The Maintenance KPI Builder: A 5-Step Process for Defining Metrics that Measure What Matters



Practical 5-step workbook for maintenance professionals

Let’s face it: we’re drowning in data but starving for insights. Deciding what to actually measure can feel like a headache you didn't sign up for.

A Note from the Author

I built this workbook because I’ve sat in the same meetings you have. I know the pressure to "show the data" and the frustration when that data is trapped in a spreadsheet or scattered across different systems.

Well-defined KPIs are the only way to prove your team’s value and see if you are actually winning.

My goal for you is simple: I want you to spend your time fixing reliability issues, not fixing Excel formulas.

Follow these 5 steps. They are the exact same steps I use to clear the fog and build a foundation for a system that eventually runs itself.

Let's crack on!

Jason – MaintenanceDataPro.com

Your Roadmap to Data-Driven Maintenance

Tick off each step as you complete it.

☐ **Step 1: Start with Your Business Objectives:** Identify the one key business driver (e.g., Lift Cost, Safety) you need to support.

☐ **Step 2: Identify a Relevant Departmental Objective:** Define exactly how the maintenance department contributes to that big picture.

☐ **Step 3: Define Your Goals (The SMARTER Framework):** Refine your objective into a specific, measurable target using the SMART criteria.

☐ **Step 4: Brainstorm Potential KPIs:** Generate a list of metrics that could measure your progress (without aiming for perfection yet).

☐ **Step 5: Determine Data Source and Ownership:** Decide where the data comes from and who is responsible for reporting it.

Step 1: Start with Your Business Objectives

Before you can define a meaningful KPI, you need to be clear on your overall business objectives. What are the most important areas where you want to see improvement? What are you trying to achieve as a company?

For this guide, we will focus on one key business objective.

Take a look at the example below. This company's overall mission is to:

"**Safely** and **responsibly increase profit** while **reducing cost** and **increasing ROI** and **cash flow** year on year"

This has been broken down into these objectives:

- Zero recordable safety incidents or compliance deviations
- Net zero carbon footprint by 2050
- Lift Cost < $30 / barrel (bbl)

Action: Choose *one* key business objective from your company that you want to focus on for now. Write it down in the space below. If you are struggling to narrow it down, consider choosing the objective that is most urgent or has the biggest potential impact on your business.

My Key Business Objective:

💡 ***Jason's Pro Tip: Follow the Money (or the Risk) Don't try to "boil the ocean." If you track everything, you catch nothing. To get buy-in from leadership, pick the one objective that keeps your Plant Manager awake at night. If it doesn't directly impact Safety, Cash Flow, or Production Volume, put it aside for now.***

Step 2: Identify a Relevant Departmental Objective

Now that you have a business objective in mind, let's narrow it down further. Think about how your specific department contributes to achieving that overall objective.

The overall business objective is to:

- Lift Cost < $30 / barrel (bbl)

We can summarise the maintenance department's objective as:

Our aim is to boost operational efficiency to drive down costs, while increasing reliability to keep production flowing.

Some possible maintenance department sub-objectives that will contribute to achieving business objective are:

- Reducing the cost of carrying out maintenance by implementing waste reduction and cost-saving initiatives within the maintenance department.
- Increasing equipment reliability to reduce the production losses (revenue) associated with unplanned breakdowns.
- Reducing the cost incurred due to unplanned maintenance activities.

Action: Write down a specific objective for your department that directly supports your chosen business objective.

My Departmental Objective:

"What is the difference between an **Objective** and a **Goal**?"

Objective: The destination (Where are we going?).

Goal: The map (How exactly do we get there and when do we arrive?).

Step 3: Define Your Department Goal with the SMARTER Framework

Now it is time to refine your chosen departmental objective using the **SMARTER framework**. This will ensure your objective is clear, actionable, and aligned with your business objectives.

Let's break down what **SMARTER** stands for:

- **Specific:** What exactly will be achieved? Define the objective clearly, avoiding vague terms.
- **Measurable:** How will you quantify the objective? How will you know when it's been achieved?
- **Achievable:** Is the objective realistic and attainable, given your resources and constraints?
- **Relevant:** Does the objective directly relate to your overall business objective?
- **Time-bound:** What is the timeframe for achieving the objective?
- **Evaluate:** How often will you assess progress and make adjustments?
- **Review:** Are there any changing conditions that will require you to adjust the objective or the target?

Example:

Let's revisit our example from Step 2.

- **Business Objective:** Lift Cost < $30 / barrel (bbl)
- **Department:** Maintenance Department
- **Objective:** To improve operational efficiency and reliability.

Here is how we can define this objective using the **SMARTER** framework.

- **Specific:** The aim is to improve operational efficiency and reliability of the maintenance department.
- **Measurable:** Operational efficiency and reliability will be measured by a reduction in maintenance cost per BOE from $5 to $3.
- **Achievable:** By implementing cost-optimisation initiatives and improving predictive and preventive maintenance strategies, this goal seems feasible.
- **Relevant:** This objective is crucial for increasing operational efficiency and profitability.
- **Time-bound:** The goal is to achieve this reduction over an 18-month period.
- **Evaluate:** Progress will be evaluated quarterly to ensure that the cost reduction is on track and not adversely affecting production levels.
- **Review:** The plan will be reviewed and adjusted as necessary at each quarterly evaluation to ensure the relevance and effectiveness of the implemented strategies.

Final Goal: Decrease Maintenance Cost/BOE from $5 to $3 in 18 Months

Action: Using the **SMARTER** framework above, write a clear and concise definition for your chosen departmental goal in the space below.

My SMARTER Departmental Goal:

💡 **Jason's Pro Tip: Use AI to do the Heavy Lifting Struggling to find the right wording? You don't have to do it alone. Open ChatGPT and try this prompt: *"Act as a Senior Reliability Engineer. Rewrite this draft goal [insert your draft] to be Specific, Measurable, and Time-bound."* It will get you 90% of the way there in seconds.**

Beyond Individual KPIs: Creating Goal Hierarchies

Once you've defined your first KPI, the next step is to create a hierarchy of goals within your department. Each one with a line of sight to the overall department objective. This will allow you to monitor how specific goals are impacting overall performance and know exactly where to focus your improvement efforts.

My **'Mastering KPI Performance Management with Power BI Metrics'** course covers setting up goal hierarchies so you can automatically monitor performance across all your goals.

[Click here for more info]

Step 4: Brainstorm Potential KPIs

Now the fun begins! It is time to brainstorm some Key Performance Indicators (KPIs) for your goal. KPIs are measurable values that demonstrate how effectively a company is achieving key business goals.

Let's look at some examples:

- **Business Objective:** Lift Cost < $30 / barrel (bbl)
- **Department:** Maintenance Department
- **Objective:** To improve operational efficiency and reliability.
- **Short Title of Goal:** Decrease Maintenance Cost / BOE from $5 to $3 in 18 months.
- **KPI (what are we measuring?):** Maintenance Cost per BOE Produced

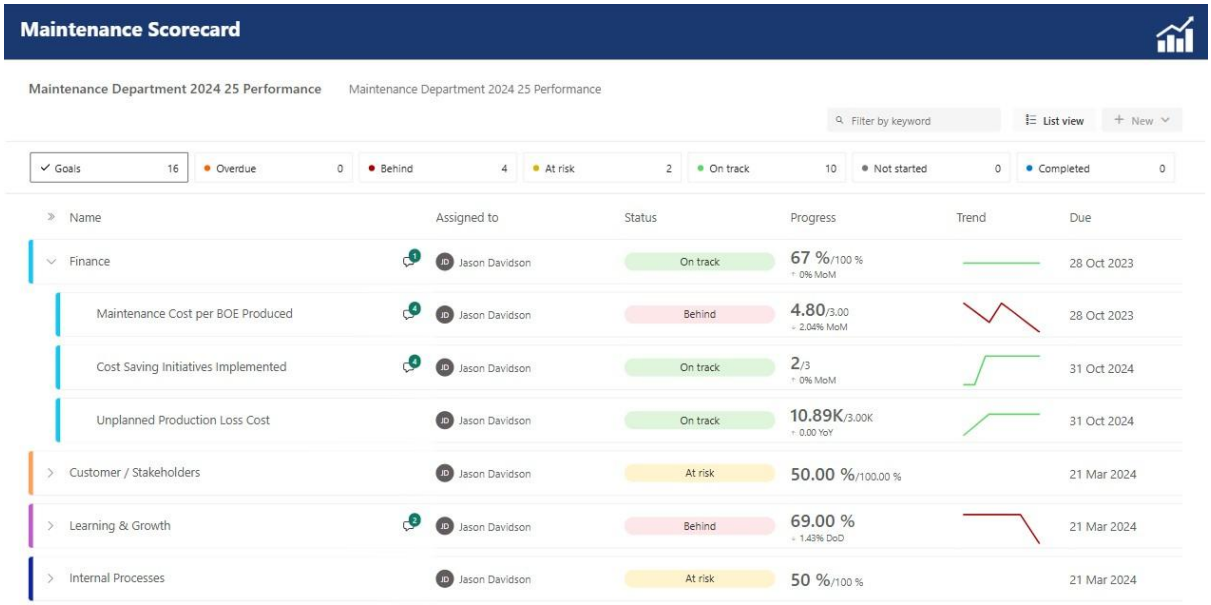
Action: Brainstorm at least three potential KPIs that could help you measure progress toward your departmental objective. Don't worry about perfecting them yet – we'll refine them in the next step.

Potential KPIs:

1. _____
2. _____
3. _____

💡 **Jason's Pro Tip: Beware of "Watermelon Metrics" A "Watermelon Metric" is Green on the outside (looks good on a report) but Red on the inside (the plant is actually suffering).**

Example: 100% PM Compliance looks great. But if your equipment is still breaking down, that "Green" metric is hiding a "Red" reality (poor PM quality). Always ask: *"Does this number prove we are actually getting better, or just that we are busy?"*



This is what your KPI looks like when it's built in Power BI Metrics. There is a clear KPI hierarchy, owner, status, value, trend and target date.

Check out Mastering KPI Performance Management with Power BI Metrics to learn more about building KPI scorecards using Power BI.

Step 5: Determine Data Source and Ownership

Now that your KPI is well-defined, you need to determine where the data will come from and who will be responsible for it.

Let's revisit our example from Step 4.

- **Department KPIs:** Maintenance Cost per BOE Produced
- **Ownership:** Head of Maintenance
- **Frequency:** Monthly
- **Data Source (Application):** We'll pull maintenance costs from the CMMS, and volume data from the Production Management System.
- **Data Source (For Power BI Metric):** Monthly Manual Check In

Action: For your KPI, identify the following:

KPI Owner (Who is responsible?):

Measurement Frequency (How often will you track it?):

Data Source (Where will the data come from?):

Data Retrieval Method:

[ ] Automated (System updates itself)

[ ] Manual (I have to export/copy-paste/manipulate data)

💡 ***Jason's Pro Tip: The "Excel Trap" Be very careful if your Data Source is "Manual Entry in Excel."***

Manual reporting is where good KPIs go to die. It relies on you having free time every Monday (which never happens). It's okay to start manual to test the concept, but your long-term goal must be Automation—connecting directly to the CMMS or SQL database so the truth is always visible.

Conclusion:

Congratulations! You've now defined your first KPI using a clear and strategic framework. You've taken the first step out of the data fog.

But let's be honest: Defining the KPI is only half the battle. The other half is reporting it.

If you take these well-defined KPIs and paste them back into a manual spreadsheet, you're just building a better mousetrap for your own time. You didn't become a maintenance professional to be a data entry clerk.

Next Step: Stop the "Spreadsheet Hell" You have the **Logic** (this workbook). Now you need the **System**.

Right now, you are likely losing hours every week wrestling with data, fixing broken formulas, and building slides that are out of date the moment you hit "print."

I've been there. I know the frustration of watching your Monday disappear into manual reporting.

It's time to stop.

Introducing: Mastering KPI Performance Management with Power BI Metrics *Build your own automated KPI reporting system – no IT department or consultants required.*

In this course, we take the KPIs you just defined and turn them into a live, automated dashboard.

- **From:** "I'll get back to you on that."
- **To:** "Here is the real-time data."

What You Will Build:

- A fully automated performance management system.
- Interactive dashboards that update themselves.
- Automated alerts that notify you *before* problems happen.

You deserve to spend your expertise on strategy, not spreadsheets.

[Enrol Now & Automate Your Reporting]