



Maintenance Maturity and Business Case Assessment

A practical workbook for building the business case for strategic maintenance investment

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Introduction

Maintenance leaders are usually the first to notice when a plant is under strain. You probably know which machines keep pulling technicians away from planned work, the parts problems that keep delaying repairs, the roster of preventive maintenance tasks always being pushed aside, and the point where production pressures translate to reliability risk – before that becomes apparent to company bosses.

From the perspective of your role, the connections between these issues are clear. However, by the time reports get to senior leadership they are often treated as separate operational problems: downtime, overtime, parts delays, missed preventive maintenance, staffing pressures, or urgent capital requests that weren't budgeted.

The business case for better maintenance isn't simply about more time, people and funding. It needs to show how those problems are connected by the way maintenance functions, the operational impact of decisions made elsewhere, and the downstream consequences for production outcomes that encompass performance, quality and profitability.

This workbook will help you reveal those connections. It includes a scored assessment across seven areas of maintenance maturity, then shows how the results can be used to shape a business case that plant leadership, operations, finance and senior executives can all understand.



Systemic improvement needs a comprehensive approach

The modern manufacturing plant runs on a complex interaction between people, assets, processes and decisions. Maintenance affects or is affected by all these factors, so this assessment looks at the whole maintenance function.

If everything is running well, you probably wouldn't be reading this document. The challenge is identifying which parts of the function need most attention. To do this, we've prepared a simple scoring system. All it needs to be effective is a little time and a lot of honesty.

Weaker scores may point to something inside the maintenance department, such as work order discipline or planning practice. They may also reveal a wider plant issue involving production access, purchasing workflow, engineering handoff, staffing, leadership expectations or inconsistent use of your computerized maintenance management system (CMMS). By separating these issues, the assessment helps show where maintenance can act directly and where progress depends on support from other parts of the business.

The aim is to create a clearer view of where the maintenance system is underdeveloped, what business risk that creates, and what support is needed to move from a reactive effort to a more reliable operating model.

Why does maintenance need a business case?

Maintenance is often treated as manufacturing overhead – a necessary cost of keeping the plant running rather than a direct lever of production value. Because the cost is not usually tied cleanly to each unit of output, additional investment in maintenance can be harder to justify than spending linked directly to capacity, speed, quality or efficiency.

In fact, maintenance performance has a direct effect on all of those outcomes, and its effects are felt throughout the plant. When the maintenance function does not have enough control over planning, required work, parts readiness or service history, the consequences show up in production stability, labor use, asset life, downtime exposure and planning confidence.

Inside the maintenance function these issues are often easy to recognize; your team deals with the practical effects every week. The harder task is explaining them to the people who are making decisions through the lens of production output, margin, staffing, inventory, customer commitments and capital spending.

A useful business case translates your maintenance reality into terms that decision-makers can understand. It describes how the current maintenance function affects the plant's ability to run reliably, use labor well, protect production capacity, control avoidable costs, and make evidence-based investment decisions.

The assessment begins with current-state maturity because you need a structured way to describe the problem before asking for investment or support. The scores show where your maintenance system is strongest, where it is weakest, and which issues are most important to raise with leadership now.

The workbook then helps you turn the weakest areas into a practical business case: what risk they create, what data is missing, what maintenance can improve directly, and where you need leadership support. The aim is to show how this support will improve the outcomes leaders already care about.

Systems engineering and the ManuMax Method

Manufacturing leaders are under pressure to improve productivity, resilience, cost control, labor use, risk, and capital planning. Increasingly, plant performance is being assessed and managed through more connected, data-driven operating models.

The National Institute of Standards and Technology (NIST) calls this “Smart Connected Manufacturing.” Deloitte's 2025 Smart Manufacturing and Operations Survey covered 600 executives at large U.S. manufacturers and found that an interconnected, data-enabled approach is being pursued as a way to improve productivity, agility and operational performance. McKinsey's 2026 research on connected factories makes a related point: plants that can deliver insights from operational data can use it to support both day-to-day execution and continuous improvement.

These studies describe a systems engineering view of manufacturing performance. Measures of plant output are insufficient; they need to be understood through the operating conditions that produce them. Assessing maintenance maturity helps make those conditions visible, so improvements can be focused on the weakest or least developed parts of the system.

Systems engineering depends on evidence from the real operating environment: how assets behave, how work flows, where time is lost, where resources are constrained, and where decisions in one function create pressure in another. Its value is that it helps leaders look past the symptoms and understand the underlying conditions that cause them.

Systems engineering and the ManuMax Method

Maintenance is one of the clearest places to find that evidence. It sits at the point where production schedules, purchasing decisions, engineering changes, staffing, parts availability, contractor use and capital planning all meet. When maintenance work is planned, performed and recorded with discipline, it captures data that shows how those interactions are affecting the plant.

That is why maintenance data has strategic value. It does more than show which assets failed or which work orders were completed. When complete, accurate and current, it can reveal where labor is being consumed, where parts strategy is limiting recovery, where production access is affecting reliability, where service history supports or weakens capital decisions, and where risk is building before it appears in leadership reports or dashboards.

Many manufacturers have not yet designed their maintenance function to produce this level of evidence. A typical CMMS will hold work orders, asset records, labor time, parts usage and service history, but the data will only be complete, clear and accurate if the process behind it is well designed and consistently followed.

The ManuMax Method was created to bring a systems-level approach to maintenance engineering. It helps manufacturers turn maintenance work into reliable operating intelligence for better decisions, stronger reliability and improved plant performance.

This is the role maintenance should play in a well-run manufacturing business. There is no change to its core purpose: fixing and protecting equipment. The ManuMax Method signposts the way to develop the function as a strategic source of insight.

How to complete the assessment

Use this survey to score your maintenance function, using the 1-5 scale shown below. Your scores should reflect your current reality rather than any intended process or the written procedure. A procedure may exist in a manual, but the score should reflect the system people actually use. Be honest in your scoring: recognize exemplary practices but mark down when the real work still depends on informal workarounds, individual memory or shift-by-shift habits.

After completing the assessment, total the scores to understand your overall maturity level. Then identify the three lowest-scoring areas – they are the clearest places to show where improvements could reduce risk, improve visibility or create a stronger basis for decisions. They will be the focus for the business case that you want to make for changes and potentially increased investment in maintenance. The other areas still matter, but a focused conversation is more likely to gain support than a broad request to improve everything at once.

Score	Meaning
1	Mostly reactive or not in place
2	Inconsistent and dependent on individuals
3	Defined, but not reliably followed
4	Consistent, measured and managed
5	Strong, disciplined and improving over time

A. Work planning and execution

This section measures how well maintenance work moves from request to completion. When scoring, consider whether jobs enter through a consistent process, whether planned work is protected from frequent interruptions, and whether technicians have the information, parts, tools and access needed before work begins. Strong planning reduces reactive work and gives the plant a clearer view of true maintenance demand.

Statement	Score (1-5)
Work is captured through a consistent request-to-work-order process.	
Planned work is separated from emergency or break-in work.	
Weekly scheduling exists and is followed with limited churn.	
Jobs are planned with the required labor, parts, tools and access.	
Work orders are closed with useful failure, cause and action notes.	

Area score

Add the five statement scores (maximum 25).

 / 25

B. Preventive maintenance discipline

This section measures whether preventive maintenance is protecting asset condition in practice. When scoring, look beyond completion percentages and consider whether PM tasks are current, whether deferrals are visible, whether inspection findings lead to corrective work, and whether production provides realistic access for required maintenance. Strong PM discipline helps the plant manage reliability before failure becomes the forcing event.

Statement	Score (1-5)
PM tasks are reviewed for frequency, scope and relevance.	
PM compliance is tracked and acted on.	
PM deferrals require a reason and are visible to maintenance and operations.	
PM findings create follow-up work when issues are found.	
Production provides realistic windows for required maintenance.	

Area score

Add the five statement scores (maximum 25).

 / 25

C. Data quality and CMMS discipline

This section measures whether your CMMS reflects what is actually happening in the plant. When scoring, consider whether the data is strong enough to support root cause analysis, labor planning, parts decisions, downtime review and capital requests. A system with incomplete, inaccurate or inconsistent records cannot give leadership a reliable view of asset performance.

Statement	Score (1-5)
Work is normally captured through the CMMS.	
Technician time is recorded accurately against work orders.	
Asset hierarchy and naming support useful reporting.	
Failure, cause and work-type codes are used consistently.	
Leadership trusts the maintenance data used in reports.	

Area score

Add the five statement scores (maximum 25).

 / 25

D. Labor and resource use

This section measures how clearly the plant can see where maintenance labor is going. When scoring, consider whether labor time is captured accurately, whether backlog is measured in hours, whether roles are clear, and whether the plant can distinguish between a staffing issue and a process issue. Strong labor visibility helps to make a better case for headcount, planning support, contractor use or workflow improvement.

Statement	Score (1-5)
Labor utilization is visible through work order time and timecard alignment.	
Backlog is measured in hours and actively reviewed.	
Planner, scheduler, supervisor, storeroom and technician roles are clear.	
Contractor use is tracked, justified and reviewed.	
Leadership can see planned versus reactive labor demand.	

Area score

Add the five statement scores (maximum 25).

 / 25

E. Parts and inventory readiness

This section measures whether maintenance inventory is protecting production. When scoring, consider whether critical spares are defined, whether reorder rules are maintained, whether parts delays are visible, and whether parts are connected to the assets they support. A plant can carry inventory cost and still be unprepared for failure if the wrong parts are stocked or replenishment is weak.

Statement	Score (1-5)
Critical spares are defined for important assets and lines.	
Stocked parts have maintained reorder rules.	
Work orders delayed by parts are visible and reviewed.	
Parts are linked to equipment where appropriate.	
Purchasing and receiving workflows support maintenance without routine workarounds.	

Area score

Add the five statement scores (maximum 25).

 / 25

F. Production and maintenance alignment

This section measures how well production and maintenance manage the shared reality of equipment access. When scoring, consider whether planned maintenance windows are protected, whether priorities are agreed and stable, and whether the plant understands the risk created by repeated preventive maintenance deferrals. Strong alignment gives both teams a more practical way to manage the trade-off between output today and reliability tomorrow.

Statement	Score (1-5)
Maintenance has protected windows for planned work.	
Priorities are agreed between operations and maintenance.	
Schedule changes are visible and managed.	
Downtime events trigger structured review and follow-up.	
Production understands the risk created by repeated preventive maintenance deferrals.	

Area score

Add the five statement scores (maximum 25).

/ 25

G. Leadership visibility and management rhythm

This section measures whether maintenance performance is reviewed in a way that leads to decisions and follow-through. When scoring, consider whether key performance indicators are focused, whether owners are clear, whether actions are closed, and whether maintenance data is used in decisions about reliability, cost, capacity, staffing, inventory and capital planning. Reporting only helps when it is tied to management action.

Statement	Score (1-5)
A focused set of maintenance key performance indicators is reviewed consistently.	
Key performance indicator owners are defined.	
Actions are tracked to closure.	
Maintenance performance is discussed in terms of risk, cost, capacity and asset performance.	
Maintenance data supports capital, staffing, inventory and reliability decisions.	

Area score

Add the five statement scores (maximum 25).

/ 25

Scoring summary and maturity interpretation

Add the seven area scores to get the total maturity score. The total gives a general view of how developed the maintenance system is, while the individual area scores show where the system may be strongest or weakest. A plant may have a reasonable total score and still carry serious risk in one area, such as parts readiness, production alignment or data quality.

Area	Your score
Work planning and execution	/ 25
Preventive maintenance discipline	/ 25
Data quality and CMMS discipline	/ 25
Labor and resource use	/ 25
Parts and inventory readiness	/ 25
Production and maintenance alignment	/ 25
Leadership visibility and management rhythm	/ 25
Total maturity score	/ 175

Maturity interpretation

Score	Maturity level	Interpretation
35-75	Reactive	Maintenance is mainly driven by breakdowns, interruption and informal knowledge. The plant is likely carrying hidden cost and reliability risk.
76-115	Developing	Core practices exist, but consistency is uneven. Improvement depends heavily on individual effort or local habits.
116-145	Managed	Maintenance is planned, measured and increasingly connected to business performance. The plant has a stronger foundation for improvement.
146-175	Optimized	Maintenance operates as a disciplined system. Data is trusted, routines are in place and leadership can use maintenance intelligence with greater confidence.

After reviewing the total score, return to the three lowest-scoring areas. Use these areas in your business case – they show where the current system is most likely to be constraining performance or weakening visibility.

Turn the results into business language

The following table translates the assessment areas into key business concerns, the maintenance data that would best describe each concern, and an explanatory message for business leaders.

The three weakest areas will be your focus as you build the business case for maintenance improvements. However, you can use this language as a starting point for any strategic or planning discussion where maintenance weaknesses need to be understood in terms of their wider impact on the business.

Note that the “better data” column describes the data you require to understand, control and ultimately resolve the related concern. You may or may not have this data available now and its quality will likely vary, so use this as a checklist for the sources of trustworthy data that you need to confirm or develop.



Language guide: areas A-D

Work planning and execution

Business concern

The plant has limited control over maintenance demand, schedule churn and reactive work.

What better data would show

Planned versus reactive work, backlog, labor demand and break-in work by area.

Message for leadership

Better planning discipline will help us reduce reactive work, protect labor capacity and understand true maintenance demand.

Preventive maintenance discipline

Business concern

Required maintenance may be losing ground to short-term production pressure.

What better data would show

Preventive maintenance deferrals, repeat failures, preventive-maintenance-generated work and assets carrying technical debt.

Message for leadership

We need a governed approach to required maintenance so production decisions include reliability risk.

Data quality and CMMS discipline

Business concern

Leadership cannot rely on maintenance records for confident decisions.

What better data would show

Downtime drivers, labor use, parts consumption, recurring failures and cost to maintain.

Message for leadership

We need decision-quality maintenance data to support reliability, staffing, parts and capital decisions.

Labor and resource use

Business concern

Staffing and resource decisions are being made without enough evidence.

What better data would show

Wrench time, backlog in hours, contractor use and planned versus reactive labor demand.

Message for leadership

We need to understand where maintenance labor is being consumed before making staffing or process decisions.

Language guide: areas E-G

Parts and inventory readiness

Business concern

Inventory may not be protecting production effectively.

What better data would show

Stockouts, parts-driven downtime, critical spare gaps and reorder accuracy.

Message for leadership

Maintenance inventory should be managed as a readiness system tied to asset risk.

Production and maintenance alignment

Business concern

Short-term scheduling choices may be creating future downtime risk.

What better data would show

Lost maintenance windows, repeated preventive maintenance deferrals and reliability impact by line.

Message for leadership

Production and maintenance need a shared operating rhythm for equipment access and reliability risk.

Leadership visibility and management rhythm

Business concern

Maintenance problems are reviewed too late or without clear ownership.

What better data would show

Key performance indicator trends, open actions, owners, recurring issues and cross-functional constraints.

Message for leadership

Maintenance performance should be reviewed as part of business performance.

Explain where support needs lie

The business case should show both sides of the improvement effort. Some changes can begin inside maintenance. Others depend on support from production, purchasing, engineering, finance, or leadership at the plant, operations or executive level.

The table below will help make your case more credible. It shows that maintenance is taking responsibility for its part, while making it clear where progress depends on the support of others.

Work planning and execution

Maintenance can usually act on
Work order discipline, backlog review, planning standards, schedule preparation, closeout expectations.

Support may be needed from
Production for equipment access; plant leadership for planner/scheduler capacity or role clarity.

Preventive maintenance discipline

Maintenance can usually act on
Preventive maintenance review, preventive maintenance quality, deferral tracking, follow-up work creation.

Support may be needed from
Production for maintenance windows; plant and operations leadership for risk-based decision rules.

Data quality and CMMS discipline

Maintenance can usually act on
Coding standards, closeout expectations, supervisor review, asset hierarchy cleanup.

Support may be needed from
Plant leadership for data expectations; information technology or system owners for configuration support.

Labor and resource use

Maintenance can usually act on
Backlog hygiene, time capture, planned/reactive work tracking, contractor review.

Support may be needed from
Finance and plant leadership for staffing, overtime or contractor decisions.

Parts and inventory readiness

Maintenance can usually act on
Critical-spares review, parts-to-asset links, stockout tracking, storeroom discipline.

Support may be needed from
Purchasing or supply chain for replenishment rules, supplier support and workflow improvement.

Production and maintenance alignment

Maintenance can usually act on
Schedule discipline, clearer priority setting, risk documentation for deferred work.

Support may be needed from
Operations for protected windows and shared ownership of reliability trade-offs.

Leadership visibility and management rhythm

Maintenance can usually act on
Key performance indicator selection, action tracking, maintenance review cadence.

Support may be needed from
Plant leadership for governance, decision cadence and follow-through.

Build the business case

At this point, the assessment will have produced three practical outputs: your maturity scores, your three weakest areas, and the language to explain the business concern that each weak area creates. The next step is to turn that information into a practical business case that can be discussed with leadership.

Your ability to drive change will be enhanced if you limit the business case to the three lowest-scoring areas. A request to improve the whole maintenance function is easy to defer. A case built around the clearest weaknesses is easier to discuss, validate and turn into action.

Write a business case statement for each of the three weakest areas, using the guidance and structure laid out in the table below. Each statement should connect the assessment result to the practical condition in the plant, the business concern it creates, the data that is missing or unreliable, and the support needed to improve the situation.

It is best to keep the statements as brief as possible. A lot of details and explanations can lie behind any single problem, but succinct writing will increase your ability to get the attention and understanding you need from leadership.

If you find this hard to do, try using one of the major AI tools such as ChatGPT, Claude or Google Gemini. They all offer free versions of their products and there is plenty of advice available online if you are not familiar with how to use them. Write down all of the information you want to be considered without worrying about the length or writing quality, then enter it into the AI prompt box with the instruction to condense your words into a succinct summary to be read by senior business leaders.

Be sure to review the response it generates carefully before using it – AI tools can save time and help you bridge skill gaps, but they can and do make mistakes!

Business case statement guide

Statement element	How to complete it
Area of weakness	Select one of the three lowest-scoring maturity areas from the assessment.
Leadership message	Use the “message for leadership” column from the language table as the opening point for your business case. This will ensure you begin by explaining the issue in business terms, so it gets right to the point. Adapt and expand the message to turn it into a brief summary of the problem as it exists in your business. It may be easier to do this once you have considered the other statement elements, so you may want to work through those and then return to this.
Business concern explained	Next, explain the problem in more detail. Use the “business concern” column from the language table as your starting point, then adapt it to your plant. Explain the effect of the concern in terms of reliability, labor, downtime, parts, cost, capacity, risk or capital planning. A good way to think about this is to use the maturity assessment as a checklist of problem areas to consider. Consider the plant-specific details behind your scores and describe what you can see happening in day-to-day work, what you cannot yet see clearly from the available data, and how that lack of visibility affects decisions. The aim is to move from “this area scored low” to a practical explanation of the problem: where the weakness shows up, how often it happens, who feels the effect, and what is still being managed through judgment, workarounds or incomplete information.
Data gap	Better data is the key enabling factor in the business case for better maintenance, so be specific about what's missing. Use the “what better data would show” column from the language table to explain what the business cannot currently see clearly. This may include missing, incomplete, inconsistent or inaccurate data.
Action and support	Conclude by explaining what the maintenance function is going to do or is already doing to resolve the weaknesses you have identified. Use the “maintenance can usually act” column in the support table and adapt it to your situation. Then explain where you need help. Use the “support may be needed from” column to set out the support you need. Think about the specific decision, resource, access, cooperation or investment needed from leadership, production, purchasing, engineering, finance or another function.

Prepare for success with ManuMax

Your completed business case statements are a starting point for a better leadership conversation. They set out the problems you want to solve, the business concerns those problems create, the data that is missing or unreliable, and the support needed to make progress.

ManuMax offers a free Maintenance Maturity Review designed to pressure-test your work before it is taken into a leadership discussion. Our experts review your current-state assessment and business case statements with you, looking for gaps, weak points, unclear assumptions and places where the case could be made stronger.

The review is designed to help you prepare for the questions that often come up when maintenance issues are discussed at leadership level: What is the business cost of not acting? How confident should we be in the diagnosis? What evidence would make the case stronger? What trade-offs does the plant need to accept? What support is needed now, and what can wait? How will we know whether the first changes are working?

As part of the review, ManuMax will also help you build a 90-day improvement plan. This supports your business case with a practical path from discussion to action, with clear first steps for improving maintenance processes, data quality, cross-functional alignment and leadership visibility.



Maintenance Maturity Review

Output	Purpose
Pressure-tested current-state findings	Review the assessment results and confirm whether the diagnosis is clear, credible and ready for leadership discussion.
Evidence-gap review	Identify what the current data shows, what it does not show clearly, and what would make the case stronger.
Cross-functional support map	Clarify where production, purchasing, engineering, finance, plant leadership or executive leadership may need to be involved.
Strengthened business case statements	Improve the explanation of the problem, business concern, evidence gap and support needed.
Leadership question review	Prepare for the questions, objections and trade-offs likely to arise in a leadership conversation.
90-day improvement plan	Define the first practical steps for turning the business case into action.

Take the next step

Preparing to improve the maintenance function and align it with wider business objectives takes real work. You have assessed its current state, identified the weaknesses most in need of attention, and turned those findings into business case statements that can support a better leadership conversation.

The next step is to make that work as strong as it can be. Sign up for the free ManuMax Maintenance Maturity Review and we'll work with you to make that happen.

REQUEST A FREE MATURITY REVIEW

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