accenture

Orchestrating the ecosystem

Turning digital investments into industrial outcomes

Authors

Christophe Mouille

Accenture Leadership

Götz Erhardt

Accenture Leadership

Kerstin Stapelmann

Alliance Insights and Mgmt
Associate Director

Contents

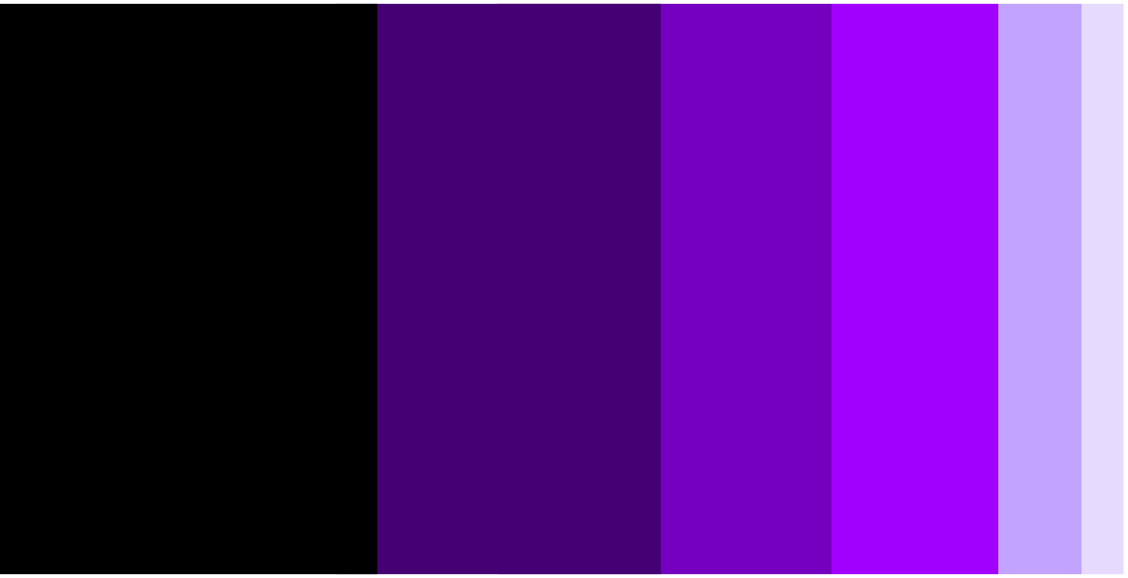
At a glance

The problem: Industrial manufacturers run on a complex web of specialized platforms—Siemens, PTC and Dassault Systèmes across engineering and PLM; SAP, Blue Yonder and Kinaxis in supply chain planning; Rockwell, Aveva and Honeywell in manufacturing operations; Bentley and Ansys in digital twinning; and hyperscalers providing the cloud substrate underneath all of it. Each generates intelligence. None coordinates action across the others.

The urgency: Every one of these partners is now deploying agentic AI. SAP alone is targeting over 1,000 agents this year. Multiply that across Siemens, PTC, Blue Yonder, Rockwell and every tier-one supplier in a manufacturer's network, and the coordination problem doesn't just persist, it compounds exponentially.

The answer: Engineer three layers of coordination: inside the value chain, across ecosystem boundaries and within a governance framework that keeps humans accountable.

The payoff: Manufacturers that do this operate with greater reliability at lower cost and turn fragmented digital investment into measurable operational outcomes.



Orchestration in action

Leading manufacturers that implement orchestrated systems report 25-35% faster execution cycles and measurable reductions in unplanned downtime. For a typical $5B manufacturer, orchestration could eliminate $50-150M in annual operational friction costs while improving on-time-in-full (OTIF) delivery performance by 15-20 percentage points.

Industrial manufacturers operate on a complex foundation of specialized platforms: Siemens, PTC and Dassault Systèmes govern engineering and PLM. SAP, Blue Yonder and Kinaxis manage supply chain planning and the commercial backbone. Rockwell, Aveva and Honeywell run manufacturing and operations. Bentley and Ansys power digital twinning and simulation. Hyperscalers like Microsoft, AWS and Google provide the cloud infrastructure underneath all of it.

Every one of these partners is now aggressively embedding agentic AI into their platforms. The question is no longer whether agents will proliferate across this ecosystem, it's whether manufacturers can orchestrate them into coordinated outcomes before the complexity becomes unmanageable.

Industrial manufacturers need to design how decisions move across planning, engineering, operations and ecosystem partners. When asset data, supply disruptions or engineering changes surface, teams should know who acts, in what sequence and within what authority. Decisions should travel quickly from insight to execution without stalling between functions.

Three actions make this coordination real:

1. Build orchestration inside the core value chain.

Link asset signals directly to automated cross-functional workflows, so engineering, production and maintenance teams act in sync. Close the coordination gaps that slow response and create avoidable downtime.

2. Extend orchestration across ecosystem boundaries.

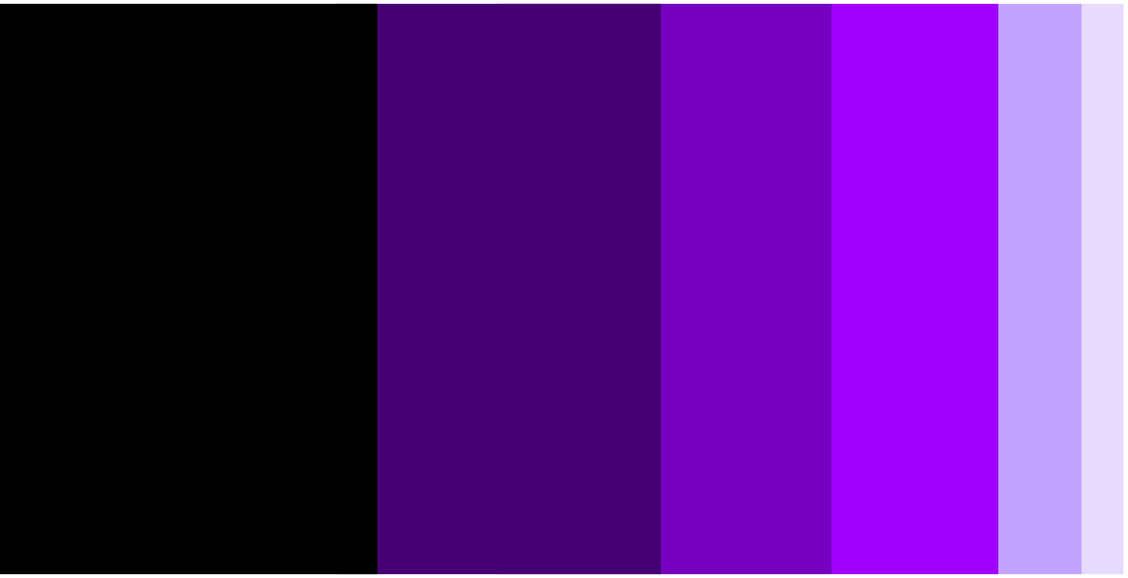
Create shared operational context with suppliers, maintenance providers and logistics partners through secure, partner-agnostic coordination models that improve reliability across the network.

3. Govern agentic execution.

Set clear human checkpoints at defined risk thresholds so autonomous decisions remain traceable, compliant and aligned with operating authority.

The results are tangible. A leading aerospace manufacturer faced a sprawling engineering toolchain with its engineers relying on thousands of applications. Siloed processes, traceability gaps and manual effort slowed every product development cycle.
By integrating MBSE, ALM and PLM platforms into a single orchestrated architecture spanning engineering and supply chain, the company identified a 20% reduction in engineering costs, projected a 15:1 ROI over three years and cut project delays by 30%.

A major European energy company applied orchestration at full enterprise scale across SAP S/4HANA, sourcing, operations and maintenance systems. Working with Accenture, the company identified 80 AI and innovation opportunities across its value chain and eliminated over 5,000 days of effort in the first implementation phase. The program contained governance from day one: human oversight at every material decision threshold, full auditability and compliance embedded directly into the AI and innovation roadmap.



The coordination constraint

Each platform improves its own domain. When no one owns the outcome, teams protect their own targets. Maintenance defers work to protect uptime metrics, procurement delays purchases to manage cash flow and production resists shutdowns even as asset risk rises. Costs climb while reliability declines.

Current digital architectures assume linear workflows. But manufacturing rarely operates in straight lines. A single equipment failure can cascade across production scheduling, material planning, quality inspection sequencing and customer delivery commitments. Traditional integration connects systems through data exchange, yet it provides no mechanism to coordinate the adaptive responses these disruptions require. Every coordination gap adds two to five days to response cycles, turning manageable disruptions into premium freight, overtime labor and customer concessions.

Now, that coordination gap is about to widen, because the next wave of software won't just share data. It will act. SAP has committed to over 1,000 Joule agents by its Sapphire conference in May 2026. Siemens is embedding intelligence across Opcenter and the full engineering stack. PTC is doing the same in Windchill. Blue Yonder and Kinaxis are deploying planning agents. Rockwell and Aveva are pushing agents into operations and asset management.

Multiply this across every partner in a manufacturer's extended network—suppliers, logistics providers, service firms—and the number of autonomous agents interacting across a single manufacturer's ecosystem quickly reaches the thousands. Each agent is optimizing locally. Without orchestration, this doesn't reduce complexity, it multiplies it.

According to recent Accenture research, 57% of executives cite integration with existing systems as their top risk in scaling AI, while 94% acknowledge that agentic AI requires fundamental rethinking of platform strategies. The gap between digital investment and operational outcome continues to widen.

Manufacturers must engineer systems of action that connect intelligence directly to execution. Three moves make this possible.

1 Build orchestration inside the enterprise core value chain

Early signals already exist. Execution slows in approval chains and functional handoffs. Asset degradation detected weeks in advance still results in reactive firefighting because maintenance, procurement, engineering and production act sequentially rather than in concert. To close that gap:

- **Design decision propagation pathways** that map how asset signals trigger automated workflows across maintenance, procurement, engineering, production and quality functions. Establish clear escalation thresholds where automation hands off to human judgment.
- **Implement orchestration logic** that connects APM, ERP, MES and PLM systems through workflow engines (not just data integration) that execute known scenarios automatically while routing material exceptions to appropriate decision-makers.
- **Deploy agentic capabilities** that propose optimized execution paths that balance maintenance timing, parts availability, production impact and cost with human oversight for decisions that exceed predefined risk or cost thresholds.

This approach can reduce planning-to-execution cycle time by 25-35%, decrease unplanned downtime by 15-25% and eliminate 30-40% of manual coordination overhead, improving both operating efficiency and reliability.

2 Extend orchestration across ecosystem boundaries

Internal coordination does not guarantee reliable outcomes when performance depends on suppliers, service providers and logistics partners operating across distributed networks. Manual emails and portal updates cannot scale under volatility. To create network-level reliability:

- **Establish shared operational context** with tier-one suppliers and critical service providers through secure data exchange that provides mutual visibility into demand signals, capacity constraints and performance metrics.
- **Define explicit decision ownership and escalation paths** in cross-company workflows, specifying which partner has authority for which decisions and under what conditions humans intervene.
- **Implement partner-agnostic coordination standards** using industry frameworks such as Agent-to-Agent communication protocols that allow workflow orchestration independent of each partner's internal systems.

These steps can improve network-wide OTIF performance by 15-20 percentage points, reduce ecosystem inventory carrying costs by 20-30% and decrease expediting costs by 40-50%, strengthening both reliability and working capital efficiency.

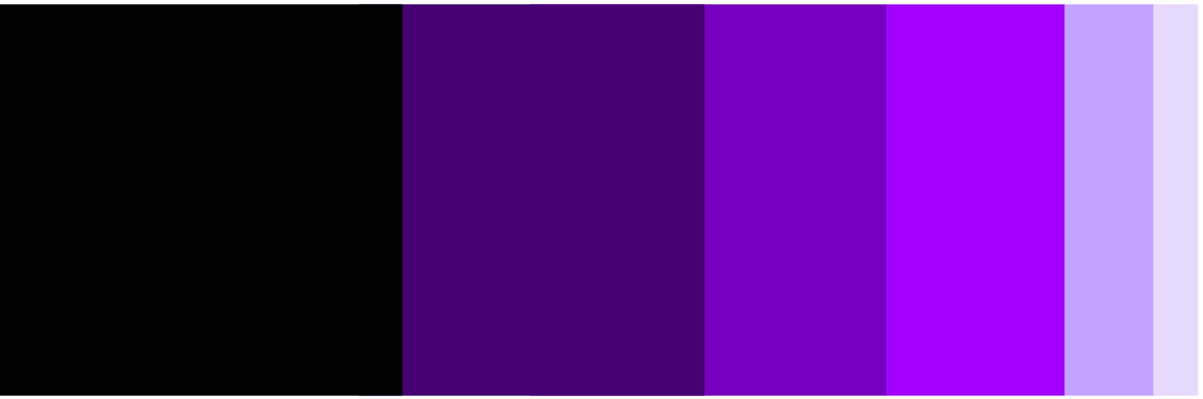
3 Govern agentic execution

As intelligence scales, risk scales with it. Manufacturing operates in regulated and safety-critical environments where decisions must remain traceable and accountable. To balance speed with control:

- **Implement human oversight** at defined thresholds where decisions involve material safety risk, regulatory compliance or financial exposure exceeding approved limits. Ensure agents escalate rather than proceeding independently when thresholds are crossed.
- **Establish explicit authority boundaries** between systems and people through workflow design that encodes compliance requirements, approval authorities and audit trails directly into orchestration logic.
- **Deploy explainability capabilities** that document decision rationale, data sources and logic applied for every automated action, enabling audit, continuous improvement and trust-building.

This approach supports orchestration at scale while maintaining compliance and accountability. It reduces audit and exception-handling costs by 30-40% through built-in documentation and accelerates regulatory response through transparent decision trails.

The European energy company referenced earlier embedded this discipline from the outset, routing all 42 delivery execution innovations through defined human checkpoints, with compliance and Responsible AI evaluation built directly into the AI roadmap alongside delivery execution targets.



Orchestration to outcomes

Manufacturers have spent decades connecting systems. The next challenge is connecting decisions to execution. Companies that engineer coordination across functions, partners and agents—with clear governance at every threshold—convert digital investment into measurable operational outcomes and build an operating model ready for the next era of industrial competition.

How Accenture can help

Accenture helps industrial manufacturers orchestrate the platforms and partners that run their business, from engineering and PLM through ERP to simulation, supply chain and manufacturing operations, so decisions move from insight to execution with speed, traceability and control.

We work end-to-end to design, build and run “systems of action” that coordinate workflows across OT and IT, connecting asset health, production schedules, quality, maintenance, procurement and engineering change so cross-functional teams (and agents) act in sequence, not in silos. We integrate and modernize the industrial stack across leading ecosystems (e.g., SAP, Siemens, PTC, Dassault, Aveva, NVIDIA and hyperscalers) using workflow orchestration and event-driven architectures, so disruption scenarios can be executed reliably and exceptions are routed to the right decision-makers.

We help extend orchestration from digital coordination to physical execution. That means connecting agentic recommendations to the systems that actually move product and manage risk on the shop floor and across the network: MES, APM/EAM, QMS, WMS/TMS, OT controls and, where appropriate, robotics and automation.

We help clients define where autonomy is valuable, engineer human-in-the-loop checkpoints at safety, quality and financial thresholds, and instrument traceability so every automated action is auditable from signal to decision to physical outcome.

About Accenture

Accenture is a leading solutions and global professional services company that helps the world's leading enterprises reinvent by building their digital core and unleashing the power of AI to create value at speed across the enterprise, bringing together the talent of our approximately 786,000 people, our proprietary assets and platforms and deep ecosystem relationships. Our strategy is to be the reinvention partner of choice for our clients and to be the most AI-enabled, client-focused, great place to work in the world. Through our Reinvention Services we bring together our capabilities across strategy, consulting, technology, operations, Song and Industry X with our deep industry expertise to create and deliver solutions and services for our clients. Our purpose is to deliver on the promise of technology and human ingenuity and we measure our success by the 360° value we create for all our stakeholders.

Visit us at accenture.com.