



THE DEFINITIVE GUIDE TO TOTAL PRODUCTIVITY

**BRAIN
CUBE[®]**

THE DEFINITIVE GUIDE TO TOTAL PRODUCTIVITY

Your factory is highly automated. Machines are running, data is flowing, and your production system—whether it's based on Lean, WCM, or other methodologies—keeps operations standardized and under control. But why do inefficiencies still slow you down?

Most manufacturers rely on a mix of MES, Historians, SCADA, and analytics to monitor and optimize production. These tools are powerful, but they weren't designed to unlock total productivity potential.

And despite 40+ years of advancements in production systems and industrial data collection, manufacturing productivity hasn't kept pace. In fact, U.S. labor productivity in manufacturing, measured as "value added per hour worked or sectoral output per hour worked," grew at an average of 3.4% annually between 1987-2007, but has dropped to -0.5% from 2010 to 2022 — a slowdown of 3.9%. Even with today's investments in platform tools, AI projects, and data lakes, manufacturers still struggle to see the real, detailed picture of their productivity potential.

Why? Because productivity has never had its own system.

While manufacturers have tools to monitor quality, track throughput, and automate processes, there is no system built specifically for managing and optimizing productivity.

- 🟡 Where is productivity being lost?
- 🟡 How much potential improvement is possible?
- 🟡 What actions will generate the biggest impact?

To unlock Total Productivity, you need more than just tracking production metrics or automating workflows — you need a way to turn data into action instantly, ensuring alignment from the top floor to the shop floor.

That's where a Productivity Management System (PMS) comes in.

With a PMS, you eliminate the disconnect, integrating Information Technology (IT) and Operational Technology (OT) so strategic goals become real-time, measurable improvements in your plant operations.

1. <https://libertystreeteconomics.newyorkfed.org/2024/07/the-mysterious-slowdown-in-u-s-manufacturing-productivity/>

THREE GREAT SYSTEMS. WHAT IF YOU COULD ACHIEVE GREATER RESULTS?

Manufacturers have long relied on **Manufacturing Execution Systems (MES)**, **Historian Systems**, and **Supervisory Control and Data Acquisition (SCADA)** to manage plant-floor operations. You rely on these systems to maintain efficiency and compliance, but they don't give you the real-time control you need to optimize productivity or continuously improve operations.

You might notice higher-than-expected material waste or slow cycle times, but pinpointing exactly why and how to improve is challenging without the right tools. Relying on spreadsheets, guesses, and reactive problem-solving won't cut it.

You need a system that let you run scenarios, clearly seeing how changing one variable impacts another — like understanding how increasing production speed affects your energy consumption or quality outcomes.

The reality is that passive monitoring systems aren't enough. If you want to compete and grow, you need a way to turn insights into action instantly, ensuring alignment from corporate strategy to plant-floor execution.

Instead of spending weeks manually piecing together production data, imagine having immediate answers at your fingertips — giving you the confidence to act before small inefficiencies become big losses.

TURN YOUR CURRENT DATA INFRASTRUCTURE INTO A SMARTER DECISION ENGINE

Manufacturing Execution Systems (MES)

Tracks production but doesn't optimize it. MES helps manage workflows, track compliance, and improve efficiency. But it doesn't identify process inefficiencies or offer real-time recommendations, leaving engineers to analyze data manually.

Historian Systems

Stores data, but doesn't act on it. Historian systems collect and store large volumes of production data for later analysis. While useful for trend tracking and compliance, they don't generate immediate, actionable insights that can improve daily operations.

SCADA

Automates control but doesn't improve productivity. SCADA systems ensure operational stability by collecting and controlling real-time industrial data. However, these systems are built for automation — not for driving efficiency gains or helping teams make better decisions.

WHAT YOUR CORE SYSTEMS CAN'T SHOW YOU—YET.

Hidden Inefficiencies are Draining your Profits

You can't fix what you can't see. Your team knows something is slowing down production, but without a way to "take action", those inefficiencies remain buried. Bottlenecks, slow cycle times, and excessive waste could be draining millions — but if you can't spot and course correct the issues as they happen, you're stuck reacting instead of improving.

Reports Aren't Enough – You Need Real-time Action

Traditional systems deliver reports filled with data, but not the answers you need. Instead of clear next steps, you and your engineers are left thinking they know which variables to analyze, slowing down improvements that could keep your plant ahead of the competition.

Strategies Aren't Reaching the Shop Floor

Corporate goals like cost reduction, sustainability, and increased throughput mean nothing if they aren't translating into measurable actions on the shop floor. Without a system that connects strategy to execution, teams risk misalignment, and productivity remains stagnant.

What if you took a different approach?

What if you could walk into your plant each morning already knowing the biggest inefficiencies to tackle, before they cost you thousands? Rather than second-guessing your decisions, you'd ensure your actions directly align with companywide productivity goals.

What if your team had AI-driven recommendations at their fingertips, so they could take immediate action instead of losing weeks to manual analysis?

That's where Productivity Management Systems come into play.

BEYOND TRADITIONAL TOOLS: THE POWER OF A PRODUCTIVITY MANAGEMENT SYSTEM (PMS)

With a PMS, your team can proactively identify bottlenecks before they happen, fine-tune machine settings in real time, and confidently take action aligned with your corporate productivity objectives. Instead of reacting to problems, you'll prevent them — eliminating guesswork and ensuring each decision directly supports your broader business goals.

You can achieve this with a PMS.

A PMS goes beyond collecting information, transforming it into actionable improvements, bridging the gap between tracking and optimization. It ensures every level of your organization, from frontline operators to executive leadership, has the insights and control needed to drive continuous improvement.

WHAT A PMS DOES THAT OTHER SYSTEMS CAN'T

1. Eliminates Silos To Create A Single Source Of Truth

If your team struggles with disconnected systems and isolated data, you're not alone. MES, Historian, and SCADA each collect valuable production data, but they operate in silos, making it difficult to see the bigger picture.

A PMS goes beyond just integrating data — it contextualizes it, ensuring insights are deeply relevant to specific production processes, products, and plant conditions. Instead of wasting time piecing together data from disconnected systems, you see a complete, real-time picture of production. No more guesswork — just clear, actionable insights that help you make faster, smarter decisions.

Here's how PMS makes data work for you:

- ▣ **Creates unified, contextualized insights:** Instead of sifting through scattered reports, your team gets a real-time, structured view of production performance.
- ▣ **Tracks relationships between production variables:** From raw materials to finished goods, a PMS reveals how process conditions impact final outcomes
- ▣ **Show exactly where your biggest productivity gains lie:** Once captured, these metrics enable your PMS to pinpoint precisely where your best opportunities for improvement are — guiding you to make the decisions that boost productivity most effectively.

You need tools that let you run scenarios, clearly seeing how changing one variable impacts another — like understanding how increasing production speed affects your energy consumption or quality outcomes.

2. Harnesses AI To Expose And Eliminate Inefficiencies

Traditional systems collect data but don't analyze it, leaving teams to manually search for inefficiencies. How much productivity is lost because your team spends hours compiling reports instead of making improvements?

A PMS changes this by automating inefficiency detection and provided AI-generated recommendations. Instead of waiting weeks for manual analysis, your team can:

Here's how PMS makes data work for you:

- ▣ **Pinpoint sources of waste:** Whether it's material loss, excess energy consumption, or slow cycle times, a PMS identifies exactly where productivity is being lost, and how to take action.
- ▣ **Quantify potential gains:** Instead of guessing where to focus efforts, a PMS shows which improvements will have the biggest financial and operational impact.
- ▣ **Translate insights into action:** No more generic reports. A PMS provides step-by-step recommendations, ensuring your team knows exactly what changes to make and how to implement them.

Rather than waiting for problems to escalate, your team is empowered to take proactive action, turning inefficiencies into opportunities for growth.

3. Turns Existing Systems Into Real-Time Profit

Your manufacturing systems generate vast amounts of data, but without the right tools, that information stays buried in spreadsheets and dashboards. Your team might know something needs to change, but figuring out what to change and how takes time and manual effort.

A PMS acts like a Digital Assistant for your operation, helping you stop reacting to problems and start driving continuous improvement. It:

Here's how PMS makes data work for you:

- ▣ **Automates performance benchmarking:** Lets you easily compare efficiency across machines, lines, and facilities to identify the strongest opportunities for optimization.
- ▣ **Delivers real-time recommendations:** Provides you with AI-powered suggestions for improving throughput, quality, and energy efficiency without requiring manual analysis.
- ▣ **Aligns plant execution with corporate strategy:** Ensures operational decisions directly support business objectives, making productivity a continuous, real-time process.

With a PMS, your team no longer reacts to inefficiencies after the fact. Instead, they stay ahead of problems, making smart, data-driven decisions in real time.



HOW A PMS BRIDGES CORPORATE STRATEGY AND SHOP FLOOR REALITY

One of the biggest challenges in manufacturing is the disconnect between corporate strategy and plant-floor execution. You set bold goals for cost reduction, sustainability, and efficiency — but why don't they translate into real, measurable actions on the shop floor?

That's because traditional systems were never designed to bridge the gap between strategy and execution, leaving you struggling to ensure teams are aligned on the same objectives.

A PMS fills this gap, ensuring every department, from the executive level to the frontline workforce, is working toward the same objectives, using real-time insights to balance trade-offs and drive continuous improvement.

HERE'S HOW A PMS CONNECTS EVERY LEVEL OF THE ORGANIZATION:

1. Turn Corporate Goals Into Immediate Shop-Floor Actions

As a manufacturing leader, you're responsible for setting enterprise-wide objectives like:

- Reducing costs without sacrificing output
- Improving sustainability through better energy management
- Maximizing production efficiency while maintaining quality standards

But these goals don't automatically translate into plant-level execution. MES, Historian, and SCADA systems lack the tools to assess trade-offs, test different scenarios, or ensure KPIs are met in real time.

With a PMS, you can test different operational trade-offs before making a decision, instead of relying on static reports and best guesses. This ensures every move is backed by real-time data and directly supports business goals.

For example, a PMS helps leadership:

- Balance throughput vs. Energy efficiency**
Increasing production speed often means higher energy consumption. A PMS helps determine the most efficient trade-off.
- Navigate energy limits vs. Production output**
Operating within a fixed energy threshold may slow production, but a PMS provides visibility into where efficiencies can be gained.
- Weigh cost reduction vs. Customer demand**
Cutting costs may reduce output, which could impact fulfillment. A PMS helps leaders make informed, strategic decisions to reduce waste without sacrificing performance.

By integrating real-time production data with corporate KPIs, a PMS ensures high-level strategic decisions become measurable, actionable improvements on the shop floor.

2. Empower Plant Managers To Drive Strategic Goals

Plant managers bridge the gap between corporate goals and factory operations. But without real-time insights and predictive analytics, tracking progress and making necessary adjustments is challenging.

With a PMS, plant managers can:

- Monitor real-time progress on corporate sustainability, efficiency, and cost-reduction goals.
- Make data-backed decisions about production schedules, machine utilization, and energy management.
- Create a productivity roadmap for each product, identifying where cost savings and performance improvements can be made.



Example: At Aubert & Duval, plant managers needed a way to align energy efficiency with corporate sustainability targets — without disrupting production. With a PMS, they moved from reactive energy tracking to real-time optimization, improving furnace cycles and load balancing. The result? A 19% drop in gas consumption and 3% in electricity use.

3. Decision Making vs. Insights

Process engineers set the direction for improvement, identifying opportunities, enhancing efficiency, and establishing strategies to control waste. AI supports engineers by providing timely insights and rapid analysis, revealing precisely how changes to one variable impact others. While engineers drive strategy, AI accelerates decision-making by running scenarios, recommending optimal adjustments, and enabling real-time optimization based on live operational data.

A PMS integrates real-time and historical data, enabling engineers to:

- Pinpoint inefficiencies that MES, SCADA, and Historian systems may not reveal.
- Run AI-driven simulations to determine the best process adjustments.
- Optimize production in real time based on live operational data.

Example: If cost reduction is a priority, engineers can use a PMS to analyze production line inefficiencies, identify material waste, and optimize workflows to lower operating costs without compromising output. Traditionally, this process required manual analysis, spreadsheets, and a lot of guesswork, but a PMS automates insights and enables real-time, data-driven decisions.

4. Give Your Shop-Floor Teams The Tools To Act Before Problems Arise

Your frontline teams are the first to notice problems, but without real-time guidance, they're forced to react instead of preventing issues before they escalate.

A PMS ensures AI-driven recommendations are delivered directly to frontline teams, providing clear, actionable insights on:

- Machine settings, workflow optimizations, and predictive maintenance. These actions are delivered directly to frontline teams, helping them adjust in real time.
- Keeping the system circular and connected. Corporate may push KPIs down, but a PMS feeds data collected from the shop floor back up, ensuring continuous optimization.
- Giving operators visibility into how their daily decisions impact broader company goals, creating a more engaged and accountable workforce.

This creates a continuous feedback loop, where corporate priorities inform plant-floor actions, and shop-floor data feeds back up to leadership, ensuring ongoing optimization across the entire organization.

Example: Consider a paper company that experiences a shift in corporate priorities after the holiday season — from maximizing production volumes to aggressive cost reduction. Operators on the floor need to adapt immediately, without confusion or downtime. With a PMS in place, this paper company receives clear, real-time recommendations for machine settings and workflow adjustments, enabling plant teams to smoothly align their actions with these new business objectives.



YOUR ROADMAP TO A PRODUCTIVITY-FIRST MANUFACTURING CULTURE

Shifting your company to a productivity-first mindset takes more than just adding another technology layer.

It requires a shift in how your team measures, optimizes, and applies productivity throughout the organization. You track throughput, machine downtime, and compliance, but do those numbers tell the full story? If key inefficiencies are still slipping through the cracks, your team is making decisions without the complete picture.

Here's how you can build a productivity-first culture and ensure every decision moves your business forward.

Step 1: Challenge your metrics – good isn't good enough

You likely track key performance indicators (KPIs) already, but are those metrics aligned across the entire organization? To truly drive productivity, your KPIs can't just live in spreadsheets, they need to be dynamic, visible, and connected from the shop floor to the boardroom. A PMS ensures plant-floor performance directly supports company-wide objectives, such as:

-  **Cost Reduction:** Optimizing energy use, reducing material waste, and improving throughput.
-  **Sustainability:** Minimizing emissions, improving energy efficiency, and reducing scrap.
-  **Operational Efficiency:** Streamlining production processes, minimizing bottlenecks, and reducing downtime.

If you're still measuring productivity with machine uptime and cycle times alone, you're missing key opportunities for optimization. Real productivity means tracking how well resources are used, where waste occurs, and how agile your operations are in shifting market conditions.

Instead, manufacturers could:

-  **Move beyond traditional efficiency metrics:** Consider how well resources are optimized, where waste can be reduced, and how agile the organization is in responding to market shifts.
-  **Ensure cross-functional alignment:** Every department, from the shop floor to the top floor (corporate leadership), should be tracking and optimizing KPIs that directly impact overall business success.
-  **Adapt KPIs to market conditions:** Different economic scenarios require different strategies. Productivity should be agile and adaptable, ensuring manufacturers can pivot based on demand fluctuations, cost pressures, or supply chain disruptions.

Step 2: Set precise targets that drive real productivity gains

Even with MES, SCADA, and Historian systems in place, hidden inefficiencies persist. You already know inefficiencies exist, but do you know exactly where, why, and how much they're costing you? **Finding the gaps in performance requires real-time insights that make problem-solving effortless:**

-  **Where productivity bottlenecks exist:** Are there slowdowns, excessive material waste, or areas where automation isn't fully leveraged?
-  **Where strategic goals aren't translating into action:** If corporate initiatives like cost reduction or sustainability aren't leading to measurable improvements on the shop floor, there's a disconnect that needs to be addressed.
-  **How well existing systems are being utilized:** Are MES, SCADA, and Historian actually maximizing productivity? Or, are they simply tracking data without providing actionable insights?

Step 3: Make PMS the ultimate system to drive your operations

Imagine what happens when your company moves beyond tracking productivity to actively improving it, turning data into immediate, measurable actions.

A PMS makes this possible by:

-  Using AI and advanced analytics to surface hidden inefficiencies that traditional systems overlook.
-  Contextualizing data so teams gain clear, actionable insights, rather than just collecting information.
-  **Turning small improvements into major financial gains, leading to:**
 -  Millions in cost savings
 -  Higher throughput
 -  Greater profitability
 -  Better resource utilization — all without increasing headcount or adding new machinery



Step 4: Embed continuous productivity into your entire organization

In order to get maximum productivity, every level of your organization needs access to real-time insights — not just leadership.

- Your operators can't fix what they can't see. Give them the insights they need to prevent bottlenecks, reduce waste, and fine-tune workflows in the moment.
- Your engineers need AI-driven analytics to continuously refine processes and improve efficiency.
- Your leadership team needs a single, integrated view of performance, ensuring business strategy aligns with plant execution.

To embed Total Productivity into company culture, you could:

- **Ensure productivity measurement is actionable:** A system that only provides data without guiding decisions is incomplete. Every insight should lead your team toward a measurable improvement.
- **Empower your frontline teams to make real-time adjustments:** Operators shouldn't have to wait for manual approvals; they should have the data they need to act immediately.
- **Drive continuous improvement:** Productivity isn't a static goal. A PMS enables an evolving, adaptable system that ensures every decision you make helps move the business forward.

Invest in a PMS: Unlock your full productivity potential

Being strategic in your productivity management is the most profitable investment you can make. If you're looking to stay ahead of the competition, it's key to move beyond traditional efficiency tracking and adopt a system that actively improves productivity in real time.

- KPIs are aligned across the entire organization, from leadership priorities to plant-floor execution
- Performance gaps are identified and addressed in real time, rather than being analyzed after the fact.
- AI and analytics are leveraged to uncover hidden inefficiencies and cost-saving opportunities.
- Every level of the organization is empowered to act on insights, ensuring continuous productivity improvement.

Leading the future of manufacturing productivity means going beyond collecting data — you need to turn insights into immediate action that drives efficiency, agility, and profitability.

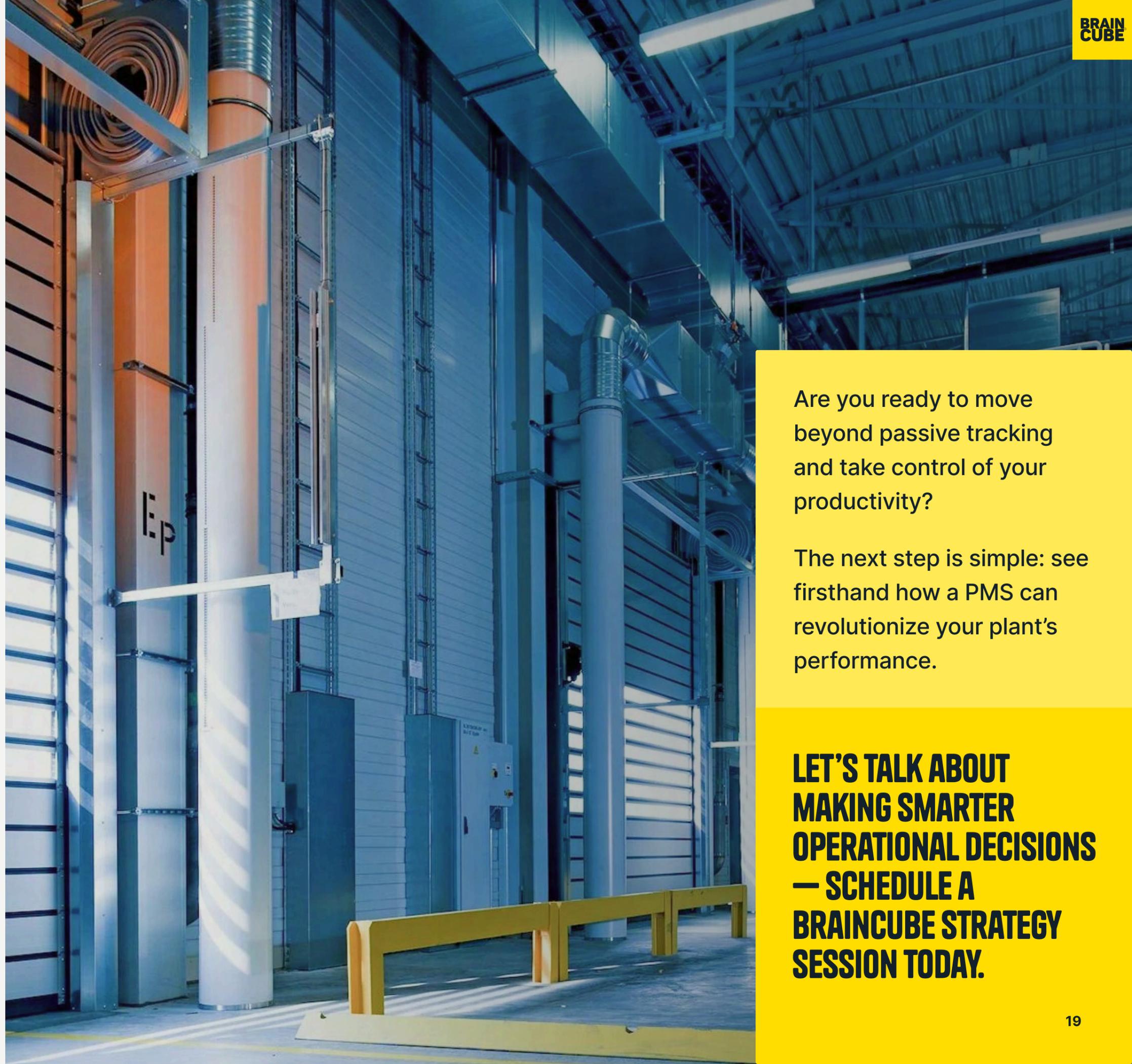
LEAD YOUR INDUSTRY BY MAKING PRODUCTIVITY YOUR COMPETITIVE ADVANTAGE

As a manufacturing leader, you know that tracking production isn't the same as optimizing it. MES, Historian, and SCADA systems provide valuable data, but they weren't built to turn insights into action. Hidden inefficiencies, misaligned strategies, and reactive decision-making keep manufacturers from reaching their full productivity potential.

A Productivity Management System (PMS) is the missing piece.

It ensures your strategic goals — cost reduction, sustainability, efficiency — aren't just high-level targets but measurable, real-time improvements on the shop floor. A PMS allows you to identify inefficiencies instantly, make data-driven adjustments, and continuously optimize operations at every level.

The manufacturers leading the future aren't waiting for reports to tell them where they lost efficiency — they've adopted a Total Productivity mindset to stay ahead of challenges, reduce waste, and drive measurable results.



Are you ready to move beyond passive tracking and take control of your productivity?

The next step is simple: see firsthand how a PMS can revolutionize your plant's performance.

**LET'S TALK ABOUT
MAKING SMARTER
OPERATIONAL DECISIONS
— SCHEDULE A
BRAINCUBE STRATEGY
SESSION TODAY.**



**LEARN
MORE AT
BRAINCUBE
.COM**

**BRAIN
CUBE®**