INFRASPEAK

How can you avoid Reactive Maintenance?

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Simply, you can't. Reactive maintenance is as old as maintenance itself, and it will exist for as long as maintenance does. (Which is probably forever, so it's like a chronic illness you should learn to live with.) But this shouldn't deter you from trying to reduce reactive maintenance to a minimum. "Run-to-failure" not only comes with high costs, it also brings along lots, and lots, of unplanned downtime.

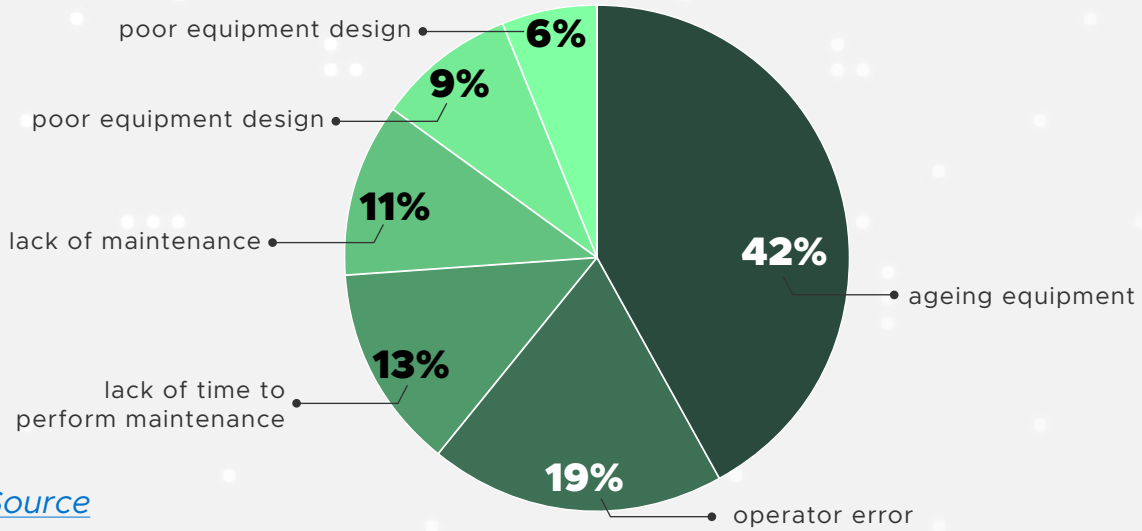
You've probably heard that you should aim for something along the lines of "80% preventive maintenance, 20% corrective", and that's a good start. However, reliability-centred maintenance sets more ambitious goals. It prioritises predictive maintenance (45-55% of the total), followed by preventive maintenance (25-35%) and no more than 10% reactive. Is that even realistic, you ask?

Yes and no. No, because you can't achieve these benchmarks if you keep doing what you've always done. Insanity is trying the same thing twice and expecting different results, even if – fun fact – Einstein never said it. And yes, because you can improve your maintenance strategy with AI, which is your second brain, your calendar and your personal assistant all rolled into one.

In this whitepaper, we will cover a few tried and tested strategies to decrease downtime and reactive maintenance, and explain how technology complements them perfectly. We're confident that, with the right set of tools, you'll be able to improve and follow the industry's best practices.

What causes Reactive Maintenance?

Before we set out for this task, we wanted to understand what's prompting reactive maintenance. So, we set out to investigate the leading causes of unplanned downtime. According to a 2017 study published by Limble, the leading reasons for unscheduled downtime are:



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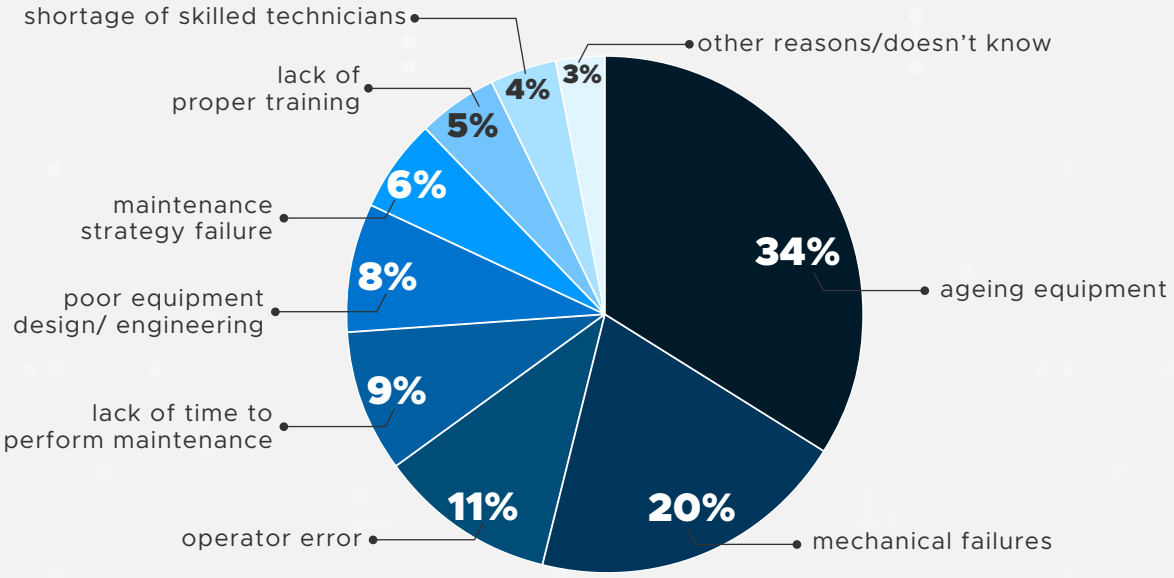
The same study points out that **managers planned to reduce downtime with equipment upgrades (61%), improved training (49%), new preventive strategies (48%), and expanded monitoring (42%).** These tactics seem to answer, one by one, the first four causes we named above.

A 2020 study by Plant Engineering, focused on industrial maintenance, pointed to a similar scenario. The leading causes for unscheduled downtime were:



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Now that we know what causes unplanned downtime, we can finally list strategies that are not a "generic prescription" and address specific challenges. We encourage you to look into what's triggering reactive maintenance in your own facilities to understand which of these are more valuable to you.

How to Reduce Downtime, 8 Different Ways

Root cause analysis

"Bury the dead, feed the living" is a sentence attributed to a Portuguese 18th-century politician, the Marquis of Pombal, after an earthquake wreaked havoc in the country's capital. That's more or less what you're doing now with reactive maintenance – when a failure happens, you're fire-fighting, trying to salvage what you can. There's no time to think, only to act. But when things calm down, how can you make sure it never happens again?

For the Marquis, that meant launching a country-wide query three years after the earthquake happened. He also oversaw the reconstruction of Lisbon's downtown area and made it earthquake-resistant for the first time. Now, we don't live in the 18th century anymore, so you need to act a little faster. But the principle is right. After a failure happens, do a root cause analysis to understand what triggered it. Otherwise, you can't fix what's wrong and prevent it from happening again.

Understand an asset's life cycle

Given that ageing equipment is the reason for so much unscheduled downtime, it's important to study the asset's life cycle. An asset's life cycle is the entire journey from the moment it's commissioned to its disposal. New assets tend to fail a lot – think of it as "teething pains" – but the failure rate tends to stabilise over time. When it rises once again, it's a sign the asset is reaching the end of its useful life, and you need to decide whether to overhaul or replace it.

However, it's easier said than done. Many managers still struggle to reach a verdict, and that's mostly because they don't have enough quality data. When there is an intelligent maintenance management platform in place, managers can integrate several assets and collect data, which in turn allows them to validate a hypothesis. We believe that asset lifetime management is an important piece of the puzzle in reliability-centred maintenance.

Plan preventive maintenance with AI

There's an ancient Chinese proverb that says "a small hole not mended in time will become a big hole much more difficult to mend." And if that isn't good advice, we don't know what is. Preventive maintenance at the right time can avoid serious problems later on, so why do managers keep mentioning "lack of maintenance" as a reason for unscheduled downtime?

We know it's not just a matter of time because that's actually listed as a different reason. So it is, most likely, a lack of planning. That's where AI comes in. With an Intelligent Maintenance Management Platform (IMMP), you can automate workflows (technicians, lists of materials, suppliers) and receive alerts if there's a plan missing for a given asset. That will not only save you time but also spot assets without a preventive maintenance plan attached.

Provide the appropriate tools

Since we're talking about optimising maintenance with software, don't forget to provide the appropriate tools to your team. Operator error is one of the leading causes of unplanned downtime, so you need to address this issue. It's important to have clear work orders, as well as manuals, documents, and regulations at hand.

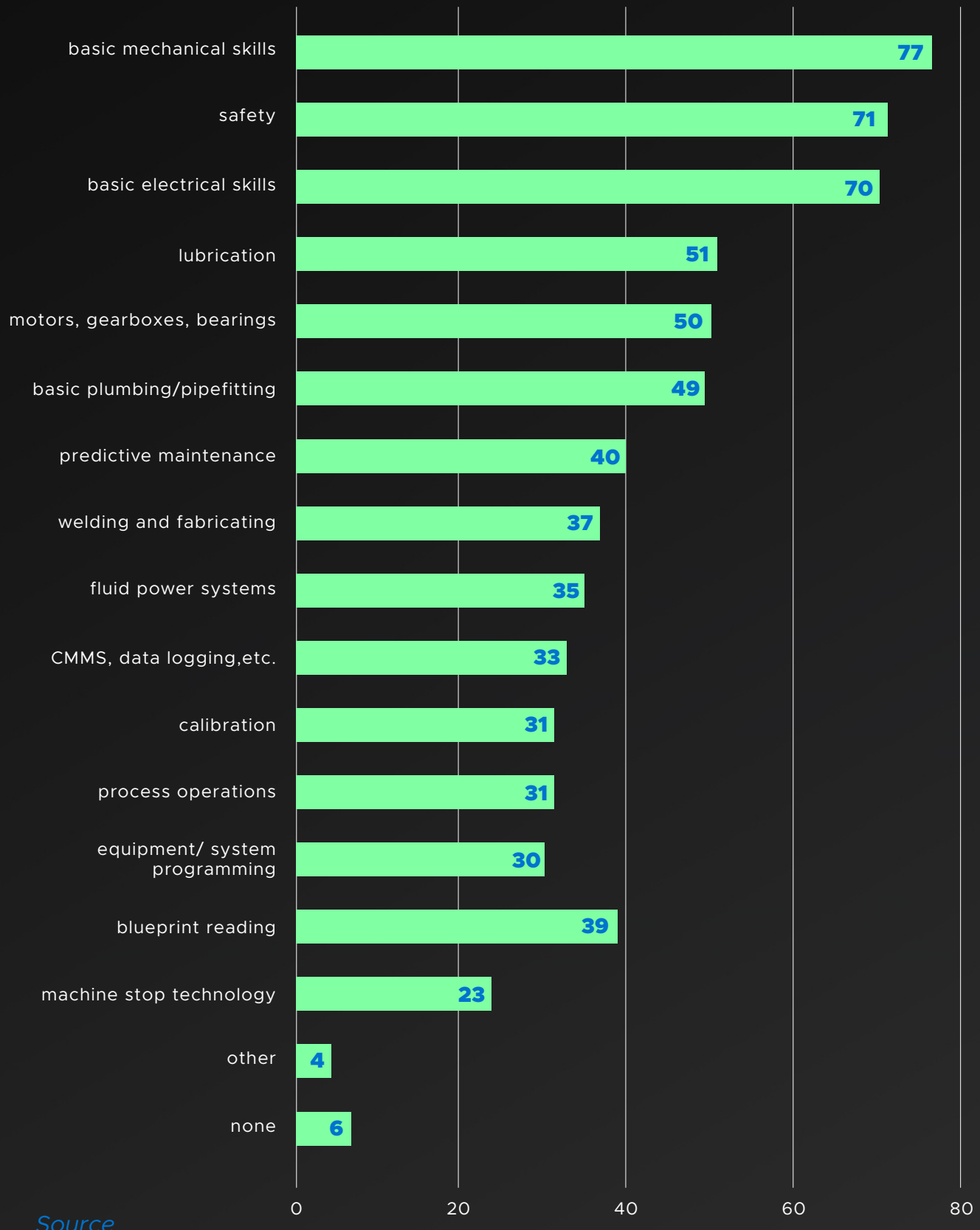
Using maintenance management software might be a suitable solution as it can collate all the information into a single platform and grant everyone access to them. At Infraspeak we even like to go one step further with our Gatekeeper app, which increases risk awareness for users and promotes compliance. Good maintenance and safety always go well together.

Improve your team

But that's far from the only strategy you can turn to when it comes to operator's errors. Most managers agree it's important to educate staff, and sometimes you don't need to look very far to find a solution. You can join forces with qualified technicians to provide extra coaching or vocational training.

It may be a good idea to offer this extra training through micro-learning sessions. Instead of giving lessons for hours on end, focus on one thing at a time. According to the Journal of Applied Psychology, this is 17% more efficient than longer courses, among other advantages. You might also want to record these microlearning sessions for future use or rewatch.

Training received by maintenance staff



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💡Note that only 33% of maintenance workers received training to log data or use a CMMS. If you want to make the most out of your maintenance software, we suggest showing the main features over several micro-learning sessions. You can also use this strategy once you add new apps.

Educate your staff

Speaking of training your staff, you can avoid reactive maintenance by raising awareness about maintenance. Everyone who works at the organisation, even non-maintenance staff, should be able to spot malfunctions and report them. For example, all staff should be able to recognise that an unusual noise during machine operation may signal a potential failure.

The practice of getting everyone on board with maintenance is known as Total Productive Maintenance (TPM). If staff also learns to fix small, frequent problems, that's autonomous maintenance. Either way, the simple act of educating your staff to report relevant problems might be enough to solve them before a breakdown.

Optimise the team's workload

A good amount of managers think time is not on their side. If you think "lack of time" is the reason behind unscheduled downtime at your facilities, the keyword is "prioritise". When supervisors (or managers themselves, if it's a smaller team) are scheduling the work for the week, they should consider work-order data, i.e. average number of hours to complete a task. Then, prioritise according to criticality and condition, considering the available resources.

However, things don't always go according to plan. The schedule should be updated daily to account for unfinished works and pieces of equipment that require interventions. Since you know this will happen, leave some room for reactive maintenance when you're planning. This way you won't lag behind your preventive maintenance plan, which will only bring about more reactive work in the future.

PARETO'S LAW AND THE 80/20 PRINCIPLE

According to Pareto's law, 80% of the benefit comes from 20% of the work. If you reverse this and consider reactive maintenance "the benefit", it means that 20% of your equipment failures are responsible for 80% of shutdowns. Or, in other words, that 20% of your machinery is responsible for 80% of downtime.

Bear in mind, this is just a general rule. Your ratio may change, and it may be even less than 20%. Only data will tell! The idea is that **a relatively small portion of your assets is responsible for most of the failures, and you must prioritise their preventive or condition-based plans.**

When failures happen: how can you reduce MTTR?

Nothing is 100% foolproof. Failures will happen, and when they do it's good to have a plan. We decided to include some bonus tips to lower Mean Time to Repair (MTTR) and make sure you don't spend your precious time performing reactive maintenance.

Faster reporting

There's a reason why it's called "run-to-failure". The faster you react, the better. But that can only happen if you make reporting more agile. Infraspeak Direct, for example, allows staff members and customers to report failures. In turn, you can assign it to the closest suitable technician.

Automate technician assignments

Failures should be automatically assigned to the most appropriate technician without too much administrative work. For example, when a failure occurs in an electrical circuit, it should automatically and seamlessly be assigned to one of your electricians. If it is in the water system, it should be assigned to a plumber, and so on. AI can automate workflows, and you only need to validate the suggestion.

Improve Accessibility

Do you remember when you decided to put something away in storage, only to spend a whole afternoon looking for it when you needed to? The same thing can happen to your equipment. Make sure equipment and tools are accessible for repairs right away and take logistics into account.

Interchangeable Parts

Since repairs require a large inventory, how can you optimise it? Simple. Choose equipment with interchangeable parts (same lubricant, nozzles, valves, etc). This way, it's easier to make sure you have what you need for frequent repairs without carrying a never-ending inventory.

In fact, we're willing to bet you already have pieces of equipment that are compatible with others. We recommend using engineering bills of materials (BoMs) to find interchangeable parts quickly. Once you do this, you might spot things you've been double-procuring, so it's a win-win all around.

Plan for failure

Benjamin Franklin said “if you fail to plan, you’re planning to fail!”. We agree. And, if you’re a manager or entrepreneur, you’ll see variations of this quote every now and then. There’s just one thing people fail to mention: planning for failure. Successful maintenance managers don’t plan just for success, because they do not have the audacity to think failures won’t happen again.

If you want to lower your MTTR, you should create robust incident-management plans. Define who’s responsible for what, have emergency contacts ready, and make a contingency plan that ensures everyone is safe in the meantime. Failures and breakdowns are not the right time for improvisation, at least if you want to solve them quickly.

About Infraspeak

Infraspeak is an Intelligent Maintenance Management Platform (IMMP) that brings outstanding connectivity, flexibility and intelligence to your operation.

Gain full control and the flexibility to build your own, custom, maintenance management solution capable of answering your own operational challenges.

Online. Offline. Behind a desk or in the field. Infraspeak connects your team to your plans, your plans to your goals, and your goals to the intelligent maintenance you need to take your operation into the future.

Talk to our team of specialists and enter data, intelligence and automation.

Intelligent maintenance starts here.

Learn more