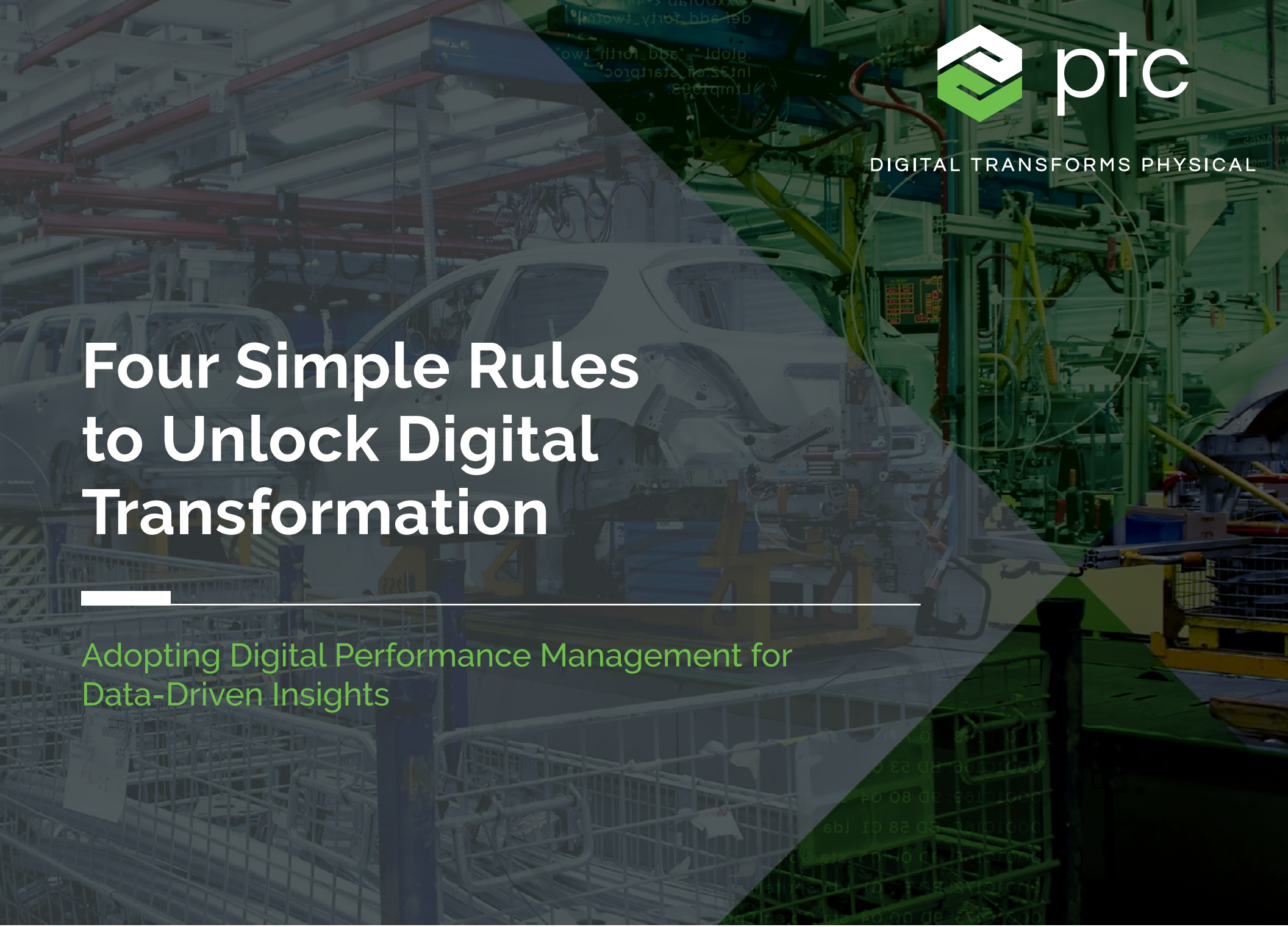


ptc

DIGITAL TRANSFORMS PHYSICAL

Four Simple Rules to Unlock Digital Transformation

Adopting Digital Performance Management for Data-Driven Insights

In today's fast-moving and competitive manufacturing landscape, it's not enough to keep pace with "business as usual." Staying the same means falling behind. To stay ahead of customer needs and competitive pressures, manufacturers must take active steps not just to improve, but to continuously improve.

Even in the most complex manufacturing ecosystems, you can make performance improvements that result in significant long-term business success. These improvements are best achieved through new, purpose-built digital capabilities. Adopting a digital performance management solution will enable you to understand hidden issues, identify the root cause of problems, communicate corrective action plans, and clearly measure improvements according to bottom-line impact.

You and your team can support a digital performance management investment by following four simple rules:

1. Start with IT-OT convergence
2. Standardize data
3. Start with high-value, low-risk use cases
4. Get enterprise-wide buy-in

"Actionable insights into machine performance, people's behavior, and process efficiency now empower managers to continuously optimize production. Improvements at one site can be replicated easily network-wide. Work-in-process has fallen by more than 15 percent, unplanned downtime by one-quarter, and annual energy savings are expected to be more than $10 million at enterprise scale."

Source: *Digital performance management: From the front line to the bottom line, McKinsey & Company*

RULE #1:

START WITH IT-OT CONVERGENCE

"Now there are IT–OT convergence technologies that unify business systems and operational systems. Also, the longstanding belief was that to get something new, you had to discard and replace something you already had. Given existing investments in factory infrastructure, there isn't an appetite (or, in many cases, even a possibility) to rip out what's there and replace it with a single system."

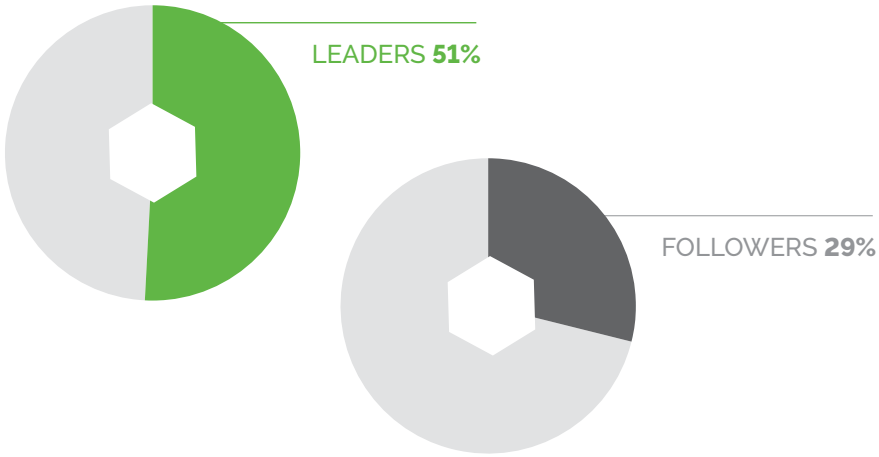
—Howard Heppelmann, GM, Connected Operations, PTC

Source: Digital performance management: From the front line to the bottom line, McKinsey & Company ptc.com

Results of Starting with IT-OT Convergence

In an LNS Research survey of industrial transformation (IX) "leaders and followers," 51% of leaders have IT and OT "fully integrated as a single team, engaged in IX and supporting legacy systems" while only 29% of followers say the same[1].

WHO HAS IT AND OT **FULLY INTEGRATED?**



Instead of integrating your IT and OT systems from the ground up, a wrap-and-extend strategy is a much more efficient way to extend standardized connectivity across your existing OT infrastructure. This is a key first step in a digital performance management strategy.

A standardized connectivity layer with access to IT and OT data is a crucial foundation, enabling a digital performance management solution to reveal bottlenecks and improvement opportunities for your operations. It's a first step that yields immediate benefits, while laying the groundwork for additional digital enhancements that provide further value.

1. Plant Data and Connectivity: Strategic Building Blocks for Industrial Transformation white paper, LNS Research

RULE #2:

STANDARDIZE DATA

"…despite the fact that the plants' IT and OT back ends are quite different; metrics are now uniform, and the data are therefore comparable. Because the data are standardized and normalized, internal benchmarking becomes much more powerful. Managers at the plant can see that plant X performs better than plant Y and can start to examine why."

—Howard Heppelmann, GM, Connected Operations, PTC

Source: *Digital performance management: From the front line to the bottom line, McKinsey & Company*

Results of Standardizing Data

Effective operational performance management depends on reliable, real-time IIoT data. But non-standardized data leaves gaps that make your plant floor prone to inefficiencies—and limit your long-term ability to scale with new use cases, lines, and plants. A digital performance management solution helps standardize data so that it is easily consumable, consistent, and actionable. But the benefits don't stop there.

With standardized data powering a digital performance management solution, you and your team can fill in data gaps and break down data silos to create continuous digital threads and plant benchmarking that adheres to best practices and accurately measures performance2. By getting data that spotlights the differences across plants or product lines, you can identify, prioritize, and address the high-impact bottlenecks that obstruct performance.

Want more? Check out our path to better plant benchmarking here.

2.*The Road to Better Benchmarking* infographic

RULE #3

START WITH HIGH-VALUE, LOW-RISK USE CASES

"[An industrial-equipment manufacturer] rolled out just four common — use cases at the first plant it targeted, which proved so effective that they are being rolled out across the entire factory network to help manage inventory, asset performance, energy consumption, and quality."

—James Zhang, VP Market Development, Connected Operations, PTC

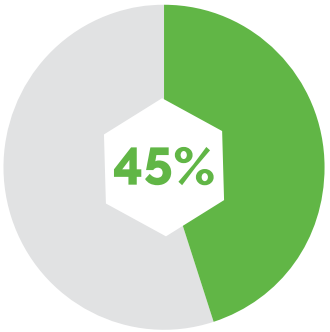
Source: *Digital performance management: From the front line to the bottom line*, McKinsey & Company

Results of Starting with High-Value, Low-Risk Use Cases

Continuous improvement initiatives make the biggest impacts when manufacturers start with a problems-first approach: fully digging into the issue and assessing the root cause before defining solutions.

Establishing specific high-value, low-risk use cases with team members across the enterprise is a comprehensive approach to performance optimization for better-informed use cases down the road and strategic, scalable continuous improvement. This is especially critical as small improvements grow into bigger opportunities. Digital performance management solutions enhance your ability to prioritize use cases by establishing a consistent set of financial impact metrics.

In a McKinsey & Company survey of global manufacturing leaders, 45% of respondents chose "lack of resources/ knowledge to scale" as one of the top three reasons preventing their pilot-to-rollout transition[3].



Starting with clearly defined use cases that avoid pilot purgatory and can be supported long-term ensures that incremental change doesn't lead to new limitations as more growth opportunities are uncovered.

3. *The 5 Hard Lessons of In-House IIoT* infographic

RULE #4

GET ENTERPRISE-WIDE BUY-IN

"...the idea is that same system draws from the same real-time data at every level of the organization, but for different purposes. Different pulls, different people, different decisions. That's the breakthrough, single real-time source of truth across the global production network seen through the lens of what matters most to each person and each role as they work to achieve manufacturing excellence."

—Craig Melrose, EVP, Digital Transformation Solutions, PTC

Source: *Digital performance management: From the front line to the bottom line,* McKinsey & Company

Results of Getting Enterprise-Wide Buy-In

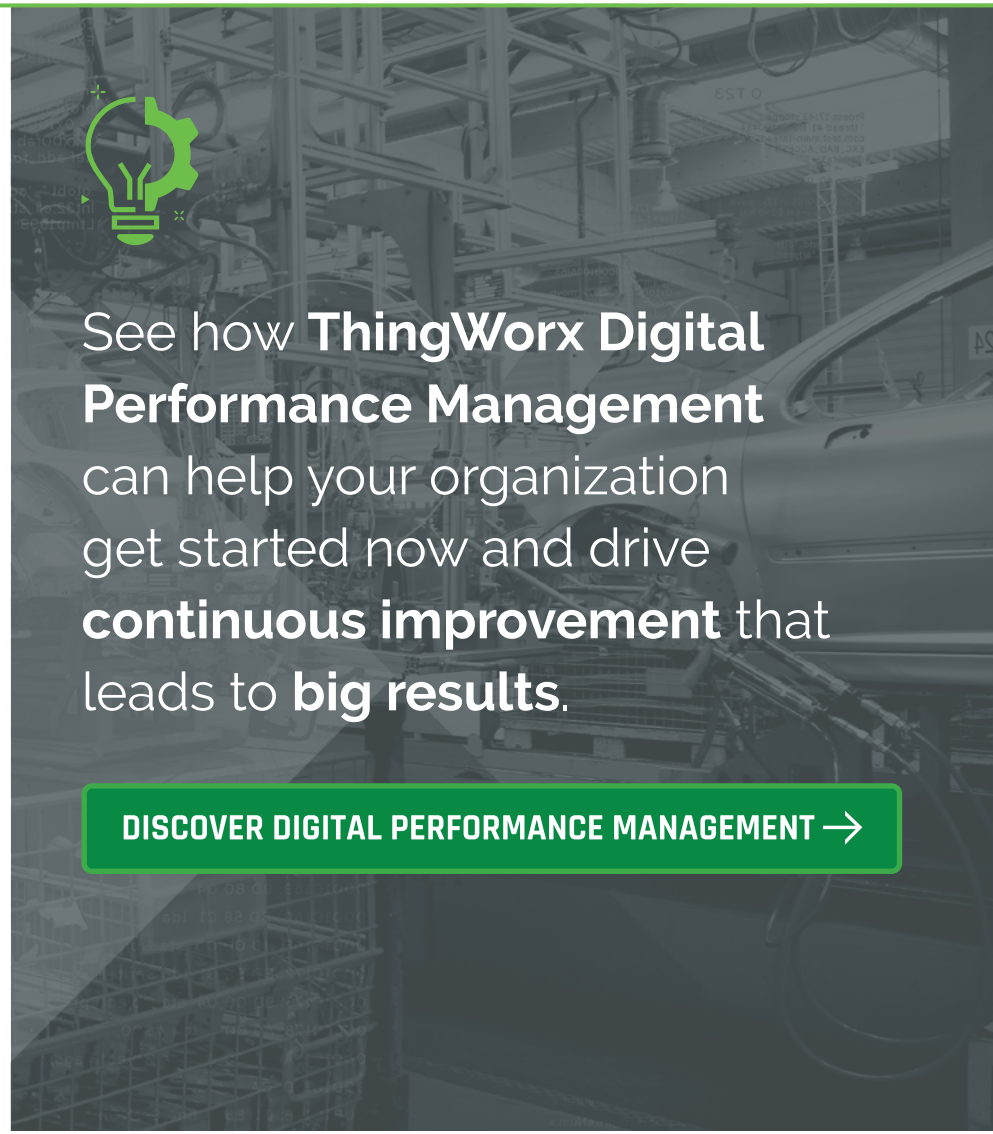
Digital performance management initiatives are more successful when they empower everyone in the organization to succeed. That's why enterprise-wide buy-in is crucial. In the short term, it helps manufacturers ensure that any new purchase addresses myriad challenges across the organization. In the long term, it helps create a culture of empowerment and visibility that drives continuous improvement—and includes considerations across people, process, and technology.

Proper planning, communication, and socialization are an important part of any shift in culture. A digital performance management solution can help create advocacy by showing employees how initiatives will specifically benefit their responsibility areas, and how it will make a broad impact across the company.

Achieve a state of continuous improvement with ThingWorx Digital Performance Management.

Achieving IT-OT convergence, standardizing data, value-prioritized use cases, and getting enterprise-wide buy-in are critical to effective digital performance management goals. While these objectives can be reached manually, ThingWorx Digital Performance Management greatly simplifies the process with a closed-loop, automated solution, purpose built to:

- Prioritize production improvement with **Bottleneck Analysis**
- Analyze production losses with **Performance Analysis**
- Track performance improvements with **Action Tracker**
- View site-level performance and compare across similar manufacturing sites with **Scorecard**
- Monitor current performance with **Production Dashboard**



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