Columbus®

Unlocking Digital Transformation in Manufacturing

2025 INSIGHTS FROM IT LEADERS

Table of contents

This eBook

In 2025, manufacturing IT leaders continue to face significant challenges in digital transformation, with system integration and technical complexity topping the list. While AI adoption has surged – 65% of organizations now use generative AI – real efficiency gains depend on strong data governance, seamless integration and effective change management.

This eBook provides expert insights and practical strategies for navigating IT transformation, overcoming integration hurdles and scaling AI adoption effectively. Backed by new Columbus data and industry thought leadership, it equips IT leaders with the tools to optimize technology investments, bridge workforce skill gaps and drive lasting change.

Introduction

In 2025, digital transformation remains the top challenge for manufacturing IT leaders, with **system integration (56%) and technical complexity (55%)** leading their list of hurdles.

This news may come as a surprise given the ubiquity of technological innovation. **Artificial intelligence (AI) adoption has reached an all-time high, with 65%** *of organizations* regularly using generative AI technology in 2024 (up 200% from 2023).

However, AI can only pay efficiency dividends if and when leaders create a thorough and practical implementation strategy, including plans for improved data governance and cultural change management. It's this one integral preparatory step that continues to create system integration issues and technical debt for IT teams.

The good news? **Tides are turning.** Deloitte research indicates leaders are beginning to adopt a *more pragmatic and measured* approach to AI adoption in 2025. Proofs of concept (POCs) are becoming more cautious, and fewer than **10% of leaders anticipate** the deployment of a fully scaled generative AI project within the next 3–6 months.

In this eBook, we will explore the current state of IT transformation and change management, uncovering keen insights from new Columbus data. We'll touch base with several Columbus thought leaders, each with decades of experience in advanced IT and AI strategies. We'll also provide practical suggestions to IT manufacturing leaders working through implementation challenges on their own teams. After reading, you'll be ready to conquer deployment and change management roadblocks in your own organization.

Chapter 1

The State of Digital Transformation in Manufacturing

IT manufacturing budgets were tight in 2024, and Forrester predicts these constraints will persist in 2025. Leaders should brace for continued volatility as geopolitical uncertainty and shifting U.S. policies create ripple effects across supply chains and production costs. They'll need to be more strategic than ever, ensuring every dollar spent on technology delivers measurable impact.

Digital transformation remains a priority, but it must be pursued with a clear focus on flexibility, cost efficiency and domain expertise. Valuable external partnerships and internal experts will guide the way for forward-thinking organizations this year. Furthermore, with limited resources, IT leaders must prioritize investments that drive the highest impact.

Strong data analytics allow manufacturers to anticipate demand shifts, while integration ensures that legacy and modern systems work together seamlessly. Finally, production tracking improves efficiency across the shop floor. It's no wonder these areas remain so critical, even among budgetary constraints. Still, navigating these priorities will be challenging.

Top Priorities for IT Leaders in 2025

1. System integration
2. Data analytics
3. Production tracking

“It’s a tricky balancing act – remaining frugal without losing out on market opportunities. But it’s certainly not impossible, especially with the right help. Start by assessing your current systems.

Go deep and interrogate functionalities you may have previously ignored. Maximize your enterprise resource planning software (ERP) investment by ensuring you take advantage of all tools in the system. More likely than not, there’s more power under the hood than you think.”

– DAVID VITAK, SENIOR SOLUTION ARCHITECT

However, digital transformation isn’t just about choosing the right technologies. It’s also about ensuring they integrate seamlessly into the business. Employees must be trained and aligned with new processes, or even the most sophisticated tools will languish in your tech stack.

Security also remains a growing concern, as modernizing IT infrastructure expands the attack surface. In 2025, the most successful manufacturers will be those who balance these priorities while maintaining agility in an evolving economic landscape.

Chapter 2

Overcoming Integration and Complexity Challenges

Integration remains a significant roadblock to digital transformation for many manufacturers. Legacy systems, siloed data and disparate ERP platforms create substantial technical complexity. Without a cohesive strategy, IT leaders risk implementing new technologies that cannot effectively communicate with existing (and deeply embedded) infrastructure.

In 2025, successful manufacturing organizations will get these two realms – legacy systems and new innovations – to "click," unlocking a new world of efficiencies. Here's how.

Middleware
Middleware acts as a bridge between legacy systems and more modern applications. Application programming interfaces (APIs) also play a crucial role, enabling smoother interoperability between platforms. But, it should be noted that these solutions require careful planning and execution. A phased approach to integration – starting with small-scale applications and expanding from there – can minimize disruptions and reduce risks.

Improved data governance
Layering additional software or solutions on top of existing issues isn't always the right approach to system complexity. In fact, data governance initiatives are perhaps the best way to combat integration and system complexity simultaneously. Standardizing data formats and establishing governance frameworks ensure that data flows seamlessly across platforms, enabling better decision-making and process optimization.

Low-code/no-code solutions

Low-code and no-code platforms are less complex to implement than middleware but can be equally rewarding. These solutions allow IT teams to develop integrations and automation workflows without extensive coding expertise. They empower organizations to adapt more quickly while reducing the burden on overstretched IT departments.

External expertise

External consultants can also help organizations navigate integration challenges, either as a standalone approach or in conjunction with other solutions mentioned above. Many IT leaders recognize the value of bringing in specialists, particularly when internal teams are understaffed or lack experience in unique workflows. In fact, our research shows that 55% of IT leaders are open to engaging a consulting firm when their IT department is stretched too thin.

What would make you consider engaging a consulting firm now?

55%	Our IT department is stretched thin managing daily operations
45%	We're scaling rapidly and our systems aren't keeping up
42%	New industry regulations require expertise we don't have
37%	We lack specialized skills in-house for a major digital transformation
36%	Our current processes are inefficient and need optimization
34%	Customers are demanding better digital experienceson
1%	Other

Survey respondents choose up to 3 answers.

Chapter 3

The Rise of AI in Manufacturing IT

AI has quickly become a cornerstone of manufacturing digitization projects. **Our data suggests that 82% of IT leaders are prioritizing AI for digital transformation this year, and for good reason.** Deployed correctly, AI enables companies to optimize production, enhance decision-making and improve overall efficiency.

Research suggests that generative AI alone could generate $10.5 billion in additional revenue for the manufacturing industry by 2033. Predictive maintenance, real-time production monitoring and AI-powered analytics, in particular, are proving to be game-changers.

Root-cause analysis can boost manufacturers' ability to reduce product defects. Meanwhile, demand forecasting can improve an organization's response to rapid supply chain fluctuations by adapting based on both internal data (e.g., inventory levels) and external data (e.g., weather patterns and competitor trends). These are just a few examples of promising AI use cases. But you'll notice one common denominator between them, which many other AI applications share: the enablement of flexibility. In 2025, this will be a key determinant of success.

IT leaders should assess their enterprise's AI readiness as soon as possible to get started. Answer tough questions like:

Do my current systems have a strong data foundation, with clean, well-governed and integrated datasets?

If not, you'll need to reassess your data governance initiatives and prioritize data cleansing before adopting AI.

Do I have access to the right tools, support and infrastructure to deploy and revise AI-powered systems?

Identify gaps in solutions before implementation to expedite the AI adoption process.

Do I have the right mix of talent, including both technical expertise and leadership buy-in?

Assess your level of AI expertise early so you can fill in gaps expeditiously.

Does my organization exhibit a culture of change? Will AI adoption be met with enthusiasm or resistance?

The answer to this question will greatly impact your change management efforts.

What are my AI business objectives, and do they align with broader operational goals?

It is critical to create key performance indicators (KPIs) that involve AI yet align closely with business goals. Otherwise, your AI programs may be destined to fail.

“The first thing that you talk about with AI should not be the technology. It should be, ‘What is the business case for this? What is the use case?’

Luckily, most companies will already have the answers because they intuitively know where their inefficiencies lie. Tap into those innate understandings before implementing AI, and you’ll be much better off.”

– MIKE SIMMS, VICE PRESIDENT,
DATA AND AI. REMOVE STATEGY AND CHANGE

Organizations that approach AI with a clear strategy can achieve tangible benefits, such as reduced downtime, optimized supply chain operations and improved product quality. However, AI is not a plug-and-play solution.

It requires ongoing refinement and adaptation to deliver long-term value and should therefore be approached optimistically but cautiously.

Chapter 4

Scaling IT Operations with External Expertise

Manufacturers are increasingly **turning to external consultants** to fill expertise gaps and manage growing IT workloads.

As technology stacks become more complex, many organizations recognize that in-house teams may not always have the capacity or specialized knowledge needed to execute large-scale transformation projects.

Furthermore, sustained labor shortages continue to present challenges. Selecting the right external partner is critical. Factors to consider include industry and domain-specific knowledge – or example, if you're looking to increase investment in AI this year, you'll want to prioritize a consultant with plenty of experience deploying AI projects.

55%

Our research shows that 55% of IT leaders still cite stretched IT departments as a major barrier to success.

77%

Our data confirms that experience with similar assignments remains the top priority for 77% of IT leaders when selecting a partner.

IT leaders should also evaluate whether their organization is truly ready to engage with external experts. Signs that it's time to bring in a consultant include:

Persistent IT team burnout with unresolved tickets piling up.

If your team finds themselves drowning in new feature requests or error resolution tickets, digital transformation is likely the last thing on your mind. In this circumstance, inviting a third-party consultant to the table enables you to meet novel challenges in an innovative way.

A growing backlog of system improvements or integration project.

Integration is the top priority for most manufacturing IT leaders this year. But making progress on technical debt is difficult to impossible without ample available labor.

Pressure from executives to implement new technology without a clear roadmap.

According to Deloitte research, only 16% of board members feel satisfied with their organization's pace of AI adoption. Dissatisfaction from the top may result in pressure for AI initiatives before your organization is completely prepared – in these cases, external help can alleviate pressures and ensure a smooth transition into AI.

While external consultants are invaluable, organizations must ensure that they remain actively involved in transformation initiatives. IT teams should work closely with consultants to build internal capabilities and maintain control over long-term strategy.

Chapter 5

Building a Future-Ready IT Strategy

Manufacturing IT leaders have an incredible opportunity to take a step back in early 2025 and focus on preparing for digital transformation and change management. These programs are vital to innovation and competition this year, and to succeed, they require continuous learning and adaptation.

One key focus area should be workforce development. Even the most advanced technologies will fail to deliver value if employees lack the skills to use them effectively. Organizations should invest in training programs that equip teams with the knowledge needed to maximize digital tools. This is especially important for AI deployments, as many individual contributors may have little to no experience with these tools. Proactive upskilling is essential for maintaining an efficient and engaged workforce as technologies continue to evolve.

Change management also plays a crucial role. IT leaders must ensure that digital transformation initiatives focus on both technical skillsets and cultural shifts. Speak with your team members regularly, and understand their opinions on emerging technologies. Use the information you learn to create a culture of transparency between both your team and executive leadership.

Finally, organizations should regularly reassess their digital strategies to ensure they remain aligned with evolving business needs. This includes reviewing technology investments, evaluating external partnerships and continuously optimizing processes. Remember – what is innovative and cutting edge today may become par for the course tomorrow.

The future belongs to those who can balance innovation with operational realities, creating resilient, forward thinking enterprises.

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About Columbus

Columbus is a global consulting company creating lasting value for enterprise customers through digital transformation. We are highly specialized in the manufacturing, life science, retail & distribution, and food & process industries. We advise, implement, and manage business critical solutions with high security levels, delivering cloud ERP, digital commerce, and CRM to optimize entire value chains and business processes and of equal importance, to create excellent customer experiences and increased revenues. Through strategic digital advisory, innovative use of AI, ML and data driven insights, we create new, sustainable business opportunities for our customers. With more than 1600 digital industry experts Columbus deliverslocally on a global scale.

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