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ASSET & INTEGRITY MANAGEMENT.

The 2023 Global Maintenance Manager Report

Trends and insights from hundreds of Maintenance Managers across the globe, plus tips and advice from our experts

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Introduction

Welcome to The 2023 Global Maintenance Manager Report from ABL.

A big thank you to the people who contributed to our 2023 survey. Once again, this report has grown from strength to strength in terms of content and the industries contributing, allowing us to provide valuable insights for Maintenance Managers on the challenges and opportunities faced in their discipline. We hope you will be able to apply the observations and advice in this report to your own organisation, helping you to raise talking points with your teams and leadership on the importance of the subject of maintenance and its dependencies.

Maintenance, reliability, and integrity are specialist skills that blend people, process and plant. We see within the report that the average number of years of experience is dropping with the majority of people having 10 years or less. It was also interesting to see that the majority of participants were using Maximo and IFS systems rather than SAP, with a very small amount of people using more boutique CMMS tools. This possibly reflects the median size of the organisations participating in the survey.

The main improvements that Maintenance Managers are looking to make sit with reducing unplanned breakdowns, optimising spares holding and improving competence. Improving their maintenance strategy came further down the list, even though it was felt earlier in the report that effectiveness was generally not exceeding expectations.

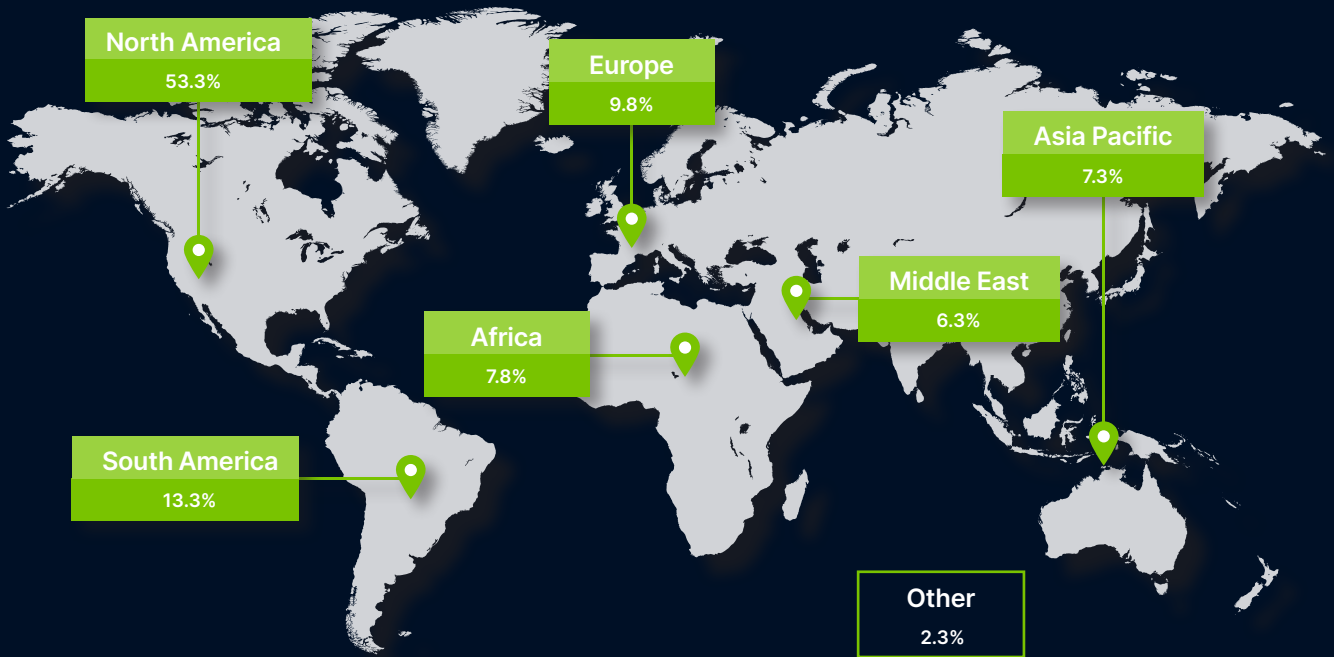
Maintenance excellence is an area of continuous improvement and hopefully this report will give you some inspiration and tips to consider and implement within your own organisation.

Peter Adam

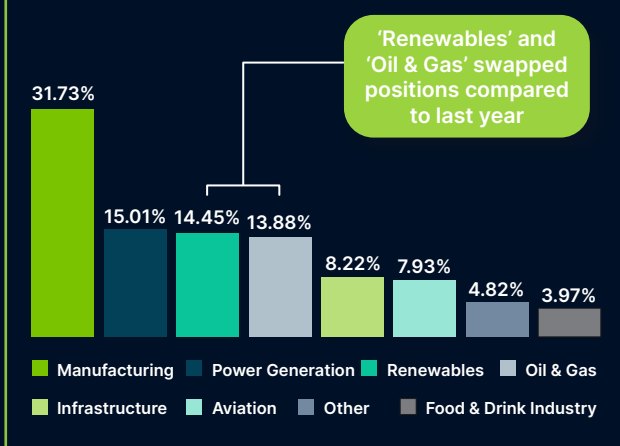
ABL Group Managing Director Asset
& Integrity Management

Who we surveyed

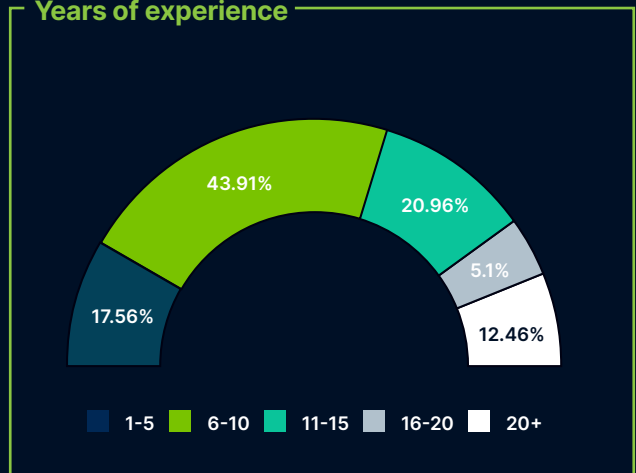
Geographical location



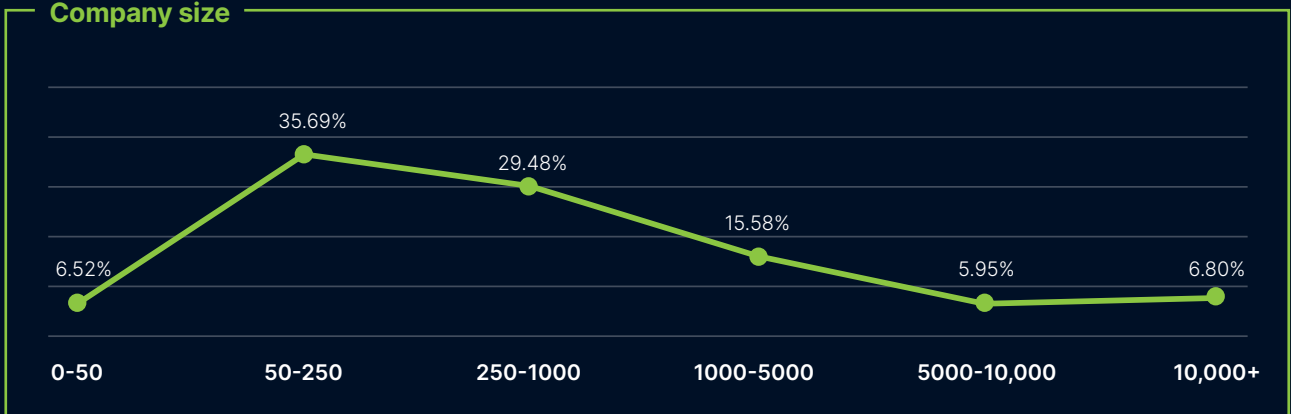
Industry



Years of experience



Company size



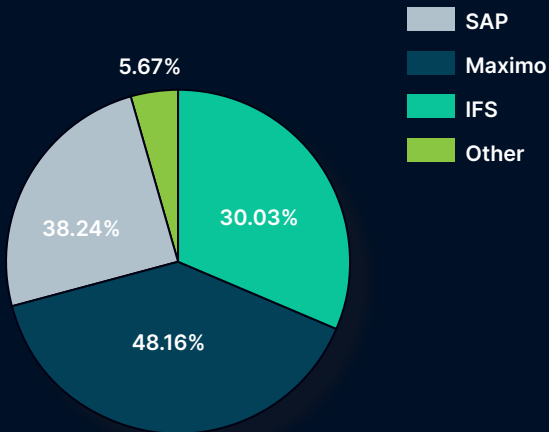
The effectiveness of maintenance

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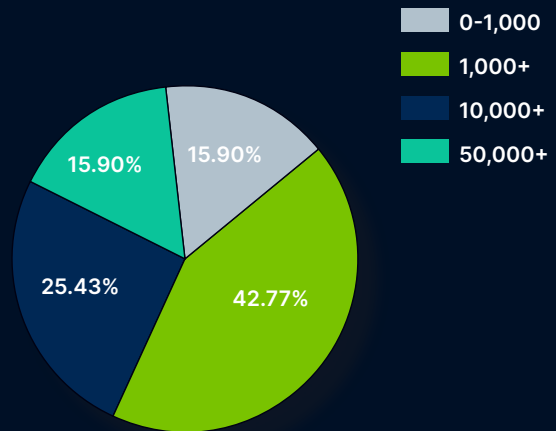


Team & strategy

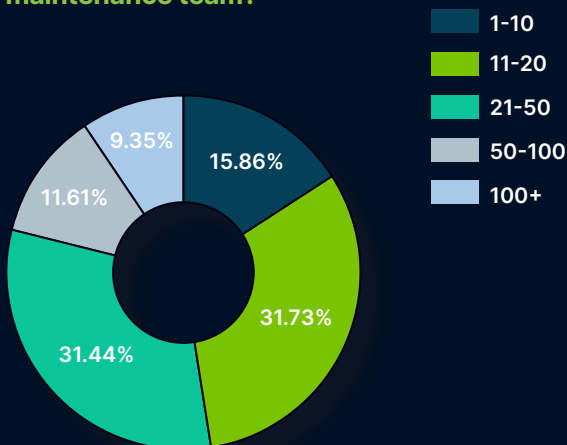
The most used CMMS



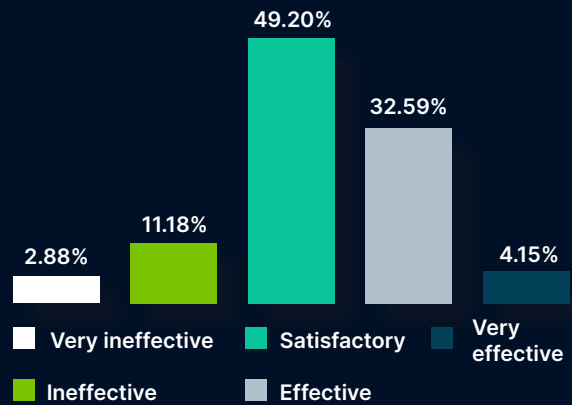
Asset register size



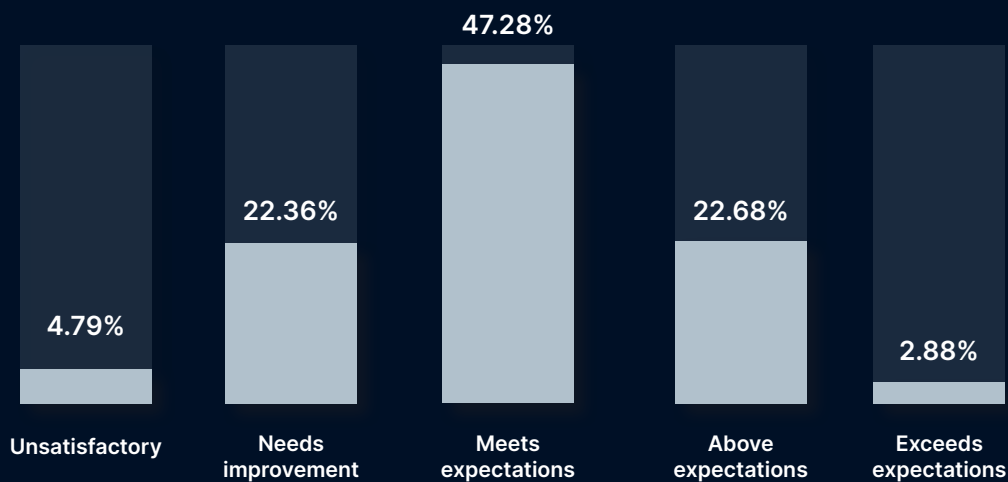
How many people are in your maintenance team?



How effective is your current maintenance strategy?



How well do you feel your team delivers on the maintenance strategy?



ABL Analysis

Last year's survey indicated that an optimised maintenance strategy is the top priority of Maintenance Managers, and it is encouraging to see that over 85% of Maintenance Managers believe the maintenance strategy they have in place is satisfactory or greater.

This indicates that there is an understanding across the industries surveyed that this is the most important step to linking all aspects of maintenance they oversee, and crucially time has been taken to ensure this is an accurate representation of the Maintenance Managers' overall vision for maintenance activities.

The strategy however is only as good as the team delivering it, and 27% of Maintenance Managers indicated that their team needs improvement. There can be several factors as to why this is the case, but if the maintenance team is to deliver the strategy anywhere near the level expected, it is integral that they buy in to it.

It is encouraging that the majority of maintenance strategies the teams are asked to deliver are

perceived as rigorous and effective, and being involved in the input of the maintenance strategy will help the maintenance team feel engaged, involved and more likely to champion.

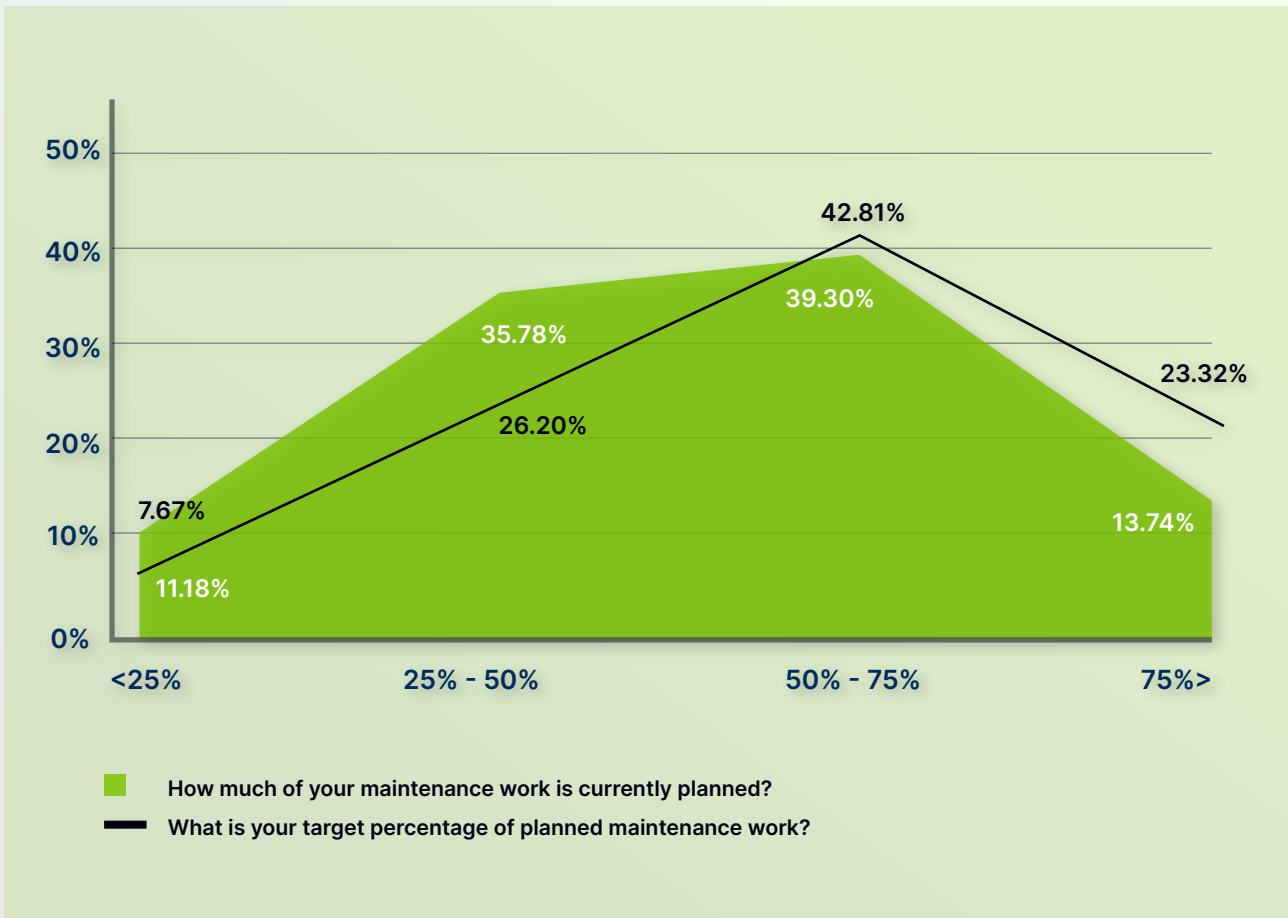
One suggestion to help improve the effectiveness of the team would be to allow them to give input towards the strategy. Encouraging members of the maintenance team to share their thoughts on improvements and changes that could be made will help unearth challenges they are facing in executing the current strategy. It should give everyone involved a great understanding of the overall plan and help the team feel like they have more ownership over their work.



Ross Milne
Senior Assurance
Engineer



Planned vs unplanned



ABL Analysis

Following on from the 2022 version of this question where the majority of work was planned as opposed to unplanned, along with 22% having an even split, the question was refined for 2023, as this year we wanted to understand the actual percentage of planned versus unplanned along with their targets.

Surprisingly, 8% of respondents had a target of less than 25% planned work.

Encouragingly, 53% of respondents are achieving more than 50% planned maintenance, which is 13% down on the targets from respondents but overall the graph is weighted towards the target areas.

Making sure that these actual versus targets are measured and investigated on a regular basis is key to making incremental improvements and closing the gap between targets and actuals.



Input from our survey participants

What is preventing you from reaching your target planned/reactive ratio?

- “Unplanned production plans.”
- “Lack of good communication between the planning team and delivery team.”
- “The target plan may have a fundamental change due to the adjustment of the company’s strategy and the change of the market, resulting in the original plan being unable to meet the current market needs, or work needs.”
- “The goal plan is too grandiose, in reality it is impossible to reach or it is very difficult to form an effective landing plan.”
- “There is no one to follow up, there is no core person, they lead the team to achieve, or some units change the leader, one leader, one idea, so many plans, although there is a leader, but also change at any time, which has a lot to do with the instability of the team.”
- “Insufficient early preparation work, resulting in later tasks not being smoothly carried out.”
- “We just rolled out a new CMMS system and behaviours have not been adjusted that make usage second nature.”
- “If the target is too general or there is no specific action plan, it will be difficult to implement and achieve. This requires detailed planning of each step and action to achieve the goal.”
- “Not acting decisively enough. Many people procrastinate and procrastinate after setting a goal. This requires decisiveness and perseverance in action, starting with the first step.”

ABL Analysis

We received an excellent response and many details on specific issues that the managers were facing. This input might well help to reassure everyone that they are not alone in the challenges that they face as a Maintenance

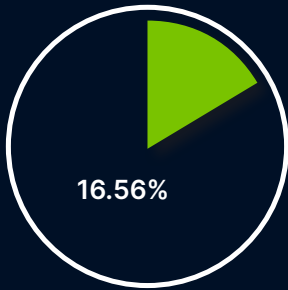


Manager. The most commonly stated blockers to achieving the intended target percentage fall onto the follow two themes:

- **Communication:** this is the most common blocker and covers various departments and teams not effectively communicating with each other. The key to achieving clear and successful communication is making sure that each team appreciates the roles that other teams play in the overall success of the business, and what part they can play in making others jobs a little easier.
- **Target setting:** realistic targets that reflect the current ability of the organisation are vital to making continuous improvements. By setting targets that can be worked towards and then achieved, this will provide the team with the ability to keep striving for positive change.

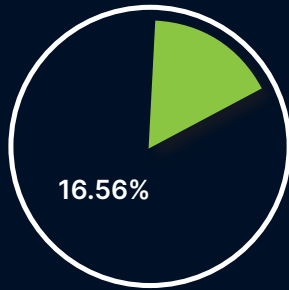
Top priorities

What are your top areas for improvement in 2023?



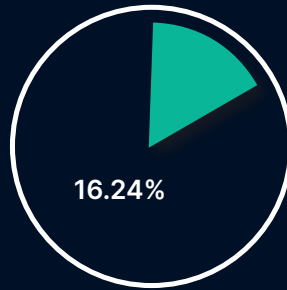
16.56%

Optimise spares holding



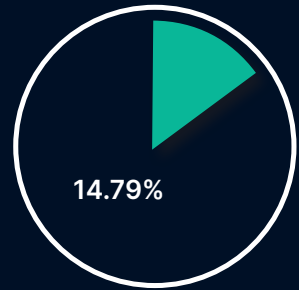
16.56%

Reduce unplanned breakdowns



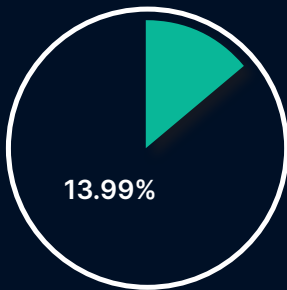
16.24%

Improve team competence



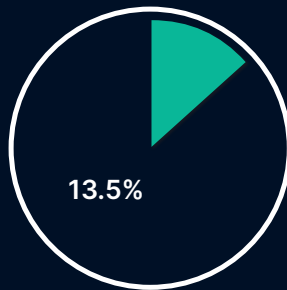
14.79%

Reduce backlog or improve backlog management



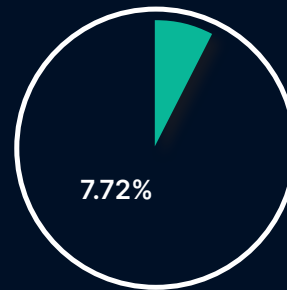
13.99%

Update maintenance strategy



13.5%

Improve equipment availability



7.72%

Increase value from maintenance spend



ABL Analysis

This year in the Maintenance Manager survey, it's clear that there is no singular top priority for Maintenance Managers; instead, as every Maintenance Manager knows, there are multiple priorities which are all competing for top place. This was true across every industry we surveyed, including renewables, power generation and manufacturing.

From our experience in maintenance management, it's easy to become overwhelmed by these competing priorities, but we have a few top tips that we can share to help you continuously improve your maintenance regime while managing multiple priorities:

- Build and regularly verify that you have accurate, up-to-date asset data, as every maintenance decision you make will be based on this foundation. Once you know you can trust your base data, you can be confident that every decision you make, from maintenance strategies, resource requirements and critical spares, is being made from a position of knowledge.
- Continuously question if your maintenance strategy is suitable for your plant as it is today. Every plant changes throughout its lifecycle - in terms of people, equipment and ways of thinking - but quite often the systems and processes in place don't change with it. By regularly reviewing your ways of working and asking "is this right for my plant as it is today?", you will be able to build an optimised maintenance strategy that is fit for purpose and minimises wasted effort, leaving you free to focus on your top priorities.

It's also encouraging to see that improving team competency remains a high priority; as we noted in the 2022 Maintenance Managers report, your team is fundamental to achieving operational excellence and achieving your goals as a Maintenance Manager.

It can be difficult to step back and allow your team to operate and make decisions independently. However, by building competency, understanding and ownership of maintenance within your team, you will create a team that feels



valued and engaged and is capable of managing key work independently. Freeing your time you will in turn be free to delegate ownership of key tasks and free up your time to focus on your (multiple!) improvement priorities.



David Logie
Senior Engineer



The biggest maintenance challenges

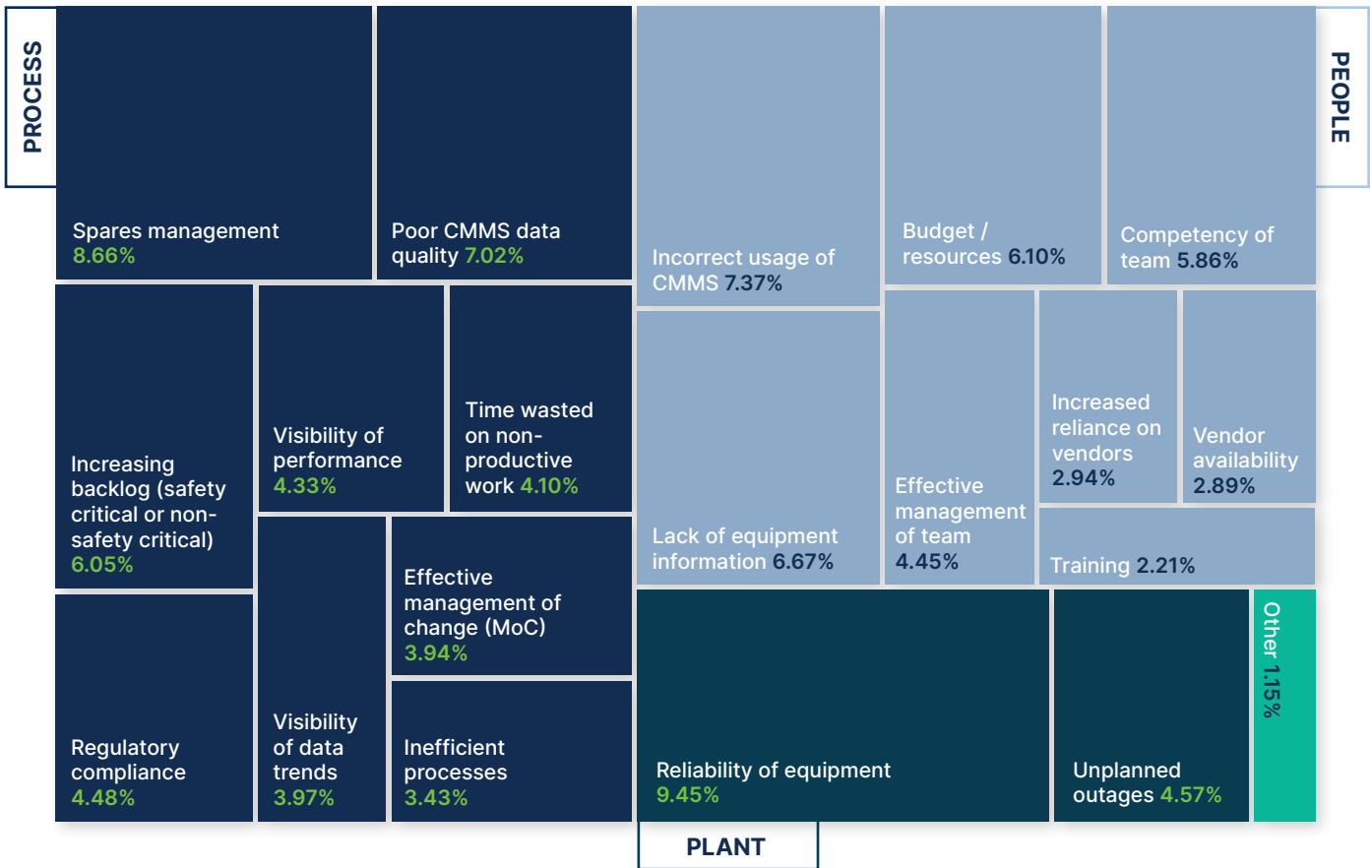
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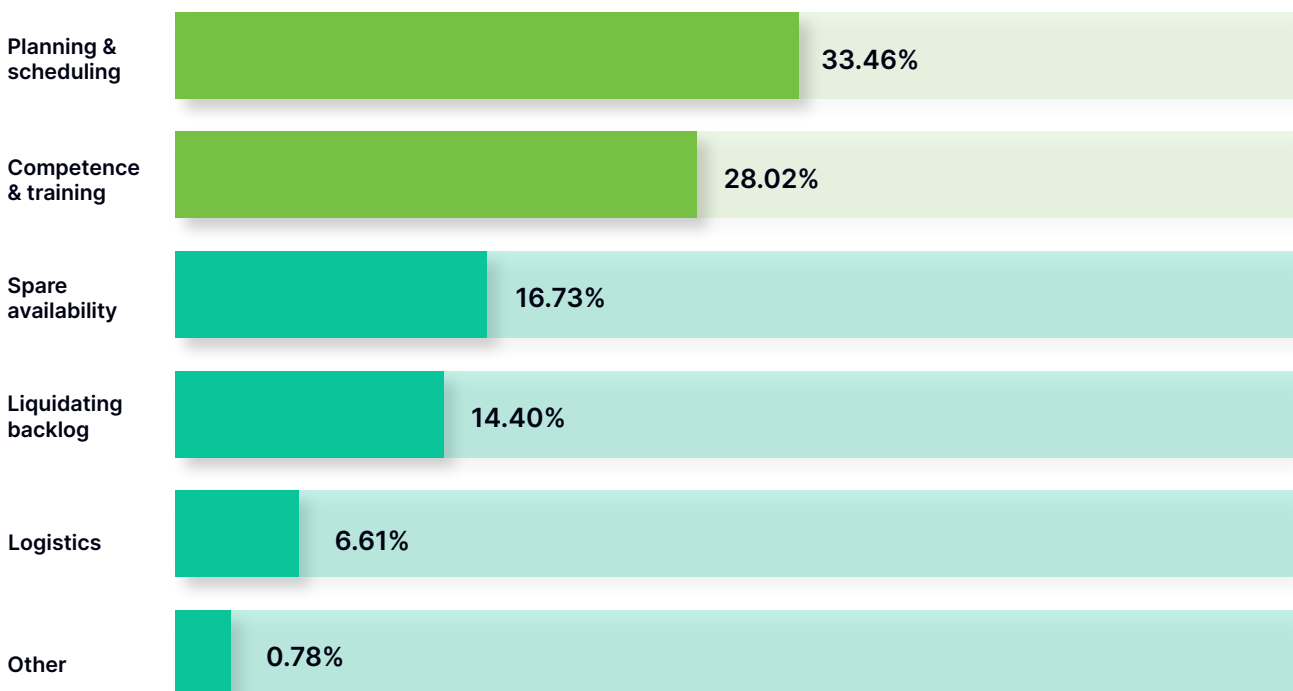
The biggest challenges

This treemap shows the distribution of responses grouped by the themes people, process, plant

What are the biggest challenges you face as a maintenance manager?



In your opinion, what does your team struggle with the most?



ABL Analysis

Maintenance Managers perform an extremely complex series of responsibilities. The productivity within an asset is contingent on effective maintenance management programmes as well as effective maintenance delivery. As the leader of the maintenance organisation, Maintenance Managers directly impact both aspects. As such their role is complex and diverse.

Not surprisingly, the top two challenges faced by Maintenance Managers are 'planning and scheduling' at **33.46%** and 'competence and training' at **28.02%**.

'Competence and training' have been a key driver to poor planning and scheduling and execution of maintenance. There is a gap in providing training within organisations, and the planning skills gap is present throughout all industries.

The maintenance knowledge base for effectively planning a job within a CMMS is the biggest gap because most individuals have not been properly trained to use their current CMMS. There is confusion over what planning is versus scheduling. Gaps in competency make it difficult to create an effective job plan that determines what each work order should cost in order to perform the tasks required to complete that job.

On another note, the work notifications tend to be a big gap as well, which is heavily driven by the operations department. Lack of troubleshooting done by the originator, lack of knowledge of the equipment (which goes back to poor training), and lack of written detail on the work order causes poor planning and scheduling. In return, this will cause reactive maintenance to continue throughout an organisation due to no follow-thru (QA) within each step in the maintenance work management process.

The next challenges are 'spare availability' at **16.75%** and 'liquidating backlog' at **14.4%**. There has been a major shift in separating reliability and maintenance engineering. What tends to happen is companies create a reactive culture by



not allowing the reliability engineer to focus on long term goals, such as spare part management and developing maintenance plans. Most sites need assistance with defining their spare parts strategy because it's either non-existent or too cumbersome to understand.

The other gap is the availability of spares parts, due to COVID. This is creating a gap in effective scheduling because parts are on back order causing delays in pro-actively replacing assets. Sites need to follow a Reliability Centred Maintenance (RCM) approach to improve spares for critical equipment.

To sum up this section, all these items play into effectively liquidating backlogs. If these other areas are less than adequate, then there's no way you can work on liquidating backlog. Basically, Maintenance Managers have been more focused on fighting failures than preventing due to the state of equipment.

My advice would be to focus on building up the competencies within your team by instituting effective training to minimise skills gaps in critical roles for executing maintenance and delivering on the business commitments.

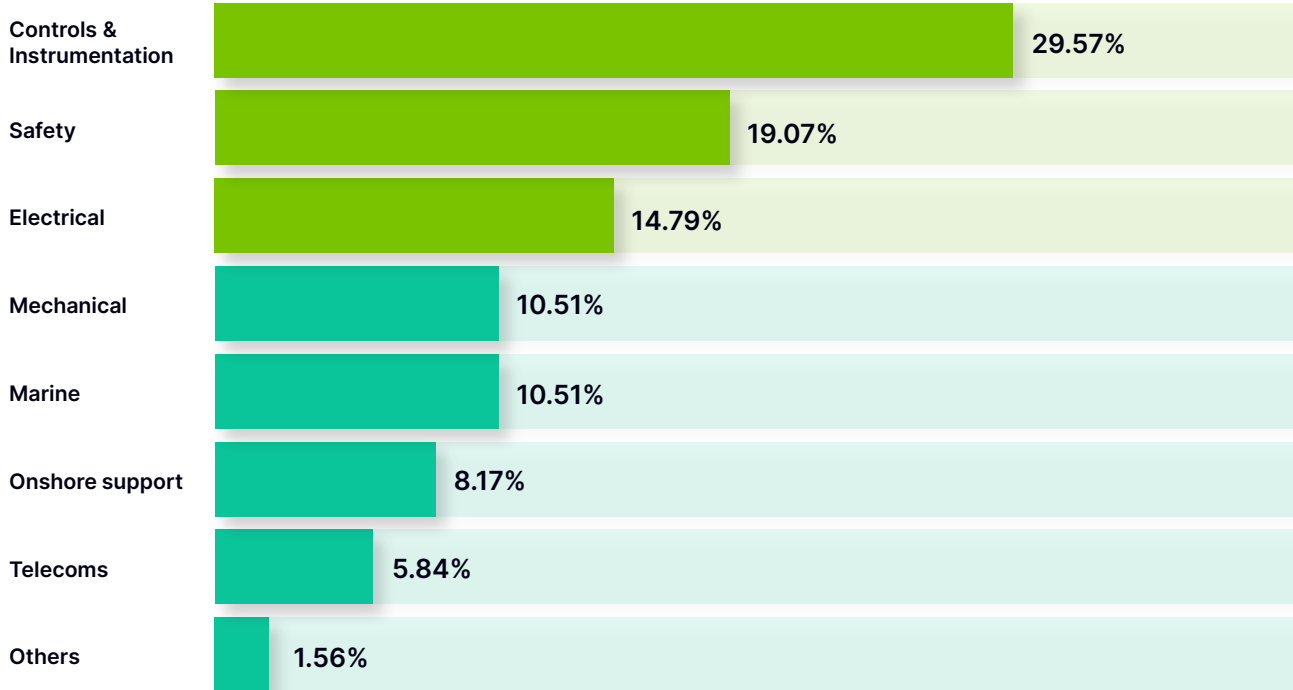


Tiffany Nwabude
Senior Maintenance &
Reliability Consultant



Discipline specific challenges

In which discipline of your team do you think are the biggest challenges?



Input from our survey participants



What are the main challenges you face in this discipline?

- “Training and competence.”
- “Lack of expertise in mechanical aspects.”
- “How to maintain machinery.”
- “Design complexity: Mechanical engineers are required to design and build a variety of machines and equipment, often with complex structures and functions. They need to consider materials, mechanics, thermodynamics and other factors to ensure the feasibility and reliability of the design.”
- “Device Information.”
- “The data is too complex to be precise.”
- “Lack of spare parts details.”
- “Obsolescence is a large issue.”
- “Spares management and availability.”

ABL Analysis

It is clear from the response numbers that the **Controls and Instruments (C&I)** are the most challenging discipline for Maintenance Managers. This could be driven by the complexity and monitoring of plants either newly built or retrofitted with additional instruments. The written responses on discipline challenges from our survey participants can be summarised by the following three categories:

The written responses on discipline challenges from our survey participants can be summarised by the following three categories:

- **Competence and training:** Aging workforce along with the rate of change of equipment have been cited as the drivers, which puts on focus training and works shadowing to ensure the next generation of technicians can gain from the experience of the existing workforce. There has been a generational gap emerging from lack of STEM take up during the early 2000s that is now having an impact as workers reach retirement.
- **Device information (foundation data):** An industry agnostic and global issue where the fundamental question of 'what is it?' makes its impact known. This is where there is a lack of basic data on installed equipment manufacturers, and model numbers are not available in the electronic systems, which impacts all areas of the business - from work execution through to procurement (both spares purchasing and contract management), and even making strategic planning inaccurate. This impacts all areas of the business from work execution through to procurement (both spares purchasing and contract management) and even making strategic future planning inaccurate. This issue has its root cause in the management of change process not being followed through on.
- **Spare parts availability (obsolescence):** Following on from equipment information, the impact on spare parts and knowing that obsolescence is going to be an issue, exacerbated by the speed of change in technology is resulting in spares not being available when required. Focus on early identification and solutioneering is key to addressing this challenge.



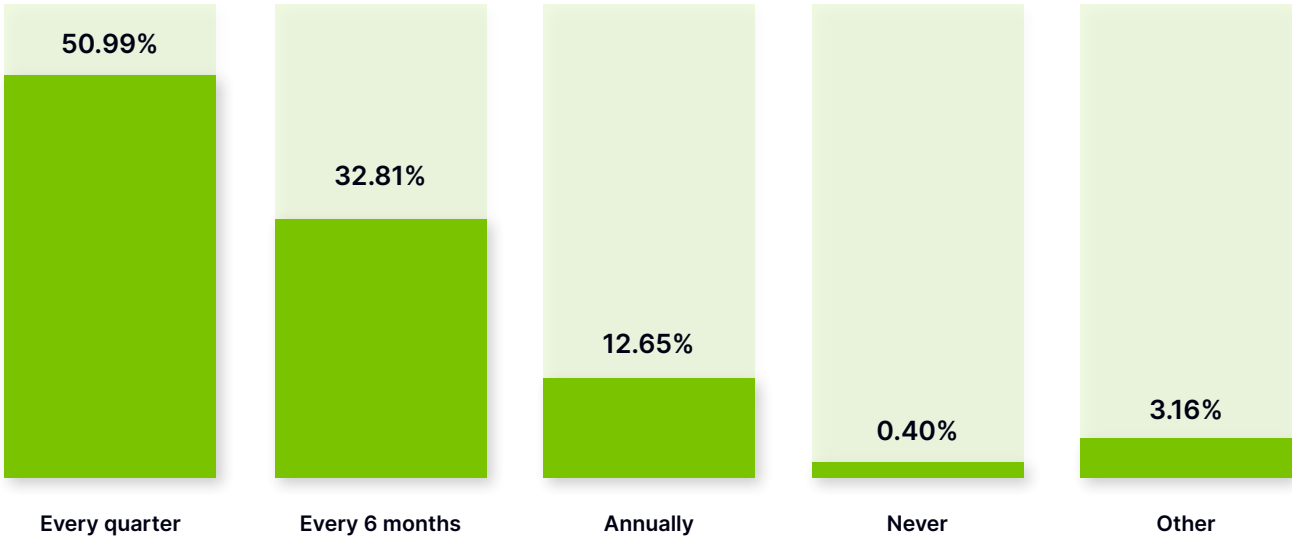
Data, trends and KPIs



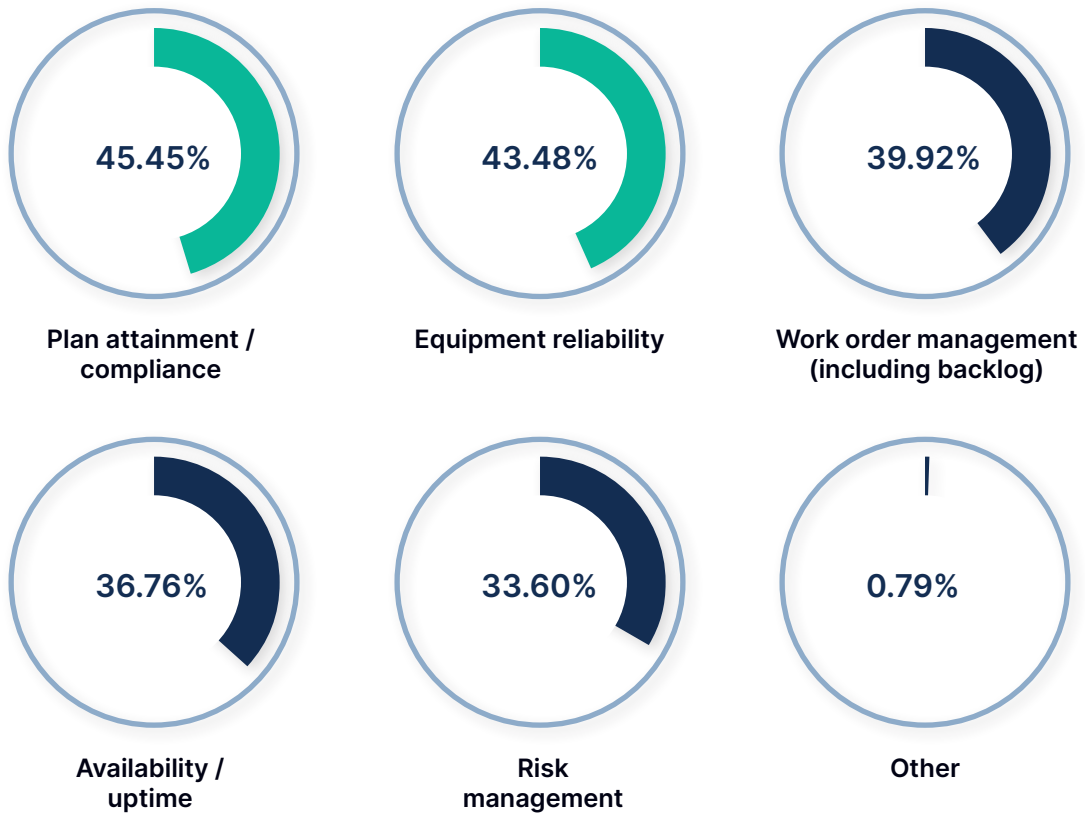
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Data and trends

How regularly do you review and update your maintenance KPIs?



What are the top 2 most important KPIs for you to measure?



ABL Analysis

Factors critical to the success of maintenance organisations are evaluated through critical key performance indicators (KPIs). These help to measure performance against goals related to factors like equipment reliability and uptime, availability, planned maintenance compliance, backlog management, etc.

Monitoring and achieving the agreed top priority maintenance KPIs can be a source of motivation to the maintenance personnel and can help to create a positive atmosphere and drive the right behaviours among the maintenance team. It is then highly important to identify, measure and monitor the right KPIs that are tied closely to the organisation's overall business objectives.

It is not surprising that plan attainment compliance remains a top priority KPI as identified by Maintenance Managers. This is a measure of the percentage of maintenance work orders scheduled and completed during a set time.

The next top priority KPI as identified by Maintenance Managers is availability and uptime, which has interestingly moved up one step from last year. This generally quantifies the probability that equipment is in working condition. This KPI can also be considered as a maintenance matrix.

Though these KPIs are vital in providing valuable insights to Maintenance Managers on maintenance performance, more vital is the data that is behind these KPIs. If the data is not real and verifiable, the decisions arrived at based on these KPIs will be wrong.

My advice to Maintenance Managers looking to make strategic decisions through KPI analysis include:

- Engage with the maintenance personnel and secure their buy-in in effective maintenance KPI tracking, outlining the benefits and how the results of the KPIs have positive impacts on them and the organisation at large.



- Ensure that the right data is used in deriving these KPIs by ensuring that the maintenance personnel are consulted with about what data is important, with feedback and assurance that they understand the importance of the data they provide.
- Standard templates or forms should be developed for data gathering, utilising predefined lists for data points as much as possible to ensure data consistency and integrity.
- Establish KPIs that are SMART - specific, measurable, achievable, realistic, and timely, that will motivate the maintenance personnel to consistently collect and record real and accurate data.
- Establish a continuous improvement plan, for example the PDCA (Plan-Do-Check-Act) cycle to ensure improvement opportunities are identified and implemented.



Emeka Onuh
Regional Manager,
Africa



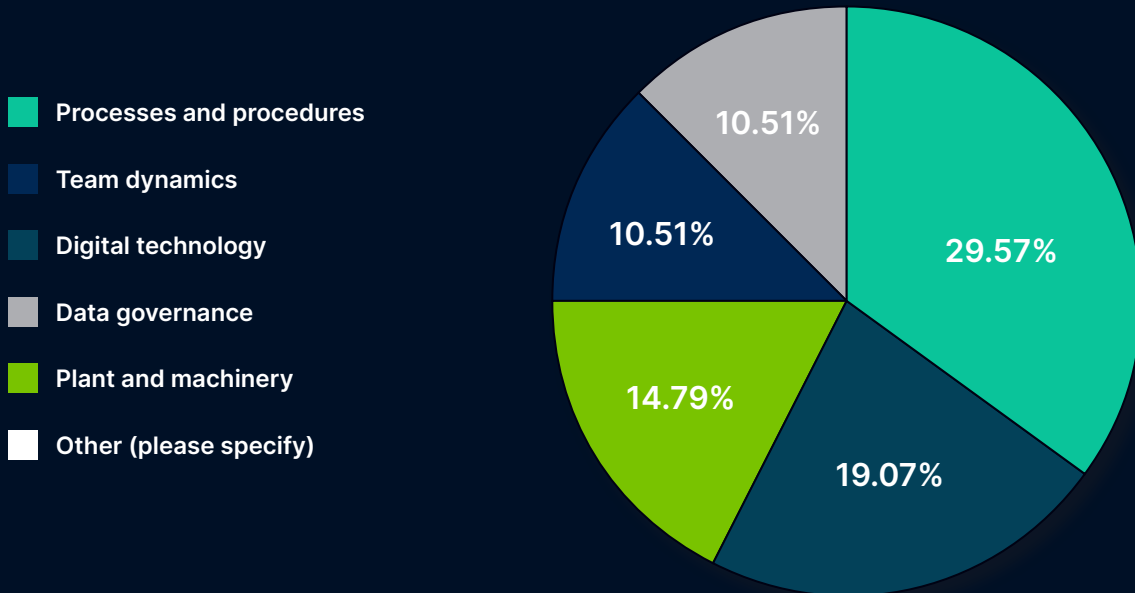
Future outlook for maintenance teams

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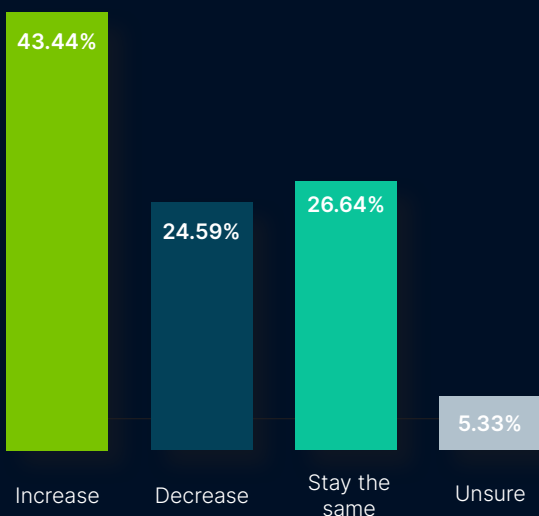
The next 12 months

What will you be changing or improving in the next 12 months?

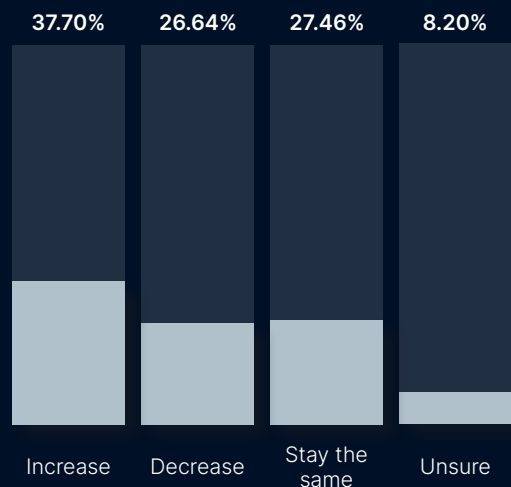


Budget and team

Will your maintenance budget increase or decrease in the next year?



Will the size of your maintenance team increase or decrease in the next year?



ABL Analysis

The results from this year's survey follow a similar pattern to last year's survey, with most Maintenance Managers seeing their budget increase for the next year, with the number seeing a freeze or decrease being about equal to last year. With the current financial climate and many companies being more mindful about how they allocate their budgets every increase must be justified.

Justifying a maintenance budget requires a holistic and strategic approach that can account for the costs and benefits of maintenance as well as the external factors that affect maintenance. It also requires a clear and persuasive communication strategy that can convey the value and importance of maintenance to the stakeholders. Some of the methods that can help Maintenance Managers justify their budget include:

- Performing a life cycle cost analysis that compares the total costs and benefits of owning and operating an asset over its life cycle.
- Applying a reliability-centred maintenance approach that identifies and prioritises the critical functions and failure modes of an asset and determines the optimal maintenance strategy for each function.
- Using a condition-based maintenance technique that monitors and analyses the actual condition and performance of an asset and triggers maintenance actions based on predefined thresholds (alarms) or indicators.
- Developing a maintenance plan that defines the scope, objectives, activities, resources, and performance measures of the maintenance programme.
- Creating a budget proposal that summarises the maintenance needs, goals, methods, outcomes, and recommendations.

By using these methods, Maintenance Managers can justify their budget requests with confidence and credibility.

Over **59%** of survey respondents said they would be improving plant and machinery over the next 12 months; this is where performing a life cycle cost analysis of new equipment compared to old gives the maintenance team good evidence of potential cost savings.

Replacing the equipment is not the end of the cost savings, assigning the right maintenance to be done at the right time will ensure that equipment reliability and availability improves the life cycle of the plant, and remember to factor in local environmental conditions, operational conditions and user behaviour when assigning the new maintenance.



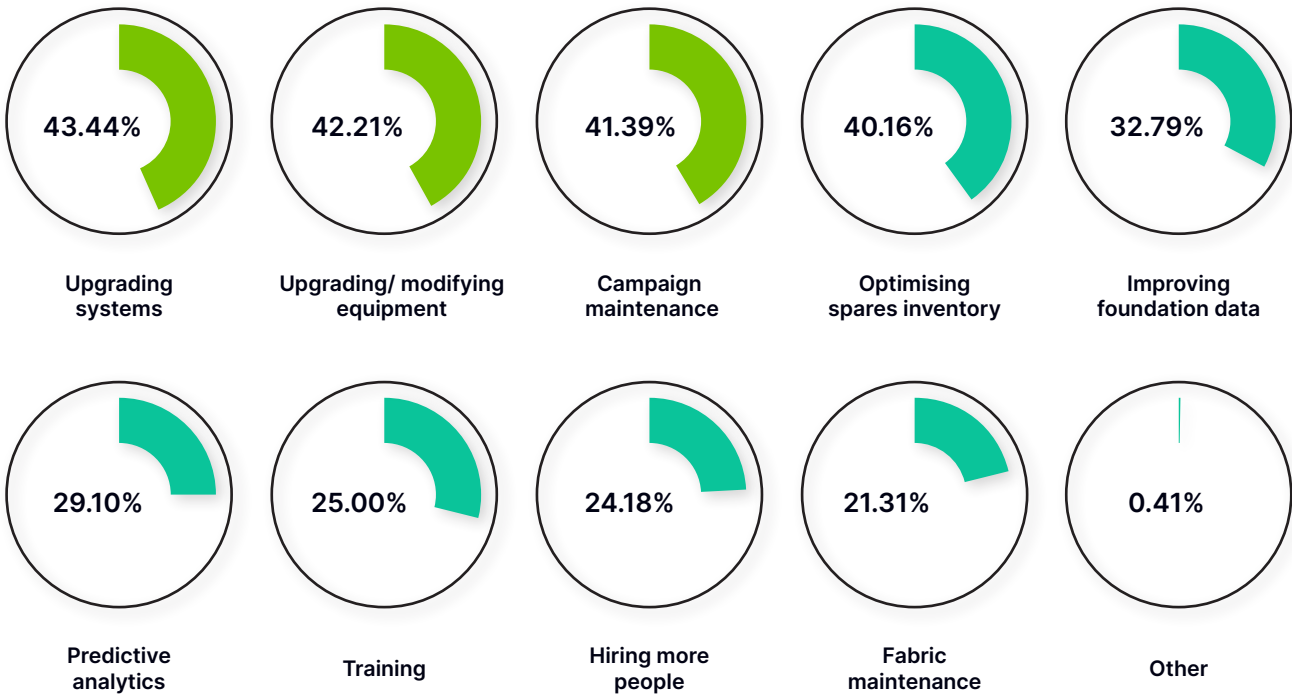
Gareth Falls
Senior Consultant



Additional budget

For the second year running the top response for additional budget is held by 'upgrading systems'

If you had additional budget, what would you spend it on?



ABL Analysis

For the second year running the top response for additional budget is held by 'upgrading systems', but not with as large a margin as last year. An additional option was added for 2023 based on the comments and other areas mentioned from respondents in 2022's survey, which covers 'improving foundation data'. This new addition had a large response putting it in 5th place.

This is interesting as it may imply that people are not tackling this issue within the regular budgets. This may be due to uncertainty over where to start or the enormity of the task.

Foundation data updates can be daunting and knowing where to start can be a challenge. If the personnel with the knowledge to make decisions on updates have a fully allocated work schedule, this may result in the foundational step being postponed repetitively. This is something that has been seen across the globe and in industries where management of change appears to be a very difficult thing to deliver in an operational asset setting.

The biggest movement from 2022 is 'hiring more people', dropping from second spot by nearly half compared to 2022. It appears that respondents have increased their thoughts that 'optimising spares inventory (or buying spares)' and 'campaign maintenance' would be more impactful uses of additional budget spends. This does tie in with the 'discipline challenges' where spares obsolescence was one of the prevalent themes.

Another drop was seen from 'fabric maintenance' which might indicate that sites have had campaigns carried out this year, making this a lower priority. Or this could be another option that has had votes taken by the additional choice of 'improving foundation data'.

Again, 'training' is low on the list, even lower than 2022. Does this mean that training programmes are in place and delivering for the business? Since competence has been highlighted as a challenge, then this might be an area that is overlooked by Maintenance Managers, as training is frequently addressed by Human Resources. Maintenance Managers should be asking questions of the training programmes and seeking to understand if they are including the required technical content that their teams require.

Conclusion

Many thanks to all the contributors that took the time to fill out our survey and provide insights on the subjects covered in this report. And thank you for reading the 2023 Global Maintenance Manager Report.

We all know that maintaining plant and equipment is the most critical thing a company can do to deliver a safe and profitable business, but hopefully this report can help you to know that those in similar positions are dealing with similar challenges.

This section will deliver an overview of the key points and conclusions that can be drawn from the 2023 responses. The demographic of the respondents were similar to the 2022 report but with some notable changes as 'Renewables' moved ahead of 'Oil & Gas' in the industry responses and the global location of respondents saw a drop in the Middle East and South America with an increase in both Europe and North America.



The effectiveness of maintenance and the importance of team buy-in



The biggest maintenance challenges... how competent is your team?



Data, KPIs and trends



Future outlook for maintenance teams and their budgets



The effectiveness of maintenance and the importance of team buy-in

- For the second year in a row, this section highlights the knowledge of the respondents that over **85%** prioritise maintenance strategies, recognising the significance in aligning maintenance activities with overall objectives.
- However, **27%** of Managers acknowledge the need for team improvement, emphasising the importance of team buy-in for successful execution.
- Encouragingly, most maintenance strategies are perceived as rigorous and effective, and involving the team in strategy development fosters engagement and ownership.
- Regarding planned maintenance, **53%** of respondents achieve over **50%** planned work, though slightly below their targets.
- Monitoring actual versus target percentages is crucial for making incremental improvements.
- The main blockers to achieving targets revolve around communication gaps between departments and setting realistic targets.
- In the midst of competing priorities, Maintenance Managers can benefit from maintaining accurate asset data, regularly reviewing and adapting maintenance strategies, and prioritising team competency to achieve operational excellence.

The take away should be, that the focus on an up-to-date maintenance strategy needs to be kept in place alongside encouraging all people and departments to understand the role they play in the maintenance process. This will help to achieve the wider business goals.



The biggest maintenance challenges... how competent is your team?

- The top **2** challenges faced by Maintenance Managers are 'planning and scheduling' at **33.46%** and 'competence and training' at **28%**, clearly ahead of the others.
- 'Competence and training' have been a key driver to poor 'planning and scheduling' and execution of maintenance.

The responses from this section clearly highlight that the place to start is personnel competence. This is one of the more difficult areas to address but it will drive all other improvement areas.





Data KPIs and trends

- At **45%**, 'Plan attainment compliance' remains a top priority KPI for Maintenance Managers to measure.
- Monitoring and achieving top-priority KPIs motivates maintenance personnel and drives positive behaviours within the team.
- However, the accuracy and reliability of the data behind these KPIs are paramount to make informed strategic decisions through KPI analysis.

The focus on plan attainment is great to see as this KPI is one that reflects not only on the maintenance execution, but on the whole business supply chain and all the departments that play a part and work together to deliver safe and efficient operations.

Maintenance Managers should engage maintenance personnel, ensure the right data is collected and understood, use standard data gathering templates, establish SMART KPIs, and implement continuous improvement plans like the PDCA cycle.

Conclusion & ABL Analysis sections by:



Stuart Murray
Head of Technical



Future outlook for maintenance teams and their budgets

- The results show a continuation of last year's budget trends for Maintenance Managers, with most experiencing an increase, while some face budget freezes or decreases.
- In the current financial climate, justifying maintenance budgets is crucial. This requires a strategic approach considering costs, benefits, and external factors, along with effective communication to stakeholders.
- Methods to justify budgets include life cycle cost analysis, reliability-centered maintenance, condition-based maintenance, developing a maintenance plan, and creating a budget proposal.
- Notably, over **59%** of respondents plan to improve plant and machinery in the coming year.
- Performing a life cycle cost analysis for new equipment compared to old can provide evidence of potential cost savings.
- While 'upgrading systems' remains a top priority, there's a significant drop in the preference for 'hiring more people'. Respondents are leaning towards optimising spares inventory, campaign maintenance, and addressing spares obsolescence, reflecting evolving budget priorities.
- 'Training' ranks low, suggesting either established training programmes or a need for Maintenance Managers to scrutinise technical training inclusion in HR-led programs.

It can be tempting to focus budgets solely on new equipment as they are tangible and can be easily justified, along with having a physical presence as people can see and touch the money they have invested. Potentiality of more value to the business but more difficult to justify is the investment in people's competence, through training, time spent with more experienced hands and through root cause investigations. Businesses must look at the root causes of underperformance and seek to continually invest in their most important asset, their people.



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