MANUFACTURING WHITE PAPER

Driving Intelligent Manufacturing

How manufacturers can connect systems, data, operations, and AI to improve resilience, efficiency, and decision-making with support from Microsoft technologies and TrellisPoint.

Explore Key Insights | Talk to TrellisPoint

Key takeaway

- Modern manufacturing requires more than disconnected automation initiatives.
- AI, digital twins, analytics, and connected systems are reshaping operations across the value chain.
- TrellisPoint helps manufacturers turn Microsoft technology into a practical path forward.

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What You'll Learn

EXECUTIVE SUMMARY

Manufacturing is moving from isolated digital projects to intelligent, connected operations.

Manufacturing is at an inflection point. After years of incremental automation and system expansion, the next phase of value creation is coming from the ability to connect fragmented systems, data, and workflows into a more intelligent operating model.

Manufacturers are under pressure from supply chain volatility, labor constraints, rising costs, and changing customer expectations. At the same time, many organizations still rely on siloed systems, disconnected reporting, and manual coordination between engineering, production, service, and supply chain teams.

The next phase of transformation is not simply about adding more software. It is about connecting the factory floor, business systems, data platforms, and AI capabilities in a way that improves visibility, accelerates decisions, and supports more resilient operations.

This is where TrellisPoint helps. We work with manufacturers to align Microsoft technologies such as Dynamics 365, Azure, Power Platform, and Copilot to real operational priorities—so modernization efforts lead to measurable business outcomes, not just another layer of technology.

Connected operations

Manufacturers need a clearer link between operational systems, business data, and decision-making across the organization.

Practical AI value

AI matters when it improves maintenance, planning, service, and supply chain response—not when it remains experimental.

Execution matters

TrellisPoint helps manufacturers connect Microsoft capabilities to structured transformation strategies and usable next steps.

THE SHIFT HAPPENING NOW

Manufacturing is entering a more intelligent operating era.

Manufacturers have been investing in automation, ERP systems, reporting tools, and plant technologies for years. But many environments still struggle with disconnected systems, inconsistent data, and limited coordination across the value chain.

What is changing now is the ability to orchestrate operations more intelligently. The manufacturing landscape is moving from static digital systems toward more connected, real-time, and adaptive environments. That shift is being driven by three changes: systems are becoming more intelligent, the digital thread is becoming more dynamic, and work is increasingly supported by AI and automation.

This means competitive advantage is no longer just about having technology in place. It is about connecting people, processes, and platforms in ways that help the organization sense change faster,

respond more effectively, and scale improvement across functions.

> **What this means for manufacturers:** the real opportunity is not isolated innovation. It is building a more connected operating model that can improve performance across the business.

WHY DIGITAL TRANSFORMATION STILL MATTERS

Many manufacturers understand the opportunity, but still struggle to scale the value.

Digital transformation in manufacturing is about replacing disconnected, paper-based, or manual processes with digital tools that create business value. When done well, it improves visibility, strengthens planning, reduces downtime, increases productivity, and creates a stronger foundation for long-term operational resilience.

The challenge is that many manufacturers remain stuck in early-stage efforts. Initiatives often become fragmented, overly technology-led, or disconnected from measurable business priorities. The result is a collection of tools that may be useful individually but do not work together well enough to create real operational lift.

TrellisPoint helps manufacturers take a more grounded approach. Instead of treating transformation as a broad innovation exercise, we focus on the processes, systems, and decision points where Microsoft solutions can improve visibility, automate workflows, support users, and create a clearer path to ROI.

- Connect previously siloed operational and business data
- Reduce manual processes that slow response time and reporting
- Improve decision-making with real-time visibility
- Create scalable foundations for analytics, automation, and AI
- Align technology efforts to specific operational priorities

AI IN MANUFACTURING

AI becomes valuable when it supports better decisions, faster action, and more consistent execution.

Manufacturers are moving beyond experimental AI conversations and asking more practical questions. Where can AI reduce downtime? How can it improve planning? How can teams get faster insight from complex data? How can systems become easier to use across operations, service, and leadership functions?

This is where AI, Copilot, and intelligent automation begin to matter operationally. Manufacturers can use AI to support predictive maintenance, identify production anomalies, improve inventory and scheduling decisions, detect supply chain risk earlier, and surface more actionable insight to both frontline teams and leadership.

AI also changes how work gets done. Instead of asking users to navigate multiple disconnected systems, Copilot agents can help teams access information faster, summarize issues, recommend next steps, and automate repetitive actions. That makes AI not just a reporting layer, but a practical support system for day-to-day operations.

TrellisPoint helps manufacturers evaluate where AI fits within real business processes, what level of data readiness is required, and how Microsoft AI capabilities can be applied in ways that support adoption rather than adding complexity.

CORE OPPORTUNITY AREAS

Where intelligent manufacturing creates meaningful business value

Intelligent manufacturing is not one use case. It is a broader operating model supported by connected systems, better data, and more responsive workflows. The most practical gains often appear in a handful of high-impact operational areas.

Production visibility

Connect production data, scheduling inputs, and operational metrics to help teams respond faster to bottlenecks, improve throughput, and support more confident decision-making.

Predictive maintenance

Use IoT, analytics, and AI to detect equipment issues earlier, reduce unplanned downtime, and support more proactive maintenance strategies.

Supply chain resilience

Improve inventory visibility, supplier coordination, and disruption response through connected systems, stronger planning, and better insight across operations.

Digital twins and simulation

Model production environments, test what-if scenarios, and improve scheduling or process decisions with more confidence and less guesswork.

Service and aftermarket operations

Support field teams and service organizations with connected asset history, scheduling, inventory visibility, and more proactive customer support.

Data and AI readiness

Build a stronger foundation for reporting, automation, and AI by connecting operational and business systems into a more unified data environment.

DIGITAL TWINS

Digital twins help manufacturers move from reacting to simulating and optimizing.

A digital twin gives manufacturers a virtual representation of a product, asset, production line, factory environment, or even the broader supply chain. That digital model allows teams to analyze performance, simulate scenarios, identify bottlenecks, and make more informed operational decisions.

For manufacturers trying to balance cost, labor constraints, throughput, inventory pressures, and scheduling complexity, digital twins offer a more dynamic way to evaluate tradeoffs and improve outcomes. They can support production planning, predictive maintenance, root-cause analysis, and more scalable process improvement across sites.

Digital twins become especially valuable when they are connected to real operational data. Instead of relying only on spreadsheets, teams can evaluate conditions in a more realistic and continuously updated environment.

TrellisPoint helps manufacturers think through how digital twin strategies align with broader Microsoft data, cloud, AI, and operational systems investments so they support practical transformation rather than becoming another disconnected initiative.

SUPPLY CHAIN AND RESILIENCE

Resilience now depends on visibility, agility, and faster response.

Supply chain disruption remains one of the biggest pressures on manufacturers. Trade uncertainty, sourcing risk, material shortages, logistics challenges, and shifting demand make it difficult to plan effectively using disconnected spreadsheets and lagging reports.

Intelligent manufacturing requires a more connected supply chain model—one where data can be unified, risk can be surfaced earlier, and teams can respond with better context. AI and automation can support this shift by helping monitor disruptions, assess impacts, recommend next steps, and improve planning accuracy.

This is also where agentic AI starts to matter. Instead of simply surfacing insights, AI-driven workflows can help coordinate mitigation actions, support replenishment decisions, flag supplier issues earlier, and

improve response speed under changing conditions.

TrellisPoint helps manufacturers align supply chain process improvement with the right Microsoft ecosystem tools, whether the need involves Dynamics 365, data integration, Power Platform automation, or broader Azure-based modernization.

SUSTAINABILITY

Operational efficiency and sustainability are increasingly linked.

Manufacturers are being asked to improve performance while also reducing waste, emissions, and resource consumption. In practice, these goals often reinforce each other. Better process visibility, improved scheduling, stronger quality control, and more connected operations can all contribute to more efficient use of energy, water, labor, and materials.

Sustainability does not need to sit outside the modernization strategy. For many manufacturers, it becomes another reason to improve data visibility, modernize reporting, reduce scrap, and create more coordinated operations across facilities and suppliers.

Connected digital systems also improve the ability to measure, report, and act on sustainability-related performance. That helps manufacturers support both regulatory demands and broader business goals around efficiency, resilience, and long-term competitiveness.

TrellisPoint helps manufacturers think through sustainability in practical terms—connecting it to process improvement, reporting maturity, and more intelligent use of Microsoft technologies across the business.

MICROSOFT IN MANUFACTURING

The Microsoft ecosystem gives manufacturers a connected foundation for modernization.

Manufacturers often need more than a single application. They need operational systems, data platforms, automation tools, AI capabilities, and infrastructure that can work together. Microsoft's ecosystem supports that broader need across business applications, cloud, analytics, and AI.

- Dynamics 365 for supply chain, field service, customer engagement, and operations
- Microsoft Fabric for data unification and analytics
- Azure for cloud, infrastructure, IoT, and edge support
- Power Platform for workflow automation and application development
- Copilot and AI capabilities for insight, productivity, and decision support

The strength of the Microsoft ecosystem is not just breadth. It is the ability to connect systems, data, workflows, and AI capabilities in ways that support real operational transformation.

TrellisPoint helps manufacturers determine where these technologies fit, how they should work together, and what a realistic implementation path looks like based on operational priorities, system complexity, and existing investments.

COMMON ROADBLOCKS

Why good manufacturing initiatives still stall

Many transformation efforts lose momentum not because the technology lacks value, but because the initiative lacks structure. Manufacturers often run into challenges such as siloed ownership, unclear use cases, weak integration planning, limited adoption support, or an overemphasis on technology before business alignment.

Another common issue is trying to solve for a perfect end state before taking practical next steps. That can delay progress and leave teams stuck in planning mode without clear traction.

Effective transformation usually starts with a narrower focus: a high-value operational problem, a realistic implementation scope, and a strong understanding of how systems, data, and users need to work together.

TrellisPoint works to reduce these risks by helping manufacturers define priority use cases, connect stakeholders, map systems and data requirements, and build toward scalable solutions with more practical implementation sequencing.

HOW TRELLISPOINT HELPS

A practical partner for manufacturers navigating Microsoft-led transformation

TrellisPoint helps manufacturers align business goals, operational challenges, and Microsoft technology investments into a more usable modernization strategy. We work across business applications, automation, AI, data, and cloud-related solution areas to help clients move from broad interest to a more defined path forward.

That may mean helping a manufacturer improve production visibility, evaluating how OT and IT systems should connect, identifying where Copilot can add value, improving supply chain reporting, or framing a phased roadmap for Dynamics 365, Power Platform, and Azure adoption.

Our role is not just to recommend technology. It is to help connect strategy, systems, and execution in a way that supports real operational progress. We focus on practical alignment—what will create value first, what should be connected, what data matters most, and what level of change the organization is ready to support.

For manufacturers that want to modernize without defaulting to unnecessary complexity or full rip-and-replace thinking, TrellisPoint provides a more practical path forward.

CONCLUSION

Intelligent manufacturing is not a future concept. It is a practical next step.

Manufacturers do not need to solve everything at once. But they do need a clearer path for connecting systems, improving visibility, reducing operational friction, and preparing for more advanced AI and automation over time.

The organizations that move forward most effectively will not be the ones chasing the most technology. They will be the ones building a stronger operational foundation, making better use of data, and aligning technology decisions to business outcomes.

Intelligent manufacturing is ultimately about creating a more responsive, more informed, and more scalable operating model. That requires the right combination of systems, integration, visibility, governance, and practical execution.

TrellisPoint helps manufacturers take that next step with practical Microsoft-centered guidance that connects strategy to execution. Learn more about our manufacturing solutions.

NEXT STEP

Looking at intelligent manufacturing initiatives in your organization?

TrellisPoint helps manufacturers evaluate Microsoft solutions across operations, AI, automation, data, and cloud strategy so transformation efforts are tied to practical business value.

Contact TrellisPoint

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Practical Microsoft technology guidance from TrellisPoint

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