEXPECTED EQUIPMENT MALFUNCTION?



WILL THIS EQUIPMENT FAILURE RESULT IN A HALT IN PRODUCTION OR SERVICE?



WHAT KIND OF FINANCIAL LOSS WILL YOU EXPERIENCE IF THIS EQUIPMENT FAILS?

³ WHAT IS DOWNTIME?

ALMOST EVERY FACTORY LOSES AT LEAST 5% OF ITS PRODUCTIVE CAPACITY WITH MANY LOOSING UP TO 20 %²

Two types of downtime contribute to production and organisational loss: planned and unplanned. Planned downtime involves pre-arranged maintenance activities that are scheduled at optimal times to minimise operation loss.

Unplanned downtime involves equipment failure and poses organisational risk. In most occasions, equipment breakdown is contributed by either single component failure or failures between components³. Component failure can generally categorise into sudden and deteriorating failure⁴. Unfortunately sudden failure can be difficult to predict however equipment failure owing to deterioration can be foreseen and steps can be taken to reduce its likelihood.



▲ WHAT DOES DOWNTIME REALLY COST?

Breakdown, reactive or unplanned maintenance can cost between 3 - 5 times more than planned maintenance₅.



Unplanned maintenance negatively affects the bottom line. Profits can't be maximised due to increasing production loss, operational deficiencies, fleet availability and maintenance costs. Unplanned maintenance also poses greater risk to occupational health and safety with a higher risk of incidents occurring in the shutdown and starting up of equipment.



⁵ WHAT IS PREVENTATIVE MAINTENANCE

PREVENTATIVE MAINTENANCE IS A TACTIC USED TO MINIMISE ALL THE RISKS ASSOCIATED WITH UNPLANNED DOWNTIME.

Preventative maintenance (PM) practices involve conducting regular servicing or inspections on equipment to monitor its working order to ensure operational capabilities are maintained and breakdowns are minimised.

Preventative maintenance is about minimising the organisational losses associated with equipment failure or downtime. An economically sound maintenance strategy should include preventative maintenance where warranted. If your system is reactive, it is a sign that you are not managing failures and you are not mitigating your risks. Your biggest costs may be catastrophic failure, systemic failure or equipment defects⁶.

WHAT NEEDS PREVENTATIVE MAINTENANCE? Image: April 10 and 10 a

Saving time and saving money is often spoken about in maintenance, preventative maintenance saves you both in the long run. To save time and money and prolong your equipment lifespan, PMs should only be conducted where needed.

To determine this a critically assessment should be conducted, this risk assessment process starts by first identifying risk events. In turn, these risk events have two dimensions: The consequence of an event and the likelihood of an event often visualised in the risk matrix below. This allows you to consider which of your assets should have priority within a maintenance management program and which are crucial to your operational function. Generally based on frequency of use, loss impact, OHS risks and financial investment⁷.

Ct	Medium	High	High
npa(Low	Medium	High
	Low	Low	Medium

Likelihood

PREVENTATIVE MAINTENANCE BENEFITS

A preventative maintenance approach has a whole host of benefits to your organization including:



- Equipment needs replacing less often
- Equipment breaks down less often
- Saving costs on breakdown maintenance which costs up to 5 times as much.
- Parts and labour isn't needed with a moment's notice adding to costs of maintenance
- Equipment that is properly maintained runs more efficiently and drains less power, meaning a reduction in power costs.

A safer working environment:

The more effectively your equipment is maintained the lesser the risk of a work place accident and the safer all your workers are. Maintain assets with preventative maintenance is the best way to ensure you are adhering to all work place conditions and putting employee safety at a number 1 priority.



Monitoring your maintenance PM practices will show any recurring issues that you are experiencing, so replace or repair action can be taken accordingly. Consistent record keeping identifies any issues with your equipment that could have been avoided.



Choosing which to perform in which instance should be based on minimising loss and which strategy for that piece of equipment will help you achieve this.

when that condition is

reached.

operating and if maintenance

needs to be conducted.

example, every 6 months

Inspections are ideal for letting equipment run to the point when you are going to get maximum life out of it, this process is the most likely to help you reduce your costs, reduce your downtime, reduce damage, planning and environmental impact.

9 TYPES OF PREVENTATIVE MAINTENANCE INSPECTIONS



Inspections allows you to monitor critical equipment performance ensuring that any warning signs are detected in their early stages allowing for action. Inspections should be conducted at routine intervals and at risk based timings.

Simple inspections – using your senses, how does the piece of equipment look, sound, smell, feel. Is the motor vibrating at a higher rate than normal, should this be addressed, how does the asset look, does everything appears to be in working order? How does it feel is it warmer than usual? These are basic preventative maintenance inspections that when done routinely and recorded accurately can help prevent a breakdown or maintenance issue from occurring.

Measurement inspections – monitoring for a specific measurement that will induce a maintenance work order. For example monitoring temperate readings e.g. when it reaches 100 degrees we will clean the filters.

Trending – plotting all your equipment information and identifying maintenance trends determine trends in your maintenance and your equipment.

10 THE SOLUTION

Computerised Maintenance Management Software (CMMS) is a product of modern technology and the digital age we live in, its sole purpose is to simplify your asset management and help you take control of your assets, their maintenance, their life span, their inventory and servicing needs.

MEX Maintenance Software is a CMMS that is widely used by organisations across every industry to manage maintenance, reduce downtime, mitigate risks, minimise losses and prolong asset lifespans. MEX as a CMMS is fully equipped with preventative maintenance capabilities.

You have the capability to schedule regular servicing work orders for assets that require routine maintenance based on a time frequency. MEX includes preventative maintenance inspections and asset auditing features that make monitoring your assets condition and risk level as simple as running through a check list on a tablet.

MEX stores all your equipment information allowing you to monitor and record all aspects of your asset's life letting you get the most out of your investment as well as maintaining a safe operating environment with minimal unplanned downtime and reduced organisational loss. ¹¹ REFERENCES

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